# An Inquiry into the Human Mind: on the Principles of Common Sense (1764)

Thomas Reid

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## Contents

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## DEDICATION

TO THE RIGHT HONOURABLE
JAMES Earl of FINDLATER
and SEAFIELD,
CHANCELLOR of the University of
OLD ABERDEEN.

My LORD,

THOUGH I apprehend that there are things new, and of some importance, in the following inquiry, it is not without timidity that I have consented to the publication of it. The subject has been canvassed by men of very great penetration and genius: for who does not acknowledge Des Cartes, Malebranche, Locke, Berkeley, and Hume to be such? A view of the human understanding, so different from that which they have exhibited, will, no doubt, be condemned by many without examination, as proceeding from temerity and vanity.

But I hope the candid and discerning Few, who are capable of attending to the operations of their own minds, will weigh deliberately what is here advanced, before they pass sentence upon it. To such I appeal, as the only competent judges. If they disapprove, I am probably in the wrong, and shall be ready to change my opinion upon conviction. If they approve, the Many will at last yield to their authority, as they always do.

However contrary my notions are to those of the writers I have mentioned, their speculations have been of great use to me, and seem even to point out the road which I have taken; and your Lordship knows, that the merit of useful discoveries is sometimes not more justly due to those that have hit upon them, than to others who have ripened them, and brought them to the birth.

I acknowledge, my Lord, that I never thought of calling in question the principles commonly received with regard to the human understanding, until the *Treatise of human nature* was published, in the year 1739. The ingenious author of that treatise, upon the principles of Locke, who was no sceptic, hath built a system of scepticism, which leaves no ground to believe any one thing rather than its contrary. His reasoning appeared to me to be just: there was therefore a necessity to call in question the principles upon which it was founded, or to admit the conclusion.

But can any ingenuous mind admit this sceptical system without reluctance? I truly could not, my Lord: for I am persuaded, that absolute scepticism is not more destructive of the faith of a Christian, than of the science of a philosopher, and of the prudence of a man of common understanding. I am persuaded, that the unjust *live by faith* as well as the *just*; that, if all belief could be laid aside, piety, patriotism, friendship, parental affection, and private virtue, would appear as ridiculous as knight-errantry; and that the pursuits of pleasure, of ambition, and of avarice, must be grounded upon belief, as well as those that are honourable and virtuous.

The day-labourer toils at his work, in the belief that he shall receive his wages at night; and if he had not this belief, he would not toil. We may venture to say, that even the author of this sceptical system, wrote it in the belief that it should.be read and regarded. I hope he wrote it in the belief also,

that it would be useful to mankind: and perhaps it may prove so at last. For I conceive the skeptical writers to be a set of men, whose business it is, to pick holes in the fabric of knowledge wherever it is weak and faulty; and when these places are properly repaired, the whole building becomes more firm and solid than it was formerly.

For my own satisfaction, I entered into a serious examination of the principles upon which this skeptical system is built; and was not a little surprised to find, that it leans with its whole weight upon a hypothesis, which is ancient indeed, and hath been very generally received by philosophers, but of which I could find no solid proof. The hypothesis I mean is, That nothing is perceived but what is in the mind which perceives it: That we do not really perceive things that are external, but only certain images and pictures of them imprinted upon the mind, which are called *impressions* and *ideas*.

If this be true; supposing certain impressions and ideas to exist in my mind, I cannot, from their existence, infer the existence of any thing else; my impressions and ideas are the only existences of which I can have any knowledge or conception; and they are such fleeting and transitory beings, that they can have no existence at all, any longer than I am conscious of them. So that, upon this hypothesis, the whole universe about me, bodies and spirits, sun, moon, stars, and earth, friends and relations, all things without exception, which I imagined to have a permanent existence, whether I thought of them or not, vanish at once;

> *And, like the baseless fabric of a vision,*
> *Leave not a track behind.*

I thought it unreasonable, my Lord, upon the authority of philosophers, to admit a hypothesis, which, in my opinion, overturns all philosophy, all religion and virtue, and all common sense: and finding that all the systems concerning the human understanding which I was acquainted with, were built upon this hypothesis, I resolved to inquire into this subject anew, without regard to any hypothesis.

What I now humbly present to your Lordship, is the fruit of this inquiry, so far only as it regards the five senses; in which I claim no other merit, than that of having given great attention to the operations of my own mind, and of having. expressed, with all the perspicuity I was able, what I conceive every man, who gives the same attention, will feel and perceive. The productions of imagination, require a genius which soars above the common rank; but the treasures of knowledge are commonly buried deep, and. may be reached by those drudges who can dig with labour and patience, though they have not wings to fly. The experiments that were to be made in this investigation suited me, as they required no other expence, but that of time and attention, which·I could bestow. The leisure of an academical life, disengaged from the pursuits of interest and ambition; the duty of my profession, which obliged me to give prelections on these subjects to the youth; and an early inclination to speculations of this kind, have enabled me, as I flatter myself, to give a more minute attention to the subject of this inquiry, than has been given before.

My thoughts upon this subject were, a good many years ago, put together in another form, for the use of my pupils; and afterwards were submitted to the judgment of a private philosophical society, of which I have the honour to be a member. A great part of this inquiry was honoured even by your Lordship's perusal. And the encouragement which you, my Lord, and others, whose friendship is my boast, and whose judgment I reverence, were pleased to give me, counterbalanced my timidity and diffidence, and determined me to offer it to the public.

If it appears to your Lordship to justify the common sense and reason of mankind, against the sceptical subtilties which, in this age, have endeavoured to put them out of countenance; if it appears to throw any new light upon one of the noblest parts of the divine workmanship; your Lordship's respect for the arts and sciences, and your attention to every thing which tends to the improvement of them, as well as to every thing else that contributes to the felicity of your country, leave me no room to doubt of your favourable acceptance of this essay, as the fruit of my industry in a profession wherein I was accountable to your Lordship; and as a testimony of the great esteem and respect wherewith I have the honour to be,

My LORD,
Your LORDSHIP'S
most obliged, and
most devoted servant,
THO. REID

# Chapter 1. INTRODUCTION

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## SECTION VII THE SYSTEM OF ALL THESE AUTHORS IS THE SAME, AND LEADS TO SKEPTICISM

But what if these profound disquisitions into the first principles of human nature, do naturally and necessarily plunge a man into this abyss of skepticism? May we not reasonably judge so from what hath happened? Des Cartes no sooner began to dig in this mine, than skepticism was ready to break in upon him. He did what he could to shut it out. Malebranche and Locke, who dug deeper, found the difficulty of keeping out this enemy still to increase; but they laboured honestly in the design. Then Berkeley, who carried on the work, despairing of securing all, bethought himself of an expedient: by giving up the material world, which he thought might be spared without loss, and even with advantage, he hoped, by an impregnable partition, to secure the world of spirits. But, alas! the Treatise of Human Nature wantonly sapped the foundation of this partition, and drowned all in one universal deluge.

These facts, which are undeniable, do indeed give reason to apprehend, that Des Cartes's system of the human understanding, which I shall beg leave to call the ideal system, and which, with some improvements made by later writers, is now Generally received, hath some original defect; that this skepticism is inlaid in it, and reared along with it; and, therefore, that we must lay it open to the foundation, and examine the materials, before we can expect to raise any solid and useful fabric of knowledge on this subject.

## SECTION VIII WE OUGHT NOT TO DESPAIR OF A BETTER

But is this to be despaired of, because Des Cartes and his followers have failed? By no means. This pusillanimity would be injurious to ourselves, and injurious to truth. Useful discoveries are sometimes indeed the effect of superior genius, but more frequently they are the birth of time and of accidents. A traveller of good judgment may mistake his way, and be unawares led into a wrong track; and while the road is fair before him, he may go on without suspicion and be followed by others; but when it ends in a coal-pit, it requires no great judgment to know that he hath gone wrong, nor perhaps to find out what had misled him.

In the mean time, the unprosperous state of this part of philosophy hath produced an effect, somewhat discouraging indeed to any attempt of this nature, but an effect which might be expected, and which time only and better success can remedy. Sensible men, who never will be skeptics in matters of common life, are apt to treat with sovereign contempt every thing that hath been said, or is to be said, upon this subject. It is metaphysics say they: who minds it? Let scholastic sophisters entangle themselves in their own cobwebs: I am resolved to take my own existence, and the existence of other things, upon trust; and to believe that snow is cold, and honey sweet, whatever they may say to the contrary. He must either be a fool, or want to make a fool of me, that would reason me out of my reason and senses.

I confess I know not what a skeptic can answer to this, nor by what good argument he can plead even for a hearing; for either his reasoning is sophistry, and so deserves contempt; or there is no truth in the human faculties, and then why should we reason?

If therefore a man find himself entangled in these metaphysical toils, and can find no other way to escape, let him bravely cut the knot which he cannot loose, curse metaphysics and dissuade every man from meddling with it. For if I have been led into bogs and quagmires by following an ignis fatuus, what can I do better, than to warn others to beware of it? If philosophy contradicts herself, befools her votaries, and deprives them of every object worthy to be pursued or enjoyed, let her be sent back to the infernal regions from which she must have had her original.

But is it absolutely certain that this fair lady is of the party? Is it not possible she may have been misrepresented? Have not men of genius in former ages often made their own dreams to pass for her oracles? Ought she then to be condemned without any further hearing? This would be unreasonable. I have found her in all other matters an agreeable companion, a faithful counsellor, a friend to common sense, and to the happiness of mankind. This justly entitles her to my correspondence and confidence, till I find infallible proofs of her infidelity.

# Chapter 4. OF HEARING

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## SECTION II OF NATURAL LANGUAGE

One of the noblest purposes of sound undoubtedly is language; without which mankind would hardly be able to attain any degree of improvement above the brutes. Language is commonly considered as purely an invention of men, who by nature are no less mute than the brutes, but having a superior degree of invention and reason, have been able to contrive artificial signs of their thoughts and purposes, and to establish them by common consent. But the origin of language deserves to be more carefully inquired into, not only as this inquiry may be of importance for the improvement of language, but as it is related to the present subject, and tends to lay open some of the first principles of human nature. I shall therefore offer some thoughts upon this subject.

By language, I understand all those signs which mankind use in order to communicate to others their thoughts and intentions, their purposes and desires. And such signs may be conceived to be of two kinds: first, such as have no meaning, but what is affixed to them by compact or agreement among those who use them; these are artificial signs: secondly, such as, previous to all compact or agreement, have a meaning which every man understands by the principles of his nature. Language, so far as it consists of artificial signs, may be called artificial; so far as it consists of natural signs, I call it natural.

Having premised these definitions, I think it is demonstrable, that if mankind had not a natural language, they could never have invented an artificial one by their reason and ingenuity. For all artificial language supposes some compact or agreement to affix a certain meaning to certain signs; therefore there must be compacts or agreements before the use of artificial signs; but there can be no compact or agreement without signs, nor without language; and therefore there must be a natural language before any artificial language can be invented: which was to be demonstrated.

Had language in general been a human invention, as much as writing or printing, we should find whole nations as mute as the brutes. Indeed the brutes have some natural signs by which they express their own thoughts, affections and desires, and understand those of others. A chick, as soon as hatched, understands the different sounds whereby its dam calls it to food, or gives the alarm of danger. A dog or a horse understands, by nature, when the human voice caresses, and when it threatens him. But brutes, as far as we know, have no notion of contracts or covenants, or of moral obligation to perform them. If nature had given them these notions, she would probably have given

them natural signs to express them. And where nature has denied these notions, it is as impossible to acquire them by art, as it is for a blind man to acquire the notion of colours. Some brutes are sensible of honour or disgrace; they have resentment and gratitude; but none of them, as far as we know, can make a promise, or plight their faith, having no such notions from their constitution. And if mankind had not these notions by nature, and natural signs to express them by, with all their wit and ingenuity they could never have invented language.

The elements of this natural language of mankind, or the signs that are naturally expressive of our thoughts, may, I think, be reduced to these three kinds: modulations of the voice, gestures, and features. By means of these, two savages who have no common artificial language, can converse together, can communicate their thoughts in some tolerable manner; can ask and refuse, affirm and deny, threaten and supplicate; can traffic, enter into covenants, and plight their faith. This might be confirmed by historical facts of undoubted credit if it were necessary.

Mankind having thus a common language by nature, though a scanty one, adapted only to the necessities of nature, there is no great ingenuity required in improving it by the addition of artificial signs, to supply the deficiency of the natural. These artificial signs must multiply with the arts ' of life, and the improvements of knowledge. The articulations of the voice, seem to be, of all signs, the most proper for artificial language; and as mankind have universally used them for that purpose, we may reasonably judge that nature intended them for it. But nature probably does not intend that we should lay aside the use of the natural signs; it is enough that we supply their defects by artificial ones. A man that rides always in a chariot, by degrees loses the use of his legs; and one who uses artificial signs only, loses both the knowledge and use of the natural. Dumb people retain much more of the natural language than others, because necessity obliges them to use it. And for the same reason, savages have much more of it than civilized nations. It is by natural signs chiefly that we give force and energy to language; and the less language has of them, it is the less expressive and persuasive. Thus, writing is less expressive than reading, and reading less expressive than speaking without book: speaking without the proper and natural modulations, force, and variations of the voice, is a frigid and dead language, compared with that which is attended with them: it is still more expressive when we add the language of the eyes and features; and is then only in its perfect and natural state, and attended with its proper energy, when to all these we superadd the force of action.

Where speech is natural, it will be an exercise, not of the voice and lungs only, but of all the muscles of the body; like that of dumb people and savages, whose language, as it has more of nature, is more expressive, and is more easily learned.

