

From Susan Guinness, June 182

LOGIC: *Daborn*

OR

THE RIGHT USE OF REASON,

IN

THE INQUIRY AFTER TRUTH;

WITH

A VARIETY OF RULES TO GUARD AGAINST ERROR IN
THE AFFAIRS OF RELIGION AND HUMAN LIFE,
AS WELL AS IN THE SCIENCES.

BY ISAAC WATTS, D. D.

A NEW EDITION, CORRECTED.

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SIR JOHN HARTOPP, BART.

SIR,

IT is fit the public should receive through your hands what was written originally for the assistance of your younger studies, and was then presented to you.

It was by the repeated importunities of our learned friend Mr John Eames, that I was persuaded to revise these Rudiments of Logic; and when I had once suffered myself to begin the work, I was drawn still onward far beyond my first design, even to the neglect, or too long delay of other pressing and important demands that were upon me.

It has been my endeavour to form every part of this treatise both for the instruction of students, to open their way into the sciences, and for the more extensive and general service of mankind, that the Gentleman and the Christian might find their account in the perusal as well as the Scholar. I have therefore collected and proposed the

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chief principles and rules of right judgment in matters of common and sacred importance, and pointed out our most frequent mistakes and prejudices in the concerns of life and religion, that we might better guard against the springs of error, guilt and sorrow, which surround us in every state of mortality.

You know, SIR, the great design of this noble science is to rescue our reasoning powers from their unhappy slavery and darkness; and thus with all due submission and deference it offers a humble assistance to divine revelation. Its chief business is to relieve the natural weaknesses of the mind by some better efforts of nature; it is to diffuse a light over the understanding in our inquiries after truth, and not to furnish the tongue with debate and controversy. True Logic is not that noisy thing that deals all in dispute and wrangling, to which former ages had debased and confined it; yet its disciples must acknowledge also, that they are taught to vindicate and defend the truth, as well as to search it out. True Logic doth not require a long detail of hard words to amuse mankind, and to puff up the mind with empty sounds, and a pride of false learning; yet some distinctions and terms of art are necessary to range every idea in its proper class, and to keep our thoughts from confusion. The world is

now grown so wise as not to suffer this valuable art to be engrossed by the Schools. In so polite and knowing an age, every Man of Reason will covet some acquaintance with Logic, since it renders its daily service to wisdom and virtue, and to the affairs of common life as well as to the sciences.

I will not presume, SIR, that this little book is improved since its first composure, in proportion to the improvements of your manly age. But when you shall please to review it in your retired hours, perhaps you may refresh your own memory in some of the early parts of Learning; and if you find all the additional remarks and rules made so familiar to you already by your own observation, that there is nothing new among them, it will be no displeasing reflection that you have so far anticipated the present zeal and labour of,

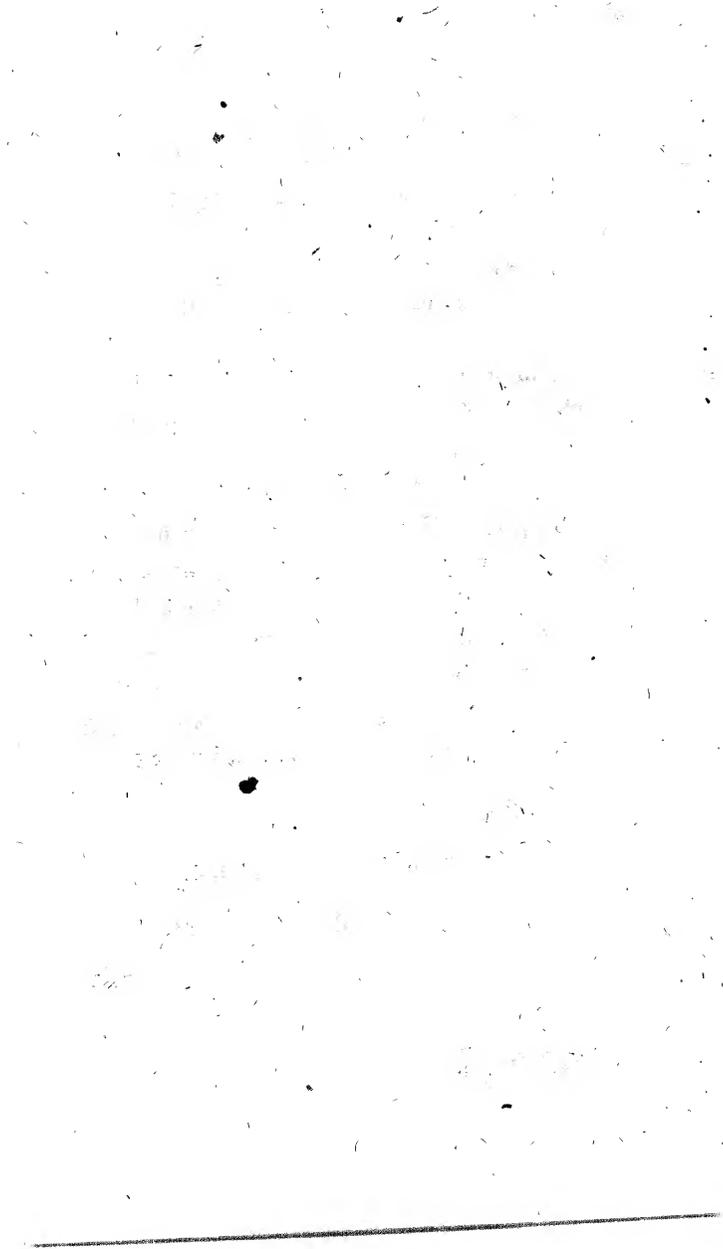
SIR,

Your most Faithful and

Obedient Servant,

I. WATTS.

LONDON,
Aug. 24. 1724. }



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INTRODUCTION
AND
GENERAL SCHEME.

LOGIC is the art of using REASON * well in our inquiries after truth, and the communication of it to others.

REASON * is the glory of human nature, and one of the chief eminences whereby we are raised above our fellow-creatures, the brutes, in this lower world.

Reason, as to the power and principle of it, is the common gift of God to all men, though all are not favoured with it by nature in an equal degree; but the acquired improvements of it in different men, make a much greater distinction between them than nature had made. I could even venture to say, that the improvement of reason hath raised the learned and the prudent in the European world, almost as much above the Hottentots, and other savages of Africa, as those savages are by nature superior to the birds, the beasts, and the fishes.

Now the design of *Logic* is to teach us the right use of our reason, or intellectual powers, and the improvement of them in ourselves and others. This is not only necessary in order to attain any competent knowledge in the sciences, or the affairs of learning,

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* The word Reason in this place is not confined to the mere faculty of reasoning, or inferring one thing from another, but includes all the intellectual powers of man.

but to govern both the greater and the meaner actions of life. It is the cultivation of our reason by which we are better enabled to distinguish good from evil, as well as truth from falsehood; and both these are matters of the highest importance, whether we regard this life, or the life to come.

The pursuit and acquisition of truth is of infinite concernment to mankind. Hereby we become acquainted with the name of things both in heaven and earth, and their various relations to each other. It is by this means we discover our duty to God and our fellow-creatures; by this we arrive at the knowledge of natural religion, and learn to confirm our faith in divine revelation, as well as to understand what is revealed. Our wisdom, prudence, and piety, our present conduct and our future hope, are all influenced by the use of our rational powers in the search after truth.

There are several things that make it very necessary that our reason should have some assistance in the exercise or use of it.

The first is, the depth and difficulty of many truths, and the weakness of our reason to see far into things at once, and penetrate to the bottom of them. It was a saying among the ancients, *Veritas in puteo*, truth lies in a well; and, to carry on this metaphor, we may very justly say, that logic does, as it were, supply us with steps whereby we may go down to reach the water: or it frames the links of a chain, whereby we may draw the water up from the bottom. Thus, by the means of many reasonings well connected together, philosophers in our age have drawn a thousand truths out of the depths of darkness, which our fathers were utterly unacquainted with.

Another thing that makes it necessary for our reason to have some assistance given it, is the disguise and false colours in which many things appear to us in this present imperfect state. There are a thousand things which are not in reality what they appear to be, and that both in the natural and moral world; so that the sun appears to be flat as a plate of silver, and to be less than

twelve inches in diameter; the moon appears to be as big as the sun; and the rainbow appears to be a large substantial arch in the sky; all which are in reality gross falsehoods. So knavery puts on the face of justice; hypocrisy and superstition wear the vizard of piety, deceit and evil are often clothed in the shapes and appearances of truth and goodness. Now logic helps us to strip off the outward disguise of things, and to behold them and judge of them in their own nature.

There is yet a farther proof of our intellectual, or rational powers, needing some assistance, and that is, because they are so frail and fallible in the present state: We are imposed upon at home as well as abroad; we are deceived by our senses, by our imaginations, by our passions and appetites; by the authority of men, by education and custom, &c.; and we are led into frequent errors, by judging according to these false and flattering principles, rather than according to the nature of things. Something of this frailty is owing to our very constitution, man being compounded of flesh and spirit; something of it arises from our infant state, and our growing up by small degrees to manhood; so that we form a thousand judgments before our reason is mature. But there is still more of it owing to our original defection from God, and the foolish and evil dispositions that are found in fallen man; so that one great part of the design of logic is to guard us against the delusive influences of our meaner powers, to cure the mistakes of immature judgment, and to raise us in some measure from the ruins of our fall.

It is evident enough from all these things, that our reason needs the assistance of art in our inquiries after truth or duty; and without some skill and diligence in forming our judgment aright, we shall be led into frequent mistakes, both in matters of science, and in matters of practice; and some of these mistakes may prove fatal too.

The art of logic, even as it assists us to gain the knowledge of the sciences, leads us on towards virtue

and happiness; for all our speculative acquaintance with things should be made subservient to our better conduct in the civil and the religious life. This is infinitely more valuable than all speculations, and a wise man will use them chiefly for this better purpose.

All the good judgment and prudence that any man exerts in his common concerns of life, without the advantage of learning, is called natural logic; and it is but a higher advancement, and a farther assistance of our rational powers, that is designed by and expected from this artificial logic.

In order to attain this, we must inquire what are the principal operations of the mind which are put forth in the exercise of our reason; and we shall find them to be these four, viz. Perception, judgment, argumentation, and disposition.

Now the art of logic is composed of those observations and rules, which men have made about these four operations of the mind, perception, judgment, reasoning, and disposition, in order to assist and improve them.

I. PERCEPTION, conception, or apprehension, is the mere simple contemplation of things offered to our mind, without affirming or denying any thing concerning them. So we conceive or think of a horse, a tree, high, swift, slow, animal, time, motion, matter, mind, life, death, &c. The form under which these things appear to the mind, or the result of our conception or apprehension, is called an idea.

II. JUDGMENT is that operation of the mind, whereby we join two or more ideas together by one affirmation or negation; that is, we either affirm or deny this to be that. So this tree is high; that horse is not swift; the mind of man is a thinking being; mere matter has no thought belonging to it; God is just; good men are often miserable in this world; a righteous governor will make a difference betwixt the evil.

and the good ; which sentences are the effect of judgment, and are called Propositions.

III. ARGUMENTATION or reasoning is that operation of the mind, whereby we infer one thing, that is, one proposition from two or more propositions premised ; or it is the drawing a conclusion, which before was either unknown, or dark or doubtful, from some propositions which are more known and evident. So when we have judged that matter cannot think, and that the mind of man doth think, we then infer and conclude, that therefore the mind of man is not matter.

So we judge that a just governor will make a difference between the evil and the good ; we judge also that God is a just governor ; and from thence we conclude, that God will make a difference betwixt the evil and the good.

This argumentation may be carried on farther ; thus, God will one time or another make a difference between the good and the evil ; but there is little or no difference made in this world : Therefore there must be another world wherein this difference shall be made.

These inferences or conclusions are the effects of reasoning ; and the three propositions taken all together are called a syllogism or argument.

IV. DISPOSITION is that operation of the mind, whereby we put the ideas, propositions, and arguments, which we have formed concerning one subject, into such an order as is fittest to gain the clearest knowledge of it, to retain it longest, and to explain it to others in the best manner ; or, in short, it is the ranging of our thoughts in such order as is best for our own and others conception and memory. The effect of this operation is called method. This very description of the four operations of the mind, and their effects in this order, is an instance or example of method.

Now, as the art of logic assists our conception, so it

gives us a large and comprehensive view of the subjects we inquire into, as well as a clear and distinct knowledge of them. As it regulates our judgment and our reasoning, so it secures us from mistakes, and gives us a true and certain knowledge of things; and as it furnishes us with method, so it makes our knowledge of things both easy and regular, and guards our thoughts from confusion.

Logic is divided into four parts, according to these four operations of the mind, which it directs, and therefore we shall treat of it in this order.

THE
FIRST PART
OF
L O G I C.

OF PERCEPTION AND IDEAS:

THE first part of logic contains observations and precepts about the first operation of the mind, perception, or conception; and since all our knowledge, how wide and large soever it grow, is founded upon our conceptions and ideas, here we shall consider,

1. The general nature of them.
 2. The objects of our conception, or the archetypes or patterns of these ideas.
 3. The several divisions of them.
 4. The words and terms whereby our ideas are expressed.
 5. General directions about our ideas.
 6. Special rules to direct our conceptions.
-

CHAP. I.

OF THE NATURE OF IDEAS.

FIRST, the nature of conception or perception * shall just be mentioned, though this may seem to belong to another science rather than logic.

* The words Conception and Perception are often used promiscuously, as I have done here, because I would not embarrass a learner.

Perception is that act of the mind (or, as some philosophers call it, rather a passion or impression), whereby the mind becomes conscious of any thing, as when I feel hunger, thirst, or cold, or heat; when I see a horse, a tree, or a man; when I hear a human voice, or thunder, I am conscious of these things, and this is called perception. If I study, meditate, wish, or fear, I am conscious of these inward acts also, and my mind perceives its own thoughts, wishes, fears, &c.

An idea is generally defined a representation of a thing in the mind; it is a representation of something that we have seen, felt, heard, &c. or been conscious of. That notion or form of a horse, a tree, or a man, which is in the mind, is called the idea of a horse, a tree, or a man.

That notion of hunger, cold, sound, colour, thought, or wish, or fear, which is in the mind, is called the idea of hunger, cold, sound, wish, &c.

It is not the outward object or thing which is perceived, viz. the horse, the man, &c. nor is it the very perception or sense and feeling, viz. of hunger or cold, &c. which is called the idea; but it is the thing as it exists in the mind by way of conception or representation that is properly called the idea, whether the object be present or absent.

As a horse, a man, and a tree, are the outward objects of our perception, and the outward archetypes or patterns of our ideas, so our own sensations of hunger, cold, &c. are also inward archetypes or patterns of our ideas; but the notions or pictures of these things, as they are considered or conceived in the mind, are precisely the ideas that we have to do with in logic. To see a horse, or to feel cold, is one thing: to think of and converse about a man, a horse, hunger, or cold, is another.

Among all these ideas, such as represent bodies are generally called images, especially if the idea of the thing is formed in the mind. I would not distinguish them, I would say perception is the consciousness of an object when present; conception is the forming an idea of the object, whether present or absent.

shape be included. Those inward representations which we have of spirit, thought, love, hatred, cause, effect, &c. are more pure and mental ideas, belonging more especially to the mind, and carry nothing of shape or sense in them. But I shall have occasion to speak more particularly of the original, and the distinction of ideas, in the third chapter. I proceed therefore now to consider the objects of our ideas.

CHAP. II.

OF THE OBJECTS OF PERCEPTION.

SECT. I.—*Of Being in General.*

THE object of perception is that which is represented in the idea, that which is the archetype or pattern, according to which the idea is formed; and thus *judgment, propositions, reasons,* and long discourses, may all become the objects of perception; but in this place we speak chiefly of the first and more simple objects of it, before they are joined and formed into propositions or discourses.

Every object of our idea is called a *theme*, whether it be a being or not-being; for not-being may be proposed to our thoughts, as well as that which has a real being. But let us first treat of beings, and that in the largest extent of the word.

A being is considered as possible, or as actual.

When it is considered as possible, it is said to have an essence or nature. Such were all things before their creation. When it is considered as actual, then it is said to have existence also. Such are all things which are created, and God himself the creator.

Essence, therefore, is but the very nature of any being, whether it be actually existing or no. A rose in winter has an essence, in summer it has existence also.

Note. There is but one being which includes exist-

ence in the very essence of it, and that is God, who therefore actually exists by natural and eternal necessity; but the actual existence of every creature is very distinct from its essence, for it may be or may not be, as God pleases.

Again, every being is considered either as subsisting in and by itself, and then it is called a substance; or it subsists in and by another, and then it is called a mode or manner of being. Though few writers allow mode to be called a being in the same perfect sense as a substance is: and some modes have evidently more of real entity or being than others, as will appear when we come to treat of them. These things will furnish us matter for larger discourse in the following sections.

SECT. II.—*Of Substances and their various Kinds.*

A **SUBSTANCE** is a being which can subsist by itself, without dependence upon any other created being. The notion of subsisting by itself gives occasion to logicians to call it a substance. So a horse, a house, wood, stone, water, fire, a spirit, a body, an angel, are called substances, because they depend on nothing but God for their existence.

It has been usual also in the description of substance to add, it is that which is the subject of modes or accidents; a body is the substance or subject, its shape is the mode.

But lest we be led into mistakes, let us here take notice, that when a substance is said to subsist without dependence upon another created being, all that we mean, is, that it cannot be annihilated, or utterly destroyed and reduced to nothing, by any power inferior to that of our Creator, though its present particular form, nature and properties may be altered and destroyed by many inferior causes; a horse may die and turn to dust; wood may be turned into fire, smoke, and ashes; a house into rubbish, and water into ice or

vapour; but the substance or matter of which they are made still remains, though the forms and shapes of it are altered. A body may cease to be a horse or a house, but it is a body still; and in this sense it depends only upon God for its existence.

Among substances, some are thinking or conscious beings, or having a power of thought, such as the mind of man, God, angels. Some are extended, and solid or impenetrable; that is, they have dimensions of length, breadth, and depth, and have also a power of resistance, or exclude every thing of the same kind from being in the same place. This is the proper character of matter or body.

As for the idea of space, whether it be void or full, that is, a *vacuum* or a *plenum*, whether it be interspersed among all bodies, or may be supposed to reach beyond the bounds of the creation, it is an argument too long and too hard to be disputed in this place what the nature of it is. It has been much debated whether it be a real substance, or a mere conception of the mind; whether it be the immensity of the divine nature, or the mere order of co-existent beings; whether it be the manner of our conception of the distances of bodies, or a mere nothing. Therefore, I drop the mention of it here, and refer the reader to the first essay among the *Philosophical Essays* by I. W. published 1733.

Now, if we seclude space out of our consideration, there will remain but two sorts of substances in the world, that is, matter and mind; or, as we otherwise call them, body and spirit; at least we have no ideas of any other substance but these.

* Because men have different ideas and notions of substance, I thought it not proper entirely to omit all accounts of them, and therefore have thrown them into the margin.

Some philosophers suppose, that our acquaintance with matter or mind reaches no farther than the mere properties of them, and that there is a sort of unknown being, which is the substance or the subject by which these properties of solid extension and of cogitation are supported, and in which these properties inhere or exist. But perhaps this notion arises only from our turning the mere abstracted or

Among substances, some are called simple, some are compound, whether the words be taken in a philosophical or a vulgar sense.

logical notion of substance or self-subsisting into the notion of a distinct, physical, or natural being, without any necessity. Solid extension seems to me to be the very substance of matter, or of all bodies; and a power of thinking, which is always in act, seems to be the very substance of all spirits; for God himself is an intelligent, almighty power; nor is there any need to seek for any other secret and unknown being or abstracted substance entirely distinct from these, in order to support the several modes or properties of matter or mind; for these two ideas are sufficient for that purpose; therefore I rather think they are substances.

It must be confessed, when we say, spirit is a thinking substance, and matter is an extended solid substance, we are sometimes ready to imagine, that extension and solidity are but mere modes and properties of a certain unknown substance or subject which supports them, and which we call body; and that a power of thinking is but a mere mode and property of some unknown substance or subject which supports it, and which we call spirit; but I rather take this to be a mere mistake which we are led into by the grammatical form and use of words; and perhaps our logical way of thinking by substances and modes, as well as our grammatical way of talking by substantives and adjectives, help to delude us into the supposition.

However, that I may not be wanting to any of my readers, I would let them know Mr Locke's opinion, which has obtained much in the present age, and it is this: "That our idea of any particular substance is only such a combination of simple ideas as represents that thing as subsisting by itself, in which the supposed or confused idea of substance (such as it is) is always ready to offer itself. It is a conjunction of ideas co-existing in such a cause of their union, and makes the whole subject subsist by itself, though the cause of their union be unknown; and our general idea of substance arises from the self-subsistence of this collection of ideas."

Now if this notion of substance rest here, and be considered merely as an unknown cause of the union of properties, it is much more easy to be admitted; but if we proceed to support a sort of real substantial, distinct being, different from solid quantity or extension in bodies, and different from a power of thinking in spirits, in my opinion it is the introduction of a needless, scholastical notion into the real nature of things, and then fancying it to have a real existence.

Mr Locke, in his *Essay of Human Understanding*, Book II. chap. 22, § 2. seems to ridicule this common idea of substance, which men have generally supposed to be a sort of substratum, distinct from all properties whatsoever, and to be the support of all properties. Yet, in Book IV. chap. 3. § 6. he seems to suppose there may be some such unknown substratum, which may be capable of receiving the properties both of matter and of mind, viz. extension, solidity, and cogitation; for he supposes it possible for God to add cogitation to that substance which is corporeal, and thus to cause matter to think. If

Simple substances, in a philosophical sense, are either spirits which have no manner of composition in them, and in this sense God is called a simple being; or they are the first principles of bodies, which are usually called elements, of which all other bodies are compounded: elements are such substances as cannot be resolved or reduced into two or more substances of different kinds.

The various sects of philosophers have attributed the honour of this name to various things. The Peripateticks, or followers of Aristotle, made fire, air, earth, and water, to be the four elements of which all earthly things were compounded; and they supposed the heavens to be a quintessence, or a fifth sort of body, distinct from all these; but since experimental philosophy and mathematics have been better understood, this doctrine has been abundantly refuted. The chemists make spirit, salt, sulphur, water, and earth, to be their five elements, because they can reduce all terrestrial things to these five. This seems to come nearer the truth, though they are not all agreed in this enumeration of elements. In short, our modern philosophers generally suppose matter or body to be one simple principle or solid extension, which being diversified by its various shapes, quantities, motions, and situations, makes all the varieties that are found in the universe, and therefore they make little use of the word element.

Compound substances are made up of two or more simple substances; so every thing in this whole material creation, that can be reduced by the art of man into two or more different principles or substances, is a compound body in the philosophical sense.

But if we take the words simple and compound in a

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this be true, then spirits (for ought we know) may be corporeal beings or thinking bodies, which is a doctrine too favourable to the mortality of the soul. But I leave these debates to the philosophers of the age, and will not be too positive in my opinion of this abstruse subject.

See more of this argument in Philosophical Essays, before cited, Essay 2.

vulgar sense, then all those are simple substances which are generally esteemed uniform in their natures. So every herb is called a simple; and every metal and mineral, though the chemist perhaps may find all his several elements in each of them. So a needle is a simple body, being only made of steel; but a sword or a knife is a compound, because its haft or handle is made of materials different from the blade. So the bark of Peru, or the juice of sorrel, is a simple medicine; but when the apothecary's art has mingled several simples together, it becomes a compound, as *diascordium* or *mithradite*.

The terms of pure and mixed, when applied to bodies, are much akin to simple and compound. So a guinea is pure gold, if it has nothing but gold in it, without any alloy or baser metal; but if any other mineral or metal be mingled with it, it is called a mixed substance or body.

Substances are also divided into animate and inanimate. Animate substances are either animal or vegetable*.

Some of the animated substances have various organical or instrumental parts, fitted for a variety of motions from place to place, and a spring of life within themselves, as beasts, birds, fishes, and insects; these are called animals. Other animated substances are called vegetables, which have within themselves the principles of another sort of life and growth, and of various productions of leaves, flowers, and fruit, such as we see in plants, herbs, and trees.

And there are other substances, which are called inanimate, because they have no sort of life in them, as earth, stone, air, water, &c.

There is also one sort of substance or being, which is compounded of body and mind, or a rational spirit united to an animal; such is mankind. Angels, or

* Vegetables as well as animals have gotten the name of animated substances, because some of the ancients supposed herbs and plants, beasts and birds, &c. to have a sort of souls distinct from matter or body.

any other beings of the spiritual and invisible world, who have assumed visible shapes for a season, can hardly be reckoned among this order of compounded beings; because they drop their bodies, and divest themselves of those visible shapes, when their particular message is performed, and thereby shew that these bodies do not belong to their natures.

SECT. III.—*Of Modes, and their various Kinds, and first of essential and accidental Modes.*

THE next sort of objects which are represented in our ideas, are called modes, or manners of being*.

A mode is that which cannot subsist in and of itself, but is always esteemed as belonging to, and subsisting by, the help of some substance, which, for that reason, is called its subject. A mode must depend on that substance for its very existence and being; and that not as a being depends on its cause, (for so substances themselves depend on God their creator), but the very being of a mode depends on some substance for its subject, in which it is, or to which it belongs; so motion, shape, quantity, weight, are modes of the body; knowledge, wit, folly, love, doubting, judging, are modes of the mind; for the one cannot subsist without body, and the other cannot subsist without mind.

Modes have their several divisions, as well as substances,

I. MODES are either essential or accidental.

An essential mode or attribute is that which belongs to the very nature or essence of the subject wherein it

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* The term Mode is by some authors applied chiefly to the relations or relative manners of being; but, in logical treatises, it is often used in a larger sense, and extends to all attributes whatsoever, and includes the most essential and inward properties, as well as outward respects and relations, and reaches to actions themselves, as well as manners of action.

is; and the subject can never have the same nature without it. Such is roundness in a bowl, hardness in a stone, softness in water, vital motion in an animal, solidity in matter, thinking in a spirit; for though that piece of wood which is now a bowl may be made square, yet if roundness be taken away it is no longer a bowl; so that very flesh and bones, which is now an animal, may be without life or inward motion; but if all motion be entirely gone, it is no longer an animal but a carcase; so if a body or matter be divested of solidity, it is a mere void space or nothing; and if spirit be entirely without thinking, I have no idea of any thing that is left in it; therefore so far as I am able to judge, consciousness must be its essential attribute*; thus all the perfections of God are called his attributes, for he cannot be without them.

An essential mode is either primary or secondary.

A primary essential mode is the first or chief thing that constitutes any being in its particular essence or nature, and makes it to be that which it is, and distinguishes it from all other beings; that is called the difference in the definition of things, of which here after; so roundness is the primary essential mode or difference of a bowl: the meeting of two lines is the primary essential mode, or the difference of an angle: the perpendicularity of these lines to each other is the difference of a right angle: solid extension is the primary attribute or difference of matter; consciousness, or at least a power of thinking, is the difference or primary attribute of a spirit †: and to fear and love God is the primary attribute of a pious man.

A secondary essential mode is any other attribute of a thing, which is not of primary consideration; this is

* When I call solid extension an essential mode or attribute of matter, and a power of thinking an essential mode or attribute of a spirit, I do it in compliance with common forms of speech, but perhaps in reality these are the very essences or substances themselves, and the most substantial ideas that we can frame of body and spirit, and have no need of any (we know not what) substratum or unintelligible substance to support them in their existence or being.

† See the preceding note.

called a property. Sometimes indeed it goes towards making up the essence, especially of a complex being, so far as we are acquainted with it: sometimes it depends upon, and follows from, the essence of it; so volubility, or aptness to roll, is the property of a bowl, and is derived from its roundness. Mobility and figure or shape are properties of matter; and it is the property of a pious man to love his neighbour.

An accidental mode, or an accident, is such a mode as is not necessary to the being of a thing; for the subject may be without it, and yet remain of the same nature that it was before; or it is that mode which may be separated or abolished from its subject; so smoothness or roughness, blackness or whiteness, motion or rest, are the accidents of a bowl; for these may be all changed, and yet the body remain a bowl still. Learning, justice, folly, sickness, health, are the accidents of a man; motion, squareness, or any particular shape or size, are the accidents of a body; yet shape and size in general are essential modes of it; for a body must have some size and shape, nor can it be without them; so hope, fear, wishing, assenting, and doubting, are accidents of the mind, though thinking in general seems to be essential to it.

Here observe, that the name of accident has been oftentimes given by the old Peripatetick philosophers to all modes, whether essential or accidental; but the moderns confine this word accident to the sense in which I have described it.

Here it should be noted also, that though the word property be limited sometimes in logical treatises to the secondary essential mode, yet it is used in common language to signify these four sorts of modes, of which some are essential, and some accidental.

(1). Such as belong to every subject of that kind, but not only to those subjects. So yellow colour and ductility are properties of gold; they belong to all gold; but not only to gold, for saffron is also yellow, and lead is ductile.

(2). Such as belong only to one kind of subject, but

III. THE third division of mode shews us they are either intrinsic or extrinsic. Intrinsic modes are conceived to be in the subject or substance, as when we say a globe is round, or swift, rolling, or at rest; or when we say a man is tall or learned, these are intrinsic modes; but extrinsic modes are such as arise from something that is not in the substance or subject itself; but it is a manner of being which some substances attain, by reason of something that is external or foreign to the subject; as, this globe lies within two yards of the wall; or, this is beloved or hated. *Note.* Such sort of modes as this last example are called external denominations.

IV. THERE is a fourth division much akin to this, whereby modes are said to be inherent or adherent; that is, proper or improper. Adherent or improper modes arising from the joining of some accidental substance to the chief subject, which yet may be separated from it; so when a bowl is wet, or a boy is clothed, these are adherent modes; for the water and the clothes are distinct substances, which adhere to the bowl or to the boy; but when we say the bowl is swift or round; when we say the boy is strong or witty, these are proper or inherent modes, for they have a sort of inbeing in the substance itself, and do not arise from the addition of any other substance to it.

V. ACTION and passion are modes or manners which elöng to substances, and should not entirely be omitted here. When a smith with a hammer strikes a piece of iron, the hammer and the smith are both agents or subjects of action; the one is the prime or supreme, the other the subordinate; the iron is the patient, or the subject of passion, in a philosophical sense, because it receives the operation of the agent; though this use of the words passion and patient differs much from the vulgar meaning of them*.

* Agent signifies the doer, patient the sufferer, action is doing, passion is suffering: agent and action have retained their original

VI. THE sixth division of modes may be into physical, that is, natural, civil, moral, and supernatural. So when we consider the apostle Paul, who was a little man, a Roman by the privilege of his birth, a man of virtue or honesty, and an inspired apostle, his low stature is a physical mode, his being a Roman is a civil privilege, his honesty is a moral consideration, and his being inspired is supernatural.

VII. MODES belong either to body or to spirit, or to both. Modes of body belong only to matter or to corporeal beings; and these are shape, size, situation, or place, &c. Modes of spirit belong to mind; such are knowledge, assent, dissent, doubting, reasoning, &c. Modes which belong to both have been sometimes called mixed modes, or human modes; for these are only found in human nature, which is compounded both of body and spirit: such are sensation, imagination, passion, &c. in all which there is a concurrence of the operations both of mind and body, that is, of animal and intellectual nature.

But the modes of body may be yet farther distinguished. Some of them are primary modes or qualities, for they belong to bodies considered in themselves, whether there were any man to take notice of them or no; such are these before mentioned, viz. shape, size, situation, &c. Secondary qualities or modes are such ideas as we ascribe to bodies on account of the various impressions which are made on the senses of men by them, and these are called sensible qualities, which are very numerous; such are all colours, as red, green, blue, &c.; such are all sounds, as sharp, shrill, loud, hoarse; all tastes, as sweet, bitter, sour; all smells, whether pleasant, offensive, or indifferent; and all tactile qualities, or such as affect the touch or feeling, viz. heat, cold, &c. These are properly called secondary qualities; for though we are ready to conceive them as existing in the very bodies themselves which affect and philosophical sense, though patient and passion have acquired a very different meaning in common language.

our senses, yet true philosophy has most undeniably proved, that all these are really various ideas or perceptions excited in human nature by the different impressions that bodies make upon our senses by their primary modes, that is, by means of their different shapes, size, motion, and position of those little invisible parts that compose them. Thence it follows, that a secondary quality, considered as in the bodies themselves, is nothing else but a power and aptitude to produce such sensations in us. See Locke's Essay on the Understanding, Book II. Chap. 8.

VIII. I MIGHT add, in the last place, that as modes belong to substances, so there are some also that are but modes of other modes: for though they subsist in and by the substance, as the original subject of them, yet they are properly and directly attributed to some mode of that substance. Motion is the mode of a body; but the swiftness or slowness of it, or its direction to the north or south, are but modes of motion. Walking is the mode or manner of man or of a beast; but walking gracefully implies a manner or mode superadded to that action. All comparative and superlative degrees of any quality, are the modes of a mode, as swifter implies a greater measure of swiftness.

It would be too tedious here to run through all the modes, accidents, and relations at large that belong to various beings, and are copiously treated of in general in the science called metaphysics, or more properly ontology; they are also treated of in particular in those sciences which have assumed them severally as their proper subjects.

SECT. V.—*Of the ten Categories.—Of Substances modified.*

WE have thus given an account of the two chief objects of our ideas, viz. Substances and modes, and

their various kinds; and in these last sections, we have briefly comprised the greatest part of what is necessary in the famous ten ranks of being, called the ten predicaments or categories of Aristotle, on which there are endless volumes of discourses formed by several of his followers. But that the reader may not utterly be ignorant of them, let him know the names are these: *Substance, quantity, quality, relation, action, passion, where, when, situation, and clothing.* It would be mere loss of time to show how loose, how injudicious, and even ridiculous is this tenfold division of things; and whatsoever farther relates to them, and which may tend to improve useful knowledge, should be sought in ontology, and in other sciences.

Besides substance and mode, some of the moderns would have us consider the substance modified, as a distinct object of our ideas; but I think there is nothing more that need be said on this subject than this, viz. There is some difference between a substance when it is considered with all its modes about it, or clothed in all its manners of existence, and when it is distinguished from them, and considered naked without them.

SECT. VI.—*Of Not-Being.*

As being is divided into substance and mode, so we may consider not-being with regard to both these.

I. NOT-BEING is considered as excluding all substance, and then all modes are also necessarily excluded, and this we call pure nullity, or mere nothing.

This nothing is taken either in a vulgar or a philosophical sense; so we say there is nothing in the cup, in a vulgar sense, when we mean there is no liquor in it; but we cannot say there is nothing in the cup, in a strict philosophical sense, while there is air in it, and perhaps a million of rays of light are there.

II. NOT-BEING, as it has relation to modes or manners of being, may be considered either as a mere negation, or as a privation.

A negation is the absence of that which does not naturally belong to the thing we are speaking of, or which has no right, obligation, or necessity to be present with it; as when we say a stone is inanimate, or blind, or deaf, that is, it has no life, nor sight, nor hearing; or when we say a carpenter or a fisherman is unlearned, these are mere negations.

But a privation is the absence of what does naturally belong to the thing we are speaking of, or which ought to be present with it, as when a man or a horse is deaf, or blind, or dead, or if a physician or a divine be unlearned, these are called privations; so the sinfulness of any human action is said to be a privation; for sin is that want of conformity to the law of God, which ought to be found in every action of man.

Note. THERE are some writers who make all sort of relative modes or relations, as well as all external denominations, to be mere creatures of the mind, and *entia rationis*, and then they rank them also under the general head of not-beings; but it is my opinion, that whatsoever may be determined concerning mere mental relations and external denominations, which seem to have something less of entity or being in them, yet there are many real relations which ought not to be reduced to so low a class; such are the situation of bodies, their mutual distances, their particular proportions and measures, the notions of fatherhood, brotherhood, sonship, &c. all which are relative ideas. The very essence of virtue or holiness consists in the conformity of our actions to the rule of right reason, or the law of God; the nature and essence of sincerity is the conformity of our words and actions to our thoughts, all which are but mere relations; and I think we must not reduce such positive beings as piety, virtue, and truth, to the rank of non-entities, which have nothing real in them, though sin (or rather the sinful-

ness of an action) may be properly called a not-being, for it is a want of piety and virtue. This is the most usual, and perhaps the justest, way of representing these matters.

CHAP. III.

OF THE SEVERAL SORTS OF PERCEPTIONS OR IDEAS.

IDEAS may be divided with regard to their original, their nature, their objects, and their qualities.

SECT. I.—Of sensible, spiritual, and abstracted Ideas.

THERE has been a great controversy about the origin of ideas; *viz.* Whether any of our ideas are innate or no, that is, born with us, and naturally belonging to our minds? Mr. Locke utterly denies it; others as positively affirm it. Now, though this controversy may be compromised, by allowing that there is a sense, wherein our first ideas of some things may be said to be innate, (as I have shewn in some remarks on Mr. Locke's essay, which have lain long by me,) yet it does not belong to this place and business to have that point debated at large, nor will it hinder our pursuit of the present work to pass it over in silence.

There is sufficient ground to say, that all our ideas, with regard to their original, may be divided into three sorts, *viz.* Sensible, spiritual, and abstracted ideas.

I. **SENSIBLE** or corporeal ideas are derived originally from our senses, and from the communication which the soul has with the animal body in this present state; such are the notions we frame of all colours, sounds, tastes, figures, or shapes and motions: for our senses being conversant about particular sensible objects, be-

come the occasions of several distinct conceptions in the mind; and thus we come by the ideas of yellow, white, heat, cold, soft, hard, bitter, sweet, and all those which we call sensible qualities. All the ideas which we have of body, and the sensible modes and properties that belong to it, seem to be derived from sensation.

And howsoever these may be treasured up in the memory, and by the work of fancy may be increased, diminished, compounded, divided, and diversified, (which we are ready to call our invention), yet they all derive their first nature and being from something that has been let into our minds by one or other of our senses. If I think of a golden mountain, or a sea of liquid fire, yet the single ideas of sea, fire, mountain and gold came into my thoughts at first by sensation; the mind has only compounded them.

II. * SPIRITUAL or intellectual ideas are those which we gain by reflecting on the nature and actions of our own souls, and turning our thoughts within ourselves, and observing what is transacted in our own minds. Such are the ideas we have of thought, assent, dissent, judging, reason, knowledge, understanding, will, love, fear, hope.

By sensation the soul contemplates things (as it were) out of itself, and gains corporeal representations or sensible ideas; by reflection the soul contemplates itself, and things within itself, and by this means it gains spiritual ideas, or representations of things intellectual.

Here it may be noted, though the first original of these two sorts of ideas, viz. Sensible and spiritual, may be entirely owing to these two principles, sensation and reflection, yet the recollection and fresh excitation of them may be owing to a thousand other occasions and occurrences of life. We could never inform a man who was born blind or deaf, what we mean by the words yellow, blue, red, or by the words loud or shrill,

* Here the word Spiritual is used in a mere natural, and not in a religious sense.

nor convey any just ideas of these things to his mind, by all the powers of language, unless he has experienced those sensations of sound and colour; nor could we ever gain the ideas of thought, judgment, reason, doubting, hoping, &c. by all the words that man could invent, without turning our thoughts inward upon the actions of our own souls. Yet when we once have attained these ideas by sensation and reflection, they may be excited afresh by the use of names, words, signs, or by any thing else that has been connected with them in our thoughts; for when two or more ideas have been associated together, whether it be by custom, or accident, or design, the one presently brings the other to mind.

III. BESIDES those two which we have named, there is a third sort of ideas, which are commonly called abstracted ideas, because though the original ground or occasion of them may be sensation, or reflection, or both, yet these ideas are framed by another act of the mind, which we usually call abstraction. Now the word abstraction signifies a withdrawing some parts of an idea from other parts of it, by which means such abstracted ideas are formed, as neither represent any thing corporeal or spiritual, that is, any thing peculiar or proper to mind or body. Now these are of two kinds.

Some of these abstracted ideas are the most absolute, general, and universal conceptions of things considered in themselves, without respect to others, such as entity or being, and not-being, essence, existence, act, power, substance, mode, accident, &c.

The other sort of abstracted ideas is relative, as when we compare several things together, and consider merely the relations of one thing to another, entirely dropping the subject of those relations, whether they be corporeal or spiritual; such are our ideas of cause, effect, likeness, unlikeness, subject, object, identity, or sameness, and contrariety, order, and other things which are treated of in ontology.

Most of the terms of art in several sciences may be ranked under this head of abstracted ideas, as noun, pronoun, verb, in grammar, and the several particles of speech, as wherefore, therefore, when, how, although, howsoever, &c. So connections, transitions, similitudes, tropes, and their various forms in rhetoric.

The abstracted ideas, whether absolute or relative, cannot so properly be said to derive their immediate, complete, and distinct original, either from sensation or reflection; (1.) because the nature and the actions both of body and spirit give us occasion to frame exactly the same ideas of essence, mode, cause, effect, likeness, contrariety, &c. Therefore these cannot be called either sensible or spiritual ideas, for they are not exact representations either of the peculiar qualities or actions of spirit or body, but seem to be a distinct kind of idea framed in the mind, to represent our most general conceptions of things, or their relations to one another, without any regard to their natures, whether they be corporeal or spiritual. And, (2.) the same general ideas of cause and effect, likeness, &c. may be transferred to a thousand other kinds of being, whether bodily or spiritual, besides those from whence we first derived them: even these abstracted ideas, which might be first occasioned by bodies, may be as properly afterward attributed to spirit.