Is it not pity that the refinements of a civilized life, instead of supplying the defects of natural language, should root it out, and plant in its stead dull and lifeless articulations of unmeaning sounds, or the scrawling of insignificant characters? The perfection of language is commonly thought to be, to express human thoughts and sentiments distinctly by these dull signs; but if this is the perfection of artificial language, it is surely the corruption of the natural.

Artificial signs signify, but they do not express; they speak to the understanding, as algebraical characters may do, but the passion, the affections, and the will, hear them not: these continue dormant and inactive, till we speak to them in the language of nature, to which they are all attention and obedience.

It were easy to shew that the fine arts of the musician, the painter, the actor, and the orator, are natural so far as they are expressive; although the knowledge of them requires in us a delicate taste, a nice judgment, and much study and practice; yet they are nothing else but the language of nature, which we brought into the world with us, but have unlearned by disuse, and so find the greatest difficulty in recovering it.

Abolish the use of articulate sounds and writing among mankind for a century, and every man would be a painter, an actor, and an orator. We mean not to affirm that such an expedient is practicable; or, if it were, that the advantage would counterbalance the loss; but that, as men are led by nature and necessity to converse together, they will use every mean in their power to make themselves

understood; and where they cannot do this by artificial signs, they will do it, as far as possible, by natural ones: and he that understands perfectly the use of natural signs, must be the best judge in all the expressive arts.

# Chapter 5. OF TOUCH

## SECTION I OF HEAT AND COLD

The senses which we have hitherto considered, are very simple and uniform, each of them exhibiting only one kind of sensation, and thereby indicating only one quality of bodies. By the ear we perceive sounds, and nothing else; by the palate, tastes; and by the nose, odours. These qualities are all likewise of one order, being all secondary qualities: whereas by touch we perceive not one quality only, but many, and those of very different kinds. The chief of them are heat and cold, hardness and softness, roughness and smoothness, figure, solidity, motion, and extension. We shall consider these in order.

As to heat and cold, it will easily be allowed that they are secondary qualities, of the same order with smell, taste, and sound. And, therefore, what hath been already said of smell, is easily applicable to them; that is, that the words heat and cold have each of them two significations; they sometimes signify certain sensations of the mind, which can have no existence when they are not felt, nor can exist any where but in a mind or sentient being; but more frequently they signify a quality in bodies, which, by the laws of nature, occasions the sensations of heat and cold in us: a quality which, though connected by custom so closely with the sensation, that we cannot without difficulty separate them; yet hath not the least resemblance to it, and may continue to exist when there is no sensation at all.

The sensations of heat and cold are perfectly known; for they neither are, nor can be, any thing else than what we feel them to be; but the qualities in bodies which we call heat and cold, are unknown. They are only conceived by us, as unknown causes or occasions of the sensations to which we give the same names. But though common sense says nothing of the nature of these qualities, it plainly dictates the existence of them; and to deny that there can be heat and cold when they are not felt, is an absurdity too gross to merit confutation. For what could be more absurd, than to say, that the thermometer cannot rise or fall, unless some person be present, or that the coast of Guinea would be as cold as Nova Zembla, if it had no inhabitants.

It is the business of philosophers to investigate, by proper experiments and induction, what heat and cold are in bodies. And whether they make heat a particular element diffused through nature, and accumulated in the heated body, or whether they make it a certain vibration of the parts of the heated body; whether they determine that heat and cold are contrary qualities, as the sensations undoubtedly are contrary, or that heat only is a quality, and cold its privation: these questions are within the province of philosophy; for common sense says nothing on the one side or the other.

But whatever be the nature of that quality in bodies which we call heat, we certainly know this, that it cannot in the least resemble the sensation of heat. It is no less absurd to suppose a likeness between the sensation and the quality, than it would be to suppose, that the pain of the gout resembles a square or a triangle. The simplest man that hath common sense, does not imagine the sensation of heat, or any thing that resembles that sensation, to be in the fire. He only imagines, that there is something in the fire, which makes him and other sentient beings feel heat. Yet as the name of heat, in common language, more frequently and more properly signifies this unknown something in the fire, than the sensation occasioned by it, he justly laughs at the philosopher who denies that there is any heat in the fire, and thinks that he speaks contrary to common sense.

## SECTION II OF HARDNESS AND SOFTNESS

Let us next consider hardness and softness; by which words we always understand real properties or qualities of bodies of which we have a distinct conception.

When the parts of a body adhere so firmly that it cannot easily be made to change its figure, we call it hard; when its parts are easily displaced, we call it soft. This is the notion which all mankind have of hardness and softness: they are neither sensations, nor like any sensation; they were real qualities before they were perceived by touch, and continue to be so when they are not perceived: for if any man will affirm, that diamonds were not hard till they were handled, who would reason with him?

There is no doubt a sensation by which we perceive a body to be hard or soft. This sensation of hardness may easily be had, by pressing one's hand against the table, and attending to the feeling that ensues, setting aside, as much as possible, all thought of the table and its qualities, or of any external thing. But it is one thing to have the sensation, and another to attend to it, and make it a distinct object of reflection. The first is very easy; the last, in most cases, extremely difficult.

We are so accustomed to use the sensation as a sign, and to pass immediately to the hardness signified, that, as far as appears, it was never made an object of thought, either by the vulgar or by philosophers; nor has it a name in any language. There is no sensation more distinct, or more frequent; yet it is never attended to, but passes through the mind instantaneously, and serves only to introduce that quality in bodies, which, by a law of our constitution, it suggests.

There are indeed some cases wherein it is no difficult matter to attend to the sensation occasioned by the hardness of a body; for instance, when it is so violent as to occasion considerable pain: then nature calls upon us to attend to it, and then we acknowledge that it is a mere sensation, and can only be in a sentient being. If a man runs his head with violence against a pillar, I appeal to him, whether the pain he feels resembles the hardness of the stone; or if he can conceive any thing like what he feels to be in an inanimate piece of matter.

The attention of the mind is here entirely turned toward the painful feeling; and, to speak in the common language of mankind, he feels nothing in the stone, but feels a violent pain in his head. It is quite otherwise when he ledns his head gently against the pillar; for then he will tell you that he feels nothing in his head, but feels hardness in the stone. Hath he not a sensation in this case as well as in the other? Undoubtedly he hath; but it is a sensation which nature intended only as a sign of something in the stone; and, accordingly, he instantly fixes his attention upon the thing signified; and cannot, without great difficulty, attend so much to the sensation, as to be persuaded that there is any such thing distinct from the hardness it signifies.

But however difficult it may be to attend to this fugitive sensation, to stop its rapid progress, and to disjoin it from the external quality of hardness, in whose shadow it is apt immediately to hide itself; this is what a philosopher by pains and practice must attain, otherwise it will be impossible for him to reason justly upon this subject, or even to understand what is here advanced. For the last appeal, in subjects of this nature, must be to what a man feels and perceives in his own mind.

It is indeed strange, that a sensation which we have every time we feel a body hard, and which consequently, we can command as often, and continue as long as we please, a sensation as distinct and determinate as any other, should yet be so much unknown, as never to have been made an object of thought and reflection, not to have been honoured with a name in any language; that philosophers, as well as the vulgar, should have entirely overlooked it, or confounded it with that quality of bodies which we call hardness, to which it hath not the least similitude. May we not hence conclude, that the knowledge of the human faculties is but in its infancy? That we have not yet learned to attend to those operations of the mind, of which we are conscious every hour of our lives? that there are habits of inattention acquired very early, which are as hard to be overcome as other habits? For I think it is probable, that the novelty of this sensation will procure some attention to it in children at first; but being in nowise interesting in itself, as soon as it becomes familiar, it is

overlooked, and the attention turned solely to that which it signifies. Thus, when one is learning a language, he attends to the sounds; but when he is master of it, he attends only to the sense of what he would express. If this is the case, we must become as little children again, if we will be philosophers: we must overcome this habit of inattention which has been gathering strength ever since we began to think; a habit, the usefulness of which, in common life, atones for the difficulty it creates to the philosopher, in discovering the first principles of the human mind.

The firm cohesion of the parts of a body, is no more like that sensation by which I perceive it to be hard, than the vibration of a sonorous body is like the sound I hear: nor can I possibly perceive, by my reason, any connection between the one and the other. No man can give a reason, why the vibration of a body might not have given the sensation of smelling, and the effluvia of bodies affected our hearing, if it had so pleased our Maker. In like manner, no man can give a reason, why the sensations of smell, or taste, or sound, might not have indicated hardness, as well as that sensation, which, by our constitution, does indicate it. Indeed no man can conceive any sensation to resemble any known quality of bodies. Nor can any man shew, by any good argument, that all our sensations might not have been as they are, though no body, nor quality of body, had ever existed.

Here, then, is a phenomenon of human nature, which comes to be resolved. Hardness of bodies is a thing that we conceive as distinctly, and believe as firmly, as any thing in nature. We have no way of coming at this conception and belief, but by means of a certain sensation of touch, to which hardness hath not the least similitude; nor can we, by any rules of reasoning, infer the one from the other. The question is, how we come by this conception and belief?

First, as to the conception: shall we call it an idea of sensation, or of reflection? The last will not be affirmed; and as little can the first, unless we will call that an idea of sensation, which hath no resemblance to any sensation. So that the origin of this idea of hardness, one of the most common and most distinct we have, is not to be found in all our systems of the mind: not even in those which have so copiously endeavoured to deduce all our notions from sensations and reflection.

But, secondly, supposing we have got the conception of hardness, how come we by the belief of it? Is it self-evident, from comparing the ideas, that such a sensation could not be felt, unless such a quality of bodies existed? No. Can it be proved by probable or certain arguments? No, it cannot. Have we got this belief, then, by tradition, by education, or by experience? No, it is not got in any of these ways. Shall we then throw off this belief, as having no foundation in reason? Alas! it is not in our power; it triumphs over reason, and laughs at all the arguments of a philosopher. Even the author of the Treatise of Human Nature, though he saw no reason for this belief, but many against it, could hardly conquer it in his speculative and solitary moments; at other times he fairly yielded to it, and confesses that he found himself under a necessity to do so.

What shall we say then of this conception, and this belief, which are so unaccountable and untractable? I see nothing left but to conclude, that by an original principle of our constitution, a certain sensation of touch both suggests to the mind the conception of hardness, and creates the belief of it: or, in other words, that this sensation is a natural sign of hardness. And this I shall endeavour more fully to explain.

## SECTION III OF NATURAL SIGNS

As in artificial signs there is often neither similitude between the sign and the thing signified, nor any connection that arises necessarily from the nature of the things; so it is also in natural signs. The word gold has no similitude to the substance signified by it; nor is it in its own nature more fit to signify this than any other substance: yet, by habit and custom it suggests this and no other. In like manner, a sensation of touch suggests hardness, although it hath neither similitude to hardness, nor, as far as we can perceive, any necessary connection with it. The difference betwixt these two signs lies only in this, that, in the first, the suggestion is the effect of habit and custom; in the second, it is not the eff ect of habit, but of the original constitution of our minds.

It appears evident from what hath been said on the subject of language, that there are natural signs, as well as artificial; and particularly, that the thoughts, purposes, and dispositions of the mind have their natural signs in the features of the face, the modulation of the voice, and the motion and attitude of the body: that without a natural knowledge of the connection between these signs, and the things signified by them, language could never have been invented and established among men: and, that the fine arts are all founded upon this connection, which we may call the natural language of mankind. It is now proper to observe, that there are different orders of natural signs, and to point out the different classes into which they may be distinguished, that we may more distinctly conceive the relation between our sensations and the things they suggest, and what we mean by calling sensations signs of external things.

The first class of natural signs comprehends those whose connection with the thing signified is established by nature, but discovered only by experience. The whole of genuine philosophy consists in discovering such connections, and reducing them to general rules. The great lord Verulam had a perfect comprehension of this, when he called it an interpretation of nature. No man ever more distinctly understood, or happily expressed, the nature and foundation of the philosophic art. What is all we know of mechanics, astronomy, and optics, but connections established by nature, and discovered by experience or observation, and consequences deduced from them? All the knowledge we have in agriculture, gardening, chymistry, and medicine, is built upon the same foundation. And if ever our philosophy concerning the human mind is carried so far as to deserve the name of science, which ought never to be despaired of, it must be by observing facts, reducing them to general rules, and drawing just conclusions from them. What we commonly call natural causes, might, with more propriety, be called natural signs, and what we call effects, the things signified. The causes have no proper efficiency or causality, as far as we know; and all we can certainly affirm, is, that nature hath established a constant conjunction between them and the things called their effects; and hath given to mankind a disposition to observe those connections, to confide in their continuance, and to make use of them for the improvement of our knowledge, and increase of our power.

A second class is that wherein the connection between the sign and the thing signified is not only established by nature, but discovered to us by a natural principle, without reasoning or experience. Of this kind are the natural signs of human thoughts, purposes, and desires, which have been already mentioned as the natural language of mankind. An infant may be put into a fright by an angry countenance, and soothed again by smiles and blandishments. A child that has a good musical ear may be put to sleep or to dance, may be made merry or sorrowful, by the modulations of musical sounds. The principles of all the fine arts, and of what we call a fine taste, may be resolved into connections of this kind. A fine taste may be improved by reasoning and experience; but if the first principles of it were not planted in our minds by nature, it could never be acquired. Nay, we have already made it appear, that a great part of this knowledge which we have by nature, is lost by the disuse of natural signs, and the substitution of artificial in their place.

A third class of natural signs comprehends those which, though we never before had any notion or conception of the things signified, do suggest it, or conjure it up, as it were, by a natural kind of magic, and at once give us a conception, and create a belief of it. I shewed formerly, that our sensations suggest to us a sentient being or mind to which they belong: a being which hath a permanent existence, although the sensations are transient and of short duration: a being which is still the same, while its sensations and other operations are varied ten thousand ways: a being which hath the same relation to all that infinite variety of thoughts, purposes, actions, affections, enjoyments, and sufferings, which we are conscious of, or can remember. The conception of a mind is neither an idea of sensation nor of reflection; for it is neither like any of our sensations, nor like any thing we are conscious of. The first conception of it, as well as the belief of it, and of the common relation it bears to all that we are conscious of, or remember, is suggested to every thinking being, we do not know how.

The notion of hardness in bodies, as well as the belief of it, are got in a similar manner; being by an original principle of our nature, annexed to that sensation which we have when we feel a hard body.

And so naturally and necessarily does the sensation convey the notion and belief of hardness, that hitherto they have been confounded by the most acute inquirers into the principles of human nature, although they appear, upon accurate reflection, not only to be different things, but as unlike as pain is to the point of a sword.

It may be observed, that as the first class of natural signs I have mentioned, is the foundation of true philosophy, and the second, the foundation of the fine arts, or of taste; so the last is the foundation of common sense; a part of human nature which hath never been explained.

I take it for granted, that the notion of hardness, and the belief of it, is first got by means of that particular sensation, which, as far back as we can remember, does invariably suggest it; and that if we had never had such a feeling, we should never have had any notion of hardness. I think it is evident, that we cannot, by reasoning from our sensations, collect the existence of bodies at all, far less any of their qualities. This hath been proved by unanswerable arguments by the bishop of Cloyne, and by the author of the Treatise of Human Nature. It appears as evident, that this connection between our sensations and the conception and belief of external existences, cannot be produced by habit, experience, education, or any principle of human nature that hath been admitted by philosophers. At the same time, it is a fact, that such sensations are invariably connected with the conception and belief of external existences. Hence, by all rules of just reasoning, we must conclude, that this connection is the effect of our constitution, and ought to be considered as an original principle of human nature, till we find some more general principle into which it may be resolved.

## SECTION IV OF HARDNESS, AND OTHER PRIMARY QUALITIES

Further I observe, that hardness is a quality, of which we have as clear and distinct a conception as of any thing whatsoever. The cohesion of the parts of a body with more or less force, is perfectly understood, though its cause is not: we know what it is, as well as how it affects the touch. It is therefore a quality of a quite different order from those secondary qualities we have already taken notice of, whereof we know no more naturally, than that they are adapted to raise certain sensations in us. If hardness were a quality of the same kind, it would be a proper inquiry for philosophers, what hardness in bodies is? and we should have had various hypotheses about it, as well as about colour and heat. But it is evident that any such hypothesis would be ridiculous. If any man should say, that hardness in bodies is a certain vibration of their parts, or that it is certain effluvia emitted by them which affect our touch in the manner we feel: such hypothesis would shock common sense; because we all know, that if the parts of a body adhere strongly, it is hard, although it should neither emit effluvia, nor vibrate. Yet at the same time, no man can say, but that effluvia, or the vibration of the parts of a body, might have affected our touch, in the same manner that hardness now does, if it had so pleased the Author of our nature: and if either of these hypotheses is applied to explain a secondary quality, such as smell, or taste, or sound, or colour, or heat, there appears no manifest absurdity in the supposition.

The distinction betwixt primary and secondary qualities hath had several revolutions. Democritus and Epicurus, and their followers maintained it. Aristotle and the Peripatetics abolished it. Des Cartes, Malebranche, and Locke, revived it, and were thought to have put it in a very clear light. But bishop Berkeley again discarded this distinction, by such proofs as must be convincing to those that hold the received doctrine of ideas. Yet, after all, there appears to be a real foundation for it in the principles of our nature.

What hath been said of hardness, is so easily applicable, not only to its opposite, softness, but likewise to roughness and smoothness, to figure and motion, that we may be excused from making the application, which would only be a repetition of what hath been said. All these, by means of certain corresponding sensations of touch, are presented to the mind as real external qualities; the conception and the belief of them are invariably connected with the corresponding sensations, by an

original principle of human nature. Their sensations have no name in any language; they have not only been overlooked by the vulgar, but by philosophers; or if they have been at all taken notice of, they have been confounded with the external qualities which they suggest.

## SECTION V OF EXTENSION

It is further to be observed, that hardness and softness, roughness and smoothness, figure and motion, do all suppose extension and cannot be conceived without it; yet I think it must, on the other hand, be allowed, that if we had never felt any thing hard or soft, rough or smooth, figured or moved, we should never have had a conception of extension: so that as there is good ground to believe, that the notion of extension could not be prior to that of other primary qualities; so it is certain that it could not be posterior to the notion of any of them, being necessarily implied in them all.

Extension, therefore, seems to be a quality suggested to us, by the very same sensations which suggest the other qualities above mentioned. When I grasp a ball in my hand, I perceive it at once hard, figured and extended. The feeling is very simple, and hath not the least resemblance to any quality of body. Yet it suggests to us three primary qualities perfectly distinct from one another, as well as from the sensation which indicates them. When I move my hand along the table, the feeling is so simple, that I find it difficult to distinguish it into things of different natures; yet it immediately suggests hardness, smoothness, extension, and motion, things of very different natures, and all of them as distinctly understood as the feeling which suggests them.

We are commonly told by philosophers, that we get the idea of extension by feeling along the extremities of a body, as if there was no manner of difficulty in the matter. I have sought, with great pains I confess, to find out how this idea can be got by feeling, but I have sought in vain. Yet it is one of the clearest and most distinct notions we have; nor is there any thing whatsoever, about which the human understanding can carry on so many long and demonstrative trains of reasoning.

The notion of extension is so familiar to us from infancy, and so constantly obtruded by every thing we see and feel, that we are apt to think it obvious how it comes into the mind; but upon a narrower examination we shall find it utterly inexplicable. It is true we have feelings of touch, which every moment present extension to the mind; but how they come to do so, is the question; for those feelings do no more resemble extension, than they resemble justice or courage: nor can the existence of extended things be inferred from those feelings by any rules of reasoning: so that the feelings we have by touch, can neither explain how we get the notion, nor how we come by the belief of extended things.

What hath imposed upon philosophers in this matter, is, that the feelings of touch, which suggest primary qualities, have no names, nor are they ever reflected upon. They pass through the mind instantaneously, and serve only to introduce the notion and belief of external things, which by our constitution are connected with them. They are natural signs, and the mind immediately passes to the thing signified, without making the least reflection upon the sign, or observing that there was any such thing. Hence it hath always been taken for granted, that the ideas of extension, figure, and motion, are ideas of sensation, which enter into the mind by the sense of touch, in the same manner as the sensations of sound and smell do by the ear and nose. The sensations of touch are so connected, by our constitution, with the notions of extension, figure and motion, that philosophers have mistaken the one for the other, and never have been able to discern that they were not only distinct things, but altogether unlike. However, if we will reason distinctly upon this subject, we ought to give names to those feelings of touch; we must accustom ourselves to attend to them, and to reflect upon them, that we may be able to disjoin them from, and to compare them with, the qualities signified or suggested by them.

The habit of doing this is not to be attained without pains and practice; and till a man hath acquired this habit, it will be impossible for him to think distinctly, or to judge right, upon this subject.

Let a man press his hand against the table: he feels it hard. But what is the meaning of this? the meaning undoubtedly is, that he hath a certain feeling of touch, from which he concludes, without any reasoning, or comparing ideas, that there is something external really existing, whose parts stick so firmly together that they cannot be displaced without considerable force.

There is here a feeling and a conclusion drawn from it, or some way suggested by it. In order to compare these, we must view them separately, and then consider by what tie they are connected and wherein they resemble one another. The hardness of the table is the conclusion, the feeling is the medium by which we are led to that conclusion. Let a man attend distinctly to this medium, and to the conclusion, and he will perceive them to be as unlike as any two things in nature. The one is a sensation of the mind, which can have no existence but in a sentient being; nor can it exist one moment longer than it is felt; the other is in the table, and we conclude without any difficulty, that it was in the table before it was felt, and continues after the feeling is over. The one implies no kind of extension, nor parts, nor cohesion; the other implies all these. Both indeed admit of degrees; and the feeling, beyond a certain degree, is a species of pain; but adamantine hardness does not imply the least pain.

And as the feeling hath no similitude to hardness, so neither can our reason perceive the least tie or connection between them; nor will the logician ever be able to show a reason why we should conclude hardness from this feeling, rather than softness, or any other quality whatsoever. But in reality all mankind are led by their constitution to conclude hardness from this feeling.

The sensation of heat, and the sensation we have by pressing a hard body, are equally feelings: nor can we by reasoning draw any conclusion from the one, but what may be drawn from the other: but, by our constitution, we conclude from the first an obscure or occult quality, of which we have only this relative conception, that it is something adapted to raise in us the sensation of heat; from the second, we conclude a quality of which we have a clear and distinct conception, to wit, the hardness of the body.

## SECTION VI OF EXTENSION

To put this matter in another light, it may be proper to try, whether from sensation alone we can collect any notion of extension, figure, motion, and space. I take it for granted, that a blind man hath the same notions of extension, figure, and motion, as a man that sees; that Dr. Saunderson had the same notion of a cone, a cylinder, and a sphere, and of the motions and distances of the heavenly bodies, as Sir Isaac Newton.

As sight therefore is not necessary for our acquiring those notions, we shall leave it out altogether in our inquiry into the first origin of them: and shall suppose a blind man, by some strange distemper, to have lost all the experience and habits and notions he had -,,Ot by touch; nor to have the least conception of the existence, figure, dimensions, or extension, either of his own body, or of any other; but to have all his knowledge of external things to acquire anew, by means of sensation, and the power of reason, which we suppose to remain entire.

We shall, first, suppose his body fixed immoveably in one place, and that he can only have the feelings of touch, by the application of other bodies to it. Suppose him first to be pricked with a pin; this will, no doubt, give a smart sensation: he feels pain; but what can he infer from it? Nothing surely with regard to the existence or figure of a pin. He can infer nothing from this species of pain, which he may not as well infer from the gout or sciatica. Common sense may lead him to think that this pain has a cause; but whether this cause is body or spirit, extended or unextended, figured or not figured, he cannot possibly, from any principles he is supposed to have, form the least conjecture. Having had formerly no notion of body or of extension, the prick of a pin can give him none.

Suppose, next, a body not pointed, but blunt, is applied to his body with a force gradually increased until it bruises him. What has he got by this, but another sensation, or train of sensations, from which he is able to conclude as little as from the former? A schirrous tumour in any inward part of the body, by pressing upon the adjacent parts, may give the same kind of sensation as the pressure of an external body, without conveying any notion but that of pain, which surely hath no resemblance to extension.

Suppose, thirdly, that the body applied to him touches a larger or a lesser part of his body. Can this give him any notion of its extension or dimensions? To me it seems impossible that it should, unless he had some previous notion of the dimensions and figure of his own body, to serve him as a measure. When my two hands touch the extremities of a body; if I know them to be a foot asunder, I easily collect that the body is a foot long; and if I know them to be five feet asunder, that it is five feet long: but if I know not what the distance of my hands is, I cannot know the length of the object they grasp; and if I have no previous notion of hands at all, or of distance between them, I can never get that notion by their being touched.

Suppose again, that a body is drawn along his hands or face, while they are at rest. Can this give him any notion of space or motion? It no doubt gives a new feeling; but how it should convey a notion of space or motion, to one who had none before, I cannot conceive. The blood moves along the arteries and veins, and this motion, when violent, is felt: but I imagine no man, by this feeling, could get the conception of space or motion, if he had it not before. Such a motion may give a certain succession of feelings, as the colic may do; but no feelings, nor any combination of feelings, can ever resemble space or motion.

Let us next suppose, that he makes some instinctive effort to move his head or his hand; but that no motion follows, either on account of external resistance, or of palsy. Can this effort convey the notion of space and motion to one who never had it before? Surely it cannot.

Last of all, let us suppose, that he moves a limb by instinct, without having had any previous notion of space or motion. He has here a new sensation, which accompanies the flexure of joints, and the swelling of muscles. But how this sensation can convey into his mind the idea of space and motion, is still altogether mysterious and unintelligible. The motions of the heart and lungs are all performed by the contraction of muscles, yet give no conception of space or motion. An embryo in the womb has many such motions, and probably the feelings that accompany them, without any idea of space or motion.

Upon the whole, it appears, that our philosophers have imposed upon themselves, and upon us, in pretending to deduce from sensation the first origin of our notions of external existences, of space, motion, and extension, and all the primary qualities of body, that is, the qualities whereof we have the most clear and distinct conception. These qualities do not at all tally with any system of the human faculties that hath been advanced. They have no resemblance to any sensation, or to any operation of our minds; and therefore they cannot be ideas either of sensation or of reflection. The very conception of them is irreconcilable to the principles of all our philosophic systems of the understanding. The belief of them is no less so.

## SECTION VII OF THE EXISTENCE OF A MATERIAL WORLD

It is beyond our power to say, when or in what order we came by our notions of these qualities. When we trace the operations of our minds as far back as memory and reflection can carry us, we find them already in possession of our imagination and belief, and quite familiar to the mind: but how they came first into its acquaintance, or what has given them so strong a hold of our belief, and what regard they deserve, are no doubt very important questions in the philosophy of human nature.