Now, though Mr Locke supposes sensation and reflection to be the only two springs of all ideas, and these two are sufficient to furnish our minds with all that rich variety of ideas which we have; yet abstraction is certainly a different act of the mind, whence these abstracted ideas have their original; though perhaps sensation or reflection may furnish us with all the first objects and occasions whence these abstracted ideas are excited and derived. Nor in this sense and view of things can I think Mr Locke himself would deny my representation of the original of abstracted ideas, nor forbid them to stand for a distinct species.

Note. THOUGH we have divided ideas in this chap-

ter into three sorts, viz. Sensible, spiritual, and abstracted; yet it may not be amiss just to take notice here, that as man may be called a compound substance, being made up of body and mind, and the modes which arise from this composition are called mixed modes, such as sensation, passion, discourse, &c. so the ideas of this substance or being called man, and of these mixed modes may be called mixed ideas, for they are not properly and strictly spiritual, sensible, or abstracted. See a much larger account of every part of this chapter in the *Philosophical Essays* by I. W. Essay 3, 4, &c.

SECT. II.—*Of simple and complex, compound and collective Ideas.*

IDEAS, considered in their nature, are either simple or complex.

A simple idea is one uniform idea, which cannot be divided or distinguished by the mind of man into two or more ideas; such are a multitude of our sensations, as the idea of sweet, bitter, cold, heat, white, red, blue, hard, soft, motion, rest, and perhaps extension and duration; such are also many of our spiritual ideas, such as thought, will, wish, knowledge, &c.

A complex idea is made by joining two or more simple ideas together; as a square, a triangle, a cube, a pen, a table, reading, writing, truth, falsehood, a body, a man, a horse, an angle, a heavy body, a swift horse, &c. Every thing that can be divided by the mind into two or more ideas is called complex.

Complex ideas are often considered as single and distinct beings, though they may be made up of several simple ideas; so a body, a spirit, a house, a tree, a flower; but when several of these ideas of a different kind are joined together, which are wont to be considered as distinct single beings, this is called a compound idea, whether these united ideas be simple or complex. So a man is compounded of body and spi-

rit, so mithridate is a compound medicine, because it is made of many different ingredients. This I have shewn under the doctrine of substances. And modes also may be compounded; harmony is a compound idea, made up of different sounds united; so several different virtues must be united to make up the compounded idea or character either of a hero or a saint.

But when many ideas of the same kind are joined together, and united in one name, or under one view, it is called a collective idea; so an army, or a parliament, is a collection of men; a dictionary, or nomenclature, is a collection of words; a flock is a collection of sheep; a forest or grove a collection of trees; a heap is a collection of sand, or corn, or dust, &c.; a city is a collection of houses; a nosegay is a collection of flowers; a month or a year is a collection of days; and a thousand is a collection of units.

The precise difference between a compound and collective idea is this, that a compound idea unites things of a different kind, but a collective idea things of the same kind; though this distinction in some cases is not accurately observed, and custom oftentimes uses the word compound for collective.

SECT. III.—Of universal and particular Ideas, real and imaginary.

IDEAS, according to their objects, may first be divided into particular or universal.

A particular Idea is that which represents one thing only.

Sometimes the one thing is represented in a loose and indeterminate manner, as when we say some man, any man, one man, another man; some horse, any horse: one city, or another, which is called by the schools *individuum vagum*.

Sometimes the particular idea represents one thing in a determinate manner, and then it is called a singu-

lar idea; such is Bucephalus, or Alexander's horse, Cicero the orator, Peter the apostle, the palace of Versailles, this book, that river, the new forest, or the city of London. That idea, which represents one particular determinate thing to me, is called a singular idea, whether it be simple, or complex, or compound.

The object of any particular idea, as well as the idea itself, is sometimes called an individual; so Peter is an individual man, London is an individual city. So this book, one horse, another horse, are all individuals; though the word individuals is more usually limited to one singular, certain, and determined object.

An universal idea is that which represents a common nature agreeing to several particular things; so a horse, a man, or a book, are called universal ideas, because they agree to all horses, men, or books.

And I think it not amiss to intimate, in this place, that these universal ideas are formed by that act of the mind which is called *abstraction*, that is, a withdrawing some part of an idea from other parts of it; for when singular ideas are first let into the mind by sensation or reflection, then, in order to make them universal, we leave out or drop all those peculiar and determinate characters, qualities, modes, or circumstances, which belong merely to any particular individual being, and by which it differs from other beings; and we only contemplate those properties of it wherein it agrees with other beings.

Though it must be confessed, that the name of abstracted ideas is sometimes attributed to universal ideas, both sensible or spiritual, yet this abstraction is not so great, as when we drop out of our idea every sensible or spiritual representation, and retain nothing but the most general and absolute conceptions of things, or their mere relations to one another, without any regard to their particular natures, whether they be sensible or spiritual. And it is to this kind of conceptions we more properly give the name of abstracted ideas, as in the first section of this chapter.

An universal idea is either general or special.

A *general idea* is called by the schools a *genus*; and it is one common nature agreeing to several other common natures. So animal is a genus, because it agrees to horse, lion, whale, butterfly, which are also common ideas; so fish is a genus, because it agrees to trout, herring, crab, which are common natures also.

A *special idea* is called by the schools a *species*; it is one common nature that agrees to several singular individual beings; so horse is a special idea, or a species, because it agrees to Bucephalus, Trott, and Snowball. City is a special idea, for it agrees to London, Paris, Bristol.

Note. 1st, SOME of these universals are genuses, if compared with natures more common. So bird is a genus, if compared with eagle, sparrow, raven, which are also common natures; but it is a species, if compared with the more general nature, animal. The same may be said of fish, beast, &c.

This sort of universal ideas, which may either be considered as a genus or a species, is called *subaltern*; but the highest genus, which is never a species, is called the most general; and the lowest species, which is never a genus, is called the most special.

It may be observed here also, that that general nature or property wherein one thing agrees with most other things, is called its more remote genus; so substance is the remote genus of bird or beast, because it agrees not only to all kinds of animals, but also to things inanimate, as sun, stars, clouds, metals, stones, air, water, &c. But animal is the proximate or nearest genus of bird, because it agrees to fewest other things. Those general natures which stand between the nearest and most remote are called *intermediate*.

Note. 2dly, In universal ideas it is proper to consider their comprehension and their extension*.

* The word extension here is taken in a mere logical sense, and not in a physical and mathematical sense.

The comprehension of an idea regards all the essential modes and properties of it: so body in its comprehension takes in solidity, figure, quantity, mobility, &c. So a bowl in its comprehension includes roundness, volubility, &c.

The extension of an universal idea regards all the particular kinds and single beings that are contained under it. So a body in its extension includes sun, moon, star, wood, iron, plant, animal, &c. which are several species, or individuals, under the general name of body. So a bowl, in its extension, includes a wooden bowl, a brass bowl, a white and black bowl, a heavy bowl, &c. and all kinds of bowls, together with all the particular individual bowls in the world.

Note. THE comprehension of an idea is sometimes taken in so large a sense, as not only to include the essential attributes, but all the properties, modes, and relations whatsoever, that belong to any being, as will appear, Chap. VI.

This account of genus and species is part of that famous doctrine of universals, which is taught in the schools, with diverse other formalities belonging to it; for it is in this place that they introduce difference, which is the primary essential mode, and property, or the secondary essential mode, and accident, or the accidental mode; and these they call the five predicables, because every thing that is affirmed concerning any being must be either the genus, the species, the difference, some property, some accident; but what farther is necessary to be said concerning these things will be mentioned when we treat of definition.

Having finished the doctrine of universal and particular ideas, I should take notice of another division of them, which also hath respect to their objects; and that is, they are either real or imaginary.

Real ideas are such as have a just foundation in nature, and have real objects, or exemplars, which did, or do, or may actually exist, according to the present state and nature of things; such are all our ideas of

long, broad, swift, slow, wood, iron, men, horses, thoughts, spirits, a cruel master, a proud beggar, a man seven feet high.

Imaginary ideas, which are also called fantastical, or chimerical, are such as are made by enlarging, diminishing, uniting, dividing real ideas in the mind, in such a manner as no objects or exemplars did or ever will exist, according to the present course of nature, though the several parts of these ideas are borrowed from real objects: such are these conceptions we have of a centaur, a satyr, a golden mountain, a flying horse, a dog without a head, a bull less than a mouse, or a mouse as big as a bull, and a man twenty feet high.

Some of these fantastical ideas are possible, that is they are not utterly inconsistent in the nature of things, and therefore it is within the reach of divine power to make such objects; such are most of the instances already given; but impossibles carry an utter inconsistency in the ideas which are joined: such are self-active matter, and infinite or eternal men, a pious man without honesty, or heaven without holiness.

SECT. IV.—*The Division of Ideas, with regard to their Qualities.*

IDEAS, with regard to their qualities, afford us these several divisions of them. 1. They are either clear and distinct, or obscure and confused. 2. They are vulgar or learned. 3. They are perfect or imperfect. 4. They are true or false.

I. OUR ideas are either clear and distinct, or obscure and confused.

Several writers have distinguished the clear ideas from those that are distinct; and the confused ideas from those that are obscure; and it must be acknowledged, there may be some difference between them;

for it is the clearness of ideas for the most part makes them distinct; and the obscurity of ideas is one thing that will always bring a sort of confusion into them. Yet when these writers come to talk largely upon this subject, and to explain and adjust their meaning with great nicety, I have generally found that they did not keep up the distinction they first designed, but they confound the one with the other. I shall therefore treat of clear or distinct ideas, as one and the same sort, and obscure or confused ideas, as another.

A clear and distinct idea is that which represents the object of the mind with full evidence and strength, and plainly distinguishes it from all other objects whatsoever.

An obscure and confused idea represents the object either so faintly, so imperfectly, or so mingled with other ideas, that the object of it doth not appear plain to the mind; not purely in its own nature, nor sufficiently distinguished from other things.

When we see the sea and sky nearer at hand, we have a clear and distinct idea of each; but when we look far toward the horizon, especially in a misty day, our ideas of both are but obscure and confused; for we know not which is sea and which is sky. So when we look at the colours of the rainbow, we have a clear idea of the red, the blue, the green in the middle of their several arches; and a distinct idea too, while the eye fixes there; but when we consider the border of those colours, they so run into one another, that it renders their ideas confused and obscure. So the idea which we have of our brother, or our friend, whom we see daily, is clear and distinct; but when the absence of many years has injured the idea, it becomes obscure and confused.

*Note here, that some of our ideas may be very clear and distinct in one respect, and very obscure and confused in another. So when we speak of a *thelligonum*, or a figure of a thousand angles, we may have a clear and distinct rational idea of the number one thousand angles; for we can demonstrate various properties con-*

cerning it by reason; but the image, or sensible idea, which we have of the figure, is but confused and obscure; for we cannot precisely distinguish it by fancy from the image of a figure that has nine hundred angles, or nine hundred and ninety. So when we speak of the infinite divisibility of matter, we always keep in our minds a very clear and distinct idea of division and divisibility. But after we have made a little progress in dividing, and come to parts that are far too small for the reach of our senses, then our ideas, or sensible images of these little bodies, become obscure and indistinct, and the idea of infinite is very obscure, imperfect, and confused.

II. IDEAS are either vulgar or learned. A vulgar idea represents to us the most obvious and sensible appearances that are contained in the object of them; but a learned idea penetrates farther into the nature, properties, reasons, causes and effects of things. This is best illustrated by some examples.

It is a vulgar idea that we have of a rainbow, when we conceive a large arch in the clouds, made up of various colours parallel to each other; but it is a learned idea which a philosopher has when he considers it as the various reflections and refractions of sun-beams in drops of falling rain. So it is a vulgar idea which we have of the colours of solid bodies, when we perceive them to be, as it were, a red, or blue, or green tincture of the surface of those bodies; but it is a philosophical idea when we consider the various colours to be nothing else but different sensations excited in us by the variously refracted rays of light reflected on our eyes in a different manner, according to the different size, or shape, or situation of the particles of which the surfaces of those bodies are composed. It is a vulgar idea, which we have of a watch or clock, when we conceive of it as a pretty instrument made to shew us the hour of the day; but it is a learned idea which the watchmaker has of it, who knows all the several parts of it, the spring, the balance, the chain, the

wheels, their axles, &c. together with the various connections and adjustments of each part, whence the exact and uniform motion of the index is derived, which points to the minute or the hour. So when a common understanding reads Virgil's *Aeneid*, he has but a vulgar idea of that poem; yet his mind is naturally entertained with the story, and his ears with the verse; but when a critic, or a man who has skill in poesy, reads it, he has a learned idea of its peculiar beauties; he tastes and relishes a superior pleasure; he admires the Roman poet, and wishes he had known the Christian theology, which would have furnished him with nobler materials and machines than all the heathen idols.

It is with a vulgar idea that the world beholds the cartoons of Raphael at Hampton-court, and every one feels his share of pleasure and entertainment; but a painter contemplates the wonders of that Italian pencil, and sees a thousand beauties in them which the vulgar eye neglected: his learned ideas give him a transcendent delight, and yet, at the same time, discover the blemishes which the common gazer never observed.

III. IDEAS are either perfect or imperfect, which are otherwise called adequate or inadequate.

Those are adequate ideas which perfectly represent their archetypes or objects. Inadequate ideas are but a partial or incomplete representation of those archetypes to which they are referred.

All our simple ideas are in some sense adequate or perfect; because simple ideas, considered merely as our first perceptions, have no parts in them; so we may be said to have a perfect idea of white, black, sweet, sour, length, light, motion, rest, &c. We have also a perfect idea of various figures, as a triangle, a square, a cylinder, a cube, a sphere, which are complex ideas; but our idea or image of a figure of a thousand sides, our idea of the city of London, or the powers of a loadstone, are very imperfect, as well as all our ideas of infinite length or breadth, infinite power, wis-

dom, or duration; for the idea of infinite is endless and ever growing, and can never be completed.

Note 1. WHEN we have a perfect idea of any thing in all its parts, it is called a complete idea; when in all its properties, it is called comprehensive. But when we have but an inadequate and imperfect idea, we are only said to apprehend it; therefore use the term apprehension, when we speak of our knowledge of God, who can never be comprehended by his creatures.

Note 2. Though there are a multitude of ideas which may be called perfect or adequate, in a vulgar sense, yet there are scarce any ideas which are adequate, comprehensive, and complete in a philosophical sense; for there is scarce any thing in the world that we know, as to all the parts, and powers, and properties of it, in perfection. Even so plain an idea as that of a triangle, has perhaps infinite properties belonging to it, of which we know but a few. Who can tell what are the shapes and positions of those particles, which cause all the variety of colours that appear on the surface of things? Who knows what are the figures of the little corpuscles that compose and distinguish different bodies? The ideas of brass, iron, gold, wood, stone, hyssop, and rosemary, have an infinite variety of hidden mysteries contained in the shape, size, motion, and position of the little particles of which they are composed; and perhaps also infinite unknown properties and powers that may be derived from them. And if we arise to the animal world, or the world of spirits, our knowledge of them must be amazingly imperfect, when there is not the least grain of sand, or empty space, but has too many questions and difficulties belonging to it, for the wisest philosopher upon earth to answer and resolve.

IV. OUR ideas are either true or false; for an idea being the representation of a thing in the mind, it must be either a true or a false representation of it. If the idea be conformable to the object or archetype of it, it

is a true idea ; if not, it is a false one. Sometimes our ideas are referred to things really existing without us as their archetypes. If I see bodies in their proper colours, I have a true idea ; but when a man under the jaundice sees all bodies yellow, he has a false idea of them. So if we see the sun or moon rising or setting, our idea represents them bigger than what they are on the meridian ; and in this sense it is a false idea, because those heavenly bodies are all day and all night of the same bigness. Or when I see a straight staff appear crooked while it is half under water, I say the water gives me a false idea of it. Sometimes our ideas refer to the ideas of other men, denoted by such a particular word as their archetypes. So when I hear a Protestant use the words church and sacraments, if I understand by these words a congregation of faithful men who profess Christianity, and the two ordinances, baptism and the Lord's supper, I have a true idea of those words in the common sense of Protestants ; but if the man who speaks of them be a Papist, he means the church of Rome and the seven sacraments, and then I have a mistaken idea of those words, as spoken by him, for he has a different sense and meaning ; and in general, whensoever I mistake the sense of any speaker or writer, I may be said to have a false idea of it.

Some think that truth or falsehood properly belongs only to propositions, which shall be the subject of discourse in the second part of logic ; for if we consider ideas as mere impressions upon the mind, made by outward objects, those impressions will ever be conformable to the laws of nature in such a case ; the water will make a stick appear crooked, and the horizontal air will make the sun and moon appear bigger. And generally, where there is falsehood in ideas, there seems to be some secret or latent proposition, whereby we judge falsely of things. This is more obvious where we take up the words of a writer or speaker in a mistaken sense ; for we join his words to our own ideas, which are different from his. But after all, since ideas are pictures of things, it can never be very improper

to pronounce them to be true or false, according to their conformity or non-conformity to their exemplars.

CHAP. IV.

OF WORDS, AND THEIR SEVERAL DIVISIONS, TOGETHER WITH THE ADVANTAGE AND DANGER OF THEM.

SECT. I.—Of Words in General, and their Use.

THOUGH our ideas are first acquired by the perception of objects, or by various sensations and reflections, yet we convey them to each other by the means of certain sounds, or written marks, which we call words; and a great part of our knowledge is both obtained and communicated by these means, which are called speech or language.

But as we are led into the knowledge of things by words, so we are oftentimes led into error, or mistake, by the use or abuse of words also. And in order to guard against such mistakes, as well as to promote our improvement in knowledge, it is necessary to acquaint ourselves a little with words and terms. We shall begin with these observations.

Observ. I. WORDS (whether they are spoken or written) have no natural connection with the ideas they are designed to signify, nor with the things which are represented in those ideas. There is no manner of difference between the sounds white in English, or black in French, and that colour which we represent by that name; nor have the letters of which these words are composed, any natural aptness to signify that colour than red, or green. Words and names therefore are mere arbitrary signs invented by men to communicate their thoughts or ideas to one another.

Observ. 2. If one single word were appointed to express but one simple idea, and nothing else, as *white*, *black*, *sweet*, *sour*, *sharp*, *bitter*, *extension*, *duration*, there would be scarce any mistake about them.

But, alas! it is a common unhappiness in language, that different simple ideas are sometimes expressed by the same word; so the words *sweet* and *sharp* are applied both to the objects of hearing and tasting, as we shall see hereafter; and this, perhaps, may be one cause or foundation of obscurity and error arising from words.

Observ. 3. In communicating our complex ideas to one another, if we could join as many peculiar and appropriated words together in one sound, as we join simple ideas to make one complex one, we should seldom be in danger of mistaking: When I express the taste of an apple, which we call the bitter sweet, none can mistake what I mean.

Yet this sort of composition would make all language a most tedious and unwieldy thing, since most of our ideas are complex, and many of them have eight or ten simple ideas in them; so that the remedy would be worse than the disease; for what is now expressed in one short word, as *month* or *year*, would require two lines to express it. It is necessary, therefore, that single words be invented to express complex ideas, in order to make language short and useful.

But here is our great infelicity, that when single words signify complex ideas, one word can never distinctly manifest all the parts of a complex idea; and thereby it will often happen, that one man includes more or less in his idea, than another does, while he affixes the same word to it. In this case there will be danger of mistake between them, for they do not mean the same object, though they use the same name. So if one person or nation, by the word *year* mean twelve months of thirty days each, that is, three hundred and sixty-five days, another intend a solar year of three hundred and sixty days, and a third mean a lunar year, or twelve lunar months, that is, three hundred and fif-

ty-four days, there will be a great variation and error in their account of things, unless they are well apprised of each other's meanings beforehand. This is supposed to be the reason why some ancient histories and prophecies, and accounts of chronology, are so hard to be adjusted. And this is the true reason of so furious and endless debates on many points in divinity; the words *church*, *worship*, *idolatry*, *repentance*, *faith*, *election*, *merit*, *grace*, and many others, which signify very complex ideas, are not applied to include just the same simple ideas, and the same number of them, by the various contending parties. Thence arise confusion and contest.

Observ. 4. Though a single name does not certainly manifest to us all the parts of a complex idea, yet it must be acknowledged, that in many of our complex ideas, the single name may point out to us some chief property which belongs to the thing the word signifies; especially when the word or name is traced up to its original, through several languages from whence it is borrowed. So an apostle signifies one that is sent forth.

But this tracing of a word to its original, (which is called etymology), is sometimes a very precarious and uncertain thing; and, after all, we have made but little progress towards the attainment of the full meaning of a complex idea, by knowing some one chief property of it. We know but a small part of the notion of an apostle, by knowing barely that he is sent forth.

Observ. 5. Many (if not most) of our words which are applied to moral and intellectual ideas, when traced up to the original in the learned languages, will be found to signify sensible and corporeal things. Thus the words apprehension, understanding, abstraction, invention, idea, inference, prudence, religion, church, adoration, &c. have all a corporeal signification in their original. The name spirit itself signifies breath or air, in Latin, Greek, and Hebrew. Such is the poverty of all languages, they are forced to use these names for incorporeal ideas, which thing has a tendency to error and confusion.

Observ. 6. The last thing I shall mention, that leads us into many a mistake is, the multitude of objects that one name sometimes signifies: There is almost an infinite variety of things and ideas both simple and complex, beyond all the words that are invented in any language; thence it becomes almost necessary that one name should signify several things. Let us but consider the two colours of yellow and blue; if they are mingled together in any considerable proportion, they make a green: Now there may be infinite differences of the proportions in the mixture of yellow and blue; and yet we have only these three words, yellow, blue, and green, to signify all of them, at least by one single term.

When I use the word shore, I may intend thereby a coast of land near the sea, or a drain to carry off water, or a prop to support a building; and by the sound of the word porter, who can tell whether I mean a man who bears burdens, or a servant who waits at a nobleman's gate? The world is fruitful in the invention of utensils of life, and new characters and offices of men, yet names entirely new are seldom invented; therefore old names are almost necessarily used to signify new things, which may occasion much confusion and error in the receiving and communicating of knowledge.

Give me leave to propose one single instance, where in all those notes shall be remarkably exemplified. It is the word bishop, which in French is called *evêque*; upon which I would make these several observations. (1.) That there is no natural connection between the sacred office hereby signified, and the letters or sound which signify this office; for both these words *evêque* and bishop signify the same office, though there is not one letter alike in them; nor have the letters which compose the English or the French word any thing sacred belonging to them, more than the letters that compose the words king or soldier. (2.) If the meaning of a word could be learned by its derivation or etymology, yet the original derivation of words is often

times very dark and unsearchable; for who would imagine that each of these words are derived from the Latin *episcopus*; or the Greek *ἐπίσκοπος*? Yet in this instance we happen to know certainly the true derivation; the French being anciently writ *evesque*, is borrowed from the first part of the Latin word; and the old English *biscop* from the middle of it. (3.) The original Greek word signifies an overlooker, or one who stands higher than his fellows and overlooks them; it is a compound word, that primarily signifies sensible ideas, translated to signify or include several moral or intellectual ideas; therefore all will grant that the nature of the office can be never known by the mere sound or sense of the word overlooker. (4.) I add farther, the word bishop or *episcopus*, even when it is thus translated from a sensible idea, to include several intellectual ideas, may yet equally signify an overseer of the poor; an inspector of the customs; a surveyor of the highways; a supervisor of the excise, &c. But by the consent of men, and the language of scripture, it is appropriated to signify a sacred office in the church. (5.) This very idea and name, thus translated from things sensible, to signify a spiritual and sacred thing, contains but one property of it, viz. one that has an oversight, or care over others; but it does not tell us whether it includes a care over one church, or many; over the laity, or the clergy. (6.) Thence it follows, that those who in the complex idea of the word bishop include an oversight over the clergy, or over a whole diocese of people, a superiority to presbyters, a distinct power of ordination, &c. must necessarily disagree with those who include in it only the care of a single congregation. Thus according to the various opinions of men, this word signifies a pope, a Gallican bishop, a Lutherian superintendant, an English prelate, a pastor of a single assembly, or a presbyter or elder. Thus they quarrel with each other perpetually; and it is well if any of them all have hit precisely the sense of the sacred writers, and included just the same ideas in it, and no others.

I might make all the same remarks on the word church or kirk, which is derived from *κυριος οικος*, or the house of the Lord, contracted into *kyriok*, which some suppose to signify an assembly of Christians, some take it for all the world that professes Christianity, and some make it to mean only the clergy, and on these accounts it has been the occasion of as many and as furious controversies as the word bishop, which was mentioned before.

SECT. II.—*Of negative and positive Terms.*

FROM these and other considerations it will follow, that if we would avoid error in our pursuit of knowledge, we must take good heed to the use of words and terms, and be acquainted with the various kinds of them.

I. TERMS are either positive or negative.

Negative terms are such as have a little word or syllable of denying joined to them, according to the various idioms of every language, as unpleasant, imprudent, immortal, irregular, ignorant, infinite, endless, lifeless, deathless, nonsense, abyss, anonymous, where the prepositions *un, im, in, non, a, an*; and the termination *less*, signify a negation, either in English, Latin or Greek.

Positive terms are those which have no such negative appendices belonging to them, as life, death, end, sense, mortal.

But so unhappily are our words and ideas linked together, that we can never know which are positive ideas, and which are negative, by the word that is used to express them, and that for these reasons:

There are some positive terms which are made to signify a negative idea; as *dead* is properly a thing that is deprived of life; *blind* implies a negation or privation of sight; *deaf* a want of hearing; *dumb* a denial of speech.

2dly, There are also some negative terms which im-

ply positive ideas, such as immortal and deathless, which signify ever-living, or a continuance in life; insolent signifies rude and haughty; indemnify, to keep safe; and infinite perhaps has a positive idea too, for it is an idea ever growing; and when it is applied to God, it signifies his complete perfection.

3dly, There are both positive and negative terms, invented to signify the same and contrary ideas; as unhappy and miserable, sinless and holy, pure and undefiled, impure and filthy, unkind and cruel, irreligious and profane, unforgiving and revengeful, &c. and there is great deal of beauty and convenience derived to any language from this variety of expression; though sometimes it a little confounds our conceptions of being and not-being, our positive and negative ideas.

4thly, I may add also, that there are some words which are negative in their original language, but seem positive to an Englishman, because the negation is unknown; as abyss, a place without a bottom; anodyne, an easing medicine; amnesty, an unremembrance, or general pardon; anarchy, a state without government; anonymous, that is, nameless; inept, that is, not fit; iniquity, that is, unrighteousness; infant, one that cannot speak, viz. a child; injurious, not doing justice or right.

The way therefore to know whether any idea be negative or not, is to consider whether it primarily imply the absence of any positive being, or mode of being; if it doth, then it is a negation or negative idea; otherwise it is a positive one, whether the word that expresses it be positive or negative. Yet after all, in many cases this is very hard to determine, as in amnesty, infinite, abyss, which are originally relative terms, but they signify pardon, &c. which seem to be positives. So darkness, madness, clown, are positive terms; but they imply the want of light, the want of reason, and the want of manners; and perhaps these may be ranked among the negative ideas.

Here note, that in the English tongue two negative terms are equal to one positive, and signify the same

thing, as not unhappy, signifies happy; not immortal, signifies mortal; he is no imprudent man, that is, he is a man of prudence; but the sense and force of the word in such a negative way of expressions seem to be a little diminished.

SECT. III.—*Of simple and complex Terms.*

II. TERMS are divided into simple and complex. A simple term is one word, a complex term is when more words are used to signify one thing.

Some terms are complex in words, but not in sense, such is the second emperor of Rome; for it excites in our minds only the idea of one man, viz. Augustus.

Some terms are complex in sense, but not in words; so when I say an army, a forest, I mean a multitude of men, or trees; and almost all our moral ideas, as well as many of our natural ones, are expressed in this manner; religion, piety, loyalty, knavery, theft, include a variety of ideas in each term.

There are other terms which are complex both in words and sense; so when I say a fierce dog, or a pious man, it excites an idea, not only of those two creatures, but of their peculiar characters also.

Among the terms that are complex in sense, but not in words, we may reckon those simple terms which contain a primary and a secondary idea in them; as when I hear my neighbour speak that which is not true, and I say to him this is not true, or this is false, I only convey to him the naked idea of his error; this is the primary idea: but if I say it is a lie, the word lie carries also a secondary idea in it, for it implies both the falsehood of the speech, and my reproach and censure of the speaker. On the other hand, if I say it is a mistake, this carries also a secondary idea with it; for it not only refers to the falsehood of his speech, but includes my tenderness and civility to him at the same time. Another instance may be this; when I use the words incest, adultery, and murder, I convey to an-

other not only the primary idea of those actions, but I include also the secondary idea of their unlawfulness, and my abhorrence of them.

Note 1. Hence it comes to pass, that among words which signify the same principal ideas, some are clean and decent, others unclean; some chaste, others obscene; some are kind, others are affronting and reproachful, because of the secondary idea which custom has affixed to them. And it is the part of a wise man, when there is a necessity of expressing any evil actions, to do it either by a word that has a secondary idea of kindness or softness; or a word that carries in it an idea of rebuke and severity, according as the case requires. So when there is a necessity of expressing things unclean or obscene, a wise man will do it in the most decent language, to excite as few uncleanly ideas as possible in the minds of the hearers.

Note 2. In length of time, and by the power of custom, words sometimes change their primary ideas, as shall be declared, and sometimes they have changed their secondary ideas, though the primary ideas may remain: so words that were once chaste, by frequent use grow obscene and uncleanly; and words that were once honourable, may in the next generation grow mean and contemptible. So the word *dame* originally signified a mistress of a family, who was a lady, and it is used still in the English law to signify a lady; but in common use now-a-days it represents a farmer's wife, or a mistress of a family of the lower rank in the country. So those words of Rabshaketh, Isa. xxxvi. 12. in our translation, (eat their own dung, &c.) were doubtless decent and clean language, when our translators wrote them above a hundred years ago. The word *dung* has maintained its old secondary idea and inoffensive sense to this day; but the other word in that sentence has by custom acquired a more uncleanly idea, and should now rather be changed into a more decent term, and so it should be read in public, unless it should be thought more proper to omit the sentence*.

* So in some places of the sacred historians, where it is written, every one that pisses against the wall, we should read every male.

For that reason it is, that the Jewish rabbins have supplied other chaste words in the margin of the Hebrew bible, where the words of the text through time and custom are degenerated, so as to carry any base and unclean secondary idea in them; and they read the word which is in the margin, which they call *keri*, and not that which was written in the text, which they call *chetib*.

SECT. IV.—*Of Words common and proper.*

III. WORDS and names are either common or proper. Common names are such as stand for universal ideas, or a whole rank of beings, whether general or special. These are called appellatives; so fish, bird, man, city, river, are common names; and so are trout, eel, lobster, for they all agree to many individuals, and some of them to many species: but Cicero, Virgil, Bucephalus, London, Rome, *Ætna*, the Thames, are proper names, for each of them agrees only to one single being.

Note here first, that a proper name may become in some sense common, when it hath been given to several beings of the same kind; so Cæsar, which was the proper name of the first emperor Julius, became also a common name to all the following emperors. And tea, which was the proper name of one sort of Indian leaf, is now-a-days become a common name for many infusions of herbs, or plants, in water; as sage-tea, ale-hoof-tea, limon-tea, &c. So Peter, Thomas, John, William, may be reckoned common names also, because they are given to many persons, unless they are determined to signify a single person at any particular time or place.

Note in the second place, that a common name may become proper by custom, or by the time or place, or persons that use it; as in Great Britain, when we say

the King, we mean our present rightful sovereign King George, who now reigns; when we speak of the prince, we intend his royal highness Frederick Prince of Wales: if we mention the city when we are near London, we generally mean the city of London; when in a country town, we say the parson or the esquire, all the parish knows who are the single persons intended by it; so when we are speaking of the history of the New Testament, and use the words Peter, Paul, John, we mean those three apostles.

Note in the third place, that any common name whatsoever is made proper, by terms of particularity added to it, as the common words Pope, King, horse, garden, book, knife, &c. are designed to signify a singular idea, when we say the present pope; the King of Great Britain; the horse that won the last plate at New-Market; the royal garden at Kensington; this book; that knife, &c.

SECT. V.—*Of concrete and abstract Terms.*

IV. WORDS or terms are divided into abstract or concrete.

Abstract terms signify the mode or quality of a being, without any regard to the subject in which it is; as whiteness, roundness, length, breadth, wisdom, mortality, life, death.

Concrete terms, while they express the quality, do also either express, or imply, or refer to some subject to which it belongs; as white, round, long, broad, wise, mortal, living, dead: but these are not always noun adjectives in a grammatical sense; for a fool, a knave, a philosopher, and many other concretes, are substantives, as well as folly, knavery, and philosophy, which are the abstract terms that belong to them.

SECT. VI.—*Of univocal and equivocal Words.*

V. WORDS and terms are either univocal or equivocal. Univocal words are such as signify but one idea, or at least but one sort of thing; equivocal words are such as signify two or more different ideas, or different sorts of objects. The words book, bible, fish, house, elephant, may be called univocal words; for I know not that they signify any thing else but those ideas to which they are generally affixed; but head is an equivocal word, for it signifies the head of a nail, or of a pin, as well as of an animal: nail is an equivocal word, it is used for the nail of the hand or foot, and for an iron nail to fasten any thing; post is equivocal, it is a piece of timber, or a swift messenger. A church is a religious assembly, or the large fair building where they meet; and sometimes the same word means a synod of bishops or of presbyters, and in some places it is the Pope and a general council.

Here let it be noted, that when two or more words signify the same thing, as wave and billow, mead and meadow, they are usually called synonymous words; but it seems very strange, that words, which are directly contrary to each other, should sometimes represent almost the same ideas; yet thus it is in some few instances, a valuable, or an invaluable blessing; a shameful, or a shameless villain; a thick skull, or a thin skull'd fellow, a mere paper skull: a man of a large conscience, little conscience, or no conscience; a famous rascal, or an infamous one: so uncertain a thing is human language, whose foundation and support is custom.

As words signifying the same thing are called synonymous; so equivocal words, or those which signify several things, are called homonymous, or ambiguous; and when persons use such ambiguous words, with a design to deceive, it is called equivocation.

Our simple ideas, and especially the sensible qualities, furnish us with a great variety of equivocal or ambiguous words; for these being the first, and most natural ideas we have, we borrow some of their names, to signify many other ideas, both simple and complex. The word sweet expresses the pleasant perceptions of almost every sense; sugar is sweet, but it hath not the same sweetness as music; nor hath music the sweetness of a rose; and a sweet prospect differs from them all; nor yet have any of these the same sweetness as discourse, counsel, or meditation hath: yet the royal Psalmist saith of a man, we took sweet counsel together; and of God, my meditation of him shall be sweet. Bitter is also such an equivocal word; there is bitter wormwood, there are bitter words, there are bitter enemies, and a bitter cold morning. So there is a sharpness in vinegar, and there is a sharpness in pain, in sorrow, and in reproach; there is a sharp eye, a sharp wit, and a sharp sword: but there is not one of these seven sharpnesses the same as another of them, and a sharp east wind is different from them all.

There are also verbs, or words of action, which are equivocal as well as nouns or names. The words, to bear, to take, to come, to get, are sufficient instances of it; as when we say, to bear a burden, to bear sorrow or reproach, to bear a name, to bear a grudge, to bear fruit, or to bear children, the word bear is used in very different senses; and so is the word get, when we say, to get money, to get in, to get off, to get ready, to get a stomach, and to get a cold, &c.

There is also a great deal of ambiguity in many of the English particles, as, but, before, beside, with, without, that, then, there, for, forth, above, about, &c. of which grammars and dictionaries will sufficiently inform us.

SECT. VII.—*Various Kinds of equivocal Words.*

IT would be endless to run through all the varieties

of words and terms, which have different senses applied to them; I shall only mention therefore a few of the most remarkable and most useful distinctions among them.

1st, THE first division of equivocal words lets us know that some are equivocal only in their sound or pronunciation; others are equivocal only in writing; and others, both in writing and in sound.

Words equivocal in sound only, are such as these; the rein of a bridle, which hath the same sound with the reign of a king, or a shower of rain, but all three have different letters, and distinct spellings. So might, or strength, is equivocal in sound, but differs in writing from mite, a little animal, or a small piece of money. And the verb to write, has the same sound with wright, a workman, right or equity, and rite or ceremony, but it is spelled very differently from them all.

Words equivocal in writing only, are such as these; to tear to pieces, has the same spelling with a tear; to lead, or guide, has the same letters as lead the metal; and a bowl for recreation, is written the same way as a bowl for drinking; but the pronunciation of all these is different.

But those words, which are most commonly and justly called equivocal, are such as are both written and pronounced the same way, and yet have different senses or ideas belonging to them; such are all the instances which were given in the preceding section.

Among the words which are equivocal in sound only, and not in writing, there is a large field for persons who delight in jests, and puns, in riddles and quibbles, to sport themselves. This sort of words is also used by wanton persons to convey lewd ideas, under the covert of expressions capable of a chaste meaning, which are called *double entendres*: or when persons speak falsehood with a design to deceive, under the covert of truth. Though it must be confessed, that all sorts of equivocal words yield sufficient matter for such purposes.

There are many cases also, wherein an equivocal word is used for the sake of decency to cover a foul idea; for the most chaste and modest, and well-bred persons, having sometimes a necessity to speak of the things of nature, convey their ideas in the most inoffensive language by this means. And indeed, the mere poverty of all languages makes it necessary to use equivocal words upon many occasions, as the common writings of men, and even the holy-book of God sufficiently manifest.

2dly, Equivocal words are usually distinguished, according to their original, into such, whose various senses arise from mere chance or accident, and such as are made equivocal by design; as the word bear signifies a shaggy beast, and it signifies also to bear or carry a burden; this seems to be the mere effect of chance; but if I call my dog, bear, because he is shaggy, or call one of the northern constellations by that name, from a fancied situation of the stars in the shape of that animal, then it is by design that the word is made yet farther equivocal.

But because I think this common account of the spring or origin of equivocal words is too slight and imperfect, I shall reserve this subject to be treated of by itself, and proceed to the third division.

3dly, Ambiguous, or equivocal words, are such as are sometimes taken in a large and general sense, and sometimes in a sense more strict and limited, and have different ideas affixed to them accordingly. Religion, or virtue, taken in a large sense, includes both our duty to God and our neighbour; but in a most strict, limited, and proper sense, virtue signifies our duty towards men, and religion our duty to God. Virtue may yet be taken in the strictest sense, and then it signifies power or courage, which is the sense of it in some places in the New Testament. So grace, taken in a large sense, means the favour of God, and all the spiritual blessings that proceed from it, (which is a frequent sense of it in the bible), but in a limited sense it signifies the habit of holiness wrought in us by divine favour, or

a complex idea of the Christian virtues. It may be also taken in the strictest sense; and thus it signifies any single Christian virtue, as in 2 Cor. viii. 6, 7, where it is used for liberality. So a city, in a strict and proper sense, means the houses inclosed within the walls; in a larger sense it reaches to all the suburbs.

This larger and stricter sense of a word is used in almost all the sciences, as well as in theology, and in common life. The word geography, taken in a strict sense, signifies the knowledge of the circles of the earthly globe, and the situation of the various parts of the earth; when it is taken in a little larger sense, it includes the knowledge of the seas also; and in the largest sense of all, it extends to the various customs, habits and governments of nations. When an astronomer uses the word star in its proper and strict sense, it is applied only to the fixed stars, but in a large sense, it includes the planets also.

This equivocal sense of words belongs also to many proper names; so Asia taken in the largest sense, is one quarter of the world; in a more limited sense it signifies Natolia, or the Lesser Asia; but in the strictest sense it means no more than one little province of Natolia, where stood the cities of Ephesus, Smyrna, Sardis, &c. And this is the most frequent sense of it in the New Testament. Flanders and Holland, in a strict sense, are but two single provinces among the seventeen, but in a large sense, Holland includes seven of them, and Flanders ten.

There are also some very common and little words in all languages, that are used in a more extensive or more limited sense; such as all, every, whatsoever, &c. When the apostle says, all men have sinned, and all men must die, all is taken in its most universal and extensive sense, including all mankind, Rom. v. 12. When he appoints prayer to be made for all men, it appears by the following verses, that he restrains the word all to signify chiefly all ranks and degrees of men, 1 Tim. ii. 1. But when St Paul says, *I please all men in all things*, 1 Cor. x. 33, the word all is ex-

ceedingly limited, for it reaches no farther than that he pleased all those men whom he conversed with, in all things that were lawful.

4thly, Equivocal words are in the fourth place distinguished by their literal or figurative sense. Words are used in a proper or literal sense when they are designed to signify those ideas for which they were originally made, or to which they are primarily and generally annexed; but they are used in a figurative or tropical sense, when they are made to signify some things, which only bear either a reference or a resemblance to the primary ideas of them. So when two princes contend by their armies, we say they are at war in a proper sense; but when we say there is a war betwixt the winds and the waves in a storm, this is called figurative, and the peculiar figure is a metaphor. So when the scriptures say, riches make themselves wings, and fly away as an eagle toward heaven, the wings and the flight of the eagle are proper expressions; but when flight and wings are applied to riches, it is only by way of figure and metaphor. So when man is said to repent, or laugh, or grieve, it is literally taken; but when God is said to be grieved, to repent, or laugh, &c. these are all figurative expressions, borrowed from a resemblance to mankind. And when the words Job or Esther are used to signify those very persons, it is the literal sense of them; but when they signify those two books of scripture, this is a figurative sense. The names of Horace, Juvenal, and Milton, are used in the same manner, either for books or men.

When a word, which originally signifies any particular idea or object, is attributed to several other objects, not so much by way of resemblance, but rather on the account of some evident reference or relation to the original idea, this is sometimes peculiarly called an analogical word; so a sound or healthy pulse; a sound digestion; sound sleep; are so called, with reference to a sound and healthy constitution; but if you speak of sound doctrine, or sound speech, this is

by way of resemblance to health, and the words are metaphorical: yet many times analogy and metaphor are used promiscuously in the same sense, and not distinguished.

Here *note*, that the design of metaphorical language and figures of speech is not merely to represent our ideas, but represent them with vivacity, spirit, affection, and power; and though they often make a deeper impression on the mind of the hearer, yet they do as often lead him into a mistake, if they are used at improper times and places. Therefore, where the design of the speaker or writer is merely to explain, to instruct, and to lead into the knowledge of naked truth, he ought, for the most part, to use plain and proper words, if the language affords them, and not to deal much in figurative speech. But this sort of terms is used very profitably by poets and orators, whose business is to move, and persuade, and work on the passions as well as on the understanding. Figures are also happily employed in proverbial moral sayings by the wisest and the best of men, to impress them deeper on the memory by sensible images; and they are often used for other valuable purposes in the sacred writings.

5thly, I might adjoin another sort of equivocal words; as there are some which have a different meaning in common language, from what they have in the sciences; the word passion signifies the receiving any action in a large philosophical sense; in a more limited philosophical sense, it signifies any of the affections of human nature, as love, fear, joy, sorrow, &c. But the common people confine it only to anger. So the word simple philosophically signifies single, but vulgarly it is used for foolish.

6thly, Other equivocal words are used sometimes in an absolute sense, as when God is called perfect, which allows of no defect: and sometimes in a comparative sense, as good men are oftentimes called perfect in scripture, in comparison of those who are much inferior to them in knowledge or holiness: but I have dwelt

rather too long upon the subject already, therefore I add no more.

SECT. VIII.—*The Origin or Causes of equivocal Words.*

Now, that we may become more skilful in guarding ourselves and others against the danger of mistake which may arise from equivocal words, it may not be amiss to conclude this chapter with a short account of the various ways or means whereby a word changes its signification, or acquires any new sense, and thus becomes equivocal, especially if it keeps its old sense also.

1. MERE chance sometimes gives the same word different senses; as the word *light* signifies a body that is not heavy; and it also signifies the effect of sun-beams, or the medium whereby we see objects: this is merely accidental, for there seems to be no connection between these two senses, nor any reason for them.

2. Error and mistake is another occasion of giving various senses to the same word; as when different persons read the names of *priest, bishop, church, easter,* &c. in the New Testament, they affix different ideas to them, for want of acquaintance with the true meaning of the sacred writer; though it must be confessed, these various senses, which might arise at first from honest mistake, may be culpably supported and propagated by interest, ambition, prejudice, and a party-spirit on any side.

3. Time and custom alters the meaning of words. *Knave* heretofore signified a diligent servant, *gnavus*; and a villain was a nearer tenant to the lord of the manor, *villicus*; but now both these words carry an idea of wickedness and reproach with them. A ballad once signified a solemn and sacred song, as well as one that is trivial, when Solomon's Song was called

the ballad of ballads ; but now it is applied to nothing but trifling verse, or comical subjects.

4. Words change their sense by figures and metaphors, which are derived from some real analogy or resemblance between several things ; as when wings and flight are applied to riches, it signifies only, that the owner may as easily lose them, as he would lose a bird who flew away with wings.

And I think, under this head, we may rank those words, which signify different ideas, by a sort of an unaccountable far-fetched analogy, or distant resemblance that fancy has introduced between one thing and another ; as when we say, the meat is green, when it is half-roasted : we speak of airing linen by the fire, when we mean drying or warming it : we call for round coals for the chimney, when we mean large square ones : and we talk of the wing of a rabbit when we mean the fore-leg : the true reason of these appellations we leave to the critics.

5. Words also change their sense by the special occasion of using them, the peculiar manner of pronunciation, the sound of the voice, the motion of the face, or gestures of the body ; so when an angry master says to his servant, it is bravely done, or you are a fine gentleman, he means just the contrary ; namely, it is very ill done ; you are a sorry fellow : it is one way of giving a severe reproach, for the words are spoken by way of sarcasm or irony.

6. Words are applied to various senses, by new ideas appearing or rising faster than new words are framed. So when gunpowder was found out, the word powder, which before signified only dust, was made then to signify that mixture or composition of nitre, charcoal &c. ; and the name canon, which before signified a law, or a rule, is now also given to a great gun, which gives laws to nations. So foot-boys, who had frequently the common name of Jack given them, were kept to turn the spit, or to pull off their masters' boots ; but when instruments were invented for both these services, they were both called jacks, though one was of

iron, the other of wood, and very different in their form.

7. Words alter their significations according to the ideas of the various persons, sects, or parties who use them, as we have hinted before; so when a Papist uses the word heretics, he generally means the Protestants; when a Protestant uses the word, he means any persons who were wilfully (and perhaps contentiously) obstinate in fundamental errors. When a Jew speaks of the true religion, he means the institution of Moses; when a Turk mentions it, he intends the doctrine of Mahomet: but when a Christian makes use of it, he designs to signify Christianity, or the truths and precepts of the gospel.

8. Words have different significations according to the book, writing, or discourse in which they stand. So in a treatise of anatomy, a foot signifies that member in the body of man: But in a book of geometry or mensuration, it signifies twelve inches.

If I had room to exemplify most of these particulars in one single word, I know not where to choose a fitter than the word *sound*, which seems (as it were) by chance to signify three distinct ideas, viz. *healthy* (from *sanus*) as a sound body; *noise*, (from *sonus*) as a shrill sound: and to *sound* the sea (perhaps from the French *sonde*, a probe, or an instrument to find the depth of water.) From these three, which I may call original senses, various derivative senses arise; as *sound sleep*, *sound lungs*, *sound wind* and *limb*, a *sound heart*, a *sound mind*, *sound doctrine*, a *sound divine*, *sound reason*, a *sound cask*, *sound timber*, a *sound reproof*, to *beat one soundly*, or *sound one's meaning*, or *inclination*, and a *sound or narrow sea*; turn all these into Latin, and the variety will appear plain.

I confess, some few of these which I have mentioned as the different springs of equivocal words, may be reduced in some cases to the same original: but it must also be granted, that there may be other ways besides these whereby a word comes to extend its signification, to include various ideas, and become equivocal. And

though it is the business of a grammarian to pursue these remarks with more variety and particularity, yet it is also the work of a logician to give notice of these things, lest darkness, confusion and perplexity be brought into our conceptions by the means of words, and thence our judgments and reasonings become erroneous.

CHAP. V.

GENERAL DIRECTIONS RELATING TO OUR IDEAS.

Direction I. FURNISH yourselves with a rich variety of ideas; acquaint yourselves with things ancient and modern; things natural, civil and religious; things domestic and national; things of your native land, and of foreign countries; things present, past, and future; and above all, be well acquainted with God and yourselves; learn animal nature, and the workings of your own spirits.

Such a general acquaintance with things will be of very great advantage.

The first benefit of it is this: it will assist the use of reason in all its following operations; it will teach you to judge of things aright, to argue justly, and methodise your thoughts with accuracy. When you shall find several things a-kin to each other, and several different from each other, agreeing in some part of their-idea, and disagreeing in other parts, you will range your ideas in better order, you will be more easily led into a distinct knowledge of things, and will obtain a rich store of proper thoughts and arguments upon all occasions.

You will tell me, perhaps, that you design the study of the law or divinity; and what good can natural philosophy or mathematics do you, or any other science, not directly subordinate to your chief design? but let it be considered, that all sciences have a sort of mutual connection; and knowledge of all kinds fit

the mind to reason and judge better concerning any particular subject. I have known a judge upon the bench betray his ignorance, and appear a little confused in his sentiments about a case of suspected murder brought before him, for want of some acquaintance with animal nature and philosophy.

Another benefit of it is this: such a large and general acquaintance with things will secure you from perpetual admirations and surprizes, and guard you against that weakness of ignorant persons, who have never seen any thing beyond the confines of their own dwelling, and therefore they wonder at almost every thing they see; every thing beyond the smoke of their own chimney, and reach of their own windows, is new and strange to them.

A third benefit of such an universal acquaintance with things, is this: it will keep you from being too positive and dogmatical, from an excess of credulity and unbelief, that is, a readiness to believe, or to deny every thing at first hearing; when you shall have often seen, that strange and uncommon things, which often seemed incredible, are found to be true; and things very commonly received have been found false.

The way of attaining such an extensive treasure of ideas, is, with diligence to apply yourself to read the best books, converse with the most knowing and the wisest of men, and endeavour to improve by every person in whose company you are; suffer no hour to pass away in a lazy idleness, and impertinent chattering or useless trifles: visit other cities and countries, when you have seen your own, under the care of one who can teach you to profit by travelling, and to make wise observations; indulge a little curiosity in seeing the wonders of art and nature; search into things yourselves, as well as learn them from others: be acquainted with men as well as books; learn all things as much as you can at first hand; and let as many of your ideas as possible be the representations of things, and not merely the representations of other men's ideas: thus your soul, like some noble building, shall be

richly furnished with original paintings, and not with mere copies.

Direct. II. *Use the most proper methods to retain that treasure of ideas which you have acquired*; for the mind is ready to let many of them slip, unless some pains and labour be taken to fix them upon the memory.

And more especially let those ideas be laid up and preserved with the greatest care, which are most directly suited, either to your eternal welfare as a Christian, or to your particular station and profession in this life; for though the former rule recommends an universal acquaintance with things, yet it is but a more general and superficial knowledge that is required or expected of any man, in things which are utterly foreign to his own business; but it is necessary you should have a more particular and accurate acquaintance with those things that refer to your peculiar province and duty in this life, or your happiness in another.

There are some persons who never arrive at any deep, solid, or valuable knowledge in any science, or any business of life; because they are perpetually fluttering over the surface of things in a curious and wandering search of infinite variety: ever hearing, reading, or asking after something new, but impatient of any labour to lay up and preserve the ideas they have gained: their souls may be compared to a looking-glass, that wheresoever you turn it, it receives the images of all objects, but retains none.

In order to preserve your treasure of ideas and the knowledge you have gained, pursue these advices, especially in your younger years.

1. *Recollect every day the things you have seen, or heard, or read*, which may have made any addition to your understanding; read the writings of God and men with diligence and perpetual reviews: be not fond of hastening to a new book, or a new chapter, till you have well fixed and established in your minds what was useful in the last: make use of your memory in this manner, and you will sensibly experience a gradual im-

provement of it, while you take care not to load it to excess.

2. *Talk over the things which you have seen, heard or learned, with some proper acquaintance; this will make a fresh impression upon your memory; and if you have no fellow-student at hand, none of equal rank with yourselves, tell it over to any of your acquaintance, where you can do it with propriety and decency; and whether they learn any thing by it or no, your own repetition of it will be an improvement to yourself: and this practice also will furnish you with a variety of words and copious language, to express your thoughts upon all occasions.*

3. *Commit to writing some of the most considerable improvements which you daily make, at least such hints as may recall them again to your mind, when perhaps they are vanished and lost. And here I think Mr Locke's method of adversaria or common places, which he describes in the end of the first volume of his posthumous works, is the best; using no learned method at all, setting down things as they occur, leaving a distinct page for each subject, and making an index to the pages.*

At the end of every week, or month, or year, you may review your remarks, for these reasons; first, to judge of your own improvement, when you shall find that many of your younger collections are either weak and trifling; or if they are just and proper, yet they are grown now so familiar to you, that you will thereby see your own advancement in knowledge. And in the next place, what remarks you find there worthy of your riper observations, you may note them with a marginal star *, instead of transcribing them, as being

* Note, this advice of writing, marking, and reviewing your marks, refer chiefly to those occasional notions you meet with either in reading or in conversation; but when you are directly and professedly pursuing any subject of knowledge in a good system in your younger years, the system itself is your common-place book, and must be entirely reviewed. The same may be said concerning any treatise which closely, succinctly, and accurately handles any particular theme.

worthy of your second year's review, when the others are neglected.

To shorten something of this labour, if the books which you read are your own, mark with a pen, or pencil, the most considerable things in them which you desire to remember. Thus you may read that book the second time over with half the trouble, by your eye running over the paragraphs which your pencil has noted. It is but a very weak objection against this practice, to say, I shall spoil my book; for I persuade myself, that you did not buy it as a bookseller, to sell it again for gain, but as a scholar to improve your mind by it; and if the mind be improved, your advantage is abundant, though your book yields less money to your executors.

Direct. III. *As you proceed both in learning and in life, make a wise observation what are the ideas, what the discourses and the parts of knowledge that have been more or less useful to yourself or others.* In our younger years, while we are furnishing our minds with a treasure of ideas, our experience is but small, and our judgment weak; it is therefore impossible at that age to determine aright concerning the real advantage and usefulness of many things we learn. But when age and experience have matured your judgment, then you will gradually drop the more useless part of your younger furniture, and be more solicitous to retain that which is more necessary for your welfare in this life, or a better. Hereby you will come to make the same complaint that almost every learned man has done after long experience in study, and in the study of human life and religion; alas! how many hours, and days, and months, have I lost in pursuing some parts of learning, and in reading some authors, which have turned to no other account but to inform me, that they were not worth my labour and pursuit! happy the man who has a wise tutor to conduct him through all the sciences in the first years of his study, and who has a prudent friend always at hand to point out to him, from experience, how much of every science is worth his pursuit! and

happy the student that is so wise as to follow such advice.

Direct. IV. *Learn to acquire a government over your ideas and your thoughts, that they may come when they are called, and depart when they are bidden.* There are some thoughts that rise and intrude upon us while we shun them; there are others that fly from us, when we would hold and fix them.

If the ideas which you would willingly make the matter of your present meditation are ready to fly from you, you must be obstinate in the pursuit of them by a habit of fixed meditation; you must keep your soul to the work, when it is ready to start at every moment, unless you will abandon yourself to be a slave to every wild imagination. It is a common, but it is an unhappy and a shameful thing, that every trifle that comes across the senses or fancy should divert us, that a buzzing fly should teaze our spirits, and scatter our best ideas; but we must learn to be deaf and regardless of other things, besides that which we make the present subject of our meditation: and in order to help a wandering and fickle humour, it is useful to have a book of paper in our hands, which has some proper hints of the subject that we design to pursue. We must be resolute and laborious, and sometimes conflict with ourselves if we would be wise and learned.

Yet I would not be too severe in this rule; it must be confessed there are seasons when the mind, or rather the brain is overtired or jaded with study or thinking; or upon some other accounts animal nature may be languid or cloudy, and unfit to assist the spirit in meditation; at such seasons (provided that they return not too often) it is better sometimes to yield to the present indisposition; for if nature entirely resist, nothing can be done to the purpose, at least in that subject or science. Then you may think it proper to give yourself up to some hours of leisure and recreation, or useful idleness; or if not, then turn your thoughts to some other alluring subject, and pore no longer upon the first, till some brighter or more favourable mo-

ments arise. A student shall do more in one hour, when all things concur to invite him to any special study, than in four hours, at a dull and improper season.

I would also give the same advice, if some vain or worthless, or foolish idea will crowd itself into your thoughts, and if you find that all your labour and wrestling cannot defend yourself from it; then divert the importunity of that which offends you, by turning your thoughts to some entertaining subject, that may amuse a little and draw you off from the troublesome and imposing guest; and many a time also in such a case, when the impertinent and intruding ideas would divert from present duty, devotion and prayer have been very successful to overcome such obstinate troublers of the peace and profit of the soul.

If the natural genius and temper be too volatile, fickle and wandering, such persons ought in a more especial manner to apply themselves to mathematical learning, and to begin their studies with arithmetic and geometry; wherein new truths, continually arising to the mind out of the plainest and easiest principles, will allure the thoughts with incredible pleasure in the pursuit; this will give the student such a delightful taste of reasoning, as will fix his attention to the single subject which he pursues, and by degrees will cure the habitual levity of his spirit; but let him not indulge and pursue these so far, as to neglect the prime studies of his designed profession.

CHAP. VI.

SPECIAL RULES TO DIRECT OUR CONCEPTIONS OF THINGS.

A GREAT part of what has been already written is designed to lay a foundation for those rules, which may guide and regulate our conceptions of things: this is our main business and design in the first part of

logic. Now if we can but direct our thoughts to a just and happy manner in forming our ideas of things, the other operations of the mind will not so easily be perverted; because most of our errors in judgment, and the weakness, fallacy and mistake of our argumentation, proceed from the darkness, confusion, defect, or some other irregularity in our conceptions.

The rules to assist and direct our conceptions are these,

1. Conceive of things clearly and distinctly in their own natures.
2. Conceive of things completely in all their parts.
3. Conceive of things comprehensively in all their properties and relations.
4. Conceive of things extensively in all their kinds.
5. Conceive of things orderly, or in a proper method.

SECT. I.—*Of gaining clear and distinct Ideas.*

THE first rule is this, seek after a clear and distinct conception of things as they are in their own nature, and do not content yourselves with obscure and confused ideas, where clearer are to be attained.

There are some things indeed whereof distinct ideas are scarce attainable; they seem to surpass the capacity of the understanding in our present state: such are the notions of eternal, immense, infinite, whether this infinity be applied to number, as an infinite multitude; to quantity, as infinite length, breadth; to powers and perfections, as strength, wisdom, or goodness infinite, &c. Though mathematicians in their way demonstrate several things in the doctrine of infinities, yet there are still some insolvable difficulties that attend the ideas of infinity, when it is applied to mind or body; and while it is in reality but an idea ever growing, we cannot have

so clear and distinct a conception of it as to secure us from mistakes in some of our reasonings about it.

There are many other things that belong to the material world, wherein the sharpest philosophers have not yet arrived at clear and distinct ideas, such as the particular shape, situation, contexture, motion of the small particles of minerals, metals, plants, &c. whereby their very natures and essences are distinguished from each other. Nor have we either senses or instruments sufficiently nice and accurate to find them out. There are other things in the world of spirits wherein our ideas are very dark and confused, such as their union with animal nature, the way of their action on material beings, and their converse with each other. And though it is a laudable ambition to search what may be known of these matters, yet it is a vast hindrance to the enrichment of our understandings, if we spend too much of our time and pains among infinities and unsearchables, and those things for the investigation whereof we are not furnished with proper faculties in the present state. It is therefore of great service to the true improvement of the mind, to distinguish well between *knowables* and *unknowables*.

As far as things are knowable by us, it is of excellent use to accustom ourselves to clear and distinct ideas. Now among many other occasions of the darkness and mistakes of our minds, there are these two things which most remarkably bring confusion into our ideas.

1. That from our infancy we have had the ideas of things so far connected with the ideas of words, that we often mistake words for things, we mingle and confound one with the other.

2. From our youngest years we have been ever ready to consider things not so much in their own natures, as in their various respects to ourselves, and chiefly to our senses; and we have also joined and mingled the ideas of some things, with many other ideas, to which they are not akin in their own natures.

In order therefore to a clear and distinct knowledge of things, we must unclothe them of all these relations and mixtures, that we may contemplate them naked, and in their own natures, and distinguish the subject that we have in view from all other subjects whatsoever: now to perform this well, we must here consider the definition of words, and the definition of things.

SECT. II.—*Of the Definition of Words or Names.*

If we conceive of things as angels and unbodied spirits do, without involving them in those clouds which words and language throw upon them, we should seldom be in danger of such mistakes as are perpetually committed by us in the present state; and indeed it would be of unknown advantage to us to accustom ourselves to form ideas of things without words, that we might know them in their own proper natures. But since we must use words, both to learn and to communicate most of our notions, we should do it with just rules of caution. I have already declared in part, how often and by what means our words become the occasions of errors in our conceptions of things. To remedy such inconveniences, we must get exact definition of the words we make use of, that is, we must determine precisely the sense of our words, which is called the definition of the name.

Now a definition of the name being only a declaration in what sense the word is used, or what idea or object we mean by it, this may be expressed by any one or more of the properties, effects or circumstances of that object, which do sufficiently distinguish it from other objects: as if I were to tell what I mean by the word air, I may say it is that thin matter which we breathe in and breathe out continually; or it is that fluid body in which the birds fly a little above the earth; or it is that invisible matter which fills all places near the earth, or which immediately encompasses the globe.

of earth and water. So if I would tell what I mean by light, I would say it is that medium whereby we see the colours and shapes of things; or it is that which distinguishes the day from the night. If I were asked what I mean by religion, I would answer, it is a collection of all our duties to God, if taken in a strict and limited sense; but if taken in a large sense, it is a collection of all our duties both to God and man. These are called the definitions of the name.

Note, in defining the name, there is no necessity that we should be acquainted with the intimate essence or nature of the thing; for any manner of description that will but sufficiently acquaint another person what we mean by such a word, is a sufficient definition for the name. And on this account, a synonymous word, or a mere negation of the contrary, a translation of the word into another tongue, or a grammatical explication of it, is sometimes sufficient for this purpose; as if one would know what I mean by a sphere, I tell him it is a globe; if he ask what is a triangle, it is that which has three angles; or an oval is that which has the shape of an egg. Dark is that which has no light; asthma is a difficulty of breathing; a diaphoretic medicine, or a sudorific, is something that will provoke sweating; and an insolvent is a man that cannot pay his debts.

Since it is the design of logic, not only to assist us in learning, but in teaching also, it is necessary that we should be furnished with some particular directions relating to the definitions of names, both in teaching and learning.

SECT. III.—*Directions concerning the Definitions of Names.*

Direct I. HAVE a care of making use of mere words, instead of ideas, that is, such words as have no meaning, no definition belonging to them: do not always

imagine that there are ideas wheresoever there are names : for though mankind hath so many millions of ideas more than they have names, yet so foolish and lavish are we, that too often we use some words in mere waste, and have no ideas for them ; or at least, our ideas are so exceedingly scattered and confused, broken and blended, various and unsettled, that they can signify nothing toward the improvement of the understanding. You will find a great deal of reason for this remark, if you read the Popish schoolmen, or the mystic divines.

Never rest satisfied therefore with mere words which have not ideas belonging to them, or at least no settled and determinate ideas. Deal not in such empty ware, whether you are a learner or a teacher ; for hereby some persons have made themselves rich in words, and learned in their own esteem : whereas in reality their understandings have been poor, and they knew nothing.

Let me give, for instance, some of those writers or talkers who deal much in the words *nature, fate, luck, chance, perfection, power, life, fortune, instinct, &c.* and that even in the most calm and instructive parts of their discourse ; though neither they themselves nor their hearers have any settled meaning under those words ; and thus they build up their reasonings, and infer what they please, with an ambition of the name of learning, or of sublime elevations in religion ; whereas in truth they do but amuse themselves and their admirers with swelling words of vanity, understanding neither what they say, nor whereof they affirm. But this sort of talk was reprov'd of old by the two chief apostles St Peter and St Paul, 1 Tim. i. 7. and 2. Pet. ii. 18.

When pretenders to philosophy or good sense grow fond of this sort of learning, they dazzle and confound their weak hearers, but fall under the neglect of the wise. The Epicureans are guilty of this fault, when they ascribe the formation of this world to chance : the Aristotelians, when they say, nature abhors a *vacuum* : the Stoics when they talk of fate, which is superior to

the gods: and the gamesters when they curse their ill-luck, or hope for the favours of fortune. Whereas, if they would tell us, that by the word nature they mean the properties of any being, or the order of things established at the creation; that by the word fate they intend the decrees of God, or the necessary connection and influence of second causes and effects; if by the word luck or chance they signify the absolute negation of any determinate cause, or only their ignorance of any such cause, we should know how to converse with them, and to assent to, or dissent from their opinions. But while they flutter in the dark, and make a noise with words which have no fixed ideas, they talk to the wind, and can never profit.

I would make this matter a little plainer still by instances borrowed from the Peripatetic philosophy, which was taught once in all the schools. The professor fancies he has assigned the true reason, why all heavy bodies tend downward, why amber will draw feathers or straws, and the loadstone draw iron, when he tells you, that this is done by certain gravitating and attractive qualities, which proceed from the substantial forms of those various bodies. He imagines that he has explained why the loadstone's * north pole shall repel the north end of a magnetic needle, and attract the south, when he affirms, that this is done by its sympathy, with one end of it, and its antipathy against the other end. Whereas in truth, all these names of sympathy, antipathy, substantial forms and qualities, when they are put up for the causes of these effects in bodies, are but hard words which only express a learned and pompous ignorance of the true cause of natural appearances; and in this sense they are mere words without ideas.

This will evidently appear, if one ask me, why a concave mirror or convex glass will burn wood in the sunbeams, or why a wedge will cleave it? and I should

* Note, Some writers call that the south pole of a loadstone which attracts the south-end of the needle; but I chose to follow those who call it the north pole.

tell him, it is by an ustorious quality in the mirror or glass, and by a cleaving power in the wedge, arising from a certain unknown substantial form in them, whence they derive these qualities; or if he should ask me, why a clock strikes, and points to the hour? and I should say, it is by an indicating form and sonoric quality; whereas I ought to tell him how the sunbeams are collected and united by a burning glass; whence the mechanical force of a wedge is derived; and what are the wheels and springs, the pointer and hammer, and bell, whereby a clock gives notice of the time, both to the eye and the ear. But these ustorious and cleaving powers, sonorous and indicating forms and qualities, do either teach the inquirer nothing at all but what he knew before, or they are mere words without ideas*.

And there is many a man in the vulgar and in the learned world, who imagines himself deeply skilled in the controversies of divinity, whereas he has only furnished himself with a parcel of scholastic or mystic words under some of which the authors themselves had no just ideas; and the learner, when he hears, or pronounces them, hath scarce any ideas at all. Such sort of words sometimes have become matters of immortal contention, as though the gospel could not stand without them; and yet the zealot perhaps knows little more of them than he does of *Shibboleth*, or *Higgaion*, *Selah*, Judges xii. 6. Psal. lx. 16.

* It may be objected here. "And what does the modern philosopher with all his detail of mathematical numbers, and diagrams, do more than this toward the solution of these difficulties? does he not describe gravity by a certain unknown force, whereby bodies tend downward to the centre? hath he found the certain and mechanical reasons of attraction, magnetism," &c. I answer, that the moderns have found a thousand things by applying mathematics to natural philosophy, which the ancients were ignorant of; and when they use any names of this kind, viz. gravitation, attraction, &c. they use them only to signify, that there are such effects and such causes, with a frequent confession of their ignorance of the true springs of them: they do not pretend to make these words stand for the real causes of things, as though they thereby assigned the true philosophical solution of these difficulties; for in this sense they will still be words without ideas, whether in the mouth of an old philosopher or a new one.

Yet here I would lay down this caution, that there are several objects of which we have not a clear and distinct idea, much less an adequate or comprehensive one, and yet we cannot call the names of these things, words without ideas; such are the infinity and eternity of God himself, the union of our own soul and body, the union of the divine and human natures in Jesus Christ, the operation of the holy Spirit on the mind of man, &c. These ought not to be called words without ideas, for there is sufficient evidence for the reality and certainty of the existence of their objects; though there is some confusion in our clearest conceptions of them; and our ideas of them, though imperfect, are yet sufficient to converse about them, so far as we have need, and to determine so much as is necessary for our own faith and practice.

Direct. II. *Do not suppose that the natures or essences of things always differ from one another, as much as their names do.* There are various purposes in human life, for which we put very different names on the same thing or on things whose natures are near a-kin; and thereby oftentimes, by making a new nominal species, we are ready to deceive ourselves with the idea of another real species of beings: and those whose understandings are led away by the mere sound of words, fancy the nature of those things to be very different whose names are so, and judge of them accordingly.

I may borrow a remarkable instance for my purpose almost out of every garden, which contains a variety of plants in it. Most or all plants agree in this, that they have a root, a stalk, leaves, buds, blossoms, and seeds: but the gardener ranges them under very different names, as though they were really different kinds of beings, merely because of the different use and service to which they are applied by men: as for instance, those plants whose roots are eaten shall appropriate the name of roots to themselves; such are carrots, turnips, radishes, &c. If the leaves are of chief use to us, then we call them herbs; as sage, mint, thyme: if the leaves are eaten raw, they are termed sallad; as lettuce, pur-

slain : if boiled, they become pot-herbs ; as spinage, coleworts ; and some of those same plants, which are pot-herbs in one family, are sallad in another. If the buds are made our food, they are called heads, or tops ; so cabbage-heads, heads of asparagus and artichoaks. If the blossom be of most importance, we call it a flower ; such are daisies, tulips, and carnations, which are the mere blossoms of those plants. — If the husk or seeds are eaten, they are called the fruits of the ground, as pease, beans, strawberries, &c. If any part of the plant be of known and common use to us in medicine, we call it a physical herb, as carduus, scurvy grass ; but if we count no part useful, we call it a weed, and throw it out of the garden ; and yet perhaps our next neighbour knows some valuable property and use of it ; he plants it in his garden, and gives it the title of an herb, or a flower. You see here how small is the real distinction of these several plants, considered in their general nature as the lesser vegetables : yet what very different ideas we vulgarly form concerning them, and make different species of them, chiefly because of the different names given them.

Now when things are set in this clear light, it appears how ridiculous it would be for two persons to contend, whether dandelion be an herb, or a weed, whether it be a pot-herb or sallad ; when by the custom or fancy of different families, this one plant obtains all these names according to the several uses of it, and the value that is put upon it.

Note here, that I find no manner of fault with the variety of names which are given to several plants, according to the various uses we make of them. — But I would not have our judgments imposed upon hereby ; to think that these mere nominal species, viz. herbs, sallad, and weeds, become three really different species of beings, on this account, that they have different names and uses. But I proceed to other instances.

— It has been the custom of mankind, when they have been angry with any thing, to add a new ill name to it, that they may convey thereby a hateful idea of it, though

the nature of the thing still abides the same. So the Papists call the Protestants heretics : a profane person calls a man of piety a precisian : and in the times of the civil war in the last century, the royalists called the parliamentarians, fanatics, roundheads, and sectaries. And they in requital called the royalists, malignants : but the partizans on each side were really neither better nor worse for these names.

It has also been a frequent practice on the other hand, to put new favourable names upon ill ideas, on purpose to take off the odium of them. But, notwithstanding all these flattering names and titles, a man of profuse generosity is but a spendthrift ; a natural son is a bastard still ; a gallant is an adulterer, and a lady of pleasure is a whore.

Direct. III. *Take heed of believing the nature and essence of two or more things to be certainly the same, because they may have the same name given them.* This has been an unhappy and fatal occasion of a thousand mistakes in the natural, in the civil, and in the religious affairs of life, both amongst the vulgar and the learned. I shall give two or three instances chiefly in the matters of natural philosophy, having hinted several dangers of this kind relating to theology in the foregoing discourse concerning equivocal words.

Our elder philosophers have generally made use of the word soul to signify that principle whereby a plant grows, and they called it the vegetative soul : the principle of animal motion of a brute has been likewise called a soul, and we have been taught to name it the sensitive soul : they have also given the name of soul to that superior principle in man, whereby he thinks, judges, reasons, &c. And though they distinguished this by the honourable title of the rational soul, yet in common discourse and writing we leave out the words vegetative, sensitive, and rational ; and make the word soul serve for all these principles : thence we are led early into this imagination, that there is a sort of spiritual being in plants, and in brutes, like that in men. Whereas, if we did but abstract and separate

these things from words, and compare the cause of growth in a plant, with the cause of reasoning in man (without the word soul) we shall never think that these two principles were at all like one another; nor should we perhaps so easily and peremptorily conclude, that brutes need an intelligent mind to perform their animal actions.

Another instance may be the word life, which being attributed to plants, to brutes, and to men, and in each of them ascribed to the soul, has very easily betrayed us from our infancy into this mistake, that the spirit or mind or thinking principle, in man, is the spring of vegetative and animal life to his body: whereas it is evident, that if the spirit or thinking principle of man gave life to his animal nature, the way to save men from dying would not be to use medicines, but to persuade the spirit to abide in the body.

I might derive a third instance from the word heat, which is used to signify the sensation we have when we are near the fire, as well as the cause of that sensation which is in the fire itself; and thence we conclude from our infancy, that there is a sort of heat in the fire resembling our own sensation, or the heat which we feel; whereas in the fire there is nothing but little particles of matter of such particular shapes, sizes, situations and motions as are fitted to impress such motions on our flesh or nerves as excite the sense of heat. Now if this cause of our sensation in the fire had been always called by a distinct name, perhaps we had not been so rooted in this mistake, that the fire is hot with the same sort of heat that we feel. This will appear with more evidence, when we consider that we are secure from the same mistake when there have been two different names allotted to our sensation, and to the cause of it; as, we do not say, pain is in the fire that burns us, or in the knife that cuts and wounds us; for we call it burning in the fire, cutting in the knife, and pain only when it is in ourselves.

Numerous instances of this kind might be derived from the words sweet, sour, loud, shrill, and almost

all the sensible qualities, whose real natures we mistake from our very infancy, and we are ready to suppose them to be the same in us, and in the bodies that cause them; partly because the words which signify our own sensations are applied also to signify those unknown shapes and motions of the little corpuscles, which excite and cause those sensations.

Direct. IV. *In conversation or reading be diligent to find out the true sense, or distinct idea, which the speaker or writer affixes to his words; and especially to those words which are the chief subject of his discourse.* As far as possible take heed, lest you put more or fewer ideas into one word, than the person did when he wrote or spoke; and endeavour that your ideas of every word may be the same as his were; then you will judge better of what he speaks or writes.

It is for want of this that men quarrel in the dark, and that there are so many contentions in the several sciences, and especially in divinity: multitudes of them arise from a mistake of the true sense or complete meaning, in which words are used by the writer or speaker; and hereby sometimes they seem to agree, when they really differ in their sentiments; and sometimes they seem to differ, when they really agree. Let me give an instance of both.

When one man by the word church shall understand all that believe in Christ; and another by the word church means only the church of Rome; they may both assent to this proposition, there is no salvation out of the church, and yet their inward sentiments may be widely different.

Again, if one writer shall affirm that virtue added to faith is sufficient to make a Christian, and another shall as zealously deny this proposition, they seem to differ widely in words, and yet perhaps they may both really agree in sentiment: if by the word virtue, the affirmer intends our whole duty to God and man; and the denier by the word virtue means only courage, or at most our duty towards our neighbour, without including in the idea of it the duty which we owe to God.

Many such sort of contentions as these are, traced to their original, will be found to be mere *logomachies*, or strifes and quarrels about names and words, and vain janglings, as the apostle calls them in his first letter of advice to Timothy.

In order therefore to attain clear and distinct ideas of what we read or hear, we must search the sense of words; we must consider what is their original and derivation in our own or foreign languages; what is their common sense amongst mankind, or in other authors, especially such as wrote in the same century, in the same age, about the same time, and upon the same subjects: we must consider in what sense the same author uses any particular word or phrase, and that when he is discoursing on the same matter, and especially about the same parts or paragraphs of his writing: we must consider whether the word be used in a strict and limited, or in a large and general sense; whether in a literal, in a figurative, or in a prophetic sense; whether it has any secondary idea annexed to it besides the primary or chief sense. We must inquire farther what is the scope and design of the writer; and what is the connection of that sentence with those that go before it, and those which follow it. By these and other methods we are to search out the definition of names, that is, the true sense and meaning in which any author or speaker uses any word, which may be the chief subject of discourse, or may carry any considerable importance in it.

Direct. V. When we communicate our notions to others, merely with a design to inform and improve their knowledge, let us, in the beginning of our discourse, take care to adjust the definitions of names wheresoever there is need of it; that is, to determine plainly what we mean by the chief words which are the subject of our discourse; and be sure always to keep the same ideas, whensoever we use the same words, unless we give due notice of the change. This will have a very large and happy influence, in securing not only others but ourselves too from confusion and mistake; for even writers and speakers themselves, for

want of due watchfulness, are ready to affix different ideas to their own words, in different parts of their discourses; and hereby bring perplexity into their own reasonings, and confound their hearers.

It is by an observation of this rule that mathematicians have so happily secured themselves and the sciences which they have professed, from wrangling and controversy; because whensoever in the progress of their treatises they have occasion to use a new and unknown word; they always define it, and tell in what sense they shall take it; and in many of their writings you will find a heap of definitions at the very beginning. Now, if the writers of natural philosophy and morality had used the same accuracy and care, they had effectually secluded a multitude of noisy and fruitless debates out of their several provinces: nor had that sacred theme of divinity been perplexed with so many intricate disputes, nor the church of Christ been torn to pieces, by so many sects and factions, if the words *grace, faith, righteousness, repentance, justification, worship, church, bishop, presbyter, &c.* had been well defined, and their significations adjusted, as near as possible, by the use of those words in the New Testament; or at least, if every writer had told us at first in what sense he would use those words.

Direct. VI. *In your own studies, as well as in the communication of your thoughts to others, merely for their information, avoid ambiguous and equivocal terms as much as possible.* Do not use such words as have two or three definitions of the name belonging to them, that is, such words as have two or three senses, where there is any danger of mistake. Where your chief business is to inform the judgment, and to explain a matter, rather than to persuade or affect, be not fond of expressing yourselves in figurative language, when there are any proper words that signify the same idea in their literal sense. It is the ambiguity of names, as we have often said, that brings almost infinite confusion into our conceptions of things.

But where there is a necessity of using an ambigu-

ous word, there let double care be used in defining that word, and declaring in what sense you take it. And be sure to suffer no ambiguous word ever to come into your definitions.

Direct. VII. *In communicating your notions, use every word as near as possible in the same sense in which mankind commonly uses it; or which writers that have gone before you have usually affixed to it, upon condition that it is free from ambiguity.* Though names are in their original merely arbitrary, yet we should always keep to the established meaning of them, unless great necessity require the alteration; for when any word has been used to signify an idea, that old idea will recur in the mind, when the word is heard or read, rather than any new idea which we may fasten to it. And this is one reason why the received definition of names should be changed as little as possible.

But I add farther, that though a word entirely new, introduced into a language, may be affixed to what idea you please, yet an old word ought never to be fixed to an unaccustomed idea, without just and evident necessity, or without present or previous notice, lest we introduce thereby a licence for all manner of pernicious equivocations and falsehoods; as for instance, when an idle boy, who has not seen his book all the morning, shall tell his master that he has learned his lesson, he can never excuse himself by saying, that by the word learning he meant his breakfast, and by the word lesson he meant eating; surely this would be construed a downright lie, and his fancied wit would hardly procure his pardon.

In using any ambiguous word, which has been used in different senses, we may choose what we think the most proper sense, as I have done, *supra*, in naming the poles of the loadstone, north or south.

And when a word has been used in two or three senses, and has made a great inroad for error upon that account, it is of good service to drop one or two of those senses, and leave it only one remaining, and affix the other senses or ideas to other words. So the mo-

dern philosophers, when they treat of the human soul, they call it the mind or *mens humana*, and leave the word *anima* or soul to signify the principle of life and motion in mere animal beings.

The poet Juvenal has long ago given us a hint to this accuracy and distinction, when he says of brutes and men,

*Indulsit mundi communis conditor illis
Tantum animis ; nobis animum quoque.*

Sat. xvi. v. 134.

Exception. There is one case, wherein some of these last rules concerning the definition of words, may be in some measure dispensed with ; and that is, when strong and rooted prejudice hath established some favourite word or phrase, and long used it to express some mistaken notion, or to unite some inconsistent ideas ; for then it is sometimes much easier to lead the world into truth by indulging their fondness for a phrase, and by assigning and applying new ideas and notions to their favourite word ; and this is much safer also than to awaken all their passions by rejecting both their old words, and phrases and notions, and introducing all new at once : therefore we continue to say, there is heat in the fire, there is coldness in ice, rather than invent new words to express the powers which are in fire or ice, to excite the sensations of heat or cold in us. For the same reason some words and phrases which are less proper, may be continued in theology, while people are led into clearer ideas with much more ease and success, than if an attempt were made to change all their beloved forms of speech.

In other cases these logical directions should generally be observed, and different names affixed to different ideas.

Here I cannot but take occasion to remark, that it is a considerable advantage to any language to have a variety of new words introduced into it, that when in course of time new objects and new ideas arise, there

may be new words and names assigned to them: and also where one single name has sustained two or three ideas in time past, these new words may remove the ambiguity by being affixed to some of those ideas. This practice would by degrees take away part of the uncertainty of language. And for this reason I cannot but congratulate our English tongue, that it has been abundantly enriched with the translation of words from all our neighbour nations, as well as from ancient languages, and these words have been as it were enfranchised amongst us; for French, Latin, Greek, and German names will signify English ideas, as well as words that are anciently and entirely English.

It may not be amiss to mention in this place, that as the determination of the particular sense in which any word is used, is called the definition of the name, so the enumeration of the various senses of an equivocal word, is sometimes called the division or distinction of the name; and for this purpose good dictionaries are of excellent use.

This distinction of the name or word is greatly necessary in argumentation or dispute; when a fallacious argument is used, he that answers it distinguishes the several senses of some word or phrase in it, and shews in what sense it is true, and in what sense it is as evidently false.