Shall we, with the bishop of Cloyne, serve them with a Quo warranto, and have them tried at the bar of philosophy, upon the statute of the ideal system? Indeed, in this trial they seem to have come off

very pitifully. For although they had very able counsel, learned in the law, viz. Des Cartes, Malebranche, and Locke, who said every thing they could for their clients; the bishop of Cloyne, believing them to be aiders and abetters of heresy and schism, prosecuted them with great vigour, fully answered all that had been pleaded in their defence, and silenced their ablest advocates, who seem for half a century past to decline the argument, and to trust to the favour of the jury rather than to the strength of their pleadings.

Thus, the wisdom of philosophy is set in opposition to the common sense of mankind. The first pretends to demonstrate a priori, that there can be no such thing as a material world; that sun, moon, stars, and earth, vegetable and animal bodies, are, and can be nothing else but sensations in the mind, or images of those sensations in the memory and imagination; that, like pain and joy, they can have no existence when they are not thought of. The last can conceive no otherwise of this opinion, than as a kind of metaphysical lunacy; and concludes, that too much learning is apt to make men mad; and that the man who seriously entertains this belief, though in other respects he may be a very good man, as a man may be who believes that he is made of glass; yet surely he hath a soft place in his understanding, and hath been hurt by much thinking.

This opposition betwixt philosophy and common sense, is apt to have a very unhappy influence upon the philosopher himself. He sees human nature in an odd, unamiable, and mortifying light. He considers himself, and the rest of his species, as born under a necessity of believing ten thousand absurdities and contradictions, and endowed with such a pittance of reason, as is just sufficient to make this unhappy discovery: and this is all the fruit of his profound speculations. Such notions of human nature tend to slacken every nerve of the soul, to put every noble purpose and sentiment out of countenance, and spread a melancholy gloom over the whole face of things.

If this is wisdom, let me be deluded with the vulgar. I find something within me that recoils against it, and inspires more reverent sentiments of the human kind, and of the universal administration. Common sense and reason have both one author; that almighty Author, in all whose other works we observe a consistency, uniformity, and beauty, which charm and delight the understanding: there must therefore be some order and consistency in the human faculties, as well as in other parts of his workmanship. A man that thinks reverently of his own kind, and esteems true wisdom and philosophy, will not be fond, nay, will be very suspicious, of such strange and paradoxical opinions. If they are false, they disgrace philosophy; and if they are true, they degrade the human species, and make us justly ashamed of our frame.

To what purpose is it for philosophy to decide against common sense in this or any other matter? The belief of a material world is older, and of more authority, than any principles of philosophy. It declines the tribunal of reason, and laughs at all the artillery of the logician. It retains its sovereign authority in spite of all the edicts of philosophy, and reason itself must stoop to its orders. Even those philosophers who have disowned the authority of our notions of an external material world, confess that they find themselves under a necessity of submitting to their power.

Methinks, therefore, it were better to make a virtue of necessity; and, since we cannot get rid of the vulgar notion and belief of an external world, to reconcile our reason to it as well as we can: for if Reason should stomach and fret ever so much at this yoke, she cannot throw it off; if she will not be the servant of Common Sense, she must be her slave.

In order, therefore, to reconcile reason to common sense in this matter, I beg leave to offer to the consideration of philosophers these two observations. First, that in all this debate about the existence of a material world, it hath been taken for granted on both sides, that this same material world, if any such there be, must be the express image of our sensations: that we can have no conception of any material thing which is not like some sensation in our minds; and particularly, that the sensations of touch are images of extension, hardness, figure and motion. Every argument brought against the existence of a material world, either by the bishop of Cloyne or by the author of the Treatise of Human Nature, supposeth this. If this is true their arguments are conclusive and unanswerable: but, on the other hand, if it is not true, there is no shadow of argument left. Have

those philosophers, then, given any solid proof of this hypothesis, upon which the whole weight of so strange a system rests? No. They have not so much as attempted to do it. But, because ancient and modern philosophers have agreed in this opinion, they have taken it for granted. But let us, as becomes philosophers, lay aside authority; we need not surely consult Aristotle or Locke, to know whether pain be like the point of a sword. I have as clear a conception of extension, hardness, and motion, as I have of the point of a sword; and, with some pains and practice, I can form as clear a notion of the other sensations of touch, as I have of pain. When I do so, and compare them together, it appears to me clear as daylight, that the former are not of kin to the latter, nor resemble them in any one feature. They are as unlike, yea, as certainly and manifestly unlike, as pain is to the point of a sword. It may be true, that those sensations first introduced the material world to our acquaintance; it may be true, that it seldom or never appears without their company; but, for all that, they are as unlike as the passion of anger is to those features of the countenance which attend it.

So that, in the sentence those philosophers have passed against the material world, there is an error personce. Their proof touches not matter, or any of its qualities; but strikes directly against an idol of their own imagination, a material world made of ideas and sensations, which never had nor can have an existence.

Secondly. The very existence of our conceptions of extension, figure, and motion, since they are neither ideas of sensation nor reflection, overturns the whole ideal system, by which the material world hath been tried and condemned: so that there hath been likewise in this sentence an error juris.

It is a very fine and a just observation of Locke, that as no human art can create a single particle of matter, and the whole extent of our power over the material world, consists in compounding, combining, and disjoining, the matter made to our hands; so in the world of thought, the materials are all made by nature, and can only be variously combined and disjoined by us. So that it is impossible for reason or prejudice, true or false philosophy, to produce one simple notion or conception, which is not the work of nature, and the result of our constitution. The conception of extension, motion, and the other attributes of matter, cannot be the effect of error or prejudice; it must be the work of nature. And the power or faculty, by which we acquire those conceptions, must be something different from any power of the human mind that hath been explained, since it is neither sensation nor reflection.

This I would therefore humbly propose, as an experimentum crucis, by which the ideal system must stand or fall; and it brings the matter to a short issue; extension, figure, motion, may, any one, or all of them, be taken for the subject of this experiment. Either they are ideas of sensation, or they are not. If any one of them can be shown to be an idea of sensation, or to have the least resemblance to any sensation, I lay my hand upon my mouth, and give up all pretence to reconcile reason to common sense in this matter, and must suffer the ideal skepticism to triumph. But if, on the other hand, they are not ideas of sensation, nor like to any sensation, then the ideal system is a rope of sand, and all the laboured arguments of the skeptical philosophy, against a material world, and against the existence of every thing but impressions and ideas, proceed upon a false hypothesis.

If our philosophy concerning the mind be so lame with regard to the origin of our notions of the clearest, most simple, and most familiar objects of thought and the powers from which they are derived, can we expect that it should be more perfect in the account it gives of the origin of our opinions and belief? We have seen already some instances of its imperfection in this respect: and perhaps that same nature which hath given us the power to conceive things altogether unlike to any of our sensations or to any operation of our minds, hath likewise provided for our belief of them, by some part of our constitution hitherto not explained.

Bishop Berkeley hath proved, beyond the possibility of reply, that we cannot by reasoning infer the existence of matter from our sensations: and the author of the Treatise of Human Nature hath proved no less clearly, that we cannot by reasoning infer the existence of our own or other minds from our sensations. But are we to admit nothing but what can be proved by reasoning? then we

must be skeptics indeed, and believe nothing at all. The author of the Treatise of Human Nature appears to me to be but a half skeptic. He hath not followed his principles so far as they lead him: but after having, with unparalleled intrepidity and success, combated vulgar prejudices; when he had but one blow to strike, his courage fails him, he fairly lays down his arms, and yields himself a captive to the most common of all vulgar prejudices, I mean the belief of the existence of his own impressions and ideas.

I beg, therefore, to have the honour of making an addition to the skeptical system, without which, I conceive it cannot hang together. I affirm, that the belief of the existence of impressions and ideas, is as little supported by reason, as that of the existence of minds and bodies. No man ever did, or could offer any reason for this belief. Des Cartes took it for granted, that he thought, and had sensations and ideas: so have all his followers done. Even the hero of skepticism hath yielded this point, I crave leave to say, weakly and imprudently. I say so, because I am persuaded that there is no principle of his philosophy that obliged him to make this concession. And what is there in impressions and ideas so formidable, that this all-conquering philosophy, after triumphing over every other existence, should pay homage to them? Besides, the concession is dangerous; for belief is of such a nature, that if you leave any root, it will spread; and you may more easily pull it up altogether, than say, Hitherto shalt thou go, and no further: the existence of impressions and ideas I give up to thee; but see thou pretend to nothing more. A thorough and consistent skeptic will never, therefore, yield this point; and while he holds it, you can never oblige him to yield any thing else.

To such a skeptic I have nothing to say; but of the semiskeptics, I should beg leave to know, why they believe the existence of their impressions and ideas. The true reason I take to be, because they cannot help it; and the same reason will lead them to believe many other things.

All reasoning must be from first principles; and for first principles no other reason can be given but this, that, by the constitution of our nature, we are under a necessity of assenting to them. Such principles are parts of our constitution, no less than the power of thinking: reason can neither make nor destroy them; nor can it do any thing without them: it is like a telescope, which may help a man to see farther, who hath eyes; but without eyes, a telescope shews nothing at all. A mathematician cannot prove the truth of his axioms, nor can he prove any thing, unless he takes them for granted. We cannot prove the existence of our minds, nor even of our thoughts and sensations. A historian, or a witness, can prove nothing, unless it is taken for granted that the memory and senses may be trusted. A natural philosopher can prove nothing, unless it is taken for granted that the course of nature is steady and uniform.

How or when I got such first principles, upon which I build all my reasoning, I know not; for I had them before I can remember: but I am sure they are parts of my constitution, and that I cannot throw them off. That our thoughts and sensations must have a subject, which we call ourself, is not therefore an opinion got by reasoning, but a natural principle. That our sensations of touch indicate something external, extended, figured, hard or soft, is not a deduction of reason, but a natural principle. The belief of it, and the very conception of it, are equally parts of our constitution. If we are deceived in it, we are deceived by him that made us, and there is no remedy.

I do not mean to affirm, that the sensations of touch do from the very first suggest the same notions of body and its qualities, which they do when we are grown up. Perhaps nature is frugal in this, as in her other operations. The passion of love, with all its concomitant sentiments and desires, is naturally suggested by the perception of beauty in the other sex. Yet the same perception does not suggest the tender passion till a certain period of life. A blow given to an infant, raises grief and lamentation; but when he grows up, it as naturally stirs resentment, and prompts him to resistance. Perhaps a child in the womb, or for some short period of its existence, is merely a sentient being: the faculties, by which it perceives an external world, by which it reflects on its own thoughts, and existence, and relation to other things, as well as its reasoning and moral faculties, unfold themselves by degrees; so that it is inspired with the various principles of common sense as with the passions of love and resentment, when it has occasion for them.

## SECTION VIII OF THE SYSTEMS OF PHILOSOPHERS CONCERNING THE SENSES

All the systems of philosophers about our senses and their objects have split upon this rock, of not distinguishing properly sensations which can have no existence but when they are felt, from the things suggested by them. Aristotle, with as distinguishing a head as ever applied to philosophical disquisitions, confounds these two; and makes every sensation to be the form, without the matter, of the thing perceived by it: as the impression of a seal upon wax has the form of the seal, but nothing of the matter of it; so he conceived our sensations to be impressions upon the mind, which bear the image, likeness, or form of the external thing perceived, without the matter of it. Colour, sound, and smell, as well as extension, figure, and hardness, are, according to him, various forms of matter: our sensations are the same forms imprinted on the mind, and perceived in its own intellect. It is evident from this that Aristotle made no distinction between primary and secondary qualities of bodies, although that distinction was made by Democritus, Epicurus, and others of the ancients.

Des Cartes, Malebranche, and Locke, revived the distinction between primary and secondary qualities. But they made the secondary qualities mere sensations, and the primary ones resemblances of our sensations. They maintained that colour, sound, and heat, are not any thing in bodies, but sensations of the mind: at the same time, they acknowledged some particular texture or modification of the body, to be the cause or occasion of those sensations; but to this modification they gave no name. Whereas by the vulgar, the names of colour, heat, and sound, are but rarely applied to the sensations, and most commonly to those unknown causes of them; as hath been already explained. The constitution of our nature leads us rather to attend to the things signified by the sensation, than to the sensation itself, and to give a name to the former rather than to the latter. Thus we see, that with regard to secondary qualities, these philosophers thought with the vulgar, and with common sense. Their paradoxes were only an abuse of words. For when they maintain, as an important modern discovery, that there is no heat in the fire, they mean no more than that the fire does not feel heat, which every one knew before.

With regard to primary qualities, these philosophers erred more grossly: they indeed believed the existence of those qualities; but they did not at all attend to the sensations that suggest them, which having no names, have been as little considered as if they had no existence. They were aware, that figure, extension, and hardness, are perceived by means of sensations of touch; whence they rashly concluded, that these sensations must be images and resemblances of figure, extension, and hardness.

The received hypothesis of ideas naturally led them to this conclusion; and indeed cannot consist with any other; for, according to that hypothesis, external things must be perceived by means of images of them in the mind; and what can those images of external things in the mind be, but the sensations by which we perceive them?

This however was to draw a conclusion from a hypothesis against fact. We need not have recourse to any hypothesis to know what our sensations are, or what they are like. By a proper degree of reflection and attention, we may understand them perfectly, and be as certain that they are not like any quality of body, as we can be, that the toothache is not like a triangle. How a sensation should instantly make us conceive and believe the existence of an external thing altogether unlike to it, I do not pretend to know; and when I say that the one suggests the other, I mean not to explain the manner of their connection, but to express a fact, which every one may be conscious of; namely, that, by a law of our nature, such a conception and belief constantly and immediately follow the sensation.