SECT. IV.—*Of the Definition of Things.*

As there is much confusion introduced into our ideas, by the means of those words to which they are affixed, so the mingling our ideas with each other without caution is a farther occasion whereby they become confused. A court lady, born and bred up amongst pomp and equipage, and the vain notions of birth and quality, constantly joins and mixes all these with the idea of herself, and she imagines these to be essential to her nature, and as it were necessary to

her being; thence she is tempted to look upon menial servants, and the lowest rank of mankind, as another species of beings quite distinct from herself. A plough-boy, that has never travelled beyond his own village, and has seen nothing but thatched houses and his parish-church, is naturally led to imagine that thatch belongs to the very nature of a house, and that must be a church which is built of stone, and especially if it has a spire upon it. A child whose uncle has been excessive fond, and his schoolmaster very severe, easily believes, that fondness always belongs to uncles, and that severity is essential to masters or instructors. He has seen also soldiers with red coats, or ministers with long black gowns, and therefore he persuades himself that these garbs are essential to the characters, and that he is not a minister who has not a long black gown, nor can he be a soldier who is not dressed in red. It would be well if all such mistakes ended with childhood.

It might be also subjoined, that our complex ideas become confused, not only by uniting or blending together more simple or single ideas, than really belong to them, as in the instances just mentioned; but obscurity and confusion sometimes come upon our ideas also, for want of uniting a sufficient number of single ideas to make the complex one: so if I conceive of a leopard only as a spotted beast, this does not distinguish it from a tyger or a lynx, nor from many dogs or horses, which are spotted too; and therefore a leopard must have some more ideas added to complete and distinguish it.

I grant that it is a large and free acquaintance with the world, a watchful observation and diligent search into the nature of things, that must fully correct this kind of errors: the rules of logic are not sufficient to do it: but yet the rules of logic may instruct us by what means to distinguish one thing from another, and how to search and mark out as far as may be, the contents and limits of the nature of distinct beings, and

other liquids; a remote genus leaves the thing too much undistinguished.

The specific difference is that primary attribute which distinguishes each species from one another, while they stood ranked under the same general nature or genus. Though wine differs from other liquids, in that it is the juice of a certain fruit, yet this is but a general or generic difference, for it does not distinguish wine from cyder or perry; the specific difference of wine therefore is its pressure from the grape; as cyder is pressed from apples, and perry from pears.

In definitions also we must use the primary attribute that distinguishes the species or special nature, and not attempt to define wine by its particular tastes, or effects, or other properties, which are but secondary or consequential, when its pressure from the grape is the most obvious and primary distinction of it from all other juices. I confess in some cases it is not so easily known, which is the primary idea that distinguishes one thing from another; and therefore some would as soon define winter by the coldness of the season, as by the shortness of the days; though the shortness of the days is doubtless the most just, primary and philosophical difference betwixt that and the other seasons of the year, since winter days are always shortest, but not always the coldest; I add also, that the shortness of the days is one cause of the coldness, but the cold is no cause of the shortness.

SECT. V.—*Rules of the Definition of the Things.*

THE special rules of a good definition, are these:
 Rule I. A definition must be universal, or as some call it adequate; that is, it must agree to all the particular species, or individuals that are included under the same idea; so the juice of a grape agrees to all proper wines, whether red, white, French, Spanish, Florence, &c.

Rule II. *It must be proper and peculiar to the thing defined, and agree to that alone; for it is the very design of a definition effectually to distinguish one thing from all others; so the juice of a grape agrees to no other substance, to no other liquid, to no other being but wine.*

These two rules being observed, will always render a definition reciprocal with the thing defined; which is a scholastic way of speaking, to signify that the definition may be used in any sentence in the place of the thing defined, or they may be mutually affirmed concerning each other, or substituted in the room of each other. The juice of the grape is wine, or wine is the juice of the grape. And wheresoever the word wine is used, you may put the juice of the grape instead of it, except when you consider wine rather as a word than a thing, or when it is mentioned in such logical rules.

Rule III. *A definition ought to be clear and plain; for the design of it is to lead us into the knowledge of the thing defined.*

Hence it will follow, that the words used in definition ought not to be doubtful, and equivocal, and obscure, but as plain and easy as the language will afford; and indeed it is a general rule concerning the definition both of names and things, that no word should be used in either of them, which has any darkness or difficulty in it, unless it has been before explained or defined.

Hence it will follow also, that there are many things which cannot well be defined, either as to the name of the thing, unless it be by synonymous words, or by a negation of the contrary idea, &c. for learned men know not how to make them more evident or more intelligible than the ideas which every man has gained by the vulgar methods of teaching. Such are the ideas of extension, duration, thought, consciousness, and most of our simple ideas, and particularly sensible qualities, as *white, blue, red, cold, heat, sweet, bitter, sour,* &c.

We can say of duration, that it is a continuance in

being, or a not ceasing to be; we can say of consciousness, that it is as it were a feeling within ourselves; we may say, heat is that which is not cold; or sour is that which is like vinegar; or we may point to the clear sky, and say that it is blue. These are the vulgar methods of teaching the definitions of names, or meaning of words. But there are some philosophers, whose attempts to define these things learnedly, have wrapt up their ideas in greater darkness, and exposed themselves to ridicule and contempt: as when they define heat, they say, it is *qualitas congregans homogenea, et segregans heterogenea*, that is, a quality gathering together things of the same kind, and separating things of a different kind. So they define white, a colour arising from the prevalence of brightness: but every child knows hot and white better without these definitions.

There are many other definitions given by the peripatetic philosophers, which are very faulty by reason of their obscurity; as motion is defined by them the act of a being in power, so far forth as it is in power. Time is the measure or number of motion according to past, present and future. The soul is the act of an organical natural body, having life in power; and several others of the same stamp.

Rule IV. It is also commonly prescribed among the rules of definition, that it should be short, so that it must have no tautology in it, nor any words superfluous. I confess definitions ought to be expressed in as few words as is consistent with a clear and just explication of the nature of the thing defined, and a distinction of it from all other things beside; but it is of much more importance, and far better, that a definition should explain clearly the subject we treat of, though the words be many, than to leave obscurities in the sentence, by confining it within too narrow limits. So in the definition which we have given of logic, that it is the art of using reason well in the search after truth, and the communication of it to others, it has indeed many words in it, but it could not well be shorter. Art is the genus wherein it agrees with *rhetoric, poesy, arithmetic,*

wrestling, sailing, building, &c. for all these are arts also: but the difference or special nature of it is drawn from its object, reason; from the act using it well, and from its two great ends or designs, viz. the search of truth, and the communication of it, nor can it be justly described and explained in fewer ideas.

V. If we add a fifth rule, it must be, that neither the thing defined, nor a mere synonymous name should make any part of the definition, for this would be no explication of the nature of the thing; and a synonymous word at best could only be a definition of the name.

SECT. VI.—*Observations concerning the Definition of Things.*

BEFORE I part with this subject, I must propose several observations which relate to the definition of things.

1st Observ. There is no need that in definitions we should be confined to one single attribute or property, in order to express the difference of the thing defined, as sometimes the essential difference consists in two or three ideas or attributes. So a grocer is a man who buys and sells sugar and plumbs and spices for gain. A clock is an engine with weights and wheels, that shews the hour of the day both by pointing and striking: and if I were to define a repeating clock, I must add another property, viz. that it also repeats the hour. So that the true and primary essential difference of some complex ideas consisting in several distinct properties, cannot be well expressed without conjunctive particles of speech.

2d Observ. There is no need that definitions should always be positive, for some things differ from others merely by a defect of what others have; as if a chair be defined a seat for a single person with a back belonging to it, then a stool is a seat for a single person

without a back; and a form is a seat for several persons, without a back: these are negative differences. So sin is a want of conformity to the law of God; blindness is a want of sight; a vagabond is a person without a home. Some ideas are negative, and their definitions ought to be so too.

3d Observ. Some things may have two or more definitions, and each of them equally just and good; as a mile is the length of eight furlongs, or it is the third part of a league. Eternal is that which ever was and ever shall be; or it is, that which had no beginning and shall have no end*. Man is usually defined a rational animal: but it may be much better to define him a spirit united to an animal of such a shape, or an animal of such a peculiar shape united to a spirit, or a being composed of such an animal and a mind.

4th Observ. Where the essences of things are evident, and clearly distinct from each other, there we may be more exact and accurate in the definitions of them; but where their essences approach near to each other, the definition is more difficult. A bird may be defined a feathered animal with wings, a ship may be defined a large hollow building made to pass over the sea with sails; but if you ask me to define a batt, which is between a bird and a beast, or to define a barge and hoy, which are between a boat and a ship, it is much harder to define them, or to adjust the bounds of their essence. This is very evident in all monstrous births and irregular productions of nature, as well as in many works of art, which partake so much of one species and so much of another, that we cannot tell under which species to rank them, or how to determine their specific difference.

* The common definition of man, viz. a rational animal, is very faulty. 1. Because the animal is not rational; the rationality of man arises from the mind to which the animal is united. 2. Because if a spirit should be united to a horse, and make it a rational being, surely this would not be a man; it is evident therefore that the peculiar shape must enter into the definition of a man to render it just and perfect: for want of a full description thereof, all our definitions are defective.

The several species of beings are seldom precisely limited in the nature of things by any certain and unalterable bounds: the essences of many things do not consist in *indivisibili*, or in one evident indivisible point, as some have imagined; but by various degrees they approach nearer to, or differ more from others that are of a kindred nature. So (as I have hinted before) in the very middle of each of the arches of a rainbow, the colours of green, yellow and red are sufficiently distinguished; but near the borders of the several arches they run into one another, so that you hardly know how to limit the colours, nor whether to call it red or yellow, green or blue.

5th Observ. As the highest or chief genus, viz. being and not-being, can never be defined, because there is no genus superior to them; so neither can singular ideas or individuals be well defined, because either they have no essential differences from other individuals, or their differences are not known; and therefore individuals are only to be described by their particular circumstances: so King George is distinguished from all other men and other kings, by describing him as the first King of Great Britain of the house of Brunswick; and Westminster Hall is described by its situation and its use, &c.

That individual bodies can hardly have any essential difference, at least within the reach of our knowledge, may be made thus to appear: Methuselah, when he was nine hundred and sixty years old, and perhaps worn out with age and weakness, was the same person as when he was in his full vigour of manhood, or when he was an infant newly born; but how far was his body the same? who can tell whether there was any fibre of his flesh or his bones that continued the same throughout his whole life? or who can determine which were those fibres? The ship in which Sir Francis Drake sailed round the world might be new built and refitted so often, that few of the same timbers remained; and who can say whether it must be called the same ship or no? and what is its essential difference?

how shall we define Sir Francis Drake's ship, or make a definition for Methuseleh?

To this head belongs that most difficult question, what is the principle of individuation? or what is it that makes any one thing the same as it was some time before? this is too large and laborious an inquiry to dwell upon it in this place: yet I cannot forbear to mention this hint, viz. Since our own bodies must rise at the last day for us to receive rewards or punishments in them, there may be perhaps some original fibres of each human body, some *stamina vite*, or primeval seed of life, which may remain unchanged through all the stages of life, death, and the grave; these may become the springs and principles of a resurrection, and sufficient to denominate it in the same body. But if there be any such constant and vital atoms which distinguish every human body, they are known to God only.

6th. Observ. Where we cannot find out the essence or essential difference of any species or kinds of beings, that we would define, we must content ourselves with a collection of such chief parts or properties of it, as may best explain it so far as it is known, and best distinguish it from other things: so a marigold is a flower which hath many long yellow leaves, round a little knot of seeds in the midst, with such a peculiar stalk, &c. So if we would define silver, we say it is a white and hard metal, next in weight to gold: if we would define an elder-tree, we might say it is one among the lesser trees, whose younger branches are soft and full of pith, whose leaves are jagged or indented, and of such a particular shape, and it bears large clusters of small black berries: so we must define water, earth, stone, a lion, an eagle, a serpent, and the greatest part of natural beings, by a collection of those properties, which according to our observation distinguish them from all other things. This is what Mr. Locke calls *nominal essences*, and *nominal definitions*. And indeed since the essential differences of the various natural beings or bodies round about us arise from a peculiar shape,

size, motion, and situation of the small particles of which they are composed, and since we have no sufficient method to inform us what these are, we must be contented with such a sort of definition of the bodies they compose.

Here note, that this sort of definition, which is made up of a mere collection of the most remarkable parts or properties, is called an imperfect definition or a description; whereas the definition is called perfect, when it is composed of the essential difference, added to the general nature or genus.

7th Observe. The perfect definition of any being always includes the definition of the name whereby it is called, for it informs us of the sense or meaning of that word, and shews us what idea that word is affixed to: but the definition of the name does by no means include a perfect definition of the thing; for as we have said before, a mere synonymous word, a negation of the contrary, or the mention of any one or two distinguishing properties of the thing, may be a sufficient definition of the name. Yet in those cases where the essential difference or essence of a thing is unknown, there a definition of the name by the chief properties, and a description of the thing, are much the same.

And here I think it necessary to take notice of one general sentiment, that seems to run through that excellent performance, Mr. Locke's Essay of human understanding, and that is, "That the essences of things are utterly unknown to us, and therefore all our pretences to distinguish the essences of things can reach no farther than mere nominal essences; or a collection of such properties as we know; to some of which we affix particular names, and others we bundle up, several together, under one name: and that all our attempts to rank beings into different kinds of species can reach no farther than to make mere nominal species: and therefore our definitions of things are but mere nominal descriptions or definitions of the name."

Now, that we may do justice to this great author, we ought to consider that he confines this sort of dis-

course only to the essence of simple ideas, and to the essence of substances, as appears evident in the fourth and sixth chapters of his third book; for he allows the names of mixed modes always to signify the real essences of their species, Chap. V., and he acknowledges artificial things to have real distinct species, and that in the distinction of their essences, there is generally less confusion and uncertainty than in natural, Chap. VI. Sect. 40, 41.; though it must be confessed that he scarce makes any distinction between the definition of the name, and the definition of the thing, as Chap. IV.; and sometimes the current of his discourse decries the knowledge of essences in such general terms, as may justly give occasion to mistake.

It must be granted, that the essence of most of our simple ideas, and the greatest part of particular natural substances, are much unknown to us; and therefore the essential difference of sensible qualities, and of the various kinds of bodies (as I have said before), lie beyond the reach of our understandings: we know not what makes the primary real inward distinctions between red, green, sweet, sour, &c. between wood, iron, oil, stone, fire, water, flesh, clay, in their general natures, nor do we know what are the inward and prime distinctions between all the particular kinds or species in the vegetable, animal, mineral, metallic, or liquid world of things. See Philosoph. Essays. Ess. xi. sect. 1.

But still there is a very large field for the knowledge of the essences of things, and for the use of perfect definitions amongst our complex ideas, the modal appearances and changes of nature, the works of art, the matters of science, and all the affairs of the civil, the moral, and the religious life; and indeed it is of much more importance to all mankind to have a better acquaintance with the works of art for their own livelihood and daily use, with the affairs of morality for their behaviour in this world, and with the matters of religion, that they may be prepared for the world to come, than to be able to give a perfect definition of the works of nature.

If the particular essences of natural bodies are unknown to us, we may yet be good philosophers, good artists, good neighbours, good subjects, and good Christians without that knowledge, and we have just reason to be content.

Now that the essences of some of the modal appearances and changes in nature, as well as things of art, science and morality, are sufficiently known to us to make perfect definitions of them, will appear by the specimen of a few definitions of these things.

Motion is a change of place. Swiftmess is the passing over a long space in a short time. A natural day is the time of one alternate revolution of light and darkness, or it is the duration of twenty-four hours. An eclipse of the sun is a defect in the sun's transmission of light to us by the moon interposing. * Snow is congealed vapour. * Hail is congealed rain. An * island is a piece of land rising above the surrounding water. An * hill is an elevated part of the earth, and a * grove is a piece of ground thick set with trees. An house is a building made to dwell in. A cottage is a mean house in the country. A supper is that meal which we make in the evening. A triangle is a figure composed of three sides. A gallon is a measure containing eight pints. A porter is a man who carries burdens for hire. A king is the chief ruler in a kingdom. Veracity is the conformity of our words to our thoughts. Covetousness is an excessive love of money, or other possessions. Killing is the taking away the life of an animal. Murder is the unlawful killing of a man. Rhetoric is the art of speaking in a manner fit to persuade. Natural philosophy is the knowledge of the properties of bodies and the various effects of them, or it is the knowledge of the various appearances in na-

* Note; Island, hill, grove, are not designed here in their more remote and substantial natures (if I may so express it) or as the matter of them is earth; for in this sense we know not their essence, but only as considered in their modal appearances, whereby one part of earth is distinguished from another. The same may be said of snow, hail, &c.

ture, and their causes; and logic is the art of using our reason well, &c.

Thus you see the essential differences of various beings may be known, and are borrowed from their qualities and properties, their causes, effects, objects, adjuncts, ends, &c. and indeed as infinitely various as the essences of things are, their definitions must needs have very various forms.

After all it must be confessed, that many logicians and philosophers in the former ages, have made too great a bustle about the exactness of their definitions of things, and entered into long fruitless controversies and very ridiculous debates in the several sciences about adjusting the logical formalities of every definition: whereas that sort of wrangling is now grown very justly contemptible, since it is agreed that true learning and the knowledge of things depends much more upon a large acquaintance with their various properties, causes, effects, subject, object, ends and designs, than it does upon the formal and scholastic niceties of genus and difference.

SECT. VII.—*Of a complete Conception of Things.*

HAVING dwelt so long upon the first rule to direct our conceptions, and given an account of the definition both of names and things in order to gain clear and distinct ideas, we make haste now to the second rule to guide your conceptions, and that is, conceive of things completely in all their parts.

All parts have a reference to some whole: now there is an old distinction which logical writers make of a whole and its parts into four several kinds, and it may be proper just to mention them here.

1. There is a metaphysical whole, when the essence of a thing is said to consist of two parts, the genus and the difference, that is, the general and the special nature, which being joined together make up a defini-

tion. This has been the subject of the foregoing sections.

2. There is a mathematical whole which is better called integral, when the several parts, which go to make up the whole, are really distinct from one another, and each of them may subsist apart, so the head, the limbs and the trunk are the integral parts of an animal body; so units are the integral parts of any large number: so these discourses which I have written concerning perception, judgment, reasoning and disposition are the four integral parts of logic. This sort of parts goes to make up the completeness of any subject, and this is the chief and most direct matter of our discourse in this section.

3. There is a physical or essential whole, which is usually made to signify and include only the two essential parts of man, body and soul: but I think the sense of it may be better altered, or at least enlarged, and so include all the essential modes, attributes or properties which are contained in the comprehension of any idea. This shall be the subject of discourse under the third rule to direct our conceptions.

4. There is a logical whole, which is also called an universal; and the parts of it are all the particular ideas to which this universal nature extends. So a genus is a whole in respect of the several species which are its parts. So the species is a whole, and all the individuals are the parts of it. This shall be treated of in the fourth rule to guide our conceptions.

At present we consider an idea as an integral whole, and our second rule directs us to contemplate it in all its parts; but this can only refer to complex ideas, for simple ideas have no parts.

SECT. VIII.—*Of Definition, and the rules of it,*

SINCE our minds are narrow in their capacities, and cannot survey the several parts of any complex

being with one single view, as God sees all things at once; therefore we must as it were take it to pieces, and consider of the parts separately, that we may have a more complete conception of the whole. So if I would learn the nature of a watch, the workman takes it to pieces and shews me the spring, the wheels, the axles, the pinions, the balance, the dial-plate, the pointer, the case, &c. and describes each of these things to me apart, together with their figures and their uses. If I would know what an animal is, the anatomist considers the head, the trunk, the limbs, the bowels, apart from each other, and gives me distinct lectures upon each of them. So a kingdom is divided into its several provinces; a book into its several chapters; and any science is divided according to the several subjects of which it treats.

This is what we properly call the division of an idea, which is an explication of the whole by its several parts, or an enumeration of its several parts, that go to compose any whole idea, and to render it complete. And I think when man is divided into body and soul, it properly comes under this part of the doctrine of integral division, as well as when the mere body is divided into head, trunk, and limbs: this division is sometimes called partition.

When any of the parts of any idea are yet farther divided in order to a clear explication of the whole, this is called a subdivision; as when a year is divided into months, each month into days, and each day into hours, which may also be farther subdivided into minutes and seconds.

It is necessary, in order to the full explication of any being, to consider each part, and the properties of it, distinct by itself, as well as in its relation to the whole: for there are many properties that belong to the several parts of a being, which cannot properly be ascribed to the whole, though these properties may fit each part for its proper station, and as it stands in that relation to the whole complex-being: as in a house, the doors are moveable, the rooms square, the cielings white,

the windows transparent, yet the house is neither moveable, nor square, nor white, nor transparent.

The special rules of a good division are these.

I. Rule. *Each part singly taken must contain less than the whole, but all the parts taken collectively (or together) must contain neither more nor less than the whole.* Therefore in discoursing of a tree you divide it into the trunk and leaves; it is an imperfect division, because the root and the branches are needful to make up the whole. So logic would be ill-divided into apprehension, judgment, and reasoning; for method is a considerable part of the art which teaches us to use our reason right, and should by no means be omitted.

Upon this account, in every division wherein we design a perfect exactness, it is necessary so to examine the whole idea with diligence, lest we omit any part of it through want of care; though in some cases it is not possible, and in others it is not necessary, that we should descend to the minutest parts.

II. Rule. *In all divisions we should first consider the larger and more immediate parts of the subject, and not divide it at once into the more minute and remote parts.* It would by no means be proper to divide a kingdom first into streets, and lanes, and fields, but it must be first divided into provinces or counties, then those counties may be divided into towns, villages, fields, &c. and towns into streets and lanes.

III. Rule. *The several parts of a division ought to be opposite, that is, one part ought not to contain another.* It would be a ridiculous division of an animal into head, limbs, body, and brain, for the brains are contained in the head.

Yet here it must be noted, that sometimes the subjects of any treatise, or the objects of any particular science, may be properly and necessarily so divided, that the second may include the first, and the third may include the first and second, without offending against this rule, because in the second or following parts of

the science or discourse, these objects are not considered in the same manner as in the first ; as for instance, geometry divides its objects into lines, surfaces and solids : now though a line be contained in a surface, or a solid, yet it is not considered in a surface, separate and alone, or as a mere line, as it is in the first part of geometry, which treats of lines. So logic is rightly divided into *conception, judgment, reasoning, and method*. For though ideas or conceptions are contained in the following parts of logic, yet they are not there treated of as separate ideas, which are the proper subject of the first part.

IV. Rule. *Let not subdivisions be too numerous without necessity*: for it is better many times to distinguish more parts at once if the subject will bear it, than to mince the discourse by excessive dividing and subdividing. It is preferable therefore in a treatise of geography to say, that in a city we will consider its walls, its gates, its buildings, its streets, and lanes, than to divide it formally first into the encompassing and encompassed parts ; the encompassing parts are the walls and gates ; the encompassed part includes the ways and the buildings ; the ways are the streets and lanes ; buildings consist of the foundations and the superstructure, &c.

Too great a number of subdivisions has been effected by some persons in *sermons, treatises, instructions, &c.* under pretence of greater accuracy : but this sort of subtleties hath often given great confusion to the understanding, and sometimes more difficulty to the memory. In these cases it is only a good judgment can determine what subdivisions are needful.

V. Rule. *Divide every subject according to the special design you have in view*. One and the same idea or subject may be divided in very different manners, according to the different purposes we have in discoursing of it. So if a printer were to consider the several parts of a book, he must divide it into sheets, the sheets into pages, the pages into lines, and the lines into letters. But a grammarian divides a book into periods, sentences and words, or parts of speech, as *noun, pronoun,*

verb, &c. A logician considers a book as divided into chapters, sections, arguments, propositions, ideas; and with the help of ontology, he divides the propositions into subject, object, property, relation, action, passion, cause, effect, &c. But it would be very ridiculous for a logician to divide a book into sheets, pages, and lines; or for a printer to divide it into nouns, and pronouns, or into propositions, ideas, properties or causes.

VI. Rule. *In all your divisions observe with greatest exactness the nature of things.* And here I am constrained to make a subdivision of this rule into two very necessary particulars.

(1.) Let the parts of your division be such as are properly distinguished in nature. Do not divide asunder those parts of the idea which are intimately united in nature, nor unite those things into one part which nature has evidently disjoined: this would be very improper in treating of an animal body, to divide it into the superior and inferior halves: for it would be hard to say how much belongs by nature to the inferior half, and how much to the superior. Much more improper would it be still to divide the animal into the right-hand parts and left-hand parts, which would bring greater confusion. This would be as unnatural as a man who should cleave a hasel-nut in halves through the husk, the shell, and the kernel, at once, and say a nut is divided into these two parts; whereas nature leads plainly to the threefold distinction of husk, shell, and kernel.

(2.) Do not affect *duplicities* nor *triplicities*, nor any certain number of parts in your division of things; for we know of no such certain number of parts which God the creator has observed in forming all the varieties of his creatures, nor is there any uniform determined number of parts in the various subjects of human art or science; yet some persons have disturbed the order of nature, and abused their readers by an affectation of *dichotomies*, *trichotomies*, *sevens*, *twelves*, &c. Let the nature of the subject, considered together with the design which you have in view, always determine the number of parts into which you divide it.

After all it must be confessed, that an intimate knowledge of things, and a judicious observation, will assist in the business of division, as well as of definition, better than too nice and curious an attention to the mere formalities of logical writers, without a real acquaintance with things.

SECT. IX.—Of a comprehensive Conception of Things, and of Abstraction.

THE third rule to direct our conception requires us to conceive of things comprehensively. And we must survey an object in all its parts to obtain a complete idea of it, so we must consider it in all its *modes, attributes, properties, and relations*, in order to obtain a comprehensive conception of it.

The comprehension of an idea, as it was explained under the doctrine of *universals*, includes only the essential modes or attributes of that idea; but in this place the word is taken in a larger sense, and implies also the various occasional properties, accidental modes and relations.

The necessity of this rule is founded upon the same reason as the former, viz. That our minds are narrow and scanty in their capacities, and as they are not able to consider all the parts of a complex idea at once, so neither can they at once contemplate all the different attributes and circumstances of it: we must therefore consider things successively and gradually in their various appearances and circumstances: as our natural eye cannot at once behold the six sides of a dye or cube, nor take cognisance of all the points that are marked on them, and therefore we turn up the sides successively, and thus survey and number the points that are marked on each side, that we may know the whole.

In order to a comprehensive view of any idea, we must first consider, whether the object of it has an existence as well as an essence; whether it be a simple

or complex idea ; whether it be a substance or a mode : if it be a substance, then we must inquire what are the essential modes of it, which are necessary to its nature, and what are those properties or accidents of it, which belong to it occasionally, or as it is placed in some particular circumstances : we must view it in its internal and absolute modes, and observe it in those various external relations in which it stands to other beings : we must consider it in its powers and capacities either to do or suffer : we must trace it up to its various causes whether supreme or subordinate. We must descend to the variety of its effects, and take notice of the several ends and designs which are to be attained by it. We must conceive of it as it is either an object or a subject ; what are the things that are a-kin to it, and what are the opposites or contraries of it ; for many things are to be known both by their contrary and their kindred ideas.

If the thing we discourse of be a mere mode, we must inquire whether it belongs to spirits or bodies ; whether it be a physical or moral mode : if moral, then we must consider its relation to God, to ourselves, to our neighbours ; its reference to this life, or the life to come. If it be a virtue, we must seek what are the principles of it, what are the rules of it, what are the tendencies of it, and what are the false virtues that counterfeit it, and what are the real vices that oppose it, what are the evils which attend the neglect of it, what are the rewards of the practice of it both here and hereafter.

If the subject be historical or a matter of fact, we may then inquire whether the action was done at all ; whether it was done in such a manner, or by such persons as is reported ; at what time it was done ; in what place ; by what motive, and for what design ; what is the evidence of the fact ; who are the witnesses ; what is their character and credibility ; what signs there are of such a fact ; what concurrent testimonies, which may either support the truth of it, or render it doubtful.

In order to make due inquiries into all these and

many other particulars which go towards the complete and comprehensive idea of any being, the science of ontology is exceeding necessary. This is what was wont to be called the first part of metaphysics in the peripatetic schools. It treats of being in its most general nature, and of all its affections and relations. I confess the old Popish schoolmen have mingled a number of useless subtilties with this science; they have exhausted their own spirits, and the spirits of their readers in many laborious and intricate trifles, and some of their writings have been fruitful of names without ideas, which hath done much injury to the sacred study of divinity. Upon this account many of the moderns have most unjustly abandoned the whole science at once, and thrown abundance of contempt and raillery upon the very name of metaphysics; but this contempt and censure is very unreasonable, for this science separated from some Aristotelian fooleries and scholastic subtilties, is so necessary to a distinct conception, solid judgment, and just reasoning on many subjects, that sometimes it is introduced as a part of logic, and not without reason. And those who utterly despise and ridicule it, either betray their own ignorance, or will be supposed to make their wit and banter a refuge and excuse for their own laziness. Yet thus much I would add, that the late writers of ontology are generally the best on this account, because they have left out much of the ancient jargon. See the brief scheme of ontology in the Philosophical Essays by L. W.

Here let it be noted, that it is neither useful, necessary, or possible to run through all the modes, circumstances, and relations of every subject we take in hand; but in ontology we enumerate a great variety of them, that so a judicious mind may choose what are those circumstances, relations and properties of any subject, which are most necessary to the present design of him that speaks or writes, either to explain, to illustrate, or to prove the point.

As we arrive at the complete knowledge of an idea in all its parts, by that act of the mind which is called

division, so we come to a comprehensive conception of a thing in its several properties and relations, by that act of the mind which is called abstraction, that is, we consider each single relation or property of the subject alone, and thus we do as it were withdraw and separate it in our minds both from the subject itself, as well as from other properties and relations, in order to make a fuller observation of it.

This act of abstraction is said to be twofold, either precise or negative.

Precise abstraction is when we consider those things apart which cannot really exist apart; as when we consider a mode, without considering its substance and subject, or one essential mode without another. Negative abstraction is when we consider one thing separate from another, which may also exist without it; as when we conceive of a subject without conceiving of its accidental modes or relations; or when we conceive of one accident without thinking of another. If I think of reading or writing, without the express idea of some man, this is precise abstraction; or if I think of the attraction of iron, without the express idea of some particular magnetic body. But when I think of a needle, without an idea of its sharpness, this is negative abstraction; and it is the same when I think of its sharpness, without considering its length.

SECT. X.—*Of the extensive Conception of Things, and of Distribution.*

As the completeness of an idea, refers to the several parts that compose it, and the comprehension of an idea includes various properties, so the extension of an idea denotes the various sorts or kinds of beings to which the same idea belongs; and if we would be fully acquainted with a subject, we must observe,

This fourth rule to direct our conceptions, viz. Conceive of things in all their extension, that is we must

search out the various species or special natures which are contained under it as a genus or general nature. If we would know the nature of an animal perfectly, we must take cognisance of beasts, birds, fishes and insects, as well as men, all which are contained under the general nature and name of animal.

As an integral whole is distinguished into its several parts by division, so the word distribution is most properly used when we distinguish an universal whole into its several kinds of species; and perhaps it had been better if this word had been always confined to this signification, though it must be confessed, that we frequently speak of the division of an idea into its several kinds, as well as into several parts.

The rules of a good distribution are much the same with those which we have before applied to division, which may be just repeated again in the briefest manner, in order to give examples to them.

I. Rule. *Each part singly taken must contain less than the whole, but all the parts taken collectively or together, must contain neither more nor less than the whole;* or as logicians sometimes express it, the parts of the division ought to exhaust the whole thing which is divided. So medicine is justly distributed into *prophylactic*, or the art of preserving health; and *therapeutic*, or the art of restoring health: for there is no other sort of medicine besides these two. But men are not well distributed into tall or short, for there are some of a middle stature.

II. Rule. In all distributions we should first consider the larger and more immediate kinds of species, or ranks of being, and not divide a thing at once into the more minute and remote. A genus should not at once be divided into individuals, or even into the lowest species, if there be a species superior. Thus it would be very improper to divide animal into trout, lobster, eel, dog, bear, eagle, dove, worm and butterfly, for these are inferior kinds; whereas animal ought first to be distributed into man, beast, bird, fish, insect; and then beast, should be distributed into dog, bear, &c. bird into eagle, dove, &c. fish into trout, eel, lobster, &c.

It is irregular also to join any inferior species in the same rank or order with the superior; as if we would distinguish animals into birds, bears and oysters, &c. It would be a ridiculous distribution.

III. Rule. *The several parts of a distribution ought to be opposite; that is, one species or class of beings in the same rank of division ought not to contain or include another; so men ought not to be divided into the rich, the poor, the learned, and the tall, for poor men may be both learned and tall; and so may the rich.*

But it will be objected, are not animated bodies rightly distributed into vegetative and animal, or (as they are usually called) sensitive; now the sensitive contains the vegetative nature in it, for animals grow as well as plants. I answer, that in this and all such distributions, the word vegetative signifies merely vegetative: and in this sense vegetative will be sufficiently opposite to animal, for it cannot be said of an animal that it contains mere vegetation in the idea of it.

IV. Rule. *Let not subdivisions be too numerous without necessity; therefore I think quantity is better distinguished at once into a line, a surface, and a solid, than to say as Ramus does, that quantity is either a line, or a thing lined; and a thing lined is either a surface or a solid.*

V. Rule. *Distribute every subject according to the special design you have in view, so far as is necessary or useful to your present inquiry.* Thus a politician distributes mankind according to their civil characters into the rulers and the ruled: and a physician divides them into the sick or the healthy; but a divine distributes them into Turks, Heathens, Jews, or Christians.

Here note, that it is a very useless thing to distribute any idea into such kinds or members as have no different properties to be spoken of; as it is mere trifling to divide right angles into such whose legs are equal, and whose legs are unequal, for as to the mere right angle they have no different properties.

VI. Rule. *In all your distributions observe the nature of things with great exactness; and do not affect any parti-*

cular form of distribution, as some persons have done, by dividing every genus into two species, or into three species; whereas nature is infinitely various, and human affairs and human sciences have as great a variety, nor is there any one form of distribution that will exactly suit with all subjects.

Note, It is to this doctrine of distribution of a genus into its several species, we must also refer the distribution of a cause according to its several effects, as some medicines are heating, some are cooling; or an effect, when it is distinguished by its causes, as faith is either built upon divine testimony or human. It is to this head we refer particular artificial bodies, when they are distinguished according to the matter they are made of, as a statue is either of brass, of marble or wood, &c. and any other beings, when they are distinguished according to their end and design, as the furniture of body or mind, is either for ornament or use. To this head also we refer subjects when they are divided according to their modes or accidents; as men are either merry or grave, or sad; and modes, when they are divided by their subjects, as distempers belong to the fluids, or to the solid parts of the animal.

It is also to this place we reduce the proposals of a difficulty under its various cases, whether it be in speculation or practice; as to shew the reason of sun-beams burning wood, whether it be done by a convex glass or a concave, or to shew the construction and mensuration of triangles, whether you have two angles and a side given, or two sides and an angle, or only three sides. Here it is necessary to distribute or divide a difficulty into all its cases, in order to gain a perfect knowledge of the subject you contemplate.

It might be observed here, that logicians have sometimes given a mark or sign to distinguish when it is an integral whole, that is divided into its parts or members, or when it is a genus, an universal whole, that is distributed into its species and individuals. The rule they give is this: whensoever the whole idea can be directly and properly affirmed of each part, as a bird is an

animal, a fish is an animal; Bucephalus is a horse; Peter is a man; then it is a distribution of a genus into its species, or a species into its individuals: but when the whole cannot be thus directly affirmed concerning every part, then it is a division of an integral into its several species or members; as we cannot say the head, the breast, the hand or the foot is an animal, but we say, the head is a part of the animal, and the foot is another part.

This rule may hold true generally in corporeal beings, or perhaps in all substances: but when we say the fear of God is wisdom, and so is human civility: criticism is true learning, and so is philosophy: to execute a murderer is justice, and to save and defend the innocent is justice too: in these cases it is not so easily determined, whether an integral whole be divided into its parts, or an universal into its species: for the fear of God may be called either one part, or one kind of wisdom: criticism is one part, or one kind of learning; and the execution of a murderer may be called a species of justice as well as part of it. Nor indeed is it a matter of great importance to determine this controversy.

SECT. XI.—*Of an orderly Conception of Things.*

THE last rule to direct our conceptions is that we should rank and place them in a proper method and just order. This is of necessary use to prevent confusion; for as a trader who never places his goods in his shop or warehouse in a regular order, nor keeps the accounts of his buying and selling, paying and receiving in a just method, is in utmost danger of plunging all his affairs into confusion and ruin; so a student who is in the search of truth, or an author or teacher who communicates knowledge to others, will very much obstruct his design, and confound his own mind or the

mind of his hearers, unless he range his ideas in just order.

If we would therefore become successful learners or teachers, we must not conceive of things in a confused heap, but dispose our ideas in some certain method, which may be most easy and useful both for the understanding and memory; and be sure as much as may be to follow the nature of things, for which many rules might be given, viz.

1. Conceive as much as you can of the essentials of any subject, before you consider its accidentals.

2. Survey first the general parts and properties of any subject, before you extend your thoughts to discourse of the particular kind or species of it.

3. Contemplate things first in their own simple natures, and afterwards view them in composition with other things; unless it be your present purpose to take a compound being to pieces, in order to find out or to shew the nature of it by searching and discovering of what simples it is composed.

4. Consider the absolute modes or affections of any being as it is in itself, before you proceed to consider it relatively, or to survey the various relations in which it stands to other beings, &c.

Note, These rules chiefly belong to the method of instruction which the learned call synthetic.

But in the regulation of our ideas there is seldom an absolute necessity that we should place them in this or the other particular method: it is possible in some cases that many methods may be equally good, that is, may equally assist the understanding and the memory: to frame a method exquisitely accurate, according to the strict nature of things, and to maintain this accuracy from the beginning to the end of a treatise, is a most rare and difficult thing, if not impossible. But a larger account of method would be very improper in this place, lest we anticipate what belongs to the fourth part of logic.

SECT. XII.—*The five Rules of Conception exemplified.*

IT may be useful here to give a specimen of the five special rules to direct our conceptions, which have been the subject of this long chapter, and represent them practically in one view.

Suppose the theme of our discourse were the passions of the mind.

1st, To gain a clear and distinct idea of passion, we must define both the name and the thing.

To begin with the definition of the name, we are not here to understand the word passion in its vulgar and most limited sense, as it signifies merely anger or fury; nor do we take it in its most extensive philosophical sense, for the sustaining the action of an agent; but in the more limited philosophical sense, passions signify the various affections of the mind, such as admiration, love or hatred; this is the definition of the name.

We proceed to the definition of the thing: passion is defined a sensation of some special commotion in animal nature, occasioned by the mind's perception of some object suited to excite that commotion*. Here the genus or general nature of passion is a sensation of some special commotion in animal nature; and herein it agrees with hunger, thirst, pain, &c. The essential difference of it is, that this commotion arises from

* Since this was written, I have published a short treatise of the passions, wherein I have so far varied from this definition as to call them sensible commotions of our whole nature, both soul and body, occasioned by the mind's perception of the objects, &c. I made this alteration in the description of the passions in that book, chiefly to include in a more explicit manner the passions of desire and aversion which are acts of volition rather than sensations. Yet since some commotions of animal nature attend all the passions, and since there is always a sensation of these commotions, I shall not change the definition I have written here: for this will agree to all the passions whether they include any act of volition or not; nor indeed is the matter of any great importance. Nov. 17. 1728.

a thought or perception of the mind, and hereby it is distinguished from hunger, thirst, or pain.

2dly, We must conceive of it completely, or survey the several parts that compose it. These are, (1.) The mind's perception of some object. (2.) The consequent ruffle or special commotions of the nerves, and blood, and animal spirits. And (3.) The sensation of this inward commotion.

3dly, We must consider it comprehensively in its various properties. The most essential attributes that make up its nature has been already mentioned under the foregoing heads. Some of the most considerable properties that remain are these, viz. That passion belongs to all mankind in greater or lesser degrees: it is not constantly present with us, but upon some certain occasions: it is appointed by our Creator for various useful ends and purposes, viz. to give us vigour in the pursuit of what is good and agreeable to us, or in the avoidance of what is hurtful: it is very proper for our state of trial in this world: It is not utterly to be rooted out of our nature, but to be moderated and governed according to rules of virtue and religion, &c.

4thly, We must take cognisance of the various kinds of it, which is called an extensive conception of it. If the object which the mind perceives be very uncommon, it excites the passion of admiration: if the object appear agreeable it raises love: if the agreeable object be absent and attainable it is desirable: if likely to be obtained, it excites hope: if unattainable despair: if it be present and possessed, it is the passion of joy: if lost, it excites sorrow; if the object be disagreeable it causes in general hatred or aversion; if it be absent and yet we are in danger of it, it raises our fear: if it be present, it is sorrow and sadness, &c.

5thly, All these things and many more which go to compose a treatise on this subject must be placed in their proper order: a slight specimen of which is exhibited in this short account of passion, and which that admirable author Descartes has treated of at large; though, for want of sufficient experiments and observa-

tions in natural philosophy, there are some few mistakes in his account of animal nature.

SECT. XIII.—*An Illustration of these five Rules by Similitudes.*

THUS we have brought the first part of logic to a conclusion: and it may not be improper here to represent its excellencies (so far as we have gone) by general hints of its chief design and use, as well as by a various comparison of it to those instruments which mankind have invented for their several conveniences and improvements.