Bishop Berkeley gave new light to this subject, by shewing, that the qualities of an inanimate thing, such as matter is conceived to be, cannot resemble any sensation; that it is impossible to conceive any thing like the sensations of our minds, but the sensations of other minds. Every one that attends properly to his sensations must assent to this; yet it had escaped all the philosophers that came before Berkeley; it had escaped even the ingenious Locke, who had so much practised reflection on the operations of his own mind. So difficult it is to attend properly even to our own feelings. They are

so accustomed to pass through the mind unobserved, and instantly to make way for that which nature intended them to signify, that it is extremely difficult to stop, and survey them; and when we think we have acquired this power, perhaps the mind still fluctuates between the sensation and its associated quality, so that they mix together, and present something to the imagination that is compounded of both. Thus in a globe or cylinder, whose opposite sides are quite unlike in colour, if you turn it slowly, the colours are perfectly distinguishable, and their dissimilitude is manifest; but if it is turned fast, they lose their distinction, and seem to be of one and the same colour.

No succession can be more quick, than that of tangible qualities to the sensations with which nature has associated them. But when one has once acquired the art of making them separate and distinct objects of thought, he will then clearly perceive, that the maxim of bishop Berkeley above mentioned, is self-evident; and that the features of the face are not more unlike to a passion of the mind which they indicate, than the sensations of touch are to the primary qualities of body.

But let us observe what use the bishop makes of this important discovery. Why, he concludes, that we can have no conception of an inanimate substance, such as matter is conceived to be, or of any of its qualities; and that there is the strongest ground to believe that there is no existence in nature but minds, sensations, and ideas. If there is any other kind of existences, it must be what we neither have nor can have any conception of. But how does this follow? Why thus: we can have no conception of any thing but what resembles some sensation or idea in our minds; but the sensations and ideas in our minds can resemble nothing but the sensations and ideas in other minds; therefore, the conclusion is evident. This argument, we see, leans upon two propositions. The last of them the ingenious author hath indeed made evident to all that understand his reasoning, and can attend to their own sensations: but the first proposition he never attempts to prove; it is taken from the doctrine of ideas, which hath been so universally received by philosophers, that it was thought to need no proof.

We may here again observe, that this acute writer argues from a hypothesis against fact, and against the common sense of mankind. That we can have no conception of any thing, unless there is some impression, sensation or idea, in our minds, which resembles it, is indeed an opinion which hath been very generally received among philosophers; but it is neither self-evident, nor hath it been clearly proved; and therefore it had been more reasonable to call in question this doctrine of philosophers, than to discard the material world, and by that means expose philosophers to the ridicule of all men, who will not offer up common sense as a sacrifice to metaphysics.

We ought, however, to do this justice both to the bishop of Cloyne and to the author of the Treatise of Human Nature, to acknowledge, that their conclusions are justly drawn from the doctrine of ideas, which has been so universally received. On the other hand, from the character of bishop Berkeley, and of his predecessors Des Cartes, Locke, and Malebranche, we may venture to say, that if they had seen all the consequences of this doctrine, as clearly as the author before mentioned did, they would have suspected it vehemently, and examined it more carefully than they appear to have done.

The theory of ideas, like the Trojan horse, had a specious appearance both of innocence and beauty; but if those philosophers had known that it carried in its belly death and destruction to all science and common sense, they would not have broken down their walls to give it admittance.

That we have clear and distinct conceptions of extension, figure, motion, and other attributes of body, which are neither sensations, nor like any sensation, is a fact of which we may be as certain, as that we have sensations. And that all mankind have a fixed belief of an external material world, a belief which is neither got by reasoning nor education, and a belief which we cannot shake off, even when we seem to have strong arguments against it, and no shadow of argument for it, is likewise a fact, for which we have all the evidence that the nature of the thing admits. These facts are phenomena of human nature, from which we may justly argue against any hypothesis, however generally received. But to argue from a hypothesis against facts, is contrary to the rules of true philosophy.

# Chapter 6. OF SEEING

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## SECTION VI THAT NONE OF OUR SENSATIONS ARE RESEMBLANCES OF ANY OF THE QUALITIES OF BODIES

A second inference is, that although colour is really a quality of body, yet it is not represented to the mind by an idea or sensation that resembles it; on the contrary, it is suggested by an idea which does not in the least resemble it. And this inference is applicable, not to colour only, but to all the qualities of body which we have examined.

It deserves to be remarked, that, in the analysis we have hitherto given of the operations of the five senses, and of the qualities of bodies discovered by them, no instance hath occurred, either of any sensation which resembles any quality of body, or of any quality of body whose image or resemblance is conveyed to the mind by means of the senses.

There is no phenomenon in nature more unaccountable, than the intercourse that is carried on between the mind and the external world: there is no phenomenon which philosophical spirits have shown greater avidity to pry into and to resolve. It is agreed by all, that this intercourse is carried on by means of the senses; and this satisfies the vulgar curiosity, but not the philosophic. Philosophers must have some system, some hypothesis that shews the manner in which our senses make us acquainted with external things. All the fertility of human invention seems to have produced only one hypothesis for this purpose, which therefore hath been universally received: and that is, that the mind, like a mirror, receives the images of things from without, by means of the senses: so that their use must be to convey these images into the mind.

Whether to these images of external things in the mind, we give the name of sensible forms or sensible species, with the Peripatetics, or the name of ideas of sensation, with Locke; or whether, with later philosophers, we distinguish sensations, which are immediately conveyed by the senses, from ideas of sensation, which are faint copies of our sensations retained in the memory and imagination; these are only differences about words. The hypothesis I have mentioned is common to all these different systems.

The necessary and allowed consequence of this hypothesis, is, that no material thing, nor any quality of material things, can be conceived by us or made an object of thought, until its image is conveyed to the mind by means of the senses. We shall examine this hypothesis particularly afterward, and at this time only observe, that, in consequence of it, one would naturally expect, that to every quality and attribute of body we know or can conceive, there should be a sensation corresponding, which is the image and resemblance of that quality; and that the sensations which have no similitude or resemblance to body, or to any of its qualities, should give us no conception of a material world, or of any thing belonging to it. These things might be expected as the natural consequences of the hypothesis we have mentioned.

Now we have considered, in this and the preceding chapters, extension, figure, solidity, motion, hardness, roughness, as well as colour, heat and cold, sound, taste, and smell. We have endeavoured to shew, that our nature and constitution lead us to conceive these as qualities of body, as all mankind have always conceived them to be. We have likewise examined, with great attention, the various sensations we have by means of the five senses, and are not able to find among them all, one single image of body, or of any of its qualities. From whence then come those images of body and of its qualities into the mind? Let philosophers resolve this question. All I can say is, that they come not by the senses. I am sure that by proper attention and care I may know my sensations, and be able to affirm with certainty what they resemble, and what they do not resemble. I have examined them one by one, and compared them with matter and its qualities; and I cannot find one of them that confesses a resembling feature.

A truth so evident as this, that our sensations are not images of matter, or of any of its qualities, ought not to yield to a hypothesis such as that above mentioned, however ancient, or however universally received by philosophers; nor can there be any amicable union between the two. This will appear by some reflections upon the spirit of the ancient and modern philosophy concerning sensation.

During the reign of the Peripatetic philosophy, our sensations were not minutely or accurately examined. The attention of philosophers, as well as of the vulgar, was turned to the things signified by them: therefore, in consequence of the common hypothesis, it was taken for granted, that all the sensations we have from external things, are the forms or images of these external things. And thus the truth we have mentioned, yielded entirely to the hypothesis, and was altogether suppressed by it.

Des Cartes gave a noble example of turning our attention inward, and scrutinizing our sensations, and this example hath been very worthily followed by modern philosophers, particularly by Malebranche, Locke, Berkeley, and Hume. The effect of this scrutiny hath been a gradual discovery of the truth above mentioned, to wit, the dissimilitude between the sensations of our minds, and the qualities or attributes of an insentient inert substance, such as we conceive matter to be. But this valuable and useful discovery, in its different stages, hath still been unhappily united to the ancient hypothesis; and, from this inauspicious match of opinions, so unfriendly and discordant in their natures, have arisen those monsters of paradox and skepticism with which the modern philosophy is too justly chargeable.

Locke saw clearly, and proved incontestably, that the sensations we have by taste, smell, and hearing, as well as the sensations of colour, heat and cold, are not resemblances of any thing in bodies; and in this he agrees with Des Cattes and Malebranche. joining this opinion with the hypothesis, it follows necessarily, that three senses of the five are cut off from giving us any intelligence of the material world, as being altogether inept for that office. Smell, and taste, and sound, as well as colour and heat, can have no more relation to body, than anger or gratitude; nor ought the former to be called qualities of body, whether primary or secondary, any more than the latter. For it was natural and obvious to argue thus from that hypothesis: if heat, and colour, and sound, are real qualities of body, the sensations, by which we perceive them, must be resemblances of those qualities: but these sensations are not resemblances; therefore those are not real qualities of body.

We see then, that Locke, having found that the ideas of secondary qualities are no resemblances, was compelled, by a hypothesis common to all philosophers, to deny that they are real qualities of body. It is more difficult to assign a reason, why, after this, he should call them secondary qualities; for this name, if I mistake not, was of his invention. Surely he did not mean that they were secondary qualities of the mind; and I do not see with what propriety, or even by what tolerable license, he could call them secondary qualities of body, after finding that they were no qualities of body at all. In this, he seems to have sacrificed to common sense, and to have been led by her authority, even in opposition to his hypothesis. The same sovereign mistress of our opinions that led this philosopher to call those things secondary qualities of body, which, according to his principles and reasonings, were no qualities of body at all, hath led, not the vulgar of all ages only, but philosophers also, and even the disciples of Locke, to believe them to be real qualities of body: she hath led them to investigate, by experiments, the nature of colour, and sound, and heat, in bodies. Nor hath this investigation been fruitless, as it must have been, if there had been no such thing in bodies: on the contrary, it hath produced very noble and useful discoveries, which make a very considerable part of natural philosophy. If then natural philosophy be not a dream, there is something in bodies, which we call colour, and heat, and sound. And if this be so, the hypothesis from which the contrary is concluded must be false: for the argument, leading to a false conclusion, recoils against the hypothesis from which it was drawn, and thus directs its force backward. If the qualities of body were known to us only by sensations that resemble them, then colour, and sound, and heat, could be no qualities of body; but these are real qualities of body; and therefore the qualities of body are not known only by means of sensations that resemble them.

But to proceed: what Locke had proved with regard to the sensations we have by smell, taste and hearing, bishop Berkeley proved no less unanswerably with regard to all our other sensations; to wit, that none of them can in the least resemble the qualities of a lifeless and insentient being, such as matter is conceived to be. Mr. Hume hath confirmed this by his authority and reasoning. This opinion surely looks with a very malign aspect upon the old hypothesis; yet that hypothesis hath still been retained, and conjoined with it. And what a brood of monsters hath this produced.

The firstborn of this union, and perhaps the most harmless, was, that the secondary qualities of body were mere sensations of the mind. To pass by Malebranche's notion of seeing all things in the ideas of the divine mind, as a foreigner never naturalized in this island; the next was Berkeley's system, that extension, and figure, and hardness and motion; that land, and sea, and houses, and our own bodies, as well as those of our wives, and children, and friends, are nothing but ideas of the mind; and that there is nothing existing in nature, but minds and ideas.

The progeny that followed, is still more frightful; so that it is surprising, that one could be found who had the courage to act the midwife, to rear it up, and to usher it into the world. No causes nor effects; no substances, material or spiritual; no evidence even in mathematical demonstration; no liberty nor active power; nothing existing in nature, but impressions and ideas following each other, without time, place, or subject. Surely no age ever produced such a system of opinions, justly deduced with great acuteness, perspicuity, and elegance, from a principle universally received. The hypothesis we have mentioned, is the father of them all. The dissimilitude of our sensations and feelings to external things, is the innocent mother of most of them.

As it happens sometimes in an arithmetical operation, that two errors balance one another, so that the conclusion is little or nothing affected by them; but when one of them is corrected, and the other left, we are led farther from the truth, than by both together: so it seems to have happened in the Peripatetic philosophy of sensation, compared with the modern. The Peripatetics adopted two errors; but the last served as a corrective to the first, and rendered it mild and gentle; so that their system had no tendency to skepticism. The moderns have retained the first of those errors, but have gradually detected and corrected the last. The consequence hath been, that the light we have struck out hath created darkness, and skepticism hath advanced hand in hand with knowledge, spreading its melancholy gloom first over the material world, and at last over the whole face of nature. Such a phenomenon as this, is apt to stagger even the lovers of light and knowledge, while its cause is latent; but when that is detected, it may give hopes, that this darkness shall not be everlasting, but that it shall be succeeded by a more permanent light.

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## SECTION XIX OF DR. BRIGG'S THEORY, AND SIR ISAAC NEWTON'S CONJECTURE ON THIS SUBJECT

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We have now finished what we intended to say, both of the visible appearance of things to the eye, and of the laws of our constitution by which those appearances are exhibited. But it was observed, in the beginning of this chapter, that the visible appearances of objects serve only as signs of their distance, magnitude, figure, and other tangible qualities. The visible appearance, is that which is presented to the mind by nature, according to those laws of our constitution, which have been explained. But the thing signified by that appearance, is that which is presented to the mind by custom.

When one speaks to us in a language that is familiar, we hear certain sounds, and this is all the effect that his discourse has upon us by nature: but by custom we understand the meaning of these sounds; and therefore we fix our attention, not upon the sounds, but upon the things signified by them. In like manner, we see only the visible appearance of objects by nature; but we learn by

custom to interpret these appearances, and to understand their meaning. And when this visual language is learned, and becomes familiar, we attend only to the things signified; and cannot, without great difficulty, attend to the signs by which they are presented. The mind passes from one to the other so rapidly, and so familiarly, that no trace of the sign is left-in the memory, and we seem immediately, and without the intervention of any sign, to perceive the thing signified.