The design of logic is not to furnish us with the perceiving faculty, but only to direct and assist us in the use of it: it doth not give us the objects of our ideas, but only casts such a light on those objects which nature furnishes us with, that they may be the more clearly and distinctly known: it doth not add new parts or properties to things, but it discovers the various parts, properties, relations and dependencies of one thing upon another, and by ranking all things under general and special heads, it renders the nature, or any of the properties, powers, and uses of a thing more easy to be found out, when we seek in what rank of beings it lies, and wherein it agrees with, and wherein it differs from others.

If any comparisons would illustrate this, it may be thus represented.

When logic assists us to attain a clear and distinct conception of the nature of things by definition, it is like those glasses whereby we behold such objects distinctly, as by reason of their smallness or their great distance appear in confusion to the naked eye: so the telescope discovers to us distant wonders in the heavens, and shews the milky way, and the bright cloudy spots in a very dark sky to be a collection of little stars, which the eye unassisted beholds in mingled confusion.

So when bodies are too small for our sight to survey them distinctly, then the microscope is at hand for our assistance, to shew us all the limbs and features of the most minute animals, with great clearness and distinction.

II. When we are taught by logic to view a thing completely in all its parts by the help of division, it has the use of an anatomical knife, which dissects an animal body, and separates the veins, arteries, nerves, muscles, membranes, &c. and shews us the several parts which go to the composition of a complete animal.

III. When logic instructs us to survey an object comprehensively in all the modes, properties, relations, faces and appearances of it, it is of the same use as a terrestrial globe, which turning round on its axis represents to us all the variety of land and seas, kingdoms and nations on the surface of the earth in a very short succession of time, shews the situation and various relations of them to each other, and gives a comprehensive view of them in miniature.

IV. When this art teaches us to distribute any extensive idea into its different kinds or species, it may be compared to the prismatic glass, that receives the sunbeams or rays of light, which seem to be uniform when falling upon it, but it separates and distributes them into their different kinds and colours, and ranks them in their proper succession.

Or if we descend to subdivisions and subordinate ranks of being, then distribution may also be said to form the resemblance of a natural tree, wherein the genus or general idea stands for the root or stock, and the several kinds of species, and individuals, are distributed abroad, and represented in their dependence and connection, like the several boughs, branches, and lesser shoots. For instance, let animal be the root of a logical tree, the resemblance is seen by mere inspection, though the root be not placed at the bottom of the page.

Animal	Man	{ Philip James Peter Thomas, &c.	
	Beast	Horse — — { Trott. Bayard, &c.	
		Squirrel	
		Lion	{ Mastiff. Spaniel.
		Dog — — { Greyhound. Beagle, &c.	
	Bird	Bear, &c.	
		Eagle	
		Lark	{ English. Muscovy.
		Duck	{ Hook Bill, &c.
	Fish	Goose, &c.	
Trout			
Whale			
Insect	Oyster, &c.		
	Flying — — { Wasp. Bee, &c.		
	Creeping — { Worm. Ant. Caterpillar, &c.		

The same similitude will serve also to illustrate the division and subdivision of an integral whole, into its several parts.

When logic directs us to place all our ideas in a proper method, most convenient both for instruction and memory, it doth the same service as the cases of well-contrived shelves in a large library, wherein folio's, quarto's, octavo's, and lesser volumes, are disposed in such exact order under the particular heads of divinity, history, mathematics, ancient and miscellaneous learning, &c. that the student knows where to find every book, and has them all as it were within his command at once, because of the exact order wherein they are placed.

THE
SECOND PART

OF

LOGIC.

OF JUDGMENT AND PROPOSITION.

WHEN the mind has got acquaintance with things by framing ideas of them, it proceeds to the next operation, and that is, to compare these ideas together, and to join them by affirmation, or disjoin them by negation, according as we find them to agree or disagree. This act of the mind is called judgment; as when we have by perception obtained the ideas of Plato a *philosopher, man, innocent*, we form these judgments; Plato was a philosopher; no man is innocent.

Some writers have asserted, that judgment consists in a mere perception of the agreement or disagreement of ideas. But I rather think there is an act of the will (at least in most cases) necessary to form a judgment; for though we do perceive or think we perceive ideas to agree or disagree, yet we may sometimes refrain from judging or assenting to the perception, for fear lest the perception should not be sufficiently clear, and we should be mistaken: and I am well assured at other times, that there are multitudes of judgments formed, and a firm ascent given to ideas joined or disjoined, before there is any clear perception whether they agree or disagree; and this is the reason of so many false judgments or mistakes among men. Both these practices are a proof that judgment has something of the will in

it, and does not merely consist in perception, since we sometimes judge (though unhappily) without perceiving, and sometimes we perceive without immediate judging.

As an idea is the result of our conception or apprehension, so a proposition is the effect of judgment. The foregoing sentences, which are examples of the act of judgment, are properly called propositions. Plato is a philosopher, &c.

Here let us consider,

1. The general nature of a *proposition*, and the parts of which it is composed.
2. The various divisions or kinds of *propositions*.
3. The springs of false judgment, or the doctrine of prejudices.
4. General directions to assist us in judging aright.
5. Special rules to direct us in judging particular objects.

CHAP. I.

OF THE NATURE OF A PROPOSITION, AND ITS SEVERAL PARTS.

A PROPOSITION is a sentence wherein two or more ideas or terms are joined or disjoined by one affirmation or negation, as Plato was a philosopher: every angle is formed by two lines meeting: no man living on earth can be completely happy. When there are ever so many ideas or terms in the sentence, yet if they are joined or disjoined merely by one single affirmation or negation, they are properly called but one proposition, though they may be resolved into several propositions which are implied therein, as will appear hereafter.

In describing a proposition, I use the word terms as well as ideas, because when mere ideas are joined in the

mind without words, it is rather called a judgment, but when clothed with words, it is called a proposition, even though it be in the mind only, as well as when it is expressed by speaking or writing.

There are three things which go to the nature and constitution of a proposition, viz. the subject, the predicate, and the copula.

The subject of a proposition is that concerning which any thing is affirmed or denied : so Plato, angle, man, living on earth, are the subjects of the foregoing propositions.

The predicate is that which is affirmed or denied of the subject ; so philosopher is the predicate of the first proposition ; formed by two lines meeting, is the predicate of the second ; capable of being completely happy, is the proper predicate of the third.

The subject and predicate of a proposition taken together are called the matter of it ; for these are the materials of which it is made.

The copula is the form of a proposition ; it represents the act of the mind affirming or denying, and it is expressed by these words, am, art, is, are, &c. or, am not, art not, is not, are not, &c.

It is not a thing of importance enough to create a dispute, whether the words no, none, not, never, &c. which disjoin the idea or terms in a negative proposition, shall be called a part of the subject of the copula, or of the predicate. Sometimes perhaps they may seem most naturally to be included in one, and sometimes in another of these, though a proposition is usually denominated affirmative or negative by its copula, as hereafter.

Note 1. Where each of these parts of a proposition is not expressed distinctly in so many words, yet they are all understood, and implicitly contained therein ; as Socrates disputed, is a complete proposition, for it signifies Socrates was disputing. So I die, signifies I am dying. I can write, that is, I am able to write. In Latin and Greek one single word is many times a complete proposition.

Note 2. These words, am, art, is, &c. when they are used alone without any other predicate, signify both the act of the mind judging, which includes the copula, and signify also actual existence, which is the predicate of that proposition. So Rome is, signifies Rome is existent; there are some strange monsters, that is, some strange monsters are existent: Carthage is no more, that is, Carthage has no being.

Note 3. The subject and predicate of a proposition are not always to be known and distinguished by the placing of the words in the sentence, but by reflecting duly on the sense of the words, and on the mind and design of the speaker or writer; as if I say, in Africa there are many lions, I mean many lions are existent in Africa; many lions is the subject, and existent in Africa is the predicate. It is proper for a philosopher to understand geometry; here the word proper is the predicate, and all the rest is the subject, except is the copula.

Note 4. The subject and predicate of a proposition ought always to be two different ideas, or two different terms; for where both the terms and ideas are the same, it is called an identical proposition, which is mere trifling, and cannot tend to promote knowledge; such as, a rule is a rule, or a good man is a good man.

But there are some propositions, wherein the terms of the subject and predicate seem to be the same; yet the ideas are not the same; nor can these be called purely identical, or trifling propositions, such as home is home; that is, home is a convenient or delightful place: Socrates is Socrates still; that is, the man Socrates is still a philosopher: the hero was not a hero; that is, the hero did not shew his courage; what I have written, I have written; that is, what I wrote I still approve, and will not alter it; what is done, is done; that is, it cannot be undone. It may be easily observed in these propositions the term is equivocal, for in the predicate it has a different idea from what it has in the subject.

There are also some propositions wherein the terms

of the subject and predicate differ, but the ideas are the same; and these are not merely identical or trifling propositions; as imprudent is shameless; a billow is a wave; or fluctus (in Latin) is a wave; a globe is a round body. In these propositions either the words are explained by a definition of the name, or the ideas by a definition of the things, and therefore they are by no means useless when formed for this purpose.

CHAP. II.

OF THE VARIOUS KINDS OF PROPOSITIONS.

PROPOSITIONS may be distributed into various kinds, according to their subject, their copula, their predicate, their nature or composition, their sense, and their evidence, which distributions will be explained in the following sections.

SECT. I.—*Of universal, particular, indefinite, and singular Propositions.*

PROPOSITIONS may be divided according to their subject into universal and particular; this is usually called a division arising from the quantity.

An universal proposition is when the subject is taken according to the whole of its extension; so if the subject be a genus, or general nature, it includes all its species or kinds; if the subject be a species, it includes all its individuals. This universality is usually signified by these words, all, every, no, none, or the like; as, all men must die: no man is almighty; every creature had a beginning.

A particular proposition is when the subject is not taken according to its whole extension; that is, when the term is limited and restrained to some one or more of those species or individuals, whose general nature it

expresses, but reaches not to all; and this is usually denoted by the words, some, many, a few, there are, which, &c. as, some birds can sing well: few men are truly wise: there are parrots which will talk a hundred things.

Under the general name of universal propositions, we may justly include those that are singular, and for the most part those that are indefinite also.

A singular-proposition is when the subject is a singular or individual term or idea; as Descartes was an ingenious philosopher: Sir Isaac Newton has far exceeded all his predecessors: the palace at Hampton-Court is a pleasant dwelling: this day is very cold. The subject here must be taken according to the whole of its extension, because being and individual it can extend only to one, and it must therefore be regulated by the laws of universal proposition.

An indefinite proposition is when no note, either of universality or particularity is prefixed to a subject, which is in its own nature general; as a planet is ever changing its place; angels are noble creatures. Now this sort of proposition, especially when it describes the nature of things, is usually counted universal also, and it supposes the subject to be taken in its whole extension; for if there were any planet which did not change its place, or any angel that were not a noble creature, these propositions would not be strictly true.

Yet in order to secure us against mistakes in judging of universal, particular and indefinite propositions, it is necessary to make these following remarks.

I. *Concerning universal propositions.*

Note 1. Universal terms may either denote a metaphysical, a physical, or a moral universality.

A metaphysical or mathematical universality is when all the particulars contained under any general idea have the same predicate belonging to them without any exception whatsoever; or when the predicate is so essential to the universal subject, that it destroys the very nature of the subject to be without it; as, all circles

have a centre and circumstances: all spirits in their own nature are immortal.

A physical or natural universality is when, according to the order and common course of nature, a predicate agrees to all the subjects of that kind, though there may be some accidental and preternatural exceptions; as, all men use words to express their thoughts, yet dumb persons are excepted, for they cannot speak. All beasts have four feet, yet there may be some monsters with five; or maimed, who have but three.

A moral universality is when the predicate agrees to the greatest part of the particulars which are contained under the universal subject; as, all negroes are stupid creatures: all men are governed by affection rather than by reason: all the old Romans loved their country: and the scripture uses this language, when St Paul tells us, the Cretes are always liars.

Now it is evident, that a special or singular conclusion cannot be inferred from a moral universality, nor always and infallibly from a physical one, though it may be always inferred from an universality which is metaphysical, without any danger or possibility of a mistake.

Let it be observed also, that usually we make little or no distinction in common language, between a subject that is physically or metaphysically universal.

Note 2. An universal term is sometimes taken collectively for all its particular ideas united together, and sometimes distributively, meaning each of them single and alone.

Instances of a collective universal are such as these; all these apples will fill a bushel; all the hours of the night are sufficient for sleep: all the rules of grammar overload the memory. In these propositions it is evident, that the predicate belongs not to the individuals separately, but to the whole collective idea; for we cannot affirm the same predicate; if we change the word all into one or every, we cannot say one apple, or every apple will fill a bushel; &c. Now such a collective idea, when it becomes the subject of a proposition, ought to be esteemed as one single thing, and this renders the

proposition singular or indefinite, as we shall show immediately.

A distributive universal will allow the word all to be changed into every, or into one, and by this means is distinguished from a collective.

Instances of a distributive universal are the most common on every occasion : as, all men are mortal ; every man is a sinner, &c. But in this sort of universal there is a distribution to be made, which follows in the next remark.

Note 3. When an universal term is taken distributively, sometimes it includes all the individuals contained in its inferior species ; as when I say every sickness has a tendency to death, I mean every individual sickness as well as every kind. But sometimes it includes no more than merely each species or kind ; as when the evangelist says, Christ healed every disease, or every disease was healed by Christ ; that is, every kind of disease. The first of these, logicians call the distribution of an universal in *singula generum* ; the last is a distribution in *genera singulorum*. But either of them joined to the subject render a proposition universal.

Note 4. The universality of a subject is often restrained by a part of the predicate ; as when we say all men learn wisdom by experience ; the universal subject, all men, is limited to signify only, all those men who learn wisdom. The scripture also uses this sort of language, when it speaks of all men being justified by the righteousness of one, Rom. v. 18. that is, all men who are justified obtain it this way.

Observe here, that not only a metaphysical or natural, but a moral universality also is oftentimes to be restrained by a part of the predicate ; as when we say, all the Dutch are good seamen : all the Italians are subtle politicians ; that is, those among the Dutch that are seamen are good seamen, and those among the Italians who are politicians are subtle politicians, that is, they are generally so.

Note 5. The universality of a term is many times restrained by the particular time, place, circumstance,

&c. or the design of the speaker; as if we are in the city of London and say, all the weavers went to present their petition; we mean only all the weavers who dwell in the city. So when it is said in the gospel, all men did marvel, Mark v. 20. it reaches only to all those men who heard of the miracles of our Saviour.

Here also it should be observed, that a moral universality is restrained by time, place, and other circumstances, as well as a natural; so that by these means the word all sometimes does not extend to a tenth part of those who at first might seem to be included in that word.

One occasion of these difficulties and ambiguities, that belong to universal propositions, is the common humour and temper of mankind, who generally have an inclination to magnify their ideas, and to talk roundly and universally concerning any thing they speak of; which has introduced universal terms of speech into custom and habit, in all nations and all languages, more than nature or reason would dictate; yet when this custom is introduced, it is not at all improper to use this sort of language in solemn and sacred writings, as well as in familiar discourse.

II. Remarks concerning *indefinite propositions*.

Note 1. Propositions carrying in them universal forms of expression, may sometimes drop the note of universality, and become indefinite, and yet retain the same universal sense, whether metaphysical, natural or moral, whether collective or distributive.

We may give instances of each of these.

Metaphysical; as, a circle has a centre and circumference. *Natural*; as, beasts have four feet. *Moral*; as, negroes are stupid creatures. *Collective*; as, the apples will fill a bushel. *Distributive*; as, men are mortal.

Note 2. There are many cases wherein a collective idea is expressed in a proposition, by an indefinite term, and that where it describes the nature or quality of the subject, as well as when it declares some past mat-

ters of fact; as, fir-trees set in good order will give a charming prospect; this must signify a collection of fir-trees, for one makes no prospect. In matters of fact this is more evident and frequent; as the Romans overcame the Gauls: the robbers surrounded the coach: the wild geese flew over the Thames in the form of a wedge. All these are collective subjects.

Note 3. In indefinite propositions the subject is often restrained by the predicate, or by the special time, place, or circumstances, as well as in propositions which are expressly universal; as the Chinese, are ingenious silk-weavers, that is, those Chinese, which are silk-weavers, are ingenious at their work. The stars appear to us when the twilight is gone. This can signify no more than the stars which are above our horizon.

Note 4. All these restrictions tend to reduce some indefinite propositions almost into particular, as will appear under the next remarks.

III. Remarks concerning *particular propositions*.

Note 1. A particular proposition may sometimes be expressed indefinitely without any note of particularity prefixed to the subject: as, in times of confusion laws are not executed: men of virtue are disgraced, and murderers escape, that is, some laws, some men of virtue, some murderers: unless we should call this language a moral universality, though I think it can hardly extend so far.

Note 2. The words some, a few, &c. though they generally denote a proper particularity, yet sometimes they express a collective idea; as some of the enemies beset the general around. A few Greeks would beat a thousand Indians.

I conclude this section with a few general remarks on this subject, viz.

Gen. Rem. I. Since *universal indefinite*, and *particular terms* in the plural number, may either be taken in a collective or distributive sense, there is one short and easy way to find when they are collective and when

distributive, viz. If the plural number may be changed into the singular, that is, if the predicate will agree to one single subject, it is a distributive idea; if not it is collective.

Gen. Rem. II. Universal and particular terms in the plural number, such as, all, some, few, many, &c. when they are taken in their distributive sense, represent several single ideas; and when they are thus affixed to the subject of a proposition, render that proposition universal or particular, according to the universality or particularity of the terms affixed.

Gen. Rem. III. Universal and particular terms in the plural number, taken in their collective sense, represent generally one collective idea.

If this one collective idea be thus represented (whether by universal or particular terms) as the subject of a proposition which describes the nature of a thing, it properly makes either a singular or an indefinite proposition: for the words, all, some, a few, &c. do not then denote the quantity of the proposition, but are esteemed merely as terms which connect the individuals together, in order to compose one collective idea. Observe these instances, all the sycamores in the garden would make a large grove; that is, this one collection of sycamores, which is a singular idea. Some of the sycamores in the garden would make a fine grove. Sycamores would make a noble grove: in these last the subject is rather indefinite than singular. But it is very evident, that in each of these propositions the predicate can only belong to a collective idea, and therefore the subject must be esteemed a collective.

If this collective idea, (whether represented by universal or particular terms), be used in describing past matters of fact, then it is generally to be esteemed a singular idea, and renders the proposition singular; as, all the soldiers of Alexander made-but a little army: a few Macedonians vanquished the large army of Darius; some grenadiers in the camp plundered all the neighbouring towns.

Now we have shewn before, that if a proposition describing the nature of things, has an indefinite subject, it is generally to be esteemed universal in its propositional sense; and if it has a singular subject, in its propositional sense it is always ranked with universals.

After all we must be forced to confess, that the language of mankind and the idioms of speech are so exceeding various, that it is hard to reduce them to a few rules; and if we would gain a just and precise idea of every universal, particular and indefinite expression, we must not only consider the particular idiom of the language, but the time, the place, the occasion, the circumstances of the matter spoken of, and thus penetrate as far as possible into the design of the speaker or writer.

SECT. II. *Of affirmative and negative Propositions.*

WHEN a proposition is considered with regard to its *copula*, it may be divided into affirmative and negative; for it is a *copula* joins or disjoins the two ideas. Others call this a division of proposition according to their quality.

An *affirmative proposition* is when the idea of the predicate is supposed to agree to the idea of the subject, and is joined to it by the word *is*, or *are*, which are the *copula*; as, all men are sinners. But when the predicate is not supposed to agree with the subject, and is disjoined from it by the particles *is not*, *are not*, &c. the proposition is negative: as, man is not innocent; or, no man is innocent. In an affirmative proposition we assert one thing to belong to another, and as it were, unite them in thought and word; in negative propositions we separate one thing from another, and deny their agreement.

It may become something odd, that two ideas or terms are said to be disjoined as well as joined by a *copula*: but if we can but suppose the negative particles do really belong to the *copula* of negative proposi-

tions, it takes away the harshness of the expression: and to make it yet softer, we may consider that the predicate and subject may be properly said to be joined in a form of words as a proposition, by connective particles in grammar or logic, though they are disjoined in their sense and signification. Every youth who has learned his grammar, knows there are such words as disjunctive conjunctions.

Several things are worthy of our notice on this subject.

Note 1. As there are some terms or words, and ideas, (as I have shewn before), concerning which it is hard to determine whether they are negative or positive, so there are some propositions concerning which it may be difficult to say, whether they affirm or deny; as, when we say, Plato was no fool: Cicero was no unskilful orator: Cæsar made no expedition to Muscovy: an oyster has no part like an eel; it is not necessary for a physician to speak French, and for a physician to speak French is needless. The sense of these propositions is very plain and easy, though logicians might squabble perhaps a whole day, whether they should rank them under the names of negative or affirmative.

Note 2. In Latin and English two negatives joined in one sentence make an affirmative; as when we declare, no man is not mortal, it is the same as though we said, man is mortal, but in Greek, and oftentimes in French, two negatives make but a stronger denial.

Note 3. If the mere negative term, *not*, be added to the *copula* of an universal affirmative proposition, it reduces it to a particular negative; as, all men are not wise, signifies the same as, some men are not wise.

Note 4. In all affirmative propositions, the predicate is taken in its whole comprehension; that is, every essential part and attribute of it is affirmed concerning the subject; as when I say, a true Christian is an honest man, every thing that belongs to honesty is affirmed concerning a true Christian.

Note 5. In all negative propositions the predicate is taken in its whole extension: that is, every species and

individual that is contained in the general idea of the predicate, is utterly denied concerning the subject; so in this proposition, a spirit is not an animal, we exclude all sorts and kinds and particular animals whatsoever from the idea of a spirit.

From these two last remarks we may derive this inference, that we ought to attend to the entire comprehension of our ideas, and to the universal extension of them, as far as we have proper capacity for it, before we grow too confident in our affirming or denying any thing, which may have the least darkness, doubt or difficulty attending it; it is the want of that attention that betrays us into many mistakes.

SECT. III.—*Of the Opposition and Conversion of Propositions.*

ANY two ideas being joined or disjoined in various forms will afford us several propositions: all these may be distinguished according to their quantity and their quality* into four, which are marked or denoted by the letters A, E, I, O, thus:

A	}	denotes a	{	Universal affirmative.
E				Universal negative.
I				Particular affirmative.
O				Particular negative.

according to these old Latin rhymes:

*Asserit A, Negat E, verum generaliter amba;
Asserit I, Negat O, sed particulariter ambo.*

This may be exemplified by these two ideas, a *Vine* and a *Tree*.

* The reader should remember here, that a proposition according to its quantity is called universal or particular; and according to its quality, it is either affirmative or negative.

A *Every Vine is a Tree.*

E *No Vine is a Tree.*

I *Some Vine is a Tree.*

O *Some Vine is not a Tree.*

The logicians of the schools have written many large trifles concerning the *opposition* and *conversion* of *propositions*. It would be sufficient here to give a few brief hints of these things, that the learner may not be utterly ignorant of them.

Propositions which are made of the same subject and predicate are said to be *opposite*, when that which is denied in one is affirmed in the other, either in whole or in part, without any consideration whether the propositions be true or no.

If they differ both in quantity and quality, they are said to be *contradictory*; as,

A *Every Vine is a Tree.*

O *Some Vine is not a Tree.*

} These can never be both true, or both false at the same time.

If two universals differ in quality, they are *contraries*; as,

A *Every Vine is a Tree.*

E *No Vine is a Tree.*

} These can never be both true together, but they may be both false.

If two particular propositions differ in quality, they are *subcontraries*; as,

I *Some Vine is a Tree.*

O *Some Vine is not a Tree.*

} These may be both true together, but they can never be both false.

Both *particular* and *universal* propositions which agree in quality, but not in quantity, are called *subaltern*, though these are not properly opposite, as

A *Every Vine is a Tree.*

I *Some Vine is a Tree.*

Or thus:

E *No Vine is a Tree.*

O *Some Vine is not a Tree.*

The canons of *subaltern* propositions are usually reckoned these three, viz. (1.) If any universal proposition be true, the particular will be true also, but not on the contrary. And (2.) If a particular proposition be false, the universal must be false, but not on the contrary. (3.) *Subaltern propositions*, whether universal or particular, may sometimes be both true, and sometimes both false.

The conversion of propositions is when the subject and predicate change their places with preservation of the truth. This may be done with constant certainty in all universal negatives and particular affirmatives; as, no spirit is an animal, may be converted, no animal is a spirit; and some tree is a vine, may be converted, some vine is a tree. But there is more formal trifling in this sort of discourse than there is of solid improvement, because this sort of conversion arises merely from the form of words, as connected in a proposition, rather than from the matter.

Yet it may be useful to observe, that there are some propositions, which by reason of the ideas or matter of which they are composed may be converted with constant truth: such are those propositions whose predicate is a nominal or real definition of the subject, or the difference of it, or a property of the fourth kind, or a superlative degree of any property or quality whatsoever, or, in short, wheresoever the predicate and the subject have exactly the same extension or the same comprehension; as, every vine is a tree bearing grapes; and every tree bearing grapes is a vine: religion is the truest wisdom, and the truest wisdom is religion: Julius Cæsar was the first emperor of Rome; and the first emperor of Rome was Julius Cæsar. These are the propositions which are properly convertible, and they are called reciprocal propositions.

SECT. IV.—Of pure and modal Propositions.

ANOTHER division of propositions among the scholastic writers is into pure and modal. This may be

called (for distinction sake) a division according to the predicate.

When a proposition merely expresses that the predicate is connected with the subject, it is called a pure proposition; as, every true Christian is an honest man. But when it concludes also the way and manner wherein the predicate is connected with the subject, it is called a modal proposition; as, when I say, it is necessary that a true Christian should be an honest man.

Logical writers generally make the modality of this proposition to belong to the copula, because it shews the manner of the connection between subject and predicate. But if the form of the sentence as a logical proposition be duly considered, the mode itself is the very predicate of the proposition, and it must run thus: that a true Christian should be an honest man is a necessary thing, and then the whole primary proposition is included in the subject of the modal proposition.

There are four modes of connecting the predicate with the subject, which are usually reckoned up on this occasion, viz. Necessity and contingency which are two opposites, possibility and impossibility which are also two opposites; as, it is necessary that a globe should be round; that a globe be made of wood or glass is an unnecessary or contingent thing: it is impossible that a globe should be square: It is impossible that a globe should be of water.

With regard to the modal propositions which the schools have introduced, I would make these two remarks:

Remark 1. These propositions in English are formed by the resolution of the words, must be, might not be, can be, and cannot be, unto those more explicate forms of a logical copula and predicate, is necessary, is contingent, is possible, is impossible; for it is necessary that a globe should be round, signifies no more than that a globe must be round.

Remark 2. Let it be noted that this quadruple modality is only an enumeration of the natural modes or manners wherein the predicate is connected with the

subject; we might also describe several moral and civil modes of connecting two ideas together, viz. lawfulness and unlawfulness; conveniency and inconveniency, &c. whence we may form such modal propositions as these. It is unlawful for any person to kill an innocent man: It is unlawful for Christians to eat flesh in lent: to tell all that we think is inexpedient: for a man to be affable to his neighbour is very convenient, &c.

There are several other modes of speaking whereby a predicate is connected with a subject: such as, it is certain, it is doubtful, it is probable, it is improbable, it is agreed, it is granted, it is said by the ancients, it is written, &c. all which will form other kinds of modal propositions.

But whether the modality be natural, moral, &c. yet in all these propositions it is the mode is the proper predicate, and all the rest of the proposition, except the copula (or word is) belongs to the subject; and thus they become pure propositions of a complex nature, of which we shall treat in the next section, so that there is no great need of making modals a distinct sort.

There are many little subtleties which the schools acquaint us with concerning the conversion and opposition and equipollence of these modal propositions, suited to the Latin or Greek tongues rather than the English, and fit to pass away the idle time of a student, rather than to enrich his understanding.

SECT. V.—*Of single Propositions, whether simple or complex.*

WHEN we consider the nature of propositions, together with the formation of them, and the materials whereof they are made, we divide them into single and compound.

A single proposition is that which has but one subject and one predicate; but if it has more subjects or more predicates, it is called a compound proposition, and it contains two or more propositions in it.

A single proposition (which is also called categorical) may be divided again into simple and complex*.

A purely simple proposition is that whose subject and predicate are made up of single terms; as, virtue is desirable; every penitent is pardoned; no man is innocent.

When the subject or predicate, or both, are made up of complex terms, it is called a complex proposition; as, every sincere penitent is pardoned; virtue is desirable for its own sake; no man alive is perfectly innocent.

If the term which is added to the subject of a complex proposition be either essential or any way necessary to it, then it is called explicative, for it only explains the subject; as, every mortal man is a son of Adam. But if the term added to make up the complex subject does not necessarily or constantly belong to it, then it is determinative, and limits the subject to a particular part of its extension; as, every pious man shall be happy. In the first proposition the word mortal is merely explicative: in the second proposition the word pious is determinative.

Here note, that whatsoever may be affirmed or denied concerning any subject, with an explicative addition, may be also affirmed or denied of that subject without it; as we may boldly say, every man is a son of Adam, as well as every mortal man: but it is not so, where the addition is determinative, so we cannot say, every man shall be happy, though every pious man shall be so.

In a complex proposition the predicate or subject is sometimes made complex by the pronouns who, which, whose, to whom, &c. which make another proposition; as, every man who is pious, shall be saved: Julius, whose surname was Caesar, overcame Pompey: bodies,

* As simple ideas are opposed to complex, and single ideas to compound, so propositions are distinguished in the same manner; the English tongue in this respect having some advantage above the learned languages, which have no usual word to distinguish single from simple.

which are transparent, have many pores. Here the whole proposition is called the primary or chief, and the additional proposition is called an incident proposition. But it is still to be esteemed in this case merely as a part of the complex term; and the truth or falsehood of the whole complex proposition is not to be judged by the truth or falsehood of the incident proposition, but by the connection of the whole subject with the predicate. For the incident proposition may be false, and absurd, or impossible, and yet the whole complex proposition may be true, as a horse, which has wings, might fly over the Thames.

Beside this complection which belongs to the subject or predicate, logical writers use to say, there is a complection which may fall upon the copula also; but this I have accounted for in the section concerning modal propositions; and indeed it is not of much importance whether it were placed there or here.

SECT. VI.—Of compound Propositions.

A COMPOUND proposition is made up of two or more subjects or predicates, or both; and it contains in it two or more propositions, which are either plainly expressed, or concealed and implied.

The first sort of compound propositions are those wherein the composition is expressed and evident, and they are distinguished into these six kinds, viz. copulative, disjunctive, conditional, causal, relative and disjunctive.

I. *Copulative propositions* are those which have more subjects or predicates connected by affirmative or negative conjunctions; as, riches and honours are temptations to pride; Cæsar conquered the Gauls and the Britons; neither gold nor jewels will purchase immortality. These propositions are evidently compounded, for each of them may be resolved into two propositions,

viz. riches are temptations to pride, and honour is a temptation to pride, and so the rest.

The truth of copulative propositions depends upon the truth of all the parts of them; for if Cæsar had conquered the Gauls, and not the Britons, or the Britons and not the Gauls, the second copulative proposition had not been true.

Here note, those propositions, which cannot be resolved into two or more simple propositions, are not properly copulative, though two or more ideas be connected and coupled by such conjunctions, either in the subject or predicate: as, two and three make five: majesty and meekness do not often meet: the sun, moon, and stars are not all seen at once. Such propositions are to be esteemed merely complex, because the predicate cannot be affirmed of each single subject, but only of all of them together as a collective subject.

II. *Disjunctive propositions* are when the parts are disjoined or opposed to one another by disjunctive particles; as, it is either day or night; the weather is either shining or rainy: quantity is either length, breadth or depth.

The truth of disjunctives depends on the necessary and immediate oppositions of the parts; therefore only the last of these examples is true; but the two first are not strictly true, because twilight is a medium between day and night; and dry, cloudy weather is a medium between shining and rainy.

III. *Conditional or hypothetical propositions* are those whose parts are united by the conditional particle if; as, if the sun be fixed, the earth must move: if there be no fire, there will be no smoke.

Note, the first part of these propositions, or that wherein the condition is contained, is called the antecedent, the other is called the consequent.

The truth of these propositions depends not at all on the truth and falsehood of their two parts, but on the truth of the connection of them; for each part of them may be false, and yet the whole proposition true; as, if there be no providence, there will be no future judgment.

IV. *Causal propositions* are where two propositions are joined by causal particles: as, houses were not built that they might be destroyed; Rehoboam was unhappy, because he followed evil counsel.

The truth of a causal proposition arises not from the truth of the parts, but from the causal influence that the one part of it has upon the other; for both parts may be true, yet the proposition false, if one part be not the cause of the other.

Some logicians refer reduplicative propositions to this place, as, men, considered as men, are rational creatures, that is, because they are men.

V. *Relative propositions* have their parts joined by such particles as express a relation or comparison of one thing to another; as when you are silent I will speak; as much as you are worth, so much you shall be esteemed; as is the father, so is the son; where there is no tale-bearer, contention will cease.

These are very much a-kind to conditional propositions, and the truth of them depends upon the justness of their connection.

VI. *Discretive propositions* are such wherein various and seemingly opposite judgments are made, whose variety or distinction is noted by the particles, but, though, yet, &c. as, travellers may change their climate, but not their temper; Job was patient, though his grief was great.

The truth and goodness of a discretive proposition depends on the truth of both parts, and their contradiction to one another; for though both parts should be true, yet if there be no seeming opposition between them, it is an useless assertion, though we cannot call it a false one; as, Descartes was a philosopher, yet he was a Frenchman; the Romans were valiant, but they spoke Latin; both which propositions are ridiculous, for want of a seeming opposition between the parts.

Since we have declared wherein the truth and falsehood of these compound propositions consists, it is proper also to give some intimations how any of these propositions when they are false may be opposed or contradicted.

All compound propositions, except copulatives and discretives, are properly denied or contradicted when the negation affects their conjunctive particles; as, if the disjunctive proposition asserts, it is either day or night; the opponent says, it is not either day or night, or it is not necessary that it should be either day or night, so the hypothetical proposition is denied by saying, it does not follow that the earth must move if the sun be fixed.

A disjunctive proposition may be contradicted also by denying all the parts; as, it is neither day nor night. And a causal proposition may be denied or opposed indirectly and improperly, when either part of the proposition is denied; and it must be false if either part be false: but the design of the proposition being to shew the causal connection of the two parts, each part is supposed to be true; and it is not properly contradicted as a causal proposition, unless one part of it be denied to be the cause of the other.

As for copulatives and discretives, because their truth depends more on the truth of their parts, therefore these may be opposed or denied as many ways, as the parts of which they are composed may be denied; so this copulative proposition, riches and honour are temptations to pride, may be denied by saying, riches are not temptations, though honour may be; or, honour is not a temptation, though riches may be; or, neither riches nor honour are temptations, &c.

So this discrete proposition, Job was patient, though his grief was great, is denied by saying, Job was not patient, though his grief was great: or, Job was patient but his grief was not great: or, Job was not patient, nor was his grief great.

We proceed now to the second sort of compound propositions, viz. such whose composition is not expressed, but latent or concealed, yet a small attention will find two propositions included in them. Such are these that follow:

I. *Exclusives*; as, the pious man alone is happy; it is only Sir Isaac Newton could find out true philosophy.

2. *Exceptives*; as, none of the ancients but Plato well defended the soul's immortality. The Protestants worship none but God.

3. *Comparatives*; as, pain is the greatest affliction. No Turk was fiercer than the Spaniards at Mexico.

Here note, that the comparative degree does not always imply the positive; as if I say a fool is better than a knave, this does not affirm that folly is good, but that it is a less evil than knavery.

4. *Inceptives* and *desitives*, which relate to the beginning or ending of any thing; as, the Latin tongue is not yet forgotten. No man before Orpheus wrote Greek verse. Peter Czar of Muscovy began to civilize his nation.

To these may be added *continuatives*; as, Rome remains to this day, which includes at least two propositions, viz. Rome was, and Rome is.

Here let other authors spend time and pains in giving the precise definitions of all these sorts of propositions, which may as well be understood by their names and examples: here let them tell what their truth depends upon, and how they are to be opposed or contradicted; but a moderate share of common sense, with a review of what is said on the former compounds, will suffice for all these purposes without the formality of rules.

SECT. VII.—Of true and false Propositions.

PROPOSITIONS are next to be considered according to their sense or signification, and thus they are distributed into true or false. A true proposition represents things as they are in themselves; but if things are represented otherwise than they are in themselves, the proposition is false.

Or we may describe them more particularly thus; a true proposition joins those ideas and terms together whose objects are joined and agree, or it disjoins those ideas and terms, whose objects disagree or are disjointed; as, every bird has wings, a brute is not immortal.

A false proposition joins those ideas or terms whose objects disagree, or it disjoins those whose objects agree; as, birds have no wings, brutes are immortal.

Note. It is impossible that the same proposition should be both true and false at the same time, in the same sense, and in the same respect; because a proposition is but the representation of the agreement or disagreement of things: now it is impossible that the same thing should be and not be, or that the same thing should agree and not agree at the same time and in the same respect. This is the first principle of human knowledge.

Yet some propositions may seem to contradict one another, though they may be both true, but in different senses or respects or times; as, man was immortal in paradise, and man was mortal in paradise. But these two propositions must be referred to different times; as, man before his fall was immortal, but at the fall became mortal. So we may say now, man is mortal, or man is immortal, if we take these propositions in different respects; as, man is an immortal creature as to his soul, but mortal as to his body. A great variety of difficulties and seeming contradictions, both in holy scripture and other writings, may be solved and explained in this manner.

The most important question on the subject is this; what is the criterion, or distinguishing mark of truth? how shall we know when a proposition is really true or false? there are so many disguises of truth in the world, so many false appearances of truth, that some sects have declared there is no possibility of distinguishing truth from falsehood; and therefore they have abandoned all pretences to knowledge, and maintained strenuously that nothing is to be known. The first men of this humour made themselves fa-

mous in Greece by the name of Sceptics, that is, Seekers: they were also called Academics, borrowing their name from *academia*, their school or place of study. They taught that all things are uncertain, though they allowed that some are more probable than others. After these arose the sect of Pyrrhonics, named from Pyrrho their master, who would not allow one proposition to be more probable than another; but professed that all things were equally uncertain. Now all these men (as an ingenious author expresses it) were rather to be called a sect of liars than philosophers, and that censure is just for two reasons. (1.) Because they determined concerning every proposition that it was uncertain, and believed that as a certain truth, while they professed there was nothing certain, and that nothing could be determined concerning truth or falsehood; and thus their very doctrine gave itself the lie. (2.) Because they judged and acted as other men did in the common affairs of life; they would neither run into fire nor water, though they professed ignorance and uncertainty, whether the one would burn or the other drown them.

There have been some in all ages who have too much affected this humour, who dispute against every thing, under pretence that truth has no certain mark to distinguish it. Let us therefore inquire, what is the general criterion of truth? and in order to this, it is proper to consider what is the reason why we assent to those propositions, which contain the most certain and indubitable truths, such as these, the whole is greater than a part; two and three make five.

The only reason why we believe those propositions to be true, is because the ideas of the subject and predicates appear with so much clearness and strength of evidence to agree to each other, that the mind cannot help discerning the agreement, and cannot doubt of the truth of them, but is constrained to judge them true. So when we compare the ideas of a circle and a triangle, or the ideas of an oyster and a butterfly, we see such an evident disagreement between them, that

we are sure that the butterfly is not an oyster; nor is a triangle a circle. There is nothing but the evidence of the agreement or disagreement between two ideas, that make us affirm or deny the one or the other.

Now it will follow from thence that a clear and distinct perception or full evidence of the agreement and disagreement of our ideas to one another, or to things, is a certain criterion of truth: for since our minds are of such a make, that where the evidence is exceeding plain and strong, we cannot withhold our assent; we should then be necessarily exposed to believe falsehood, if complete evidence should be found in any propositions that are not true. But surely the God of perfect wisdom, truth and goodness would never oblige his creatures to be thus deceived; and therefore he would never have constituted us of such a frame as would render it naturally impossible to guard against error.

Another consequence is naturally derived from the former; and that is, that the only reason why we fall into a mistake is because we are impatient to form a judgment of things before we have a clear and evident perception of their agreement or disagreement; and if we will make haste to judge while our ideas are obscure and confused, or before we see whether they agree or disagree, we shall plunge ourselves into perpetual errors. See more on this subject in an essay on the freedom of will in God and man; published 1732. Sect. 1. p. 13.

Note, What is here asserted concerning the necessity of clear and distinct ideas, refers chiefly to propositions, which we form ourselves by our own powers: as for propositions which we derive from the testimony of others, they will be accounted for in Chap. IV.

SECT. VIII.—*Of certain and dubious Propositions, of Knowledge and Opinion.*

SINCE we have found that evidence is the great cri-

O

terion and the sure mark of truth; this leads us directly to consider propositions according to their evidence; and here we must take notice both of the different degrees of evidence, and the different kinds of it.

Propositions according to their different degrees of evidence are distinguished into certain and dubious*.

Where the evidence of the agreement or disagreement of the ideas is so strong and plain, that we cannot forbid or delay our assent, the proposition is called certain; as, every circle hath a centre; the world did not create itself. An assent to such propositions is honoured with the name of knowledge.

But when there is any obscurity upon the agreement or disagreement of the ideas, so that the mind does not clearly perceive it, and is not compelled to assent or dissent, then the proposition, in a proper and philosophical sense, is called doubtful or uncertain; as, the planets are inhabited; the souls of brutes are mere matter; the world will not stand a thousand years longer; Dido built the city of Carthage, &c. Such uncertain propositions are called opinions.

When we consider ourselves as philosophers or searchers of truth, it would be well if we always suspended a full judgment or determination about any thing, and made further inquiries, where this plain and perfect evidence is wanting; but we are so prone of ourselves to judge without full evidence, and in some cases the necessity of action in the affairs of life constrains us to judge and determine upon a tolerable degree of evidence, that we vulgarly call those propositions certain, where we have but very little room or

* It may be objected, that this certainty and uncertainty being only in the mind, the division belongs to propositions rather according to the degrees of our assent, than the degrees of evidence. But it may well be answered, that the evidence here intended is that which appears so to the mind, and not the mere evidence in the nature of things; besides, (as we shall show immediately), the degree of assent ought to be exactly proportionable to the degree of evidence: and therefore the difference is not great, whether propositions be called certain or uncertain, according to the measure of evidence, or of assent.

reason to doubt of them, though the evidence be not complete or resistless.

Certainty, according to the schools, is distinguished into objective and subjective. Objective certainty is when the proposition is certainly true in itself; and subjective, when we are certain of the truth of it. The one is in things, the other is in our minds.

But let it be observed here, that every proposition in itself is certainly true, or certainly false. For though doubtfulness or uncertainty seems to be a medium between certain truth and certain falsehood in our minds, yet there is no such medium in things themselves, no, not even in future events: for now at this time it is certain in itself, that Midsummer-day seven years hence will be serene, or it is certain it will be cloudy, though we are uncertain and utterly ignorant what sort of day it will be: this certainty of distant futurities is known to God only.

Uncertain or dubious propositions, that is, opinions, are distinguished into probable, or improbable.

When the evidence of any proposition is greater than the evidence of the contrary, then it is a probable opinion: where the evidence and arguments are stronger on the contrary side, we call it improbable. But while the arguments on either side seem to be equally strong, and the evidence for and against any proposition appears equal to the mind, then in common language we call it a doubtful matter. We also call it a dubious or doubtful proposition, when there is no argument on either side, as, next Christmas-day will be a very sharp frost. And in general all these propositions are doubtful, wherein we can perceive no sufficient marks or evidences of truth or falsehood. In such a case, the mind which is searching for truth ought to remain in a state of doubt or suspense, until superior evidence on one side or the other incline the balance of the judgment, and determine the probability or certainty to the one side.

A great many propositions, which we generally believe or disbelieve in human affairs, or in the sciences,

have very various degrees of evidence, which yet arise not to complete certainty, either of truth or falsehood. Thus it comes to pass that there are such various and almost infinite degrees of probability and improbability. To a weak probability we should give a weak assent; and a stronger assent is due where the evidence is greater, and the matter more probable. If we proportion our assent in all things to the degrees of evidence, we do the utmost that human nature is capable of in a rational way to secure itself from error.

SECT. IX. *Of Sense, Consciousness, Intelligence, Reason, Faith, and Inspiration.*

AFTER we have considered the evidence of propositions in the various degrees of it, we come to survey the several kinds of evidence, or the different ways whereby truth is let into the mind, and which produce accordingly several kinds of knowledge. We shall distribute them into these six, viz. sense, consciousness, intelligence, reason, faith, and inspiration, and then distinguish the propositions which are derived from them.

I. *The evidence of sense is when we frame a proposition according to the dictate of any of our senses; so we judge that grass is green; that a trumpet gives a pleasant sound; the fire burns wood; water is soft, and iron is hard: for we have seen, heard or felt all these. It is upon this evidence of sense that we know and believe the daily occurrences in human life; and almost all the histories of mankind that are written, by eye or ear witnesses, are built upon this principle.*

Under the evidence of sense we do not only include that knowledge which is derived to us by our outward senses of hearing, seeing, feeling, tasting, and smelling, but that also which is derived from the inward sensations and appetites of hunger, thirst, ease, pleasure,

pain, weariness, rest, &c. and all those things which belong to the body; as, hunger is a painful appetite; light is pleasant; rest is sweet to the weary limbs.

Propositions which are built on this evidence, may be named sensible propositions, or the dictates of sense.

II. As we learn what belongs to the body by the evidence of sense, so we learn what belongs to the soul by an inward consciousness, which may be called a sort of internal feeling, or spiritual sensation of what passes in the mind; as, I think before I speak; I desire large knowledge; I suspect my own practice; I studied hard to day; my conscience bears witness of my sincerity: my soul hates vain thoughts; fear is an uneasy passion; long meditation on one thing is tiresome.

Thus it appears that we obtain the knowledge of a multitude of propositions, as well as of single ideas, by those two principles which Mr Locke calls sensation and reflection: one of them is a sort of consciousness of what affects the body, and the other is a consciousness of what passes in the mind.

Propositions which are built on this internal consciousness, have yet no particular or distinguishing name assigned to them.

III. *Intelligence* relates chiefly to those abstracted propositions which carry their own evidence with them, and admit no doubt about them. Our perception of this self-evidence in any proposition is called intelligence. It is our knowledge of those first principles of truth which are (as it were) wrought into the very nature and make of our mind: they are so evident in themselves to every man who attends to them, that they need no proof. It is the prerogative and peculiar excellence of these propositions, that they can scarce ever be proved or denied: they cannot easily be proved, because there is nothing supposed to be more clear or certain, from which an argument may be drawn to prove them. They cannot well be denied, because their own evidence is so bright and convincing, that as soon as the terms are understood the mind neces-

sarily assents; such are these, whatsoever acteth hath a being; nothing has no properties; a part is less than the whole; nothing can be the cause of itself.

These propositions are called axioms, or maxims, or first principles; these are the very foundations of all improved knowledge and reasonings, and on this account these have been thought to be innate propositions, or truths born with us.

Some suppose that a great part of the knowledge of angels and human souls in the separate state is obtained in this manner, viz. by such an immediate view of things in their own nature, which is called intuition.

IV. *Reasoning* is the next sort of evidence, and that is when one truth is inferred or drawn from others by natural and just methods of argument: as, if there be much light at midnight, I infer, it proceeds from the moon, because the sun is under the earth*. If I see a cottage in a forest, I conclude some man has been there and built it. Or when I survey the heavens and earth, this gives evidence to my reason, that there is a God who made them.

The propositions which I believe upon this kind of evidence, are called conclusions, or rational truths; and the knowledge that we gain this way is properly called science.

Yet let it be noted, that the word science is usually applied to a whole body of regular or methodical observations or propositions, which learned men have formed concerning any subject of speculation, deriving one truth from another by a train of arguments. If this knowledge chiefly directs our practice, it is usually called an art. And this is the most remarkable distinction between an art and a science, viz. the one refers chiefly to practice, the other to speculation. Natural philosophy, or physic, and ontology, are sciences; logic and rhetoric are called arts; but mathematics include both art and science; for they have much of speculation and much of practice in them.

* Note. Since this book was written, we have so many appearances of the *aurore borealis* as reduces this inference only to a probability.

Observe here, that when the evidence of a proposition derived from sense, consciousness, intelligence, or reason, is firm and indubitable, it produces such assent as we call a natural certainty.

V. When we derive the evidence of any proposition from the testimony of others, it is called the evidence of faith; and this is a large part of our knowledge. Ten thousand things there are which we believe merely upon the authority or credit of those who have spoken or written of them. It is by this evidence that we know there is such a country as China, and there was such a man as Cicero who dwelt in Rome. It is by this that most of the transactions in human life are managed: we know our parents and our kindred by this means, we know the persons and laws of our present governors, as well as things that are at a vast distance from us in foreign nations, or in ancient ages.

According as the persons that inform us of any thing are many or few, or more or less wise, and faithful, and credible, so our faith is more or less firm or wavering, and the proposition believed is either certain or doubtful; but in matters of faith, an exceeding great probability is called a moral certainty.

Faith is generally distinguished into divine and human, not with regard to the propositions that are believed, but with regard to the testimony upon which we believe them. When God reveals any thing to us, this gives us the evidence of divine faith; but what man only acquaints us with, produces a human faith in us; the one, being built upon the word of man, arises but to moral certainty; but the other being founded on the word of God, arises to an absolute and infallible assurance, so far as we understand the meaning of this word. This is called supernatural certainty.

Propositions which we believe upon the evidence of human testimony, are called narratives, relations, reports, historical observations, &c.; but such as are built on divine testimony, are termed, matters of revelation; and if they are of great importance in religion, they are called articles of faith.

There are some propositions or parts of knowledge, which are said to be derived from observation and experience, that is experience in ourselves, and the observations we have made on other persons or things; but these are made up of some of the former springs of knowledge joined together, viz. sense, consciousness, reason, faith, &c. and therefore are not reckoned a distinct kind of evidence.

VI. *Inspiration* is a sort of evidence distinct from all the former, and that is when such an overpowering impression of any propositions is made upon the mind by God himself, that gives a convincing and indubitable evidence of the truth and divinity of it; so were the prophets and the apostles inspired*.

Sometimes God may have been pleased to make use of the outward senses, or the inward workings of the imagination, of dreams, apparitions, visions and voices, or reasoning, or perhaps human narration, to convey divine truths to the mind of the prophet; but none of these would be sufficient to deserve the name of inspiration, without a superior or divine light and power attending them.

This sort of evidence is also very distinct from what we usually call divine faith; for every common Christian exercises divine faith when he believes any proposition which God has revealed in the bible upon this account, because God has said it, though it was by a train of reasonings that he was led to believe that this is the word of God: whereas in the case of inspiration, the prophet not only exercises divine faith, in believing what God reveals, but he is under a superior heavenly impression, light and evidence, whereby he is assured that God reveals it. This is the most eminent kind of supernatural certainty.

Though persons might be assured of their own inspiration by some peculiar and inexpressible consciousness of this divine inspiration and evidence in their own spirits, yet it is hard to make out this inspiration to

* Note here, I speak chiefly of the highest kind of inspiration.

others, and to convince them of it, except by some antecedent or consequent prophecies or miracles, or some public appearances more than human.

The propositions which are attained by this sort of evidence are called inspired truths. This is divine revelation at first hand, and the dictates of God in an immediate manner, of which theological writers discourse at large; but since it belongs only to a few favourites of heaven to be inspired, and not the bulk of mankind, it is not necessary to speak more of it in a treatise of logic, which is designed for the general improvement of human reason.

The various kinds of evidence upon which we believe any proposition, afford us these three remarks:

I. *Remark.* The same proposition may be known to us by different kinds of evidence: that the whole is bigger than a part is known by our senses, and it is known by the self-evidence of the thing to our mind. That God created the heavens and the earth is known to us by reason, and is known also by divine testimony or faith.

II. *Remark.* Among those various kinds of evidence, some are generally stronger than others in their own nature, and give a better ground for certainty. Inward consciousness and intelligence, as well as divine faith and inspiration, usually carry much more force with them than sense or human faith, which are often fallible; though there are instances wherein human faith, sense and reasoning lay a foundation also for complete assurance, and leave no room for doubt.

Reason in its own nature would always lead us into the truth in matters within its compass, if it were used aright, or it would require us to suspend our judgment where there is want of evidence. But it is our sloth, precipitancy, sense, passion, and many other things that lead our reason astray in this degenerate and imperfect estate: hence it comes to pass that we are guilty of so many errors in reasoning, especially about divine things, because our reason either is busy to inquire, and re-

solved to determine about matters that are above our present reach; or because we mingle many prejudices and secret influences of sense, fancy, passion, inclination, &c. with our exercises of reason, and judge and determine according to these irregular influences.

Divine faith would never admit of any controversies or doubtings, if we were but assured that God had spoken, and that we rightly understood his meaning.

III. *Remark.* The greatest evidence and certainty of any proposition does not depend upon the variety of the ways or kinds of evidence whereby it is known, but rather upon the strength and degree of evidence, and the clearness of that light in or by which it appears to the mind. For a proposition that is known only one way may be much more certain, and have stronger evidence, than another that is supposed to be known many ways. Therefore these propositions, nothing has no properties, nothing cannot make itself, which are known only by intelligence, are much surer and truer than this proposition, the rainbow has real and inherent colours in it, or than this, the sun rolls round the earth; though we seem to know both these last by our senses, and by the common testimony of our neighbours. So any proposition that is clearly evident to our consciousness of divine faith, is much more certain to us than a thousand others that have only the evidence of feeble and obscure sensations, of more probable reasonings and doubtful arguments, or the witness of fallible men, or even though all these should join together.

CHAP. III.

THE SPRINGS OF FALSE JUDGMENT, OR THE DOCTRINE OF PREJUDICES.

INTRODUCTION.

IN the end of the foregoing chapter we have surveyed the several sorts of evidence, on which we built

our assent to propositions. These are indeed the general grounds upon which we form our judgments concerning things. What remains in this second part of logic is to point out the several springs and causes of our mistakes in judging, and to lay down some rules by which we should conduct ourselves in passing a judgment of every thing that is proposed to us.

I confess many things which will be mentioned in these following chapters might be as well referred to the third part of logic, where we shall treat of reasoning and argument; for most of our false judgments seem to include a secret bad reasoning in them; and while we shew the springs of error, and the rules of true judgment, we do at the same time discover which arguments are fallacious, which reasonings are weak, and which are just and strong. Yet since this is usually called a judging ill, or judging well, I think we may, without any impropriety, treat of it here; and this will lay a surer foundation for all sorts of ratiocination and argument.

Rash judgments are called prejudices, and so are the springs of them. This word in common life signifies an ill opinion which we have conceived of some other person, or some injury done to him. But when we use the word in matters of science, it signifies a judgment that is formed concerning any person or thing before sufficient examination; and generally we suppose it to mean a false judgment or mistake; at least, it is an opinion taken up without solid reason for it, or an assent given to a proposition before we have just evidence of the truth of it, though the thing itself may happen to be true.

Sometimes these rash judgments are called prepossessions; whereby is meant, that some particular opinion has possessed the mind, and engaged the assent without sufficient search or evidence of the truth of it.

There is a vast variety of these prejudices and prepossessions which attend mankind in every age and condition of life; they lay the foundations of many an error, and many an unhappy practice, both in the af-

fairs of religion, and in our civil concernments; as well as in matters of learning. It is necessary for a man who pursues truth to inquire into these springs of error, that as far as possible he may rid himself of old prejudices, and watch hourly against new ones.

The number of them is so great, and they are so interwoven with each other, as well as with the powers of human nature, that it is sometimes hard to distinguish them apart; yet, for method's sake, we shall reduce them to these four general heads, viz. prejudices arising from things, or from words, from ourselves, or from other persons; and after the description of each prejudice, we shall propose one or more ways of curing it.

SECT. I.—*Prejudices arising from Things.*

THE first sort of prejudices are those which arise from the things themselves about which we judge. But here let it be observed that there is nothing in the nature of things that will necessarily lead us into error, if we do but use our reason aright, and withhold our judgment till there appear sufficient evidence of them. But since we are so unhappily prone to take advantage of every doubtful appearance and circumstance of things, to form a wrong judgment and plunge ourselves into mistake, therefore it is proper to consider what there is in the things themselves that may occasion our errors.

I. *The obscurity of some truths, and the difficulty of searching them out,* is one occasion of rash and mistaken judgment.

Some truths are difficult, because they lie remote from the first principles of knowledge, and want a long chain of argument to come at them: such are many of the deep things of algebra and geometry, and some of the theorems and problems of most parts of the

mathematics. Many things also in natural philosophy are dark and intricate upon this account, because we cannot come at any certain knowledge of them without the labour of many and difficult, as well as chargeable experiments.

There are other truths which have great darkness upon them, because we have no proper means or mediums to come at the knowledge of them. Though in our age we have found out many of the deep things of nature by the assistance of glasses and other instruments; yet we are not hitherto arrived at any sufficient matters to discover the shape of those little particles of matter which distinguish the various sapours, to odours, and colours of bodies; nor to find what sort of atoms compose liquids or solids, and distinguish *wood, minerals, metals, glass, stone, &c.* There is a darkness also lies upon the actions of the intellectual or angelical world; their manners of subsistence and agency, the power of spirits to move bodies, and the union of our souls with this animal body of ours, are much unknown to us on this account.

Now in many of these cases, a great part of mankind is not content to be entirely ignorant; but they rather choose to form rash and hasty judgment; to guess at things without just evidence, to believe something concerning them before they can know them, and thereby they fall into error.

This sort of prejudice, as well as most others, is cured by patience and diligence in inquiry and reasoning; and a suspension of judgment, till we have attained some proper mediums of knowledge, and till we see sufficient evidence of the truth.

II. *The appearance of things in a disguise*, is another spring of prejudice or rash judgment. The outside of things which first strikes us, is oftentimes different from their inward nature, and we are tempted to judge suddenly according to outward appearances. If a picture is daubed with many bright and glaring colours, the vulgar eye admires it as an excellent piece; where-

as the same person judges very contemptuously of some admirable design sketched out only with a black pencil on a coarse paper, though by the hand of Raphael. So the scholar spies the name of a new book in public newspapers, he is charmed with the title, he purchases, he reads with huge expectations, and finds it all trash and impertinence: this is a prejudice derived from the appearance: we are too ready to judge that volume valuable which had so good a frontispiece. The large head of encomiums and swelling words of assurance that are bestowed on quack-medicines in public advertisements, tempt many a reader to judge them infallible, and to use the pills or the plaster with vast hope, and frequent disappointment.

We are tempted to form our judgment of persons as well as things by these outward appearances. Where there is wealth, equipage and splendour, we are ready to call that man happy, but we see not the vexing inquietudes of his soul: and when we spy a person in ragged garments, we form a despicable opinion of him too suddenly: we can hardly think him either happy or wise, our judgment is so strangely biassed by outward and sensible things. It was through the power of this prejudice that the Jews rejected our blessed Saviour: they could not suffer themselves to believe that the man who appeared as the son of a carpenter, was also the son of God. And because St. Paul was of a little stature, a mean presence, and his voice contemptible, some of the Corinthians were tempted to doubt whether he was inspired or no.

This prejudice is cured by a longer acquaintance with the world, and a just observation that things are sometimes better and sometimes worse than they appear to be. We ought therefore to restrain our excessive forwardness to form our opinion of persons or things before we have opportunity to search into them more perfectly. Remember that a grey beard does not make a philosopher; all is not gold that glisters; and a rough diamond may be worth an immense sum.

III. *A mixture of different qualities in the same thing,* is another temptation to judge amiss. We are ready to be carried away by that quality which strikes the first or the strongest impressions upon us, and we judge of the whole object according to that quality, regardless of all the rest: or sometimes we colour over all the other qualities with that one tincture, whether it be bad or good.

When we have just reason to admire a man for his virtues, we are sometimes inclined, not only to neglect his weaknesses, but even to put a good colour upon them, and to think them amiable. When we read a book that has many excellent truths in it, and divine sentiments, we are tempted to approve not only that whole book, but even all the writings of that author. When a poet, an orator, or a painter, has performed admirably in several illustrious pieces, we sometimes also admire his very errors, we mistake his blunders for beauties, and are so ignorant, fond as to copy after them.

It is this prejudice that has rendered so many great scholars perfect bigots, and inclined them to defend Homer or Horace, Livy or Cicero, in all their mistakes, and vindicate all the follies of their favourite author. It is this that tempts some great writers to support the sayings of almost all the ancient fathers of the church, and admire them in their very reveries.

On the other hand, if an author has professed heretical sentiments in religion, we throw our scorn upon every thing he writes, we despise even his critical or mathematical learning, and will hardly allow him common sense. If a poem has some blemishes in it, there is a set of false critics who decry it universally, and will allow no beauties there.

This sort of prejudice is relieved by learning to distinguish things well, and not to judge in the lump. There is scarce any thing in the world of nature or art, in the world of morality or religion, that is perfectly uniform. There is a mixture of wisdom and folly, vice and virtue, good and evil, both in men and things.

We should remember that some persons have great wit, and little judgment; others are judicious, but not witty. Some are good humoured without compliment; others have all the formalities of complaisance, but no good humour. We ought to know that one man may be vicious and learned, while another has virtue without learning. That many a man thinks admirably well who has a poor utterance; while others have a charming manner of speech, but their thoughts are trifling and impertinent. Some are good neighbours, and courteous and charitable toward men, who have no piety toward God; others are truly religious, but of morose natural tempers. Some excellent sayings are found in very silly books, and some silly thoughts appear in books of value. We should neither praise nor dispraise by wholesale, but separate the good from the evil, and judge of them apart; the accuracy of a good judgment consists much in making such distinctions.

Yet let it be noted too, that in common discourse we usually denominate persons and things according to the major part of their character. He is to be called a wise man who has but few follies: he is a good philosopher who knows much of nature, and for the most part reasons well in matters of human science: and that book should be esteemed well written, which has much more of good sense in it than it has of impertinence.

IV. Though a thing be uniform in its own nature, yet the different lights in which it may be placed, and the different views in which it appears to us, will be ready to excite in us mistaken judgments concerning it. Let an erect cone be placed in a horizontal plane, at a great distance from the eye, and it appears a plain triangle; but we shall judge that very cone to be nothing but a flat circle, if its base be obverted towards us. Set a common round plate a little obliquely before our eyes afar off, and we shall think it an oval figure; but if the very edge of it be turned towards us, we shall take it for a strait line. So when we view the several folds of a changeable silk, we pronounce

this part red, and that yellow, because of its different position to the light, though the silk laid smooth in one light appears all of one colour.

When we survey the miseries of mankind, and think of the sorrows of millions, both on earth and in hell, the divine government has a terrible aspect, and we may be tempted to think hardly even of God himself: but if we view the profusion of his bounty and grace amongst his creatures on earth, or the happy spirits in heaven, we shall have so exalted an idea of his goodness as to forget his vengeance. Some men dwell entirely upon the promises of his gospel, and think him all mercy: others, under a melancholy frame, dwell upon his terrors and his threatenings, and are overwhelmed with the thought of his severity and vengeance, as though there were no mercy in him.

The true method of delivering ourselves from this prejudice is to view a thing on all sides, to compare all the various appearances of the same thing with one another, and let each of them have its full weight in the balance of our judgment, before we fully determine our opinion. It was by this means that the modern astronomers came to find out that the planet Saturn hath a flat broad circle round its globe, which is called its ring, by observing the different appearances as a narrow or a broader oval, or as it sometimes seems to be a strait line, in the different parts of its twenty-nine years revolution through the ecliptic. And if we take the same just and religious survey of the great and blessed God in all the discoveries of his vengeance and his mercy, we shall at last conclude him to be both just and good.

V. *The casual association of many of our ideas, becomes the spring of another prejudice or rash judgment, to which we are sometimes exposed. If in our younger years we have taken medicines that have been nauseous, when any medicine whatsoever is afterward proposed to us under sickness, we immediately judge it nauseous: our fancy has so closely joined these ideas together, that we know not how to separate them: then*

the stomach feels the disgust, and perhaps refuses the only drug that can preserve life. So a child who has been let blood, joins the ideas of pain and the surgeon together, that he hates the sight of the surgeon, because he thinks of his pain; or if he has drunk a bitter potion, he conceives a bitter idea of the cup which held it, and will drink nothing out of that cup.

It is for the same reason that the bulk of the common people are so superstitiously fond of the Psalms translated by Hopkins and Sternhold, and think them sacred and divine, because they have been now for more than an hundred years bound up in the same covers with our bibles.

The best relief against this prejudice of association, is, to consider whether there be any natural and necessary connection between those ideas which fancy, custom, or chance, hath thus joined together: and if nature has not joined them, let our judgment correct the folly of our imagination, and separate those ideas again.

SECT. II.—*Prejudices arising from Words.*

Our ideas and words are so linked together, that while we judge of things according to words, we are led into several mistakes. These may be distributed under two general heads, viz. such as arise from single words or phrases, or such as arise from words joined in speech, and composing a discourse.

I. The most eminent and remarkable errors of the first kind are these three. (1.) When our words are insignificant, and have no ideas, as when the mystical divines talk of the prayer of silence, the supernatural and passive night of the soul, the vacuity of powers, the suspension of all thoughts, or (2.) when our words are equivocal, and signify two or more ideas, as the words law, light, flesh, spirit, righteousness, and many other terms in scripture; or (3.) when two or three words

are synonymous, and signify one idea, as regeneration and new creation in the new testament; both which mean only a change of the heart from sin to holiness; or as the elector of Cologne and bishop of Cologne are two titles of the same man.

These kinds of phrases are the occasions of various mistakes: but none so unhappy as those in theology: for both words without ideas, as well as synonymous and equivocal words have been used and abused by the humours, passions, interests, or by the real ignorance and weakness of men, to beget terrible contests among Christians.

But to relieve us under all those dangers, and to remove those sorts of prejudices which arise from single words or phrases, I must remit the reader to Part I. Chap. 4. where I have treated about words, and to those directions which I have given concerning the definition of names, Part I. Chap. 6. sect. 3.

II. There is another sort of false judgments or mistakes which we are exposed to by words; and that is when they are joined in speech, and compose a discourse; and here we are in danger two ways.

The one is when a man writes good sense, or speaks much to the purpose, but he has not a happy and engaging manner of expression. Perhaps he uses coarse and vulgar words, or old, obsolete, and unfashionable language, or terms and phrases that are foreign, latinized, scholastic, very uncommon, and hard to be understood: and this is still worse, if his sentences are long and intricate, or the sound of them harsh and grating to the ear. All these indeed are defects in style, and lead some nice and unthinking hearers or readers into an ill opinion of all that such a person speaks or writes. Many an excellent discourse of our forefathers has had abundance of contempt cast upon it by our modern pretenders to sense, for want of their distinguishing between the language and the ideas.

On the other hand, when a man of eloquence speaks or writes upon any subject, we are too ready to run into his sentiments, being sweetly and insensibly drawn

by the smoothness of his harangue, and the pathetic power of his language. Rhetoric will varnish every error so that it shall appear in the dress of truth, and put such ornaments upon vice, as to make it look like virtue: it is an art of wondrous and extensive influence: it often conceals, obscures or overwhelms the truth, and places sometimes a gross falsehood in a most alluring light. The decency of action, the music of the voice, the harmony of the periods, the beauty of the style, and all the engaging airs of the speaker, have often charmed the hearers into error, and persuaded them to approve whatsoever is proposed in so agreeable a manner. A large assembly stands exposed at once to the power of these prejudices, and imbibes them all. So Cicero and Demosthenes made the Romans and the Athenians believe almost whatsoever they pleased.

The best defence against both these dangers, is to learn the skill (as much as possible) of separating our thoughts and ideas from words and phrases, to judge of the things in their own natures, and in their natural or just relation to one another, abstracted from the use of language, and to maintain a steady and obstinate resolution, to hearken to nothing but truth, in whatsoever style or dress it appears.

Then we shall hear a sermon of pious and just sentiments with esteem and reverence, though the preacher has but an unpolished style, and many defects in the manner of his delivery. Then we shall neglect and disregard all the flattering insinuations whereby the orator would make way for his own sentiments to take possession of our souls, if he has not solid and instructive sense equal to his language. Oratory is a happy talent, when it is rightly employed to excite the passions to the practice of virtue and piety; but to speak properly, this art hath nothing to do in the search after truth.

SECT. III.—*Prejudices arising from ourselves.*

NEITHER words nor things would so often lead us astray from truth, if we had not within ourselves such springs of error as these that follow.

I. Many errors are derived from our weakness of reason, and incapacity to judge of things in our infant state. These are called the prejudices of infancy. We frame early mistakes about the common objects which surround us, and the common affairs of life: we fancy the nurse is our best friend, because children receive from their nurses their food and other conveniences of life. We judge that books are very unpleasant things, because perhaps we have been driven to them by the scourge. We judge also that the sky touches the distant hills, because we cannot inform ourselves better in childhood. We believe the stars are not risen till the sun is set, because we never see them by day. But some of these errors may seem to be derived from the next spring.

The way to cure the prejudices of infancy is to distinguish, as far as we can, which are those opinions which we framed in perfect childhood; to remember that at that time our reason was incapable of forming a right judgment; and to bring these propositions again to be examined at the bar of mature reason.

II. Our senses give us many a false information of things, and tempt us to judge amiss. This is called the prejudice of sense, as when we suppose the sun and moon to be flat bodies, and to be but a few inches broad, because they appear so to the eye. Sense inclines us to judge that air has no weight, because we do not feel it press heavy upon us; and we judge also by our senses that cold and heat, sweet and sour, red and blue, &c. are such real properties in the objects themselves, and exactly like those sensations which they excite in us.

Note. Those mistakes of this sort which all mankind drop and lose in their advancing age, are called mere prejudices of infancy, but those which abide with the vulgar part of the world, and generally with all men, till learning and philosophy cure them, more properly attain the name of prejudices of sense.

These prejudices are to be removed several ways. (1.) By the assistance of one sense we cure the mistakes of another, as when a stick thrust into the water seems crooked, we are prevented from judging it to be really so in itself; for when we take it out of the water, both our sight and our feeling agree and determine it to be straight. (2.) The exercise of our reason, and an application to mathematical and philosophical studies, cures many other prejudices of sense, both with relation to the heavenly and earthly bodies. (3.) We should remember that our senses have often deceived us in various instances, that they give but a confused and imperfect representation of things in many cases, that they often represent falsely those very objects to which they seem to be suited, such as the shape, motion, size and situation of gross bodies, if they are but placed at a distance from us; and as for the minute particles of which bodies are composed, our senses cannot distinguish them. (4.) We should remember also, that one prime and original design of our senses, is to inform us what various relations the bodies that are round about us bear to our own animal body, and to give us notice what is pleasant and useful, or what is painful and injurious to us; but they are not sufficient of themselves to lead us into a philosophical acquaintance with the inward nature of things. It must be confessed it is by the assistance of the eye, and the ear especially (which are called the senses of discipline) that our minds are furnished with various parts of knowledge, by reading, hearing, and observing things divine and human; yet reason ought always to accompany the exercise of our senses whenever we would form a just judgment of things proposed to our inquiry.

Here it is proper to observe also, that as the weak-

ness of reason in our infancy, and the dictates of our senses, sometimes in advancing years, lead the wiser part of mankind astray from truth; so the meaner parts of our species, persons whose genius is very low, whose judgment is always weak, who are ever indulging the dictates of sense and humour, are but children of a larger size; they stand exposed to everlasting mistakes in life, and live and die in the midst of prejudices.

III. *Imagination* is another fruitful spring of false judgments. Our imagination is nothing else but the various appearances of our sensible ideas in the brain, where the soul frequently works in uniting, disjoining, multiplying, magnifying, diminishing and altering the several shapes, colours, sounds, motions, words and things that have been communicated to us by the outward organs of sense. It is no wonder therefore if fancy leads us into many mistakes, for it is but sense at second-hand. Whatever is strongly impressed upon the imagination, some persons believe to be true. Some will choose a particular number in a lottery, or lay a larger wager on a single chance of a dye, and doubt not of success, because their fancy feels so powerful an impression, and assures them it will be prosperous. A thousand pretended prophecies and inspirations and all the freaks of enthusiasm have been derived from this spring. Dreams are nothing else but the deceptions of fancy: a delirium is but a short wildness of the imagination; and a settled irregularity of fancy is distraction and madness.

One way to gain a victory over this unruly faculty, is to set a watch upon it perpetually, and to bridle it in all its extravagancies; never to believe any thing merely because fancy dictates it, any more than I would believe a midnight-dream, nor to trust fancy any farther than it is attended with severe reason. It is a very useful and entertaining power of human nature in matters of illustration, persuasion, oratory, poesy, wit, conversation, &c.; but in the calm inquiry after truth and final judgment of things, fancy should retire, and stand aside, unless it be called in to explain or illustrate a difficult point by a similitude.

Another method of deliverance from these prejudices of fancy, is to compare the ideas that arise in our imaginations with the real nature of things, as often as we have occasion to judge concerning them: and let calm and sedate reason govern and determine our opinions, though fancy should shew never so great a reluctance. Fancy is the inferior faculty, and it ought to obey.

IV. *The various passions or affections of the mind are numerous and endless springs of prejudice.* They disguise every object they converse with, and put their own colours upon it, and thus lead the judgment astray from truth. It is love that makes the mother think her own child the fairest, and will sometimes persuade us that a blemish is a beauty. Hope and desire make an hour of delay seem as long as two or three hours; hope inclines us to think there is nothing too difficult to be attempted; despair tells us that a brave attempt is mere rashness, and that every difficulty is unsurmountable. Fear makes us imagine that a bush shaken with the wind has some savage beast in it, and multiplies the dangers that attend our path: but still there is a more unhappy effect of fear when it keeps millions of souls in slavery to the errors of an established religion: what could persuade the wise men and philosophers of a Polish country to believe the grossest absurdities of the Roman church; but the fear of torture or death, the galleys or the inquisition? Sorrow and melancholy tempt us to think our circumstances much more dismal than they are, that we may have some excuse for mourning: and envy represents the condition of our neighbour better than it is, that there might be some pretence for her own vexation and uneasiness. Anger and wrath and revenge, and all those hateful passions, excite in us far worse ideas of men than they deserve, and persuade us to believe all that is ill of them. A detail of the evil influence of the affections of the mind upon our judgment would make a large volume.

The cure of these prejudices is attained by a constant jealousy of ourselves, and watchfulness over our passions, that they may never interpose when we are call-

ed to pass a judgment of any thing; and when our affections are warmly engaged, let us abstain from judging. It would be also of great use to us to form our deliberate judgments of persons and things in the calmest and serenest hours of life, when the passions of nature are all silent, and the mind enjoys its most perfect composure: and these judgments so formed should be treasured up in the mind, that we might have recourse to them in hours of need. See many more sentiments and directions relating to this subject in my doctrine of the passions.

V. The fondness we have for SELF, and the relations which other persons and things have to ourselves, furnish us with another long rank of prejudices. This indeed might be reduced to the passion of self-love; but it is so copious an head that I choose to name it as a distinct spring of false judgments. We are generally ready to fancy every thing of our own has something peculiarly valuable in it, when indeed there is no other reason, but because it is our own. Were we born among the gardens of Italy, the rocks of Switzerland, or the ice and snows of Russia and Sweden, still we should imagine peculiar excellencies in our native land. We conceive a good idea of the town and village where we first breathed, and think the better of a man for being born near us. We entertain the best opinion of the persons of our own party, and easily believe evil reports of persons of a different sect or faction. Our own sex, our kindred, our houses, and our very names, seem to have something good and desirable in them. We are ready to mingle all these with ourselves, and cannot bear to have others think meanly of them.

So good an opinion we have of our own sentiments and practices, that it is very difficult to believe what a reprover says of our conduct; and we are as ready to assent to all the language of flattery. We set up our own opinions in religion and philosophy as the tests of orthodoxy and truth; and we are prone to judge every practice of other men either a duty or a crime, which we think would be a crime or a duty in us, though

their circumstances are vastly different from our own. This humour prevails sometimes to such a degree, that we would make our own taste and inclinations the standard by which to judge of every dish of meat that is set upon the table, every book in a library, every employment, study and business of life, as well as every recreation.

It is from this evil principle of setting up self for a model what other men ought to be, that the antichristian spirit of imposition and persecution had its original: though there is no more reason for it than there was for the practice of that tyrant, who having a bed fit for his own size was reported to stretch men of low stature upon the rack, till they were drawn out to the length of his bed; and some add also, that he cut off the legs of any whom he found too long for it.

It is also from a principle near a-kin to this that we pervert and strain the writings of any venerable authors, and especially the sacred books of scripture, to make them speak our own sense. Through the influence which our own schemes or hypotheses have upon the mind, we sometimes become so sharp-sighted as to find these schemes in those places of scripture, where the holy writers never thought of them, nor the holy spirit intended them. At other times this prejudice brings such a dimness upon the sight that we cannot read any thing that opposes our own scheme, though it be written as with sun-beams, and in the plainest language; and perhaps we are in danger in such a case of winking a little against the light.

We ought to bring our minds free, unbiassed and teachable to learn our religion, from the word of God; but we have generally formed all the lesser as well as the greater points of religion beforehand, and then we read the prophets and apostles, only to pervert them to confirm our own opinions. Were it not for this influence of self, and a bigotry to our own tenets, we could hardly imagine that so many strange, absurd inconsistent, wicked, mischievous, and bloody principles should pretend to support and defend themselves by the gospel of Christ.

Every learned critic has his own hypothesis; and if the common text be not favourable to his opinion, a various lection shall be made authentic. The text must be supposed to be defective or redundant, and the sense of it shall be literal, or metaphorical, according as it best supports his own scheme. Whole chapters or books shall be added or left out of the sacred canon, or be turned into parables by this influence. Luther knew not well how to reconcile the Epistle of St James to the doctrine of justification by faith alone, and so he could not allow it to be divine. The Papists bring all the Apocrypha into their bible, and stamp divinity upon it; for they can fancy purgatory is there, and there find prayers for the dead. But they leave out the second commandment because it forbids the worship of images. Others suppose the Mosaic history of the creation and the fall of man to be oriental ornaments, or a mere allegory, because the literal sense of those three chapters of Genesis do not agree with their theories. Even an honest plain-hearted and unlearned Christian is ready to find something in every chapter of the bible to countenance his own private sentiments; but he loves those chapters best which speak his own opinions plainest; this is a prejudice that sticks very close to our natures; the scholar is infested with it daily, and the mechanic is not free.

Self has yet a farther and a pernicious influence upon our understandings, and is an unhappy guide in the search after truth. When our own inclination or our ease, our honour or our profit, tempt us to the practice of any thing of suspected lawfulness, how do we strain our thoughts to find arguments for it, and persuade ourselves it is lawful? We colour over iniquity and sinful compliance with the names of virtue and innocence, or at least of constraint and necessity. All the different and opposite sentiments and practices of mankind are too much influenced by this mean bribery, and give too just occasion for satirical writers to say that self-interest governs all mankind.

When the judge had awarded the damages to a per-

son into whose field a neighbour's oxen had broke, it is reported that he reversed his own sentence, when he heard that the oxen which had done this mischief were his own. Whether this be a history or a parable, it is still a just representation of the wretched influence of self to corrupt the judgment.

One way to amend this prejudice is to thrust self so far out of the question, that it may have no manner of influence whensoever we are called to judge and consider of the naked nature, truth and justice of things. In matters of equity between man and man, our Saviour has taught us an effectual means of guarding against this prejudice, and that is to put my neighbour in the place of myself, and myself in the place of my neighbour, rather than be bribed by this corrupt principle of self-love to do injury to our neighbours. Thence arises that golden rule of dealing with others as we would have others deal with us.

In the judgment of truth and falsehood, right and wrong, good and evil, we ought to consider that every man has a self as well as we; and that the tastes, passions, inclinations, and interests of different men are very different, and often contrary, and they dictate contrary things: unless therefore all manner of different and contrary propositions could be true at once, self can never be a just test or standard of truth and falsehood, good and evil.

VI. *The tempers, humours, and peculiar terms of the mind*, whether they be natural or acquired, have a great influence upon our judgment, and become the occasion of many mistakes. Let us survey a few of them.

(1.) Some persons are of an easy and credulous temper, while others are perpetually discovering a spirit of contradiction.

The credulous man is ready to receive every thing for truth, that has but a shadow of evidence: every new book that he reads, and every ingenious man with whom he converses, has power enough to draw him into the sentiments of the speaker or writer. He has so much complaisance in him, or weakness of soul, that

he is ready to resign his own opinion to the first objection which he hears, and to receive any sentiments of another that are asserted with a positive air and much assurance. Thus he is under a kind of necessity, through the indulgence of this credulous humour, either to be often changing his opinions or to believe inconsistencies.

The man of contradiction is of a contrary humour, for he stands ready to oppose every thing that is said: he gives a slight attention to the reasons of other men, for an inward scornful presumption that they have no strength in them. When he reads or hears a discourse different from his own sentiments, he does not give himself leave to consider whether that discourse may be true; but employs all his powers immediately to confute it. Your great disputers and your men of controversy are in continual danger of this sort of prejudice: they contend often for victory, and will maintain whatsoever they have asserted, while truth is lost in the noise and tumult of reciprocal contradictions; and it frequently happens, that a debate about opinions is turned into a mutual reproach of persons.

The prejudice of credulity may in some measure be cured, by learning to set a high value on truth, and by taking more pains to attain it; remembering that truth oftentimes lies dark and deep, and requires us to dig for it as hid treasure; and that falsehood often puts on a fair disguise, and therefore we should not yield up our judgment to every plausible appearance. It is no part of civility or good breeding to part with truth, but to maintain it with decency and candour.

A spirit of contradiction is so pedantic and hateful, that a man should take much pains with himself to watch against every instance of it: He should learn so much good humour, at least, as never to oppose any thing without just and solid reason for it: He should abate some degrees of pride and moroseness, which are never-failing ingredients of this sort of temper, and should seek after so much honesty and conscience as never to contend for conquest or triumph, but to re-

view his own reasons, and to read the arguments of his opponents (if possible) with an equal indifferency, and be glad to spy truth and to submit to it, though it appear on the opposite side.

(2.) There is another pair of prejudices derived from two tempers of mind, near a-kin to those I have just mentioned; and these are the dogmatical and the sceptical humours, that is, always positive, or always doubting.

By what means soever the dogmatist came by his opinions, whether by his senses, or by his fancy, his education, or his own reading, yet he believes them all with the same assurance that he does a mathematical truth; he has scarce any mere probabilities that belong to him; every thing with him is certain and infallible; every punctilio in religion is an article of his faith, and he answers all manner of objections by a sovereign contempt.