When I look at the apple-tree, which stands before my window, I perceive, at the first glance, its distance and magnitude, the roughness of its trunk, the disposition of its branches, the figure of its leaves and fruit. I seem to perceive all these things immediately. The visible appearance which presented them all to the mind, has entirely escaped me; I cannot, without great difficulty, and painful abstraction, attend to it, even when it stands before me. Yet it is certain, that this visible appearance only, is presented to my eye by nature, and that I learned by custom to collect all the rest from it. If I had never seen before now, I should not perceive either the distance or tangible figure of the tree, and it would have required the practice of seeing for many months, to change that original perception which nature gave me by my eyes, into that which I now have by custom.

The objects which we see naturally and originally, as hath been before observed, have length and breadth, but no thickness, nor distance from the eye. Custom, by a kind of legerdemain, withdraws gradually these original and proper objects of sight, and substitutes in their place objects of touch, which have length, breadth, and thickness, and a determinate distance from the eye. By what means this change is brought about, and what principles of the human mind concur in it, we are next to inquire.

## SECTION XX OF PERCEPTION IN GENERAL

Sensation, and the perception of external objects by the senses, though very different in their nature, have commonly been considered as one and the same thing. The purposes of common life do not make it necessary to distinguish them, and the received opinions of philosophers tend rather to confound them; but, without attending carefully to this distinction, it is impossible to have any just conception of the operations of our senses. The most simple operations of the mind, admit not of a logical definition: all we can do is to describe them, so as to lead those who are conscious of them in themselves, to attend to them, and reflect upon them: and it is often very difficult to describe them so as to answer this intention.

The same mode of expression is used to denote sensation and perception; and therefore we are apt to look upon them as things of the same nature. Thus I feel a pain; I see a tree: the first denoteth a sensation, the last a perception. The grammatical analysis of both expressions is the same, for both consist of an active verb and an object. But, if we attend to the things signified by these expressions, we shall find, that in the first, the distinction between the act and the object is not real but grammatical; in the second, the distinction is not only grammatical but real.

The form of the expression, I feel pain, might seem to imply, that the feeling is something distinct from the pain felt; yet in reality, there is no distinction. As thinking a thought is an expression which could signify no more than thinking, so feeling a pain signifies no more than being pained. What we have said of pain is applicable to every other mere sensation. It is difficult to give instances, very few of our sensations having names; and where they have, the name being common to the sensation, and to something else which is associated with it. But when we attend to the sensation by itself, and separate it from other things which are conjoined with it in the imagination, it appears to be something which can have no existence but in a sentient mind, no distinction from the act of the mind by which it is felt.

Perception, as we here understand it, hath always an object distinct from the act by which it is perceived; an object which may exist whether it be perceived or not. I perceive a tree that grows before my window; there is here an object which is perceived, and an act,of the mind by which it is perceived; and these two are not only distinguishable, but they are extremely unlike in their natures.

The object is made up of a trunk, branches, and leaves; but the act of the mind, by which it is perceived, hath neither trunk, branches, nor leaves. I am conscious of this act of mind, and I can reflect upon it; but it is too simple to admit of an analysis, and I cannot find proper words to describe it. I find nothing that resembles it so much as the remembrance of the tree, or the imagination of it. Yet both these differ essentially from perception; they differ likewise one from another. It is in vain that a philosopher assures me, that the imagination of the tree, the remembrance of it, and the perception of it, are all one, and differ only in degree of vivacity. I know the contrary; for I am as well acquainted with all the three, as I am with the apartments of my own house. I know this also, that the perception of an object implies both a conception of its form, and a belief of its present existence. I know, moreover, that this belief is not the effect of argumentation and reasoning; it is the immediate effect of my constitution.

I am aware that this belief which I have in perception, stands exposed to the strongest batteries of skepticism. But they make no great impression upon it. The skeptic asks me, Why do you believe the existence of the external object which you perceive? This belief, sir, is none of my manufacture; it came from the mint of nature; it bears her image and superscription; and, if it is not right, the fault is not mine: I even took it upon trust, and without suspicion. Reason, says the skeptic, is the only judge of truth, and you ought to throw off every opinion and every belief that is not grounded on reason. Why, sir, should I believe the faculty of reason more than that of perception; they came both out of the same shop, and were made by the same artist; and if he puts one piece of false ware into my hands, what should hinder him from putting another?

Perhaps the skeptic will agree to distrust reason, rather than give any credit to perception. For, says he, since, by your own concession, the object which you perceive, and that act of your mind by which you perceive it, are quite different things, the one may exist without the other; and as the object may exist without being perceived, so the perception may exist without an object. There is nothing so shameful in a philosopher as to be deceived and deluded; and therefore you ought to resolve firmly to withhold assent, and to throw off all his belief of external objects, which may be all delusion. For my part, I will never attempt to throw it off; and although the sober part of mankind will not be very anxious to know my reasons, yet if they can be of use to any skeptic, they are these.

First, Because it is not in my power: why then should I make a vain attempt? It would be agreeable to fly to the moon, and to make a visit to Jupiter and Saturn; but when I know that nature has bound me down by the law of gravitation to this planet which I inhabit, I rest contented, and quietly suffer myself to be carried along in its orbit. My belief is carried along by perception, as irresistibly as my body by the earth. And the greatest skeptic will find himself to be in the same condition. He may struggle hard to disbelieve the information of his senses, as a man does to swim against a torrent; but ah! it is in vain. It is vain that he strains every nerve, and wrestles with nature, and with every object that strikes upon his senses. For after all, when his strength is spent in the fruitless attempt, he will be carried down the torrent with the common herd of believers.

Secondly, I think it would not be prudent to throw off this belief, if it were in my power. If nature intended to deceive me, and impose upon me by false appearances, and 1, by my great cunning and profound logic, have discovered the imposture; prudence would dictate to me in this case, even to put up with this indignity done me as quietly as I could, and not to call her an impostor to her face, lest she should be even with me another way. For what do I gain by resenting this injury? You ought at least not to believe what she says. This indeed seems reasonable if she intends to impose upon me. But what is the consequence? I resolve not to believe my senses. I break my nose against a post that comes in my way; I step into a kennel; and, after twenty such wise and rational actions, I am taken up and clapped into a mad-house. Now, I confess I would rather make one of the credulous fools whom nature imposes upon, than of those wise and rational philosophers who resolve to withhold assent at all this expense. If a man pretends to be a skeptic with regard to the informations of sense, and yet prudently keeps out of harm's way as other men do, he must excuse my suspicion, that he either acts the hypocrite, or imposes upon himself. For if the scale of his belief

were so evenly poised, as to lean no more to one side than to the contrary, it is impossible that his actions could be directed by any rules of common prudence.

Thirdly, Although the two reasons already mentioned are perhaps two more than enough, I shall offer a third. I gave implicit belief to the informations of nature by my senses, for a considerable part of my life, before I had learned so much logic as to be able to start a doubt concerning them. And now, when I reflect upon what is past, I do not find that I have been imposed upon by this belief. I find, that without it I must have perished by a thousand accidents. I find, that without it I should have been no wiser now than when I was born. I should not even have been able to acquire that logic which suggests these skeptical doubts with regard to my senses. Therefore I consider this instructive belief as one of the best gifts of nature. I thank the Author of my being who bestowed it upon me, before the eyes of my reason were opened, and still bestows it upon me to be my guide, where reason leaves me in the dark. And now I yield to the direction of my senses, not from instinct only, but from confidence and trust in a faithful and beneficent monitor, grounded upon the experience of his paternal care and goodness.

In all this, I deal with the Author of my being, no otherwise than I thought it reasonable to deal with my parents and tutors. I believed by instinct whatever they told me, long before I had the idea of a lie, or thought of the possibility of their deceiving me. Afterward, upon reflection, I found that they had acted like fair and honest people who wished me well. I found that if I had not believed what they told me, before I could give a reason of my belief, I had to this day been little better than a changeling. And although this natural credulity hath sometimes occasioned my being imposed upon by deceivers, yet it hath been of infinite advantage to me upon the whole; therefore I consider it as another good gift of nature. And I continue to give that credit, from reflection, to those of whose integrity and veracity I have had experience, which before I gave from instinct.

There is a much greater similitude than is commonly imagined, between the testimony of nature given by our senses, and testimony of men given by language. The credit we give to both is at first the effect of instinct only. When we grow up, and begin to reason about them, the credit given to human testimony is restrained, and weakened, by the experience we have of deceit. But the credit given to the testimony of our senses, is established and confirmed by the uniformity and constancy of the laws of nature.

Our perceptions are of two kinds: some are natural and original, others acquired, and the fruit of experience. When I perceive that this is the taste of cider, that of brandy; that this is the smell of an apple, that of an orange; that this is the noise of thunder, that the ringing of bells; this the sound of a coach passing, that the voice of such a friend; these perceptions and others of the same kind, are not original, they are acquired. But the perception which I have by touch, of the hardness and softness of bodies, of their extension, figure, and motion, is not acquired; it is original.

In all our senses, the acquired perceptions are many more than the original, especially in sight. By this sense we perceive originally the visible figure and colour of bodies only, and their visible place: but we learn to perceive by the eye, almost every thing which we can perceive by touch. The original perceptions of this sense, serve only as signs to introduce the acquired.

The signs by which objects are presented to us in perception, are the language of nature to man; and as, in many respects, it hath a great affinity with the language of man to man; so particularly in this, that both are partly natural and original, partly acquired by custom. Our original or natural perceptions are analogous to the natural language of man to man, of which we took notice in the 4th chapter; and our acquired perceptions are analogous to artificial language, which, in our mother tongue, is got very much in the same manner with our acquired perceptions, as we shall afterward more fully explain.

Not only men, but children, idiots, and brutes, acquire by habit many perceptions which they had not originally. Almost every employment in life, hath perceptions of this kind that are peculiar to it. The shepherd knows every sheep of his flock, as we do our acquaintance, and can pick them out of another flock one by one. The butcher knows by sight the weight and quality of his beeves and

sheep before they are killed. The farmer perceives by his eye, very nearly the quantity of hay in a rick, or of corn in a heap. The sailor sees the burden, the build, and the distance of a ship at sea, while she is a great way off. Every man accustomed to writing, distinguishes acquaintance by their hand-writing, as he does by their faces. And the painter distinguishes in the works of his art, the style of all the great masters. In a word, acquired perception is very different in different persons, according to the diversity of objects about which they are employed, and the application they bestow in observing them.

Perception ought not only to be distinguished from sensation, but likewise from that knowledge of the objects of sense which it got by reasoning. There is no reasoning in perception, as hath been observed. The belief which is implied in it, is the effect of instinct. But there are many things, with regard to sensible objects, which we can infer from what we perceive; and such conclusions of reason ought to be distinguished from what is merely perceived. When I look at the moon, I perceive her to be sometimes circular, sometimes horned, and sometimes gibbous. This is simple perception, and is the same in the philosopher, and in the clown: but from these various appearances of her enlightened part, I infer that she is really of a spherical figure. This conclusion is not obtained by simple perception, but by reasoning. Simple perception has the same relation to the conclusions of reason drawn from our perceptions, as the axioms in mathematics have to the propositions. I cannot demonstrate, that two quantities which are equal to the same quantity, are equal to each other; neither can I demonstrate, that the tree which I perceive exists. But, by the constitution of my nature, my belief is irresistibly carried along by my apprehension of the axiom; and by the constitution of my nature, my belief is no less irresistibly carried along by my perception of the tree. All reasoning is from principles. The first principles of mathematical reasoning are mathematical axioms and definitions; and the first principles of all our reasoning about existences, are our perceptions. The first principles of every kind of reasoning are given us by nature, and are of equal authority with the faculty of reason itself, which is also the gift of nature. The conclusions of reason are all built upon first principles, and can have no other foundation. Most justly, therefore, do such principles disdain to be tried by reason, and laugh at the artillery of the logician, when it is directed against them.

When a long train of reasoning is necessary in demonstrating a mathematical proposition, it is easily distinguished from an axiom, and they seem to be things of a very different nature. But there are some propositions which lie so near to axioms, that it is difficult to say, whether they ought to be held as axioms, or demonstrated as propositions. The same thing holds with regard to perception, and the conclusions drawn from it. Some of these conclusions follow our perceptions so easily, and are so immediately connected with them, that it is difficult to fix the limit which divides the one from the other.

Perception, whether original or acquired, implies no exercise of reason; and is common to men, children, idiots, and brutes. The more obvious conclusions drawn from our perceptions, by reason, make what we call common understanding; by which men conduct themselves in the common affairs of life, and by which they are distinguished from idiots. The more remote conclusions which are drawn from our perceptions, by reason, make what we commonly call science in the various parts of nature, whether in agriculture, medicine, mechanics, or in any part of natural philosophy. When I see a garden in good order, containing a great variety of things of the best kinds, and in the most flourishing condition, I immediately conclude from these signs, the skill and industry of the gardener. A farmer, when he rises in the morning, and perceives that the neighbouring brook overflows his field, concludes that a great deal of rain hath fallen in the night. Perceiving his fence broken, and his corn trodden down, he concludes that some of his own or his neighbour's cattle have broken loose. Perceiving that his stable door is broken open, and some of the horses gone, he concludes that a thief has carried them off. He traces the prints of his horses' feet in the soft ground, and by them discovers which road the thief hath taken. These are instances of common understanding, which dwells so near to perception, that it is difficult to trace the line which divides the one from the other. In like manner, the science of nature dwells so near to common understanding that we cannot discern where the latter ends and the former begins. I perceive that bodies, lighter than water, swim in water, and that those which are heavier sink. Hence I conclude, that if a body remains wherever it

is put under water, whether at the top or bottom, it is precisely of the same weight with water. If it will rest only when part of it is above water, it is lighter than water. And the greater the part above water is, compared with the whole, the lighter is the body. If it had no gravity at all, it would make no impression upon the water, but stand wholly above it. Thus, every man, by common understanding, has a rule by which he judges of the specific gravity of bodies which swim in water: and a step or two more leads him into the science of hydrostatics.