Persons of this temper are seldom to be convinced of any mistake: A full assurance of their own notions makes all the difficulties of their own side vanish so entirely that they think every point of their belief is written as with sun-beams, and wonder any one should find a difficulty in it. They are amazed that learned men should make a controversy of what is to them so perspicuous and indubitable. The lowest rank of people, both in learned and in vulgar life, is very subject to this obstinacy.

Scepticism is a contrary prejudice. The dogmatist is sure of every thing, and the sceptic believes nothing. Perhaps he has found himself often mistaken in matters of which he thought himself well assured in his younger days, and therefore he is afraid to give assent to any thing again. He sees so much shew of reason for every opinion, and so many objections also arising against every doctrine, that he is ready to throw off the belief of every thing: He renounces at once the pursuit of truth, and contents himself to say, There is nothing certain: It is well, if through the influence of such a temper, he does not cast away his religion as

well as his philosophy, and abandon himself to a profane course of life, regardless of hell and heaven.

Both these prejudices last mentioned, though they are so opposite to each other, yet they arise from the same spring, and that is, impatience of study, and want of diligent attention in the search of truth. The dogmatist is in haste to believe something: he cannot keep himself long enough in suspense, till some bright and convincing evidence appear on one side, but throws himself casually into the sentiments of one party or another, and then he will hear no argument to the contrary. The sceptic will not take pains to search things to the bottom, but, when he sees difficulties on both sides, resolves to believe neither of them. Humility of soul, patience in study, diligence in inquiry, with an honest zeal for truth, would go a great way towards the cure of both these follies.

(3.) Another sort of temper that is very injurious to a right judgment of things, is an inconsistent, fickle, changeable spirit, and a very uneven temper of mind. When such persons are in one humour, they pass a judgment of things agreeable to it: when their humour changes, they reverse their first judgment, and embrace a new opinion. They have no steadiness of soul: they want firmness of mind sufficient to establish themselves in any truth, and are ready to change it for the next alluring falsehood that is agreeable to their change of humour. This fickleness is sometimes so mingled with their very constitution by nature, or by distemper of body, that a cloudy day, and a lowering sky shall strongly incline them to form an opinion both of themselves, and of persons and things round about them, quite different from what they believe when the sun shines, and the heavens are serene.

This sort of people ought to judge of things and persons in their most sedate, peaceful, and composed hours of life, and reserve these judgments for their conduct at more unhappy seasons.

(4.) Some persons have a violent and turgid manner both of talking and thinking; whatsoever they judge

of, it is always with a tincture of this vanity. They are always in extremes, and pronounce concerning every thing in the superlative. If they think a man to be learned, he is the chief scholar of the age: If another has low parts, he is the greatest blockhead in nature: If they approve any book on divine subjects, it is the best book in the world next to the bible. If they speak of a storm of rain or hail, it is the most terrible storm that fell since the creation: And a cold winter day is the coldest that ever was known.

But the men of this swelling language ought to remember, that nature has ten thousand moderate things in it, and does not always deal in extremes as they do.

(5.) I think it may be called another sort of prejudices derived from humour, when some men believe a doctrine merely because it is ancient, and has been long believed; others so fond of novelty, that nothing prevails upon their assent so much as new thoughts and new notions. Again, there are some who set a high esteem upon every thing that is foreign and far-fetched; therefore China pictures are admired, how awkward soever: Others value things the more for being of our own native growth, invention or manufacture, and these as much despise foreign things.

Some men of letters and theology will not believe a proposition even concerning a sublime subject, till every thing mysterious, deep and difficult is cut off from it, though the scripture asserts it ever so plainly; others are so fond of a mystery and things incomprehensible, that they would scarce believe the doctrine of the Trinity, if it could be explained; they incline to that foolish rant of one of the ancients, *credo quia impossibile est*; I believe it because it is impossible.

To cure these mistakes; remember that neither antique nor novel; foreign nor native, mysterious nor plain, are certain characters either of truth or falsehood.

I might mention various other humours of men that excite in them various prejudices, and lead them into rash and mistaken judgments: but these are sufficient for a specimen.

II. There are several other weaknesses which belong to human nature, whereby we are led into mistakes, and indeed are rendered almost incapable of passing a solid judgment in matters of great depth and difficulty. Some have a native obscurity of perception, (or shall I call it a want of natural sagacity?) whereby they are hindered from attaining clear and distinct ideas. Their thoughts always seem to have something confused and cloudy in them, and therefore they judge in the dark. Some have a defect in memory, and then they are not capable of comparing their present ideas with a great variety of others, in order to secure themselves from inconsistency in judgment. Others may have a memory large enough, yet they are subject to the same errors from a narrowness of soul, and such a fixation and confinement of thought to a few objects, that they scarce ever take a survey of things wide enough to judge wisely and well, and to secure themselves from all inconsistencies.

Though these are natural defects and weaknesses, yet they may in some measure be relieved by labour, diligence, and a due attention to proper rules.

But among all the causes of false judgment which are within ourselves, I ought by no means to leave out that universal and original spring of error, which we are informed of by the word of God, and that is, the sin and defection of our first parents, whereby all our best natural powers both of mind and body are impaired, and rendered very much inferior to what they were in a state of innocence. Our understanding is darkened, our memory contracted, our corrupt humours and passions are grown predominant, our reason enfeebled, and various disorders attend our constitution and animal nature, whereby the mind is strangely imposed upon in its judgment of things. Nor is there any perfect relief to be expected on earth. There is no hope of ever recovering from those maladies, but by a sincere return to God in the ways of his own appointment, whereby we shall be kept safe from all dangerous and pernicious errors in matters of religion; and though imperfections

and mistakes will hang about us in this present life, as the effects of our original apostacy from God, yet we hope for a full deliverance from them when we arrive at heaven.

SECT. IV.—*Prejudices arising from other persons.*

WERE it not for the springs of prejudice that are lurking in ourselves, we should not be subject to so many mistakes from the influence of others: But since our nature is so susceptible of errors on all sides, it is fit we should have hints and notice given us, how far other persons may have power over us, and become the causes of our false judgments. This might all be cast into one heap, for they are all near a-kin, and mingle with each other; but for distinction sake let them be called the prejudices of education, of custom, of authority, and such as arise from the manner of proposal.

I. Those with whom our education is intrusted, may lay the first foundation of many mistakes in our younger years. How many fooleries and errors are instilled into us by our nurses, our fellow-children, by servants, or unskilful teachers, which are not only maintained through the following part of our life, but sometimes have a very unhappy influence upon us! We are taught that there are goblins and bugbears in the dark; our young minds are crowded with the terrible ideas of ghosts appearing upon every occasion, or with the pleasanter tales of fairies dancing at midnight. We learn to prophesy betimes, foretel futurities by good or evil omens, and to presage approaching death in a family by ravens and little worms, which we therefore call a death-watch. We are taught to know beforehand, for a twelvemonth together, which days of the week will be fair or foul, which will be lucky or unlucky; nor is there any thing so silly, but may be im-

posed upon our understandings in that early part of life; and these ridiculous stories abide with us too long, and too far influence the weaker part of mankind.

We choose our particular sect and party in the civil, the religious and the learned life, by the influence of education. In the colleges of learning, some are for the nominalists, and some for the realists, in the science of metaphysics, because their tutors were devoted to these parties. The old philosophy and the new have gained thousands of partizans the same way: and every religion has its infant votaries, who are born, live and die in the same faith, without examination of any article. The Turks are taught early to believe in Mahomet; the Jews in Moses; the Heathens worship a multitude of Gods under the force of their education. And it would be well if there were not millions of Christians who have little more to say for their religion, than that they were born and bred up in it. The greatest part of the Christian world can hardly give any reason, why they believe the bible to be the word of God, but because they have always believed it, and they were taught so from their infancy. As Jews and Turks, and American Heathens believe the most monstrous and incredible stories, because they have been trained up amongst them, as articles of faith; so the Papists believe their transubstantiation, and make no difficulty of assenting to impossibilities, since it is the current doctrine of their catechisms. By the same means the several sects and parties in Christianity believe all the strained interpretations of scripture by which they have been taught to support their own tenets: They find nothing difficult in all the absurd glosses and far-fetched senses that are sometimes put upon the words of the sacred writers, because their ears have been always accustomed to these glosses; and therefore they sit so smooth and easy upon their understandings, that they know not how to admit the most natural and easy interpretation in opposition to them.

In the same manner we are nursed up in many silly and gross mistakes about domestic affairs, as well as

in matters of political concernment. It is upon the same ground that children are trained up to be Whigs and Tories betimes; and every one learns the distinguishing terms of his own party, as the Papists learn to say their prayers in Latin; without any meaning, reason, or devotion.

This sort of prejudice must be cured by calling all the principles of our young years to the bar of mature reason, that we may judge of the things of nature and political affairs by juster rules of philosophy and observation: And even the matters of religion must be inquired into by reason and conscience, and when these have led us to believe scripture to be the word of God, then that becomes our sovereign guide, and reason and conscience must submit to receive its dictates.

II. The next prejudice which I shall mention is, that which arises from the custom or fashion of those amongst whom we live. Suppose we have freed ourselves from the younger prejudices of our education, yet we are in danger of having our minds turned aside from truth by the influence of a general custom.

Our opinion of meats and drinks, of garments and forms of salutation, are influenced much more by custom, than by the eye, the ear, or the taste. Custom prevails over sense itself, and therefore no wonder if it prevail over reason too. What is it but custom that renders many of the mixtures of food and sauces elegant in Britain, which would be awkward and nauseous in China, and indeed were nauseous to us when we first tasted them? What but custom could make those salutations polite in Muscovy, which are ridiculous in France and England? We call all ourselves indeed the politer nations, but it is we who judge this of ourselves; and that fancied politeness is oftentimes more owing to custom than reason. Why are the forms of our present garments counted beautiful, and those fashions of our ancestors the matter of scoff and contempt, which in their day were all decent and genteel? It is custom that forms our opinion of dress, and

reconciles us by degrees to those habits which at first seemed very odd and monstrous. It must be granted there are some garments and habits which have a natural congruity or incongruity, modesty or immodesty, decency or indecency, gaudery or gravity; though for the most part there is but little reason in these affairs: But what little there is of reason and natural decency, custom triumphs over it all. It is almost impossible to persuade a gay lady that any thing can be decent that is out of fashion: And it were well if fashion stretched its powers no further than the business of drapery and the fair sex.

The methods of our education are governed by custom. It is custom and not reason that sends every boy to learn the Roman poets, and begin a little acquaintance with Greek, before he is bound an apprentice to a soapboiler or leather seller. It is custom alone that teaches us Latin by the rules of a Latin grammar; a tedious and absurd method! and what is it but custom that has for past centuries, confined the brightest geniuses even of the high rank in the female world to the only business of the needle, and secluded them most unmercifully from the pleasures of knowledge, and the divine improvements of reason? But we begin to break all these chains, and reason begins to dictate the education of youth. May the growing age be learned and wise!

It is by the prejudice arising from our own customs, that we judge of all other civil and religious forms and practices. The rites and ceremonies of war and peace in other nations, the forms of weddings and funerals, the several ranks of magistracy, the trades and employments of both sexes, the public and the domestic affairs of life, and almost every thing of foreign customs, is judged irregular. It is all imagined to be unreasonable or unnatural, by those who have no other rule to judge of nature and reason, but the customs of their own country, or the little town where they dwell. Custom is called a second nature, but we often mistake it for nature itself.

Besides all this, there is a fashion in opinions, there is a fashion in writing and printing, in style and language. In our day it is the vogue of the nation, that parliaments may settle the succession of the crown, and that a people can make a king; in the last age this was a doctrine a-kin to treason. Citations from the Latin poets were an embellishment of style in the last century, and whole pages in that day were covered with them: it is now forbidden by custom, and exposed by the name of pedantry; whereas in truth both these are extremes. Sometimes our printed books shall abound in capitals, and sometimes reject them all. Now we deal much in essays, and most unreasonably despise systematic learning, whereas our fathers had a just value for regularity and systems; then folios and quartos were the fashionable sizes, as volumes in octavo are now. We are ever ready to run into extremes, and yet custom still persuades us that reason and nature are on our side.

This business of the fashions has a most powerful influence on our judgments; for it employs those two strong engines of fear and shame to operate upon our understandings with unhappy success. We are ashamed to believe or profess an unfashionable opinion in philosophy, and a cowardly soul dares not so much as indulge a thought contrary to the established or fashionable faith, nor act in opposition to custom, though it be according to the dictates of reason.

I confess, there is a respect due to mankind, which should incline even the wisest of men to follow the innocent customs of their country in outward practices of the civil life, and in some measure to submit to fashion in all indifferent affairs, where reason and scripture make no remonstrances against it. But the judgments of the mind ought to be for ever free, and not biased by the customs and fashions of any age or nation whatsoever.

To deliver our understandings from this danger and slavery, we should consider these three things:

1. That the greatest part of the civil customs of any

particular nation or age spring from humour rather than reason. Sometimes the humour of the prince prevails, and sometimes the humour of the people. It is either the great or the many who dictate the fashion, and these have not always the highest reason on their side.

2. Consider also, that the customs of the same nation in different ages, the customs of different nations in the same age, and the customs of different towns and villages in the same nation, are very various, and contrary to each other. The fashionable learning, language, sentiments, and rules of politeness, differ greatly in different countries and ages of mankind; but truth and reason are of a more uniform and steady nature, and do not change with the fashion. Upon this account, to cure the prepossessions which arise from custom, it is of excellent use to travel, and see the customs of various countries, and to read the travels of other men, and the history of past ages, that every thing may not seem strange and uncouth, which is not practised within the limits of our own parish, or in the narrow space of our own lifetime.

3. Consider yet again, how often we ourselves have changed our own opinions concerning the decency, propriety or congruity of several modes or practices in the world, especially if we have lived to the age of thirty or forty. Custom or fashion, even in all its changes, has been ready to have some degree of ascendancy over our understandings, and what at one time seemed decent appears obsolete and disagreeable afterwards, when the fashion changes. Let us learn therefore to abstract as much as possible from custom and fashion, when we would pass a judgment concerning the real value and intrinsic nature of things.

III. *The authority of men is the spring of another rank of prejudices.*

Among these the authority of our forefathers and ancient authors is most remarkable. We pay deference to the opinions of others, merely because they lived a

thousand years before us; and even the trifles and impertinences that have a mark of antiquity upon them are revered for this reason, because they came from the ancients. It is granted, that the ancients had many wise and great men among them, and some of their writings, which time hath delivered down to us, are truly valuable: but those writers lived rather in the infant state of the world; and the philosophers, as well as the polite authors of our age, are properly the elders, who have seen the mistakes of the younger ages of mankind, and corrected them by observation and experience.

Some borrow all their religion from the fathers of the Christian church, or from their synods or councils; but he that will read Monsieur Daille on the use of the fathers, will find many reasons why they are by no means fit to dictate our faith, since we have the gospel of Christ, and the writings of the apostles and prophets in our own hands.

Some persons believe every thing that their kindreds, their parents, and their tutors believe. The veneration and the love which they have for their ancestors incline them to swallow down all their opinions at once, without examining what truth or falsehood there is in them. Men take up their principles by inheritance, and defend them, as they would their estates, because they are born heirs to them. I freely grant, that parents are appointed by God and nature to teach us all the sentiments and practices of our younger years; and happy are those whose parents lead them into the paths of wisdom and truth! I grant farther, that when persons come to years of discretion, and judge for themselves, they ought to examine the opinions of their parents with the greatest modesty, and with an humble deference to their superior character; they ought, in matters perfectly dubious, to give the preference to their parents' advice, and always to pay them the first respect, nor ever depart from their opinions and practice, till reason and conscience make it necessary. But after all, it is possible that parents may be mistaken,

and therefore reason and scripture ought to be our final rules of determination in matters that relate to this world, and that which is to come.

Sometimes a favourite author, or a writer of great name, drags a thousand followers after him into his own mistakes, merely by the authority of his name and character. The sentiments of Aristotle were imbibed and maintained by all the schools in Europe for several centuries; and a citation from his writings was thought a sufficient proof of any proposition. The great Descartes had also too many implicit believers in the last age, though he himself, in his philosophy, disclaims all such influence over the minds of his readers. Calvin and Luther, in the days of reformation from Popery, were learned and pious men, and there have been a succession of their disciples even to this day, who pay too much reverence to the words of their masters. There are others who renounce their authority, but give themselves up in too servile a manner to the opinion and authority of other masters, and follow as bad or worse guides in religion.

If only learned, and wise, and good men had influence on the sentiments of others, it would be at least a more excusable sort of prejudice, and there would be some colour and shadow of reason for it; but that riches, honours, and outward splendour should set up persons for dictators to all the rest of mankind, this is a most shameful invasion of the right of our understandings on the one hand, and as shameful a slavery of the soul on the other. The poor man, or the labourer, too often believes such a principle in politics, or in morality, and judges concerning the rights of the king and the people, just as his wealthy neighbours do. Half the parish follows the opinion of the esquire, and the tenants of a manor fall into the sentiments of their Lord, especially if he live amongst them. How unreasonable and yet how common is this!

As for principles of religion, we frequently find how they are taken up and forsaken, changed and resumed, by the influence of princes. In all nations the priests

have much power also in dictating the religion of the people, but the princes dictate to them: And where there is a great pomp and grandeur attending the priesthood in any religion whatsoever, with so much the more reverence and stronger faith do the people believe whatever they teach them: yet it is too often evident that riches, and dominions, and high titles in church or state, have no manner of pretence to truth and certainty, wisdom and goodness, above the rest of mortals, because these superiorities in this world are not always conferred according to merit.

I confess, where a man of wisdom and years, of observation and experience, gives us his opinion and advice in matters of the civil or the moral life, reason tells us we should pay a great attention to him, it is probable he may be in the right. Where a man of long exercise or piety speaks of practical religion, there is a due deference to be paid to his sentiments: and the same we may say concerning an ingenious man, long versed in any art or science, he may justly expect due regard, when he speaks of his own affairs and proper business. But in other things each of these may be ignorant enough, notwithstanding all their piety and years, and particular skill: nor even in their own proper province are they to be believed in every thing without reserve, and without examination.

To free ourselves from these prejudices, it is sufficient to remember, that there is no rank nor character among mankind, which has any just pretence to sway the judgments of other men by their authority: for there have been persons of the same rank and character who have maintained different and contrary sentiments: but all these can never be true, and therefore the mere name or reputation that any of them possesses, is not a sufficient evidence for truth.

Shall we believe the ancients in philosophy! But some of the ancients were stoics, some peripatetics, some platonics, and some epicureans, some cynics, and some sceptics. Shall we judge of matters of the Christian faith by the fathers or primitive writers for three

or four hundred years after Christ? But they often contradicted one another, and themselves too; and, what is worse, they sometimes contradicted the scripture itself. Now, among all these different and contrary sentiments in philosophy and religion, which of the ancients must we believe, for we cannot believe them all?

Again; to believe all things as our predecessors did, is the ready way to keep mankind in an everlasting state of infancy, and to lay an eternal bar against all the improvements of our reason and our happiness. Had the present age of philosophers satisfied themselves with the substantial forms and occult qualities of Aristotle, with the solid spheres, eccentrics, and epicycles of Ptolomy, and the ancient astronomers; then the great lord Bacon, Copernicus, and Descartes, with the greater Sir Isaac Newton, Mr Locke, and Mr Boyle, had risen in our world in vain. We must have blundered on still in successive generations amongst absurdities and thick darkness, and a hundred useful inventions for the happiness of human life had never been known.

Thus it is in matters of philosophy and science. But, you will say, shall not our own ancestors determine our judgments in matters of civil or religious concernment? If they must, then the child of a Heathen must believe that heathenism is true, the son of a Papist must believe all the absurdities of popery, the posterity of the Jews and Socinians must for ever be Socinians and Jews; and a man whose father was of republican principles must make a succession of republicans in his family to the end of the world. If we ought always to believe whatsoever our parents, or our priests, or our princes believe, the inhabitants of China ought to worship their own idols, and the savages of Africa ought to believe all the nonsense, and practise the idolatry of their Negro fathers and kings. The British nation, when it was heathen, could never have become Christian, and when it was a slave to Rome, it could never have been reformed.

Besides, let us consider that the great God, our

common maker, has never given one man's understanding a legal and rightful sovereignty to determine truths for others, at least after they are past the state of childhood or minority. No single person, how learned and wise, and great soever, or whatsoever natural, or civil, or ecclesiastical relation he may have to us, can claim this dominion over our faith. St Paul the apostle, in his private capacity, would not do it; nor hath an inspired man any such authority, until he makes his divine commission appear. Our Saviour himself tells the Jews, that if he had not done such wondrous works among them, they had not sinned in disbelieving his doctrines, and refusing him for the Messiah. No bishop or presbyter, no synod or council, no church or assembly of men, since the days of inspiration, hath power derived to them from God to make creeds or articles of faith for us, and impose them upon our understandings. We must all act according to the best of our own light, and the judgment of our own consciences, using the best advantages which providence hath given us, with an honest and impartial diligence to inquire and search out the truth; for every one of us must give an account of himself to God. To believe as the church, or the court believes, is but a sorry and a dangerous faith; this principle would make more Heathens than Christians, and more Papists than Protestants; and perhaps lead more souls to hell than to heaven; for our Saviour himself has plainly told us, that if the blind will be led by the blind, they must both fall into the ditch.

Though there be so much danger of error arising from the three prejudices last mentioned, yet before I dismiss this head, I think it proper to take notice, that as education, custom and authority, are no sure evidences of truth, so neither are they certain marks of falsehood; for reason and scripture may join to dictate the same things which our parents, our nurses, our tutors, our friends, and our country believe and profess. Yet there appears sometimes in our age a pride and petulancy in youth, zealous to cast off the sentiments

of their fathers and teachers, on purpose to shew that they carry none of the prejudices of education and authority about them. They indulge all manner of licentious opinions and practices, from a vain pretence of asserting their liberty. But, alas! this is but changing one prejudice for another; and sometimes it happens by this means, that they make a sacrifice both of truth and virtue to the vile prejudices of their pride and sensuality.

IV. There is another tribe of prejudices which are near a-kin to those of authority, and that is, when we receive a doctrine because of the manner in which it is proposed to us by others. I have already mentioned the powerful influence that oratory and fine words have to insinuate a false opinion, and sometimes truth is refused, and suffers contempt in the lips of a wise man, for want of the charms of language: But there are several other manners of proposals whereby mistaken sentiments are powerfully conveyed into the mind.

Some persons are easily persuaded to believe what another dictates with a positive air and a great degree of assurance: they feel the overbearing force of a confident dictator, especially if he be of a superior rank or character to themselves.

Some are quickly convinced of the truth of any doctrine, when he that proposes it puts on all the airs of piety, and makes solemn appeals to heaven, and protestations of the truth of it: the pious mind of a weaker Christian is ready to receive any thing that is pronounced with such an awful solemnity.

It is a prejudice near a-kin to this, when a humble soul is frighted into any particular sentiments of religion, because a man of great name or character pronounces heresy upon the contrary sentiments, casts the disbeliever out of the church, and forbids him the gates of heaven.

Others are allured into particular opinions by gentler practices on the understanding; not only the soft tempers of mankind, but even hardy and rugged souls are sometimes led away captives to error by the soft airs of

address, and the sweet and engaging methods of persuasion and kindness.

I grant, where natural and revealed religion plainly dictate to us the infinite and everlasting importance of any sacred doctrine, it cannot be improper to use any of these methods, to persuade men to receive and obey the truth, after we have given sufficient reason and argument to convince their understandings. Yet all these methods, considered in themselves, have been often used to convey falsehood into the soul, as well as truth; and if we build our faith merely upon these foundations, without regard to the evidence of truth and the strength of argument, our belief is but the effect of prejudice. For neither the positive, the awful or solemn, the terrible or the gentle methods of address carry any certain evidence with them that truth lies on that side.

There is another manner of proposing our own opinion, or rather opposing the opinions of others, which demands mention here, and that is, when persons make a jest serve instead of an argument; when they refute what they call an error by a turn of wit, and answer every objection against their own sentiments, by casting a sneer upon the objector. These scoffers practise with success upon weak and cowardly spirits: Such as have not been well established in religion or morality have been laughed out of the best principles by a confident buffoon: they have yielded up their opinions to a witty banter, and sold their faith and religion for a jest.

There is no way to cure these evils in such a degenerate world as we live in, but by learning to distinguish well between the substance of any doctrine, and the manner of address either in proposing, attacking, or defending it; and then by setting a just and severe guard of reason and conscience over all the exercises of their judgment, resolving to yield to nothing but the convincing evidence of truth religiously obeying the light of reason in matters of pure reason, and the dictates of revelation in things that relate to our faith.

Thus we have taken a brief survey of some of the infinite varieties of prejudices that attend mankind on

every side in the present state, and the dangers of error or of rash judgment we are perpetually exposed to in this life: This chapter shall conclude with one remark, and one piece of advice.

The remark is this. The same opinion, whether false or true, may be dictated by many prejudices at the same time; for, as I hinted before, prejudice may happen to dictate truth sometimes as well as error. But where two or more prejudices oppose one another, as it often happens, the stronger prevails and gains the assent: Yet how seldom does reason interpose with sufficient power to get the ascendant of them all, as it ought to do!

The advice follows, viz. Since we find such a swarm of prejudices attending us both within and without; since we feel the weakness of our reason, the frailty of our natures, and our insufficiency to guard ourselves from error upon this account, it is not at all unbecoming the character of a logician or a philosopher, together with the advice already given, to direct every person in search after truth to make his daily addresses to heaven, and implore the God of truth to lead him into all truth, and to ask wisdom of him who giveth liberally to them that ask it, and upbraideth us not with our own follies.

Such a devout practice will be an excellent preparative for the best improvement of all the directions and rules proposed in the two following chapters.

CHAP. IV.

GENERAL DIRECTIONS TO ASSIST US IN JUDGING ARIGHT.

THE chief design of the art of logic is to assist us in forming a true judgment of things; a few proper observations for this end have been dropt occasionally in some of the foregoing chapters: Yet it is

necessary to mention them again in this place, that we may have a more complete and simultaneous view of the general directions, which are necessary in order to judge aright. A multitude of advices may be framed for this purpose; the chief of them may, for order's sake, be reduced to the following heads.

I. Direct. *When we consider ourselves as philosophers, or searchers after truth, we should examine all our opinions afresh, and inquire what was the ground of them, and whether our assent was built on just evidence; and then we should cast off all those judgments which were formed heretofore without due examination. A man in pursuit of knowledge should throw off all those prejudices which he had imbibed in times past, and guard against all the springs of error mentioned in the preceding chapter, with the utmost watchfulness for time to come.*

Observe here, that this rule of casting away all our former præjudicate opinions and sentiments, is not proposed to any of us to be practised at once, considered as men of business, or religion, as friends or neighbours, as fathers or sons, as magistrates, subjects or Christians; but merely as philosophers and searchers after truth: And though it may be well presumed, that many of our judgments, both true and false, together with the practices built thereon in the natural, the civil and the religious life, were formed without sufficient evidence; yet an universal rejection of all these might destroy at once our present sense and practice of duty with regard to God, ourselves, and our fellow-creatures. Mankind would be hereby thrown into such a state of doubting and indifference, that it would be too long ere they recovered any principles of virtue or religion by a train of reasoning.

Besides, the common affairs of human life often demand a much speedier determination, and we must many times act upon present probabilities: The bulk of mankind have not time and leisure, and advantages sufficient to begin all their knowledge anew, and to

build up every single opinion and practice afresh upon the justest grounds of evidence.

Yet let it be observed also, that so far as any person is capable of forming and correcting his notions and rules of conduct in the natural, civil and religious life, by the strict rules of logic; and so far as he hath time and capacity to review his old opinions, to re-examine all those which are any way doubtful, and to determine nothing without just evidence; he is likely to become so much the wiser, and the happier man, and, if divine grace assist him, so much the better Christian. And though this cannot be done all at once, yet it may be done by the prudent steps and degrees, till our whole set of opinions and principles be in time corrected and reformed, or at least established upon juster foundations.

II. Direct. *Endeavour that all your ideas of those objects, concerning which you pass any judgment, be clear and distinct, complete, comprehensive, extensive and orderly, as far as you have any occasion to judge concerning them.* This is the substance of the last chapter of the first part of logic. The rules which direct our conceptions must be reviewed, if we would form our judgments aright. But if we will make haste to judge at all adventures, while our ideas are dark and confused, and very imperfect, we shall be in danger of running into many mistakes. This is like a person who would pretend to give the sum-total of a large account in arithmetic, without surveying all the particulars; or as a painter, who professes to draw a fair and distinct landscape in the twilight, when he can hardly distinguish a house from a tree.

Observe here, that this direction does not require us to gain clear, distinct, complete ideas of things in all their parts, powers, and qualities in an absolute sense, for this belongs to God alone, and is impossible for us to attain: But it is expressed in a relative or limited sense; that is, our ideas should be clear, distinct, and comprehensive, &c. at least so far as we have occasion at that time to judge concerning them. We may form

many true and certain judgments concerning God, angels, animals, men, heaven, hell, &c. by those partial and very imperfect conceptions of them to which we have attained, if we judge no farther concerning them than our conceptions reach.

We may have a clear and distinct idea of the existence of many things in nature, and affirm that they do exist, though our ideas of their intimate essences and causes, their relations and manners of actions are very confused and obscure. We may judge well concerning several properties of any being, though other properties are unknown, for perhaps we know not all the properties of any being whatsoever.

Sometimes we have clear ideas of the absolute properties of an object; and we may judge of them with certainty, while the relative properties are very obscure and unknown to us. So we may have a clear and just idea of the area of a parallelogram, without knowing what a relation it bears to the area of a triangle or a polygon. I may know the length of the diameter of a circle, without knowing what proportion it has to the circumference.

There are other things, whose external relative properties with respect to each other, or whose relation to us we know better than their own inward and absolute properties, or their essential distinguishing attributes. We perceive clearly, that fire will warm or burn us, and will evaporate water; and that water will allay our thirst, or quench the fire, though we know not the inward distinguishing particles, or prime essential properties of fire or water. We may know the king, and lord chancellor, and affirm many things of them in their legal characters, though we can have but a confused idea of their persons or natural features, if we have never seen their faces. So the scripture has revealed God himself to us, as our creator, preserver, redeemer, and sanctifier, and as the object of our worship, in clearer ideas than it has revealed many other abstruse questions which may be raised about his own divine essence or substance, his immensity or omnipresence.

This therefore is the general observation in order to guide our judgments, that we should not allow ourselves to form a judgment concerning things farther than our clear and distinct ideas reach, and then we are not in danger of error.

But there is one considerable objection against this rule, which is necessary to be answered; and there is one just and reasonable exception, which is as needful to be mentioned.

The objection is this: May we not judge falsely concerning some total or complete ideas, when we have a clear perception only of some parts or properties of them? May we not affirm, that all that is in God is eternal, or that all his unknown attributes are infinite, though we have so imperfect an idea of God, eternity, and infinity? Again, may we not safely judge of particular objects whose idea is obscure, by a clear idea of the general? May I not affirm, that every unknown species of animals has inward springs of motion, because I have a clear idea that these inward springs belong to an animal in general.

Answer. All those supposed unknown parts, properties, or species, are clearly and distinctly perceived to be connected with, or contained in the known parts, properties, or general ideas, which we suppose to be clear and distinct as far as we judge of them: And as we have no particular idea of those unknown divine attributes, or unknown species of animals; so there is nothing particular affirmed of them beyond what belongs to the general idea of divine attributes or animals, with which I clearly and distinctly perceive them to be connected.

It may be illustrated in this manner. Suppose a long chain lies before me, whose nearest links I see are iron rings, and I see them fastened to a post near me, but the most distant links lie beyond the reach of my sight, so that I know not whether they are oval or round, brass or iron: Now I may boldly affirm the whole length of this chain is fastened to the post, for I have

a clear idea that the distant links are connected with the nearest, if I can draw the whole chain by one link.

Or thus: If two known ideas, A and B, are evidently joined or agree, and if C unknown be included in A, and also D unknown be included in B, then I may affirm that C and D are joined and agree; for I have a clear perception of the union of the two known ideas A and B; and also a clear perception of the connection of the unknown ideas with the known. So that clear and distinct ideas must still abide as a general necessary qualification in order to form right judgments: And indeed it is upon this foot that all ratiocination is built, and the conclusions are thus formed, which deduce things unknown from things known.

Yet it seems to me, that there is one just limitation or exception to this general rule of judgment, as built on clear and distinct ideas; and it is this:

Exception. In matters of mere testimony, whether human or divine, there is always a necessity of clear and distinct ideas of the things which are believed: Though the evidence of propositions, which are entirely formed by ourselves, depends on the clearness and distinctness of those ideas of which they are composed, and on our own clear perception of their agreement or disagreement, yet they may justly assent to propositions formed by others, when we have neither a very clear conception in ourselves of the two ideas contained in the words, nor how they agree or disagree; provided always that we have a clear and sufficient evidence of the credibility of the persons who inform us.

Thus, when we read in scripture the great doctrines of the deity of Christ, and of the union of the divine and human natures in him, of the divine agency of the blessed Spirit, that the son is the brightness of the Father's glory; that all things were created by him, and for him; that the Son shall give up his kingdom to his father, and that God shall be all in all; we may safely believe them: For though our ideas of these objects themselves are not sufficiently clear, distinct, and perfect, for our own minds to form these judgments or propositions concerning them, yet we have a clear

and distinct perception of God's revealing them, or that they are contained in scripture, and this is sufficient evidence to determine our assent.

The same thing holds true in some measure, where credible human testimony assures us of some propositions, while we have no sufficient ideas of the subject and predicate of them to determine our assent. So when an honest and learned mathematician assures a ploughman that the three angles of a triangle are equal to two right angles, or that the square of a hypothenuse of a right angled triangle is equal to the sum of the squares of the two sides; the ploughman, who has but confused ideas of these things, may firmly and safely believe these propositions upon the same ground, because he has evidence of the skill and faithfulness of his informer *.

* Perhaps some may object against this representation of things, and say, that "we cannot properly be said to believe a proposition any farther than we ourselves have ideas under the terms: therefore if we have no idea under the terms, we believe nothing but the connection of words or sounds: and if we have but obscure and inadequate ideas under the terms, then we partly believe a connective of things, and partly a connection of sounds; but that we cannot properly be said to believe the proposition, for our faith can never go beyond our ideas."

Now to set this matter in a clear light, I suppose that every proposition which is proposed to my assent, is a sentence made up of terms which have some ideas under them known or unknown to me. I confess, if I believe there are no ideas at all under the terms, and there is nothing meant by them, then indeed, with regard to me, it is the mere joining of sounds; but if, for instance, a ploughman has credible information from an honest and skilful mathematician, that an ellipsis is made by the section of a cone, he believes the proposition, or he believes the sentence is true, as it is made up of terms which his informant understands, though the ideas be unknown to him; that is, he believes there are some ideas which his informant has under these words which are really connected. And I think this may justly be called believing the proposition, for it is a belief of something more than the mere joining of sounds; it is a belief of the real connection of some unknown ideas belonging to those sounds, and in this sense a man may be said to believe the truth of a proposition which he doth not understand at all.

With more reason still may we be said to believe a proposition upon credible testimony, if we have some sort of ideas under the terms, though they are but partial or inadequate, and obscure; such as, divine answers were given by Urim and Thummim; for since it is purely upon testimony we believe the known parts of the ideas signified

III. Direct. *When you have obtained as clear and comprehensive ideas as is needful, both of the subject and*

by those words to be connected, upon the same testimony we may also believe all the unknown parts of the ideas signified by these words to be connected, viz. because our informant is knowing and faithful. And in this sense we may justly be said to believe a proposition of scripture entirely, which we understand but very imperfectly, because God who reveals it is knowing and faithful in perfection.

And indeed, unless this representation of the matter be allowed, there are but very few propositions in the world, even in human things, to which we can give an entire assent, or which we may be said either to know, or to believe, because there is scarce any thing on earth of which we have an adequate, and most perfect idea. And it is evident that in divine things there is scarce any thing which we could either know or believe without this allowance: for though reason and revelation join to inform me that God is holy, how exceeding inadequate are my ideas of God, and of holiness? Yet I may boldly and entirely assent to this whole proposition, since I am sure that every known and unknown idea signified by the term God is connected with the idea of the term holiness, because reason partly informs me, but especially because the divine testimony, which has connected them, is certainly credible.

I might argue upon this head perhaps more forcibly from the doctrine of God's incomprehensibility. If we would believe nothing but what we have ideas of, it would be impossible for us to believe that God is incomprehensible: for this implies in it a belief, that there are some unknown ideas belonging to the nature of God. Therefore we do both believe and profess that something concerning unknown ideas, when we believe and profess that God is incomprehensible.

I persuade myself that most of these very persons who object against my representation of things will yet readily confess they believe all the propositions in scripture, rather than declare they do not believe several of them: though they must acknowledge that several of them are far above their understanding, or that they have scarce any ideas of the true sense of them. And therefore, where propositions derived from credible testimony are made up of dark or inadequate ideas, I think it is much more proper to say, we believe them, than that we do not believe them, lest we cut off a multitude of the propositions of the bible from our assent of faith.

Yet let it be observed here, that when we believe a proposition on mere testimony, of which we have no ideas at all, we can only be said to give a general implicit assent to the truth of that proposition, without any particular knowledge of, or explicit assent to the special truth contained in that proposition: and this our implicit assent is of very little use, unless it be to testify our belief of the knowledge and veracity of him that informs us.

As our ideas of a proposition are more or less clear and adequate as well as just and proper, so we explicitly assent more or less to the particular truth contained in that proposition. And our assent hereby

predicate of a proposition, then compare those ideas of the subject and predicate together with the utmost attention, and observe how far they agree, and wherein they differ: whether the proposition may be affirmed absolutely or relatively, whether in whole or in part, whether universally or particularly, and then under what particular limitations. Turn these ideas about in your mind, and take a view of them on all sides, just as a mason would do to see whether two hewn stones exactly suit each other in every part, and are fit to be joined in erecting a carved or fluted pillar.

Compare the whole subject with the whole predicate in their several parts: take heed in this matter that you neither add to nor diminish the ideas contained in the subject or in the predicate; for such an inadvertence or mistake will expose you to great error in judgment.

IV. *Direction. Search for evidence of truth with diligence and honesty, and be heartily ready to receive evidence, whether for the agreement or disagreement of ideas.*

Search with diligence: spare no labour in searching for the truth in due proportion to the importance of the proposition. Read the best authors who have writ on that subject; consult your wise and learned friends in conversation; and be not unwilling to borrow hints toward your improvement from the meanest person, nor to receive any glimpse of light from the most un-

becomes more or less useful for the increase of our knowledge, or the direction of our practice.

When divine testimony plainly proposes to our faith such a proposition whereof we have but obscure, doubtful and inadequate ideas, we are bound implicitly to believe the truth of it, expressed in those terms, in order to shew our submission to God who revealed it, as a God of perfect knowledge and veracity: but it is our duty to use all proper methods to obtain a farther and explicit knowledge of the particular truth contained in the proposition, if we would improve by it either in knowledge or virtue. All necessary rules of grammar and criticism should be employed to find out the very ideas that belong to those words, and which were designed by the divine speaker or writer. Though we may believe the truth of a proposition which we do not understand, yet we should endeavour to understand every proposition which we believe to be true.

learned. Diligence and humility is the way to thrive in the riches of the understanding, as well as in gold or silver. Search carefully for the evidence of truth, and dig for wisdom as for hid treasure.

Search with a steady honesty of soul, and a sincere impartiality to find the truth. Watch against every temptation that might bribe your judgment, or warp it aside from truth. Do not indulge yourself to wish any unexamined proposition were true or false. A wish often perverts the judgment, and tempts the mind strangely to believe upon slight evidence whatsoever we wish to be true or false.

V. Direction. *Since the evidence of the agreement or disagreement of two ideas is the ground of our assent to any proposition, or the great criterion of truth*; therefore we should suspend our judgment, and neither affirm nor deny till this evidence appear.

This direction is different from the second; for though the evidence of the agreement or disagreement of two ideas most times depends on the clearness and distinctness of the ideas themselves, yet it does not always arise thence. Testimony may be a sufficient evidence of the agreement or disagreement of two obscure ideas, as we have seen just before in the exception under the second direction. Therefore though we are not universally and in all cases bound to suspend our judgment, till our ideas of the objects themselves are clear and distinct, yet we must always suspend our judgment, and withhold our assent to, or denial of any proposition, till some just evidence appear of its truth or falsehood. It is an impatience of doubt and suspence, a rashness and precipitance of judgment, and hastiness, to believe something on the one side or the other, that plunges us into many errors.

This direction to delay and suspend our assent is more particularly necessary to be observed when such propositions offer themselves to us as are supported by education, authority, custom, inclination, interest, or other powerful prejudices; for our judgment is led away insensibly to believe all that they dictate; and

where prejudices and dangers of error are multiplied, we should set the stricter guard upon our assent.

Yet remember the caution or limitation here which I gave under the first direction, viz. that this is not to be too strictly applied to matters of daily practice, either in human life or religion; but when we consider ourselves as philosophers, or searchers after truth, we should always withhold our assent where there is not just evidence: And as far and as fast as we can in a due consistence with our daily necessary duties, we should also reform and adjust all our principles and practices both in religion and the civil life by these rules.

VI. Direct. *We must judge of every proposition by those proper and peculiar mediums or means, whereby the evidence of it is to be obtained, whether it be sense, consciousness, intelligence, reason, or testimony.* All our faculties and powers are to be employed in judging of their proper objects.