All that we know of nature, or of existence, may be cornpared to a tree, which hath its root, trunk, and branches. In this tree of knowledge, perception is the root, common understanding is the trunk, and the sciences are the branches.

## SECTION XXI OF THE PROCESS OF NATURE IN PERCEPTION

Although there is no reasoning in perception, yet there are certain means and instruments, which, by the appointment of nature, must intervene between the object and our perception of it; and, by these our perceptions are limited and regulated. First, if the object is not in contact with the organ of sense, there must be some medium which passes between them. Thus, in vision, the rays of light; in hearing, the vibrations of elastic air; in smelling, the effluvia of the body smelled, must pass from the object to the organ; otherwise we have no perception. Secondly, there must be some action or impression upon the organ of sense, either by the immediate application of the object, or by the medium that goes between them. Thirdly, the nerves which go from the brain to the organ, must receive some impression by means of that which was made upon the organ; and probably, by means of the nerves, some impression must be made upon the brain. Fourthly, the impression made upon the organ, nerves, and brain, is followed by a sensation. And, last of all, this sensation is followed by the perception of the object.

Thus our perception of objects is the result of a train of operations; some of which affect the body only, others affect the mind. We know very little of the nature of some of these operations; we know not at all how they are connected together, or in what way they contribute to that perception which is the result of the whole: but by the laws of our constitution, we perceive objects in this, and in no other way.

There may be other beings, who can perceive external objects without rays of light, or vibrations of air, or effluvia of bodies, without impressions on bodily organs, or even without sensations. But we are so framed by the Author of nature, that even when we are surrounded by external objects, we may perceive none of them. Our faculty of perceiving an object lies dormant, until it is roused and stimulated by a certain corresponding sensation. Nor is this sensation always at hand to perform its office; for it enters into the mind only in consequence of a certain corresponding impression made on the organ of sense by the object.

Let us trace this correspondence of impressions, sensations, and perceptions, as far as we can; beginning with that which is first in order, the impression made upon the bodily organ. But, alas! we know not of what nature these impressions are, far less how they excite sensations in the mind.

We know that one body may act upon another by pressure, by percussion, by attraction, by repulsion and probably in many other ways, which we neither know, nor have names to express. But in which of these ways objects, when perceived by us, act upon the organs of sense, these organs upon the nerves, and the nerves upon the brain, we know not. Can any man tell me how, in vision, the rays of light act upon the retincv, how the retinx acts upon the optic nerve and how the optic nerve acts upon the brain? No man can. When I feel the pain of the gout in my toe, I know that there is some unusual impression made upon that part of my body. But of what kind is it? Are the small vessels distended with some redundant elastic, or unelastic fluid? Are the fibres unusually stretched? Are they torn asunder by force, or gnawed and corroded by some acrid humour? I can answer none of these questions. All that I feel, is pain, which is not an impression upon the body, but upon the mind; and all that I perceive by this sensation is, that some distemper in my toe occasions

this pain. But as I know not the natural temper and texture of my toe when it is at ease, I know as little what change or disorder of its parts occasions this uneasy sensation.

In like manner, in every other sensation, there is, without doubt, some impression made upon the organ of sense; but an impression of which we know not the nature. It is too subtile to be discovered by our senses, and we may make a thousand conjectures without coming near the truth. If we understood the structure of our organs of sense so minutely, as to discover what effects are produced upon them by external objects, this knowledge would contribute nothing to our perception of the object; for they perceive as distinctly who know least about the manner of perception, as the greatest adepts. It is necessary that the impression be made upon our organs, but not that it be known. Nature carries on this part of the process of perception, without our consciousness or concurrence.

But we cannot be unconcious of the next step in this process, the sensation of the mind, which always immediately follows the impression made upon the body. It is essential to a sensation to be felt, and it can be nothing more than we feel it to be. If we can only acquire the habit of attending to our sensations, we may know them perfectly. But how are the sensations of the mind produced by impressions upon the body? Of this we are absolutely ignorant, having no means of knowing how the body acts upon the mind, or the mind upon the body. When we consider the nature and attributes of both, they seem to be so different, and so unlike, that we can find no handle by which the one may lay hold of the other. There is a deep and dark gulf between them, which our understanding cannot pass; and the manner of their correspondence and intercourse is absolutely unknown.

Experience teaches us, that certain impressions upon the body are constantly followed by certain sensations of the mind; and that, on the other hand, certain determinations of the mind are constantly followed by certain motions in the body: but we see not the chain that ties these things together. Who knows but their connection may be arbitrary, and owing to the will of our Maker? Perhaps the same sensations might have been connected with other impressions, or other bodily organs. Perhaps we might have been so made, as to taste with our fingers, to smell with our ears, and to hear by the nose. Perhaps we might have been so made, as to have all the sensations and perceptions which we have, without any impression made upon our bodily organs at all.

However these things may be, if nature had given us nothing more than impressions made upon the body, and sensations in our minds corresponding to them, we should in that case have been merely sentient, but not percipient beings. We should never have been able to form a conception of any external object, far less a belief of its existence. Our sensations have no resemblance to external objects; nor can we discover, by our reason, any necessary connection between the existence of the former, and that of the latter.

We might perhaps have been made of such a constitution, as to have our present perceptions connected with other sensations. We might perhaps have had the perception of external objects, without either impressions upon the organs of sense, or sensations. Or, lastly, The perceptions we have, might have been immediately connected with the impressions upon our organs, without any intervention of sensations. This last seems really to be the case in one instance, to wit, in our perception of the visible figure of bodies, as was observed in the 8th section of this chapter.

The process of nature in perception by the senses, may therefore be conceived as a kind of drama, wherein some things are performed behind the scenes, others are represented to the mind in different scenes, one succeeding another. The impression made by the object upon the organ, either by immediate contact, or by some intervening medium, as well as the impression made upon the nerves and brain, is performed behind the scenes, and the mind sees nothing of it. But every such impression, by the laws of the drama, is followed by sensation, which is the first scene exhibited to the mind; and this scene is quickly succeeded by another, which is the perception of the object.

In this drama, nature is the actor, we are spectators. We know nothing of the machinery by means of which every different impression upon the organ, nerves, and brain, exhibits its corresponding

sensation; or of the machinery by means of which each sensation exhibits its corresponding perception. We are inspired with the sensation, and we are inspired with the corresponding perception, by means unknown. And because the mind passes immediately from the sensation to that conception and belief of the object which we have in perception, in the same manner as it passes from signs to the things signified by them, we have therefore called our sensations signs of external objects; finding no word more to express the function which nature hath assigned them in perception, and the relation which they bear to their corresponding objects.

There is no necessity of a resemblance between the sign and the thing signified: and indeed no sensation can resemble any external object. But there are two things necessary to our knowing things by means of signs. First, That a real connection between the sign and thing signified be established, either by the course of nature, or by the will and appointment of men. When they are connected by the course of nature, it is a natural sign; when by human appointment, it is an artificial sign. Thus smoke is a natural sign of fire; certain features are natural signs of anger; but our words, whether expressed by articulate sounds or by writing, are artificial signs of our thoughts and purposes.

Another requisite to our knowing things by signs is, that the appearance of the sign to the mind, be followed by the conception and belief of the thing signified. Without this, the sign is not understood or interpreted; and therefore is no sign to us, however fit in its own nature for that purpose.

Now, there are three ways in which the mind passes from the appearance of a natural sign to the conception and belief of the thing signified; by original principles of our constitution, by custom, and by reasoning.

Our original perceptions are got in the first of these ways, our acquired perceptions in the second, and all that reason discovers of the course of nature, in the third. In the first of these ways, nature, by means of the sensations of touch, informs us of the hardness and softness of bodies; of their extension, figure, and motion; and of that space in which they move and are placed, as hath been already explained in the fifth chapter of this inquiry. And in the second of these ways she informs us, by means of our eyes, of almost all the same things which originally we could perceive only by touch.

In order, therefore, to understand more particularly how we learn to perceive so many things by the eye, which originally could be perceived only by touch, it will be proper, first, to point out the signs by which those things are exhibited to the eye, and their connection with the things signified by them; and, secondly, to consider how the experience of this connection produces that habit by which the mind, without any reasoning or reflection, passes from the sign to the conception and belief of the thing signified.

Of all the acquired perceptions which we have by sight, the most remarkable is the perception of the distance of objects from the eyes; we shall therefore particularly consider the signs by which this perception is exhibited, and only make some general remarks with regard to the signs which are used in other acquired perceptions.

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## SECTION XXIV OF THE ANALOGY BETWEEN PERCEPTION, AND THE CREDIT WE GIVE TO HUMAN TESTIMONY

The objects of human knowledge are innumerable, but the channels by which it is conveyed to the mind are few. Among these, the perception of external things by our senses, and the informations which we receive upon human testimony, are not the least considerable: and so remarkable is the analogy between these two, and the analogy between the principles of the mind, which are

subservient to the one, and those which are subservient to the other, without further apology we shall consider them together.

In the testimony of nature given by the senses, as well as in human testimony given by language, things are signified to us by signs: and in one, as well as the other, the mind, either by original principles or by custom, passes from the sign to the conception and belief of the things signified.

We have distinguished our perceptions into original and acquired; and language, into natural and artificial. Between acquired perception, and artificial language, there is a great analogy; but still a greater between original perception and natural language.

The signs in original perception are sensations, of which nature hath given us a great variety, suited to the variety of the things signified by them. Nature hath established a real connection between the signs and the things signified; and nature hath also taught us the interpretation of the signs; so that, previous to experience, the sign suggests the thing signified, and creates the belief of it.

The signs in natural language are features of the face, gestures of the body, and modulations of the voice; the variety of which is suited to the variety of the things signified by them. Nature hath established a real connection between these signs, and the thoughts and dispositions of the mind which are signified by them; and nature hath taught us the interpretation of these signs; so that previous to experience, the sign suggests the things signified and creates the belief of it.

A man in company, without doing good or evil, without uttering an articulate sound, may behave himself gracefully, civilly, politely; or, on the contrary, meanly, rudely and impertinently. We see the disposition of his mind, by their natural signs in his countenance and behaviour, in the same manner as we perceive the figure and other qualities of bodies bv the sensations which nature hath connected with them.

The signs in the natural language of the human countenance and behaviour, as well as the signs in our original perceptions, have the same signification in all climates and in all nations; and the skill of interpreting them is not acquired, but innate.

In acquired perception, the signs are either sensations, or things which we perceive by means of sensations. The connection between the sign and the thing signified, is established by nature: and we discover this connection by experience; but not without the aid of our original perceptions, or of those which we have already acquired. After this connection is discovered, the sign, in like manner as in original perception, always suggests the things signified, and creates the belief of it.

In artificial language, the signs are articulate sounds, whose connection with the things signified by them is established by the will of men; and in learning our mother tongue, we discover this connection by experience; but not without the aid of natural language, or of what we had before attained of artificial language. And after this connection is discovered, the sign, as in natural language, always suggests the thing signified, and creates the belief of it.

Our original perceptions are few, compared with the acquired; but without the former, we could not possibly attain the latter. In like manner, natural language is scanty, compared with artificial; but without the former we could not possibly attain the latter.

Our original perceptions, as well as the natural language of human features and gestures, must be resolved into particular principles of the human constitution. Thus it is by one particular principle of our constitution, that certain features express anger; and by another particular principle that certain features express benevolence. It is in like manner by one particular principle of our constitution, that a certain sensation signifies hardness in the body which I handle; and it is by another particular principle, that a certain sensation signifies motion in that body.

But our acquired perceptions, and the information we receive by means of artificial language, must be resolved into general principles of the human constitution. When a painter perceives that this picture is the work of Raphael, that the work of Titian: a jeweller, that this is a true diamond, that a counterfeit; a sailor, that this is a ship of five hundred tons, that of four hundred; these different

acquired perceptions are produced by the same general principles of the human mind, which have a different operation in the same person, according as they are variously applied, and in different persons, according to the diversity of their education and manner of life. In like manner, when certain articulate sounds convey to my mind the knowledge of the battle of Pharsalia; and others, the knowledge of the battle of Poltowa; when a Frenchman and an Englishman receive the same information by different articulate sounds; the signs used in these different cases, produce the knowledge and belief of the things signified, by means of the same general principles of the human constitution.

Now, if we compare the general principles of our constitution, which fit us for receiving information from our fellowcreatures by language, with the general principles which fit us for acquiring the perception of things by our senses, we shall find them to be very similar in their -nature and manner of operation.

When we begin to learn our mother tongue, we perceive by the help of natural language, that they who speak to us, use certain sounds to express certain things: we imitate the same sounds when we would express the same things, and find that we are understood.

But here a difficulty occurs which merits our attention, because the solution of it leads to some original principles of the human mind, which are of great importance, and of very extensive influence. We know by experience, that men have used such words to express such things. But all experience is of the past, and can, of itself, give no notion or belief of what is future. How come we then to believe, and to rely upon it with assurance, that men who have it in their power to do otherwise, will continue to use the same words when they think the same things? Whence comes this knowledge and belief, this foresight we ought rather to call it, of the future and voluntary actions of our fellow-creatures? Have they promised that they will never impose upon us by equivocation or falsehood? No, they have not. And, if they had, this would not solve the difficulty: for such promise must be expressed by words, or by other signs; and, before we can rely upon it, we must be assured, that they put the usual meaning upon the signs which express that promise. No man of common sense ever thought of taking a man's own word for his honesty; and it is evident that we take his veracity for granted, when we lay any stress upon his word or promise. I might add, that this reliance upon the declarations and testimony of men, is found in children long before they know what a promise is.

There is, therefore, in the human mind an early anticipation, neither derived from experience, nor from reason, nor from any compact or promise, that our fellow-creatures will use the same signs in language, when they have the same sentiments.

This is, in reality, a kind of prescience of human actions; and it seems to me to be an original principle of the human constitution, without which we should be incapable of language, and consequently incapable of instruction.

The wise and beneficent Author of nature, who intended that we should be social creatures, and that we should receive the greatest and most important part of our knowledge by the information of others, hath, for thes@ purposes implanted in our natures two principles that tally with each other.

The first of these principles is, a propensity to speak truth, and to use the signs of language, so as to convey our real sentiments. This principle has a powerful operation, even in the greatest liars; for, where they lie once, they speak truth a hundred times. Truth is always uppermost, and is the natural issue of the mind. It requires no art or training, no inducement or temptation, but only that we yield to a natural impulse. Lying, on the contrary, is doing violence to our nature; and is never practised, even by the worst men, without some temptation. Speaking truth is like using our natural food, which we would do from appetite, although it answered no end; but lying is like taking physic, which is nauseous to the taste, and which no man takes but for some end which he cannot otherwise attain.

If it should be objected, That men may be influenced by moral or political considerations to speak truth, and therefore, that their doing so, is no proof of such an original principle as we have

mentioned: I answer, first, That moral or political considerations can have no influence until we arrive at years of understanding and reflection; and it is certain, from experience, that children keep to truth invariably, before they are capable of being influenced bv such considerations. Secondly, When we are influenced by moral or political considerations, we must be conscious of that influence, and capable of perceiving it upon reflection. Now, when I reflect upon my actions most attentively, I am not conscious, that, in speaking truth, I am influenced on ordinary occasions, by any motive moral or political. I find, that truth is always at the door of my lips, and goes forth spontaneously, if not held back. It requires neither good nor bad intention to bring it forth, but only that I be artless and undesigning. There may, indeed, be temptations to falsehood, which would be too strong for the natural principle of veracity, unaided by principles of honour or virtue; but where there is no such temptation, we speak truth by instinct; and this instinct is the principle I have been explaining.

By this instinct, a real connection is formed between our words and our thoughts, and thereby the former become fit to be signs of the latter, which they could not otherwise be. And although this connection is broken in every instance of lying and equivocation, yet these instances being comparatively few, the authority of human testimony is only weakened by them, but not destroyed.

Another original principle implanted in us by the Supreme Being, is a disposition to confide in the veracity of others, and to believe what they tell us. This is the counter part to the former; and as that may be called the principle of veracity, we shall, for want of a more proper name, call this the principle of credulity. It is unlimited in children, until they meet with instances of deceit and falsehood: and it retains a very considerable degree of strength through life.

If nature had left the mind of the speaker in equilibrio, without any inclination to the side of truth more than to that of falsehood; children would lie as often as they speak truth, until reason was so far ripened, as to suggest the imprudence of lying, or conscience, as to suggest its immorality. And if nature had left the mind of the hearer in equilibrio, without any inclination to the side of belief more than to that of disbelief, we should take no man's word until we had positive evidence that he spoke truth. His testimony would, in this case, have no more authority than his dreams; which may be true or false, but no man is disposed to believe them, on this account, that they were dreamed. It is evident, that, in the matter of testimony, the balance of human judgment is by nature inclined to the side of belief; and turns to that side of itself, when there is nothing put into the opposite scale. If it was not so, no proposition that is uttered in discourse would be believed, until it was examined and tried by reason; and most men would be unable to find reasons for believing the thousandth part of what is told them. Such distrust and incredulity would deprive us of the greatest benefits of society, and place us in a worse condition than that of savages.

Children, on this supposition, would be absolutely incredulous; and therefore absolutely incapable of instruction: those who had little knowledge of human life, and of the manners and characters of men, would be in the next degree incredulous: and the most credulous men would be those of greatest experience, and of the deepest penetration; because, in many cases, they would be able to find good reasons for believing the testimony, which the weak and the ignorant could not discover.

In a word, if credulity were the effect of reasoning and experience, it must grow up and gather strength, in the same proportion as reason and experience do. But if it is the gift of nature, it will be strongest in childhood, and limited and restrained by experience; and the most superficial view of human life shows, that the last is really the case, and not the first.

It is the intention of nature, that we should be carried in arms before we are able to walk upon our legs; and it is likewise the intention of nature, that our belief should be guided by the authority and reason of others, before it can be guided by our own reason. The weakness of the infant, and the natural affection of the mother, plainly indicate the former; and the natural credulity of youth, and authority of age, as plainly indicate the latter. The infant, by proper nursing and care, acquires strength to walk without support. Reason hath likewise her infancy, when she must be carried in arms: then she leans entirely upon authority, by natural instinct, as if she was conscious of her own weakness; and without this support, she becomes vertiginous. When brought to maturity by proper

culture, she begins to feel her own strength, and leans less upon the reason of others; she learns to suspect testimony in some cases, and to disbelieve it in others; and sets bounds to that authority to which she was at first entirely subject. But still, to the end of life, she finds a necessity of borrowing light from testimony, where she has none within herself, and of leaning in some degree upon the reason of others, where she is conscious of her own imbecility.

And as in many instances, Reason, even in her maturity, borrows aid from testimony; so in others she mutually gives aid to it, and strengthens its authority. For as we find good reason to reject testimony in some cases, so in others we find good reason to rely upon it with perfect security, in our most important concerns. The character, the number, and the disinterestedness of witnesses, the impossibility of collusion, and the incredibility of their concurring in their testimony without collusion, may give an irresistible strength to testimony, compared to which, its native and intrinsic authority is very inconsiderable.

Having now considered the general principles of the human mind which fit us for receiving information from our fellowcreatures, by the means of language; let us next consider the general principles which fit us for receiving the information of nature by our own acquired perceptions.

It is undeniable, and indeed is acknowledged by all, that when we have found two things to have been constantly conjoined in the course of nature, the appearance of one of them is immediately followed by the conception and belief of the other. The former becomes a natural sign-of the latter; and the knowledge of their constant conjunction in time past, whether got by experience or otherwise, is sufficient to make us rely with assurance upon the continuance of that conjunction.

This process of the human mind is so familiar, that we never think of inquiring into the principles upon which it is founded. We are apt to conceive it as a self-evident truth, that what is to come must be similar to what is past. Thus if a certain degree of cold freezes water today, and has been known to do so in all time past, we have no doubt but the same degree of cold will freeze water tomorrow, or a year hence. That this is a truth which all men believe as soon as they understand it, I readily admit, but the question is, Whence does its evidence arise? Not from comparing the ideas, surely. For when I compare the idea of cold with that of water hardened into a transparent solid body, I can perceive no connection between them: no man can show the one to be the necessary effect of the other: no man can give a shadow of reason why nature hath enjoined them. But do we not learn their conjunction from experience? True: experience informs us that they have been conjoined in time past: but no man ever had any experience of what is future: and this is the very question to be resolved, How we come to believe that the future will be like the past? Hath the Author of nature promised this? Or were we admitted to his council, when he established the present laws of nature, and determined the time of their continuance? No, surely. Indeed, if we believe that there is a wise and good Author of nature, we may see a good reason, why he should continue the same laws of nature, and the same connections of things, for a long time; because, if he did otherwise, we could learn nothing from what is past, and all our experience would be of no use to us. But though this consideration, when we come to the use of reason, may confirm our belief of the continuance of the present course of nature, it is certain that it did not give rise to this belief; for children and idiots have this belief as soon as they know that fire will burn them. It must therefore be the effect of instinct, not of reason.

The wise Author of our nature intended, that a great and necessary part of our knowledge should be derived from experience, before we are capable of reasoning, and he hath provided means perfectly adequate to this intention. For, first, He governs nature by fixed laws, so that we find innumerable connections of things which continue from age to age. Without this stability of the course of nature, there could be no experience; or, it would be a false guide, and lead us into error and mischief. If there were not a principle of veracity in the human mind, men's words would not be signs of their thoughts: and if there were no regularity in the course of nature, no one thing could be a natural sign of another. Secondly, He hath implanted in human minds an original principle by which we believe and expect the continuance of the course of nature, and the continuance of those connections which

we have observed in time past. It is by this general principle of our nature, that when two things have been found connected in time past, the appearance of the one produces the belief of the other.

I think the ingenious author of the Treatise of Human Nature first observed, That our belief of the continuance of the laws of nature cannot be founded either upon knowledge or probability; but, far from conceiving it to be an original principle of the mind, he endeavours to account for it from his favourite hypothesis, That belief is nothing but a certain degree of vivacity in the idea of the thing believed. I made a remark upon this curious hypothesis in the second chapter, and shall now make another.

The belief which we have in perception, is a belief of the present existence of the object; that which we have in memory, is a belief of its past existence; the belief of which we are now speaking, is a belief of its future existence, and in imagination there is no belief at all. Now, I would gladly know of this author, how one degree of vivacity fixes the existence of the object to the present moment; another carries it back to time past; a third, taking a contrary direction, carries it into futurity; and a fourth carries it out of existence altogether. Suppose, for instance, that I see the sun rising out of the sea; I remember to have seen him rise yesterday; I believe he will rise tomorrow near the same place; I can likewise imagine him rising in that place, without any belief at all. Now, according to this skeptical hypothesis, this perception, this memory, this foreknowledge, and this imagination, are all the same idea, diversified only by different degrees of vivacity. The perception of the sun rising, is the most lively idea; the memory of his rising yesterday, is the same idea a little more faint; the belief of his rising tomorrow, is the same idea yet fainter; and the imagination of his rising, is still the same idea, but faintest of all. One is apt to think, that this idea might gradually pass through all possible degrees of vivacity, without stirring out of its place. But if we think so, we deceive ourselves; for no sooner does it begin to grow languid, than it moves backward into time past. Supposing this to be granted, we expect at least that as it moves backward by the decay of its vivacity, the more that vivacity decays, it will go back the farther, until it remove quite out of sight. But here we are deceived again; for there is a certain period of this declining vivacity, when, as if it had met an elastic obstacle in its motion backward, it suddenly rebounds from the past to the future, without taking the present in its way. And now having got into the regions of futurity, we are apt to think, that it has room enough to spend all its remaining vigour: but still we are deceived; for, by another sprightly bound, it mounts up into the airy region of imagination. So that ideas, in the gradual declension of their vivacity, seem to imitate the inflection of verbs in grammar. They begin with the present, and proceed in order to the preterite, the future, and the indefinite. This article of the skeptical creed is indeed so full of mystery, on whatever side we view it, that they who hold that creed, are very injuriously charged with incredulity: for to me it appears to require as much faith as that of St. Athanasius.

However, we agree with the author of the Treatise of Human Nature in this, That our belief of the continuance of nature's law is not derived from reason. It is an instinctive prescience of the operations of nature, very like to that prescience of human actions which makes us rely upon the testimony of our fellow creatures; and as, without the latter, we should be incapable of receiving information from men by language, so, without the former, we should be incapable of receiving the information of nature by means of experience.

All our knowledge of nature beyond our original perceptions, is got by experience, and consists in the interpretation of natural signs. The constancy of nature's laws connects the sign with the thing signified, and, by the natural principle just now explained, we rely upon the continuance of the connections which experience hath discovered; and thus the appearance of the sign, is followed by the belief of the thing signified.

Upon this principle of our constitution, not only acquired perception, but all inductive reasoning, and all our reasoning from analogy, is grounded: and therefore, for want of another name, we shall beg leave to call it the inductive principle. It is from the force of this principle, that we immediately assent to that axiom, upon which all our knowledge of nature is built, that effects of the same kind must have the same cause. For effects and causes, in the operations of nature, mean nothing but signs and the things signified by them. We perceive no proper causality or efficiency in any natural cause;

but only a connection established by the course of nature between it and what is called its effect. Antecedently to all reasoning, we have, by our constitution, an anticipation, that there is a fixed and steady course of nature; and we have an eager desire to discover this course of nature. We attend to every conjunction of things which presents itself, and expect the continuance of that conjunction. And when such a conjunction has been often observed, we conceive the things to be naturally connected, and the appearance of one, without any reasoning or reflection, carries along with it the beli(!f of the other.

If any reader should imagine that the inductive principle may be resolved into what philosophers usually call the association of ideas, let him observe, that, by this principle, -natural signs are not associated with the idea only, but with the belief of the things signified. Now, this can with no propriety be called an association of ideas, unless ideas and belief be one and the same thing. A child has found the prick of a pin conjoined with pain; hence he believes and knows that these things are naturally connected; he knows that the one will always follow the other. If any man will call this only an association of ideas, I dispute not about words, but I think he speaks very improperly. For if we express it in plain English, it is a prescience, that things which he hath found conjoined in time past, will be conjoined in time to come. And this prescience is not the effect of reasoning, but of an original principle of human nature, which I have called the inductive principle.

This principle, like that of credulity, is unlimited in infancy, and gradually restrained and regulated as we grow up. It leads us often into mistakes, but is of infinite advantage upon the whole. By it the child once burnt shuns the fire; by it, he likewise runs away from the surgeon, by whom he was inoculated. It is better that he should do the last, than that he should not do the first.

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