If we judge of sounds, colours, odours, or saps, the smoothness, roughness, softness, or hardness of bodies, it must be done by the use of our senses: but then we must take heed that our senses are well disposed, as shall be shewn afterwards.

And since our senses, in their various exercises, are in some cases liable to be deceived, and more especially when by our eyes or ears we judge of the figure, quantity, distance, and position of objects that are far off, we ought to call our reason into the assistance of our senses, and correct the errors of one sense by the help of another.

It is by the powers of sense and reason joined together, that we must judge philosophically of the inward nature, the secret properties and powers, the causes and effects, the relations and proportions of a thousand corporeal objects which surround us on earth, or are placed at a distance in the heavens. If a man on the one hand confines himself only to sensible experiments, and does not exercise reason upon them, he may surprise himself and others with strange appearances, and

learn to entertain the world with sights and shows, but will never become a philosopher: and, on the other hand, if a man imprison himself in his closet, and employ the most exquisite powers of reason to find out the nature of things in the corporeal world, without the use of his senses, and the practice of experiments, he will frame to himself a scheme of chimeras instead of true philosophy. Hence came the invention of substantial forms and qualities, of *materia prima* and privation, with all the insignificant names used by the peripatetic writers; and it was for want of more experiments that the great Descartes failed in several parts of his philosophical writings.

In the abstracted and speculative parts of the mathematics, which treat of quantity and number, the faculty of reason must be chiefly employed to perceive the relation of various quantities, and draw certain and useful conclusions; but it wants the assistance of sense also to be acquainted with lines, angles, and figures. And in practical mathematics our senses have still greater employment.

If we would judge of the pure properties, and actions of the mind, of the nature of spirits, their various perceptions and powers, we must not inquire of our eyes and our ears, nor the images or shapes laid up in the brain, but we must have recourse to our own consciousness of what passes within our own mind.

If we are to pass a judgment upon any thing that relates to spirits in a state of union with animal nature, and the mixed properties of sensation, fancy, appetite, passion, pleasure, and pain, which arise thence; we must consult our own sensations, and the other powers which we find in ourselves, considered as men or creatures made up of a mind and an animal; and by just reasonings deduce proper consequences, and improve our knowledge in these subjects.

If we have occasion to judge concerning matters done in past ages, or in distant countries, and where we ourselves cannot be present, the powers of sense and reason, for the most part, are not sufficient to inform

us, and we must therefore have recourse to the testimony of others; and this is either divine or human.

In matters of mere human prudence, we shall find the greatest advantage by making wise observations on our own conduct, and the conduct of others, and a survey of the events attending such conduct. Experience in this case is equal to a natural sagacity, or rather superior. A treasure of observations and experiences collected by wise men, is of admirable service here. And perhaps there is nothing in the world of this kind equal to the sacred book of Proverbs, even if we look on it as a mere human writing.

In questions of natural religion, we must exercise the faculty of reason which God has given us; and since he has been pleased to afford us his word, we should confirm and improve or correct our reasonings on this subject by the divine assistance of the bible.

In matters of revealed religion, that is, Christianity, Judaism, &c. which we could never have known by the light of nature, the word of God is our only foundation and chief light; though here our reason must be used both to find out the true meaning of God in his word, and to derive just inferences from what God has written, as well as to judge of the credentials whereby divine testimony is distinguished from mere human testimony, or from imposture.

As divine revelation can never contradict right reason, for they are two great lights given us by our creator for our conduct, so reason ought by no means to assume to itself a power to contradict divine revelation.

Though revelation be not contrary to reason, yet there are four classes wherein matters of revelation may be said to raise above, or go beyond our reason.

1. When revelation asserts two things of which we have clear ideas, to be joined, whose connection or agreement is not discoverable by reason; as when scripture informs us, that the dead shall rise, that the earth shall be burnt up, and the man Christ Jesus shall return from heaven, none of these things could ever be found out or proved by reason.

2. When revelation affirms any proposition, while reason has no clear and distinct ideas of the subject, or of the predicate; as God created all things by Jesus Christ: by the Urim and Thummin God gave forth divine oracles. The predicate of each of these propositions is to us an obscure idea, for we know not what was the peculiar agency of Jesus Christ when God the father created the world by him; nor have we any clear and certain conception what the Urim and Thummin were, nor how God gave answers to his people by them.

3. When revelation in plain and express language, declares some doctrine which our reason at present knows not with evidence and certainty how or in what sense to reconcile some of its own principles; as, that the child Jesus is the mighty God, Isa. ix. 6., which proposition carries a seeming opposition to the unity and spirituality of the Godhead, which are principles of reason.

4. When two propositions or doctrines are plainly asserted by divine revelation, which our reason at present knows not how or in what sense with evidence and certainty to reconcile with one another; as, the Father is the only true God, John xvii. 3. and yet, Christ is over all, God blessed for ever, Rom. ix. 5.

Now divine revelation having declared all these propositions, reason is bound to receive them, because it cannot prove them to be utterly inconsistent or impossible, though the ideas of them may be obscure, though we ourselves see not the rational connection of them, and though we know not certainly how to reconcile them. In these cases reason must submit to faith: that is, we are bound to believe what God asserts, and wait till he shall clear up that which seems dark and difficult, and till the mysteries of faith shall be farther explained to us, either in this world, or in the world to come*, and reason itself dictates this submission.

* See something more on this subject, Direct. II. preced. and Chap. V. sect. 6.

VII. Direct. *It is very useful to have some general principles of truth settled in the mind, whose evidence is great and obvious, that they may be always ready at hand to assist us in judging of the great variety of things which occur.* These may be called first notions, or fundamental principles; for though many of them are deduced from each other, yet most or all of them may be called principles, when compared with a thousand other judgments which we form under the regulation and influence of these primary propositions.

Every art and science, as well as the affairs of civil life and religion, have peculiar principles of this kind belonging to them. There are metaphysical, physical, mathematical, political, economical, medicinal, theological, moral, and prudential principles of judgment. It would be too tedious to give a specimen of them all in this place. Those which are most of universal use to us, both as men and as Christians, may be found in the following chapter among the rules of judgment about particular objects.

VIII. Direct. *Let the degrees of your assent to every proposition bear an exact proportion to the different degrees of evidence.* Remember this is one of the greatest principles of wisdom that man can arrive at in this world, and the best human security against dangerous mistakes in speculation or practice.

In the nature of things, of which our knowledge is made up, there is infinite variety in their degrees of evidence. And as God hath given our minds a power to suspend their assent till the evidence be plain, so we have a power to receive things which are proposed to us with a stronger or weaker belief, in infinite variety of degrees proportionable to their evidence. I believe, that the planets are inhabited, and I believe that the earth rolls among them yearly round the sun; but I do not believe both these propositions with an equal firmness of assent, because the arguments for the latter are drawn from mathematical observations; but the arguments for the former are but probable conjectures and moral reasonings. Yet neither do I believe either of

these propositions so firmly, as I do that the earth is about twenty-four thousand miles round, because the mathematical proof of this is much easier, plainer and stronger. And yet farther, when I say that the earth was created by the power of God, I have still a more infallible assurance of this, than of all the rest, because reason and scripture join to assure me of it.

IX. Direct. *Keep your mind always open to receive truth, and never set limits to your improvements.* Be always ready to hear what may be objected even against your favourite opinions, and those which have had longest possession of your assent. And if there should be any new and uncontrollable evidence brought against these old or beloved sentiments, do not wink your eyes fast against the light, but part with any thing for the sake of truth: Remember when you overcome an error, you gain truth; the victory is on your side, and the advantage is all your own.

I confess those grand principles of belief and practice, which universally influence our conduct, both with regard to this life and the life to come, should be supposed to be well settled in the first years of our studies, such as, the existence and providence of God, the truth of Christianity, the authority of scripture, the general rules of morality, &c. We should avoid a light fluttering genius, ever ready to change our foundations, and to be carried about with every kind of doctrine. To guard against which inconveniencies, we should labour with earnest diligence and fervent prayer, that our most fundamental and important points of belief and practice may be established upon just grounds of reason and scripture when we come to years of discretion, and sit to judge for ourselves in such important points. Yet since it is possible that the folly or prejudices of younger years may have established persons in some mistaken sentiments, even in very important matters, we should always hold ourselves ready to receive any new advantage toward the direction or improvement even of our established principles, as well as opinions of lesser moment.

CHAP. V.

SPECIAL RULES TO DIRECT US IN JUDGING OF PARTICULAR OBJECTS.

IT would be endless to run through all those particular objects concerning which we have occasion to pass a judgment at one time or another. Things of the most frequent occurrence, of the widest extent, and of the greatest importance, are the objects and exercises of sense, of reason and speculation, the matters of morality, religion, and prudence, of human and divine testimony, together with the essays of reasoning upon things past and future. Special rules relating to all these will be the subject of the following sections.

SECT. I.—*Principles and Rules of Judgment concerning the Objects of Sense.*

THOUGH our senses are sometimes liable to be deceived, yet when they are rightly disposed, and fitly exercised about their proper objects, with the just assistance of reason, they give us sufficient evidence of truth.

This may be proved from an argument drawn from the wisdom, goodness, and faithfulness of God our creator. It was *he* gave us our senses, and he would not make us of such a constitution as to be liable to perpetual deception and unavoidable error in using these faculties of sense in the best manner we are capable of, about these very things which are the proper objects of them.

This may be proved also by the ill consequences that would follow from the supposition of the contrary. If we could have no certainty of the dictates of our senses, we could never be sure of any of the common affairs.

and occurrences of life. Men could not transact any of their civil or moral concerns with any certainty or justice: nor indeed could we eat or drink, walk or move with safety. Our senses direct us in all these.

Again, the matters of religion depend in some measure upon the certainty of the dictates of sense; for faith comes by hearing; and it is to our senses that God appeals in working miracles to prove his own revelation. Now, if when our eyes and ears, and other organs of sense, are rightly disposed and exercised about their proper objects, they were always liable to be deceived, there could be no knowledge of the gospel, no proof of divine revelation by visions, voices or miracles.

Our senses will discover things near us and round about us, which are necessary for our present state, with sufficient exactness, and things distant also, as far as they relate to our necessary use of them.

Nor is there need of any more accurate rules for the use of our senses in the judgment of all the common affairs of life, or even of miraculous and divine operations, than the vulgar part of mankind are sufficiently acquainted with by nature, and by their own daily observations.

But if we would express these rules in a more exact manner, how to judge by the dictates of our senses, they should be represented thus:

1. We must take care that the organs of our sense be rightly disposed, and not under the power of any distemper or considerable decay; as for instance, that our eyes are not tinctured with the jaundice, when we would judge of colours, lest we pronounce them all yellow: that our hands are not burning in a fever, or benumbed with frost or the palsy, when we would judge of the heat or coldness of any object; that our palate be not vitiated by any disease, or by some other improper taste, when we would judge of the true taste of any solid or liquid. This direction relates to all our senses, but the following rules chiefly refer to our sight.

2. We must observe whether the object be at a pro-

per distance, for if it be too near or too far off, our eyes will not sufficiently distinguish many things which are properly the objects of sight; and therefore, if possible, we must make nearer approaches to the object, or remove farther from it, till we have obtained that due distance which gives us the clearest perception.

3. We must not employ our sight to take a full survey at once of objects that are too large for it, but we must view them by parts, and then judge of the whole: Nor must our senses judge of objects too small; for some things which appear through glasses to be really and distinctly existent, are either utterly invisible, or greatly confused, when we would judge of them by the naked eye.

4. We must place ourselves in such a position toward the object, or place the object in such a position toward our eye, as may give us the clearest representation of it: for a different position greatly alters the appearance of the shape of bodies. And for this reason we should change the position both of the eye and the object in some cases, that by viewing the object in several appearances, we may pass a more complete and certain judgment concerning it.

5. We must consider what the medium is by which objects are represented to our senses; whether it be thinner or thicker; whether it be air or vapour, or water, or glass, &c.; whether it be duly enlightened or dusky; whether it reflect or refract, or only transmit the appearance of the object; and whether it be tinctured with any particular colour; whether it be moving or at rest.

6. We must sometimes use other helps to assist our senses; and if we make use of glasses, we must make all just allowances for the thickness or thinness of them, for the clearness or dulness, for the smoothness or roughness, for the plainness, the convexity or concavity of them, and for the distance at which these glasses are placed from the eye, or from the object, or from one another, if there be two or more glasses used, and all this according to the rules of art. The same sort of

caution should be used also in mediums which assist the hearing, such as speaking-trumpets, hearing-trumpets, &c.

7. If the object may be proposed to more senses than one, let us call in the assistance of some other senses to examine it, and this will increase the evidence of what one sense dictates. For example, our ear may assist our eye in judging of the distance of bodies, which are both visible and sonorous, as an exploded cannon, or a cloud charged with thunder. Our feeling may assist our sight in judging of the kind, the shape, situation, or distance of bodies that are nearer at hand, as whether a garment be silk or stuff, &c. So if I both see, hear, and embrace my friend, I am sure he is present.

8. We should also make several trials, at some distant times, and in different circumstances, comparing former experiments with later, and our own observations with those of other persons.

It is by such methods as these that modern philosophy has been so greatly improved by the use of sensible experiments.

SECT. II.—*Principles and Rules of Judgment in Matters of Reason and Speculation.*

It is by reason we judge both in matters of speculation and practice; there are peculiar rules which relate to things practical, whether they be matters of religion, morality, or prudence, yet many things in this section may be applied to practical inquiries and matters of faith, though it chiefly relates to knowledge or speculations of reason.

1. Whatsoever clear ideas we can join together without inconsistency, and to be counted possible, because almighty power can make whatsoever we can conceive.
2. From the mere possibility of a thing we cannot infer its actual existence: nor from the non-existence of it can we infer its impossibility.

Note, The idea of God seems to claim an exemption from this general rule; for if he be possible, he certainly exists, because the very idea includes eternity, and he cannot begin to be: if he exist not, he is impossible, for the very same reason.

3. Whatsoever is evidently contained in the idea of any thing, may be affirmed of that thing with certainty. Reason is contained in the idea of a man; and existence is contained in the idea of God; and therefore we may affirm God exists, and man is reasonable.

4. It is impossible that the same thing should be, and not be at the same time, and in the same respect. Thence it follows, that two contradictory ideas cannot be joined in the same part of the same subject, at the same time, and in the same respects; or, that two contradictory propositions can never be both true.

5. The more we converse with any subject in its various properties, the better knowledge of it we are likely to attain; and by frequent and repeated inquiries and experiments, reasonings and conversations about it, we confirm our true judgments of that thing, and correct our former mistakes.

6. Yet after our utmost inquiries, we can never be assured by reason, that we know all the powers and properties of any finite being.

7. If finite beings are not adequately known by us, much less the things which are infinite: for it is of the nature of a finite mind not to be able to comprehend what is infinite.

8. We may judge and argue very justly and certainly concerning infinities, in some parts of them, or so far as our ideas reach, though the infinity of them hath something incomprehensible in it. And this is built on the general rule following, viz.

9. Whatsoever is sufficiently clear and evident ought not to be denied, though there are other things belonging to the same subject, which cannot be comprehended. I may affirm many things with certainty concerning human souls, their union with bodies concerning the divisibility of matter, and the attributes of God, though many things relating to them are darkness to us.

10. If any opinion proposed has either no arguments, or equal arguments for and against it, we must remain in perfect suspense about it, till convincing evidence appear on one side.

11. Where present necessity of action does not constrain us to determine, we should not immediately yield up our assent to more probable arguments, without a due reserve, if we have any reasonable hope of obtaining greater light and evidence on one side or the other : for when the balance of the judgment once resigns its equilibrium or neutrality to a more probable argument, it is too ready to settle itself on that side, so that the mind will not easily change that judgment, though bright and strong evidence appear afterwards on the other side.

12. Of two opinions, if one has unanswerable difficulties attending it, we must not reject it immediately till we examine whether the contrary opinion has not difficulties as unanswerable.

13. If each opinion has objections against it, which we cannot answer, or reconcile, we should rather embrace that which has the least difficulties in it, and which has the best arguments to support it : and let our assent bear proportion to the superior evidence.

14. If any doctrine hath very strong and sufficient light and evidence to command our assent, we should not reject it, because there is an objection or two against it, which we are not able to answer ; for upon this foot a common Christian would be baffled out of every article of his faith, and must renounce even the dictates of his reason and his senses ; and the most learned man perhaps would hold but very few of them fast ; for some objections which attend the sacred doctrine of the eternity and the omnipresence of God, and the philosophical doctrines of light, atoms, space, motion, &c. are hardly solvable to this day.

15. Where two extremes are proposed, either in matters of speculation or practice, and neither of them has certain and convincing evidence, it is generally the safest to take the middle way. Moderation is more

likely to come near the truth than doubtful extremes. This is an excellent rule to judge of the characters and value of the greatest part of persons and things; for nature seldom deals in superlatives. It is a good rule also by which to form our judgment in many speculative controversies; a reconciling medium in such cases does often best secure truth as well as peace.

16. When two different propositions have each a very strong and cogent evidence, and do not plainly appear inconsistent, we may believe both of them, though we cannot at present see the way to reconcile them. Reason, as well as our own consciousness, assures us, that the will of man is free, and that multitudes of human actions are in that respect contingent; and yet reason and scripture assure us, that God foreknows them all, and this implies a certain fatality. Now, though learned men have not to this day hit on any so clear and happy method as is desired to reconcile these propositions; yet since we do not see a plain inconsistency in them, we justly believe them both, because their evidence is great.

17. Let us not therefore too suddenly determine in difficult matters, that two things are utterly inconsistent: for there are many propositions which may appear inconsistent at first, and yet afterwards we find their consistency, and the way of reconciling them may be made plain and easy: as also, there are other propositions which may appear consistent at first, but after due examination we find their inconsistency.

18. For the same reason we should not call those difficulties utterly insolvable, or those objections unanswerable, which we are not presently able to answer: time and diligence may give farther light.

19. In short, if we will secure ourselves from error, we should not be too frequent or hasty in asserting the certain consistency or inconsistency, the absolute universality, necessity or impossibility of things, where there is not the brightest evidence. He is but a young and raw philosopher, who, when he sees two particular ideas evidently agree, immediately asserts them to agree uni-

versally, to agree necessarily, and that it is impossible it should be otherwise: or when he sees evidently that two particular ideas happen to disagree, he presently asserts their constant and natural inconsistency, their utter impossibility of agreement, and calls every thing contrary to his opinion absurdity and nonsense. A true philosopher will affirm or deny with much caution or modesty, unless he has thoroughly examined, and found the evidence of every part of his assertion exceeding plain.

20. Let us have a care of building our assurance of any important point of doctrine upon one single argument, if there are more to be obtained. We should not slight and reject all other arguments which support the same doctrine, lest if our favourite argument should be refuted, and fail us, we should be tempted to abandon that important principle of truth. I think this was a very culpable practice in Descartes, and some of his followers, who, when he had found out the argument for the existence of God, derived from the idea of a most perfect and self-existent being, he seemed to despise and abandon all other arguments against atheism.

21. If we happen to have our chief arguments for any opinion refuted, we should not immediately give up the opinion itself; for perhaps it may be a truth still, and we may find it to be justly supported by other arguments, which we might once think weaker, or perhaps by new arguments which we knew not before.

22. We ought to esteem that to be sufficient evidence of a proposition, where both the kind and the force of the arguments or proofs are as great as the nature of the thing admits, and as the necessity or exigencies of the case requires. So if we have a credible and certain testimony that Christ rose from the dead, it is enough; we are not to expect mathematical or ocular demonstration for it, at least in our day.

23. Though we should seek what proofs may be attained of any proposition, and we should receive any number of arguments which are just and evident for the confirmation of the same truth; yet we must not judge

of the truth of any proposition by the number of arguments which are brought to support it, but by the strength and weight of them: a building will stand firmer and longer on four large pillars of marble, than on ten of sand, or earth, or timber.

24. Yet where certain evidence is not to be found or expected, a considerable number of probable arguments carry great weight with them, even in matters of speculation. That is a probable hypothesis in philosophy or in theology, which goes farthest towards the solution of many difficult questions arising on any subject.

SECT. III.—*Principles and rules of Judgment in Matters of Morality and Religion.*

Here it may be proper, in the first place, to mention a few definitions of words or terms.

By matters of morality and religion I mean those things which relate to our duty to God, ourselves, or our fellow-creatures.

Moral good, or virtue, or holiness, is an action or temper conformable to the rule of our duty. Moral evil, or vice, or sin, is an action or temper unconformable to the rule of our duty, or a neglect to fulfil it.

Note. The words vice or virtue chiefly imply the relation of our actions to men and this world: sin and holiness rather imply their relation to God and the other world.

Natural good is that which gives us pleasure or satisfaction. Natural evil is that which gives us pain or grief.

Happiness consists in the attainment of the highest and most lasting natural good. Misery consists in suffering the highest and most lasting natural evil; that is, in short, heaven or hell.

Though this be a just account of perfect happiness and perfect misery, yet whatsoever pain overbalances

pleasure, there is a degree of misery ; and whatsoever pleasure overbalances pain, there is a degree of happiness.

I proceed now to lay down some principles and rules of judgment in matters of morality and religion.

1. The will of our Maker, whether discovered by reason or revelation, carries the highest authority with it, and is therefore the highest rule of duty to intelligent creatures ; a conformity or non-conformity to it determines their actions to be morally good or evil.

2. Whatsoever is really an immediate duty towards ourselves, or towards our fellow-creatures, is more remotely a duty to God ; and therefore in the practice of it we should have an eye to the will of God as our rule, and to his glory as our end.

3. Our wise and gracious Creator has closely united our duty and our happiness together ; and has connected sin, or vice, and punishment ; that is, he has ordained that the highest natural good and evil should have a close connection with moral good and evil, and that both in the nature of things, and by his own positive appointment.

4. Conscience should seek all due information in order to determine what is duty, and what is sin, because happiness and misery depend upon it.

5. On this account, our inclination to present temporal good, and our aversion to present temporal evil, must be wisely overbalanced by the consideration of future and eternal good or evil, that is, happiness or misery. And for this reason we should not omit a duty, or commit a sin, to gain any temporal good, or to avoid any temporal evil.

6. Though our natural reason in a state of innocence might be sufficient to find out those duties which were necessary for an innocent creature, in order to abide in the favour of his Maker, yet in a fallen state our natural reason is by no means sufficient to find out all that is necessary to restore a sinful creature to the divine favour.

7. Therefore God has condescended in various ages

of mankind to reveal to sinful men what he requires of them in order to their restoration, and has appointed in his word some peculiar matters of faith and practice, in order to their salvation. This is called revealed religion, as the things knowable concerning God, and our duty by the light of nature are called natural religion.

8. There are also many parts of morality, and natural religion, or many natural duties relating to God, to ourselves, and to our neighbours, which would be exceeding difficult and tedious for the bulk of mankind to find out and determine by natural reason; therefore it has pleased God, in this sacred book of divine revelation, to express the most necessary duties of this kind in a very plain and easy manner, and make them intelligible to souls of the lowest capacity; or they may be very easily derived thence by the use of reason.

9. As there are some duties much more necessary and more important than others are, so every duty requires our application to understand and practise it in proportion to its necessity and importance.

10. Where two duties seem to stand in opposition to each other, and we cannot practise both, the less must give way to the greater, and the omission of the less is not sinful. So ceremonial laws give way to moral: God will have mercy and not sacrifice.

11. In duties of natural religion, we may judge of the different degrees of their necessity and importance by reason, according to their greater or more apparent tendency to the honour of God, and the good of men: but in matters of revealed religion, it is only divine revelation can certainly inform us what is most necessary and most important; yet we may be assisted also in that search by the exercises of reason.

12. In actions wherein there may be some scruple about the duty or lawfulness of them, we should choose always the safest side, and abstain as far as we can from the practice of things whose lawfulness we suspect.

13. Points of the greatest importance in human life, or in religion, are generally the most evident, both in

the nature of things, and in the word of God; and where points of faith or practice are exceeding difficult to find out, they cannot be exceeding important. This proposition may be proved by the goodness and faithfulness of God, as well as by experience and observation.

14. In some of the outward practices and forms of religion, as well as human affairs, there is frequently a present necessity of speedy action one way or other: in such a case, having surveyed arguments on both sides, as far as our time and circumstances admit, we must guide our practice by those reasons which appear most probable, and seem at that time to overbalance the rest, yet always reserving room to admit farther light and evidence, when such occurrences return again. It is a preponderation of circumstantial arguments that must determine our actions in a thousand occurrences.

15. We may also determine upon the probable arguments where the matter is of small consequence, and would not answer the trouble of seeking after certainty. Life and time are more precious than to have a large share of them laid out in scrupulous inquiries, whether smoking tobacco, or wearing a periwig be lawful or no.

16. In affairs of greater importance, and which may have a long, lasting, and extensive influence on our future conduct or happiness, we should not take up with probabilities, if certainty may be attained. Where there is any doubt on the mind, in such cases we should call in the assistance of all manner of circumstances, reasons, motives, consequences on all sides: we must wait longer, and with earnest request seek human and divine advice before we fully determine our judgment and our practice, according to the Roman sentence, *Quod statuendum est semel deliberandum est diu.* We should be long in considering what we must determine once for all.

SECT. IV.—*Principles and Rules of Judgment in Matters of human Prudence.*

THE great design of prudence, as distinct from morality and religion, is to determine and manage every affair with decency, and to the best advantage.

This is decent, which is agreeable to our state, condition, or circumstances, whether it be in behaviour, discourse, or action.

That is advantageous, which attains the most and best purposes, and avoids the most and greatest inconveniencies.

As there is infinite variety in the circumstances of persons, things, actions, times and places, so we must be furnished with such general rules as are accommodable to all this variety by a wise judgment and discretion: for what is an act of consummate prudence in some times, places and circumstances, would be consummate folly in others. Now these rules may be ranged in the following manner.

1. Our regard to persons or things shall be governed by the degrees of concernment we have with them, the relation we have to them, or the expectations we have from them. These should be the measures by which we should proportion our diligence and application in any thing that relates to them.

2. We should always consider whether the thing we pursue be attainable; whether it be worthy our pursuit; whether it be worthy the degree of pursuit; whether it be worthy of the means used in order to attain it. This rule is necessary both in matters of knowledge and matters of practice.

3. When the advantages and disadvantages, conveniencies and inconveniencies of any action are balanced together, we must finally determine on that side which has the superior weight; and the sooner in things

which are necessarily and speedily to be done or determined.

4. If advantages and disadvantages in their own nature are equal, then those which are most certain or likely as to the event, should turn the scale of our judgment, and determine our practice.

5. Where the improbabilities of success or advantage are greater than the probabilities, it is not prudence to act or venture. It is proper to inquire whether this be not the case in almost all lotteries; for they that hold stakes will certainly secure part to themselves; and only the remainder being divided into prizes must render the improbability of gain to each adventurer greater than the probability.

6. We should not despise or neglect any real advantage, and abandon the pursuit of it, though we cannot attain all the advantages that we desire. This would be to act like children, who are fond of something which strikes their fancy most, and sullen and regardless of every thing else, if they are not humoured in that fancy.

7. Though a general knowledge of things be useful in science and in human life, yet we should content ourselves with a more superficial knowledge of those things which have the least relation to our chief end and design.

8. This rule holds good also in matters of business and practice, as well as in matters of knowledge; and therefore we should not grasp at every thing, lest in the end we attain nothing. Persons that either by an inconstancy of temper, or by a vain ambition, will pursue every sort of art and science, study and business, seldom grow excellent in any one of them: and projectors who form twenty schemes, seldom use sufficient application to finish one of them, or make it turn to good account.

9. Take heed of delaying and trifling amongst the means instead of reaching at the end. Take heed of wasting a life in mere speculative studies, which is called to action and employment: dwell not too long in

philosophical, mathematical, or grammatical parts of learning, when your chief design is law, physic, or divinity. Do not spend the day in gathering flowers by the way side, lest night come upon you before you arrive at your journey's end, and then you will not teach it.

10. When the case and circumstances of wise and good men resemble our case and circumstances, we may borrow a great deal of instruction towards our prudent conduct from their example, as well as in all cases we may learn much from their conversation and advice.

11. After all other rules remember this, that mere speculation in matters of human prudence can never be a perfect director without experience and observation. We may be content therefore in our younger years to commit some unavoidable mistakes in point of prudence, and we shall see mistakes enough in the conduct of others, both which ought to be treasured up among our useful observations, in order to teach us better judgment for time to come. Sometimes the mistakes, imprudences and follies, which ourselves or others have been guilty of, give us brighter and more effectual lessons of prudence, than the wisest counsels, and the fairest examples could ever have done.

SECT. V.—*Principles and Rules of Judgment in Matters of human Testimony.*

THE evidence of human testimony is not so proper to lead us into the knowledge of the essence and inward nature of things, as to acquaint us with the existence of things, and to inform us of matters of fact both past and present. And though there be a great deal of infallibility in the testimony of men, yet there are some things we may be almost as certain of, as that the sun shines, or that five twenties make a hundred. Who is there at London that knows any thing of the world, but believes that there is such a city as Paris in France;

that the Pope dwells at Rome; that Julius Cæsar was an emperor; or that Luther had a great hand in the reformation?

If we observe the following rules, we may arrive at such a certainty in many things of human testimony, as that it is morally impossible we should be deceived, that is, we may obtain a moral certainty.

1. Let us consider whether the thing reported be in itself possible; if not, it can never be credible, whosoever relates it.

2. Consider farther whether it be probable, whether there are any concurring circumstances to prove it, besides the mere testimony of the person that relates it. I confess, if these last conditions are wanting, the thing may be true, but then it ought to have the stronger testimony to support it.

3. Consider whether the person who relates it be capable of knowing the truth; whether he be a skilful judge in such matters, if it be a business of art, and a nice appearance in nature, or some curious experiment in philosophy. But if it be a mere occurrence in life, a plain, sensible matter of fact, it is enough to inquire whether he who relates it were an eye or ear witness, or whether he himself had it only by hearsay, or can trace it up to the original.

4. Consider whether the narrator be honest and faithful, as well as skilful; whether he hath no bias upon his mind; no peculiar gain or profit by believing or reporting it, no interest or principle which might warp his own belief aside from truth, or which might tempt him to prevaricate, to speak falsely, or to give a representation a little different from the naked truth of things. In short, whether there be no occasion of suspicion concerning his report.

5. Consider whether several persons agree together in the report of this matter; and if so, then whether those persons who joined together in their testimony might not be supposed to combine together in a falsehood. Whether they are persons of sufficient skill, probity and credit. It might be also inquired, whether they

philosophical, mathematical, or grammatical parts of learning, when your chief design is law, physic, or divinity. Do not spend the day in gathering flowers by the way side, lest night come upon you before you arrive at your journey's end, and then you will not teach it.

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5. Consider whether several persons agree together in the report of this matter; and if so, then whether those persons who joined together in their testimony might not be supposed to combine together in a falsehood: Whether they are persons of sufficient skill, probity and credit. It might be also inquired, whether they

are of different nations, sects, parties, opinions, or interests. For the more divided they are in all these, the more likely is their report to be true, if they agree together in their account of the same thing; and especially if they persist in it without wavering.

6. Consider farther, whether the report were capable of being easily refuted at first if it had not been true; if so, this confirms the testimony.

7. Inquire yet again, whether there has been a constant, uniform tradition and belief of this matter from the very first age or time when the thing was transacted, without any reasonable doubts or contradictions.

Or,

8. If any part of it hath been doubted by any considerable persons, whether it has been searched out and afterwards confirmed, by having all the scruples and doubts removed. In either of these cases the testimony becomes more firm and credible.

9. Inquire on the other hand, whether there are any considerable objections remaining against the belief of that proposition so attested. Whether there be any thing very improbable in the thing itself. Whether any concurrent circumstances seem to oppose it. Whether any person or persons give a positive and plain testimony against it. Whether they are equally skilful, and equally faithful as those who assert it. Whether there be as many or more in number; and whether they might have any secret bias or influence on them to contradict it.

10. Sometimes the entire silence of a thing may have something of weight towards the decision of a doubtful point of history, or a matter of human faith, viz. where the fact is pretended to be public, if the persons who are silent about it were skilful to observe, and could not but know such an occurrence; if they were engaged by principle or by interest to have declared it: if they had fair opportunity to speak of it: and these things may tend to make the matter suspicious, if it be not very well attested by positive proof.

11. Remember that in some reports there are more

marks of falsehood than of truth, and in others there are more marks of truth than falsehood. By a comparison of all these things together, and putting every argument on one side and the other into the balance, we must form as good a judgment as we can which side preponderates; and give a strong or feeble assent or dissent, or withhold our judgments entirely, according to greater or lesser evidence, according to more plain or dubious marks of truth or falsehood.

12. *Observe*, that in matters of human testimony there is oftentimes a great mixture of truth and falsehood in the report itself: some parts of the story may be perfectly true, and some utterly false; and some may have such a blended confusion of circumstances which are a little warped aside from the truth, and misrepresented, that there is need of good skill and accuracy to form a judgment concerning them, and determine which part is true, and which is false. The whole report is not to be believed, because some parts are indubitably true, nor the whole to be rejected, because some parts are as evident falsehoods.

We may draw two remarkable observations from this section.

Observ. I. How certain is the truth of the Christian religion, and particularly of the resurrection of Christ, which is a matter of fact on which Christianity is built. We have almost all the concurrent evidences that can be derived from human testimony, joining to confirm this glorious truth. The fact is not impossible; concurrent circumstances cast a favourable aspect on it; it was foretold by one who wrought miracles, and therefore not unlikely, nor unexpected: the apostles and first disciples were eye and ear witnesses, for they conversed with their risen Lord; they were the most plain, honest men in themselves; the temptations of worldly interests did rather discourage their belief and report of it; they all agreed in this matter, though they were men of different characters; Pharisees and fishermen, and publicans, men of Judea and Galilee, and perhaps Heathens, who were early converted: the thing might easily

have been disproved, if it were false : it hath been conveyed by constant tradition and writing down to our times ; those who at first doubted were afterwards convinced by certain proofs ; nor have any pretended to give any proof of the contrary, but merely denied the fact with impudence in opposition to all these evidences.

Observ. II. How weak is the faith which is due to a multitude of things in ancient human history ! For though many of these *criteria*, or marks of credibility, are found plainly in the more general and public facts, yet as to a multitude of particular facts and circumstances, how deficient are they in such evidence as should demand our assent ! Perhaps there is nothing that ever was done in all past ages, and which was not a public fact, so well attested as the resurrection of Christ.

SECT. VI.—*Principles and Rules of Judgment in Matters of divine Testimony.*

As human testimony acquaints us with matters of fact, both past and present, which lie beyond the reach of our own personal notice ; so divine testimony is suited to inform us both of the nature of things, as well as matters of fact, and of things future, as well as present or past.

Whatsoever is dictated to us by God himself, or by men who are divinely inspired, must be believed with full assurance. Reason demands us to believe whatsoever divine revelation dictates : for God is perfectly wise, and cannot be deceived ; he is faithful and good, and will not deceive his creatures : and when reason has found out the certain marks or credentials of divine testimony to belong to any proposition, there remains then no farther inquiry to be made, but only to find out the true sense and meaning of that which God has revealed, for reason itself demands the belief of it.

Now divine testimony or revelation requires these following credentials.

1. That the propositions or doctrines revealed be not inconsistent with reason; for intelligent creatures can never be bound to believe real inconsistencies. Therefore we are sure the Popish doctrine of transubstantiation is not a matter of divine revelation, because it is contrary to all our senses and our reason even in their proper exercises.

God can dictate nothing but what is worthy of himself, and agreeable to his own nature and divine perfections. Now many of these perfections are discovered by the light of reason, and whatsoever is inconsistent with these perfections cannot be a divine revelation.

But let it be noted, that in matters of practice towards our fellow-creatures, God may command us to act in a manner contrary to what reason would direct antecedent to that command. So Abraham was commanded to offer up his son a sacrifice: the Israelites were ordered to borrow of the Egyptians without paying them, and to plunder and slay the inhabitants of Canaan: because God has a sovereign right to all things, and can with equity dispossess his creatures of life, and every thing which he has given them, and especially such sinful creatures as mankind; and he can appoint whom he pleases to be the instruments of this just dispossession or deprivation. So that these divine commands are not really inconsistent with right reason: for whatsoever is so, cannot be believed where that inconsistency appears.

2. Upon the same account the whole doctrine of revelation must be consistent with itself; every part of it must be consistent with each other; and though in points of practice latter revelation may repeal or cancel former divine laws, yet in matters of belief no latter revelation can be inconsistent with what has been heretofore revealed.

3. Divine revelation must be confirmed by some divine and supernatural appearances, some extraordinary signs or tokens, visions, voices, or miracles wrought, or prophecies fulfilled. There must be some demonstrations of the presence and power of God, superior to all

the powers of nature, or the settled connection which God, as creator, has established among his creatures in this visible world.

4. If there are any such extraordinary and wonderful appearances and operations brought to contest with, or to oppose divine revelation, there must, and always will be such a superiority on the side of that revelation which is truly divine, as to manifest that God is there. This was the cause when the Egyptian sorcerers contended with Moses. But the wonders which Moses wrought did so far transcend the power of the magicians, as made them confess, It was the finger of God.

5. These divine appearances or attestations to revelation must be either known to ourselves, by our own personal observation of them, or they must be sufficiently attested by others, according to the principles and rules by which matters of human faith are to be judged in the foregoing section.

Some of those, who lived in the nations and ages where miracles were wrought, were eye and ear witnesses of the truth and divinity of the revelation; but we, who live in these distant ages, must have them derived down to us by just and incontestable history and tradition. We also, even in these distant times, may see the accomplishments of some ancient predictions, and thereby obtain that advantage towards the confirmation of our faith in divine revelation beyond what those persons enjoyed who lived when the predictions were pronounced.

6. There is another very considerable confirmation of divine testimony: and that is, when the doctrines themselves, either on the publication or the belief of them, produced supernatural effects. Such were the miraculous powers which were communicated to believers in the first ages of Christianity, the conversion of the Jews or Gentiles, the amazing success of the gospel of Christ without human aid, its power in changing the hearts and lives of ignorant and vicious Heathens, and wicked and profane creatures in all nations, and filling them with a spirit of virtue, piety, and goodness.

Wheresoever persons have found this effect in their own hearts, wrought by a belief of the gospel of Christ, they have a witness in themselves of the truth of it, and abundant reason to believe it divine.

Of the difference between reason and revelation, and in what sense the latter is superior, see more in Chap. II. Sect. 9. and Chap. IV. Direct. 6.

SECT. VII.—*Principles and Rules of Judging concerning Things past, present, and to come, by the mere Use of Reason.*

THOUGH we attain the greatest assurance of things past and future by divine faith, and learn many matters of fact, both past and present, by human faith, yet reason also may, in a good degree, assist us to judge of matters of fact both past, present, and to come, by the following principles.

1. There is a system of beings round about us, of which we ourselves are a part, which we call the world; and in this world there is a course of nature, or a settled order of causes, effects, antecedents, concomitants, consequences, &c. from which the author of nature doth not vary but upon very important occasions.

Where antecedents, concomitants and consequences, causes and effects, signs and things signified, subjects and adjuncts, are necessarily connected with each other, we may infer the causes from the effects, and the effects from causes, the antecedents from the consequences, as well as consequences from antecedents, &c. and thereby be pretty certain of many things both past, present, and to come. It is by this principle, that astronomers can tell what day and hour the sun and moon were eclipsed five hundred years ago, and predict all future eclipses as long as the world shall stand. They can tell precisely at what minute the sun rises or sets this day at Pekin in China, or what attitude the dog-star had

at midnight or midnoon in Rome, on the day when Julius Cæsar was slain. Gardeners, upon the same principle, can foretel the months, when every plant will be in bloom, and the ploughman knows the weeks of harvest : we are sure, if there be a chicken, there was an egg : if there be a rainbow, we are certain it rains not far off : if we behold a tree growing on the earth, we know it has naturally a root under ground :

3. Where there is a necessary connection between causes and effects, antecedents and consequences, signs and things signified, we know also, that like causes will have like effects, and proportionable causes will have proportionable effects, contrary causes will have contrary effects ; and observing men may form many judgments by the rules of similitude and proportion, where the causes, effects, &c. are not entirely the same.

4. Where there is but a probable and uncertain connection between antecedents, concomitants, and consequences, we can give but a conjecture, or a probable determination. If the clouds gather, or the weather-glass sinks, we suppose it will rain : if a man spit blood frequently with coughing, we suppose his lungs are hurt : if very dangerous symptoms appear, we expect his death.

5. Where causes operate freely, with a liberty of indifference to this or the contrary, there we cannot certainly know what the effects will be : for it seems to be contingent, and the certain knowledge of it belongs only to God. This is the case in the greatest part of human actions.

6. Yet wise men, by a just observation of human nature, will give very probable conjectures in this matter, also concerning things past, or things future, because human nature in all ages and nations has such a conformity to itself. By a knowledge of the tempers of men and their present circumstances, we may be able to give a happy guess what their conduct will be, and what will be the event, by an observation of the like cases in former times. This made the emperor Marcus Antoninus to say, " By looking back into history,

and considering the fate and revolutions of governments, you will be able to form a guess, and almost prophecy upon the future. For things past, present, and to come, are strangely uniform, and of a colour; and are commonly cast in the same mould. So that upon the matter, forty years of human life may serve for a sample of ten thousand." Collier's Antoninus, Book VII. Sect. 50.

7. There are also some other principles of judging concerning the past actions of men in former ages, besides books, histories and traditions, which are mediums of conveying human testimony; as we may infer the skill and magnificence of the ancients, by some fragments of their statues, and ruins of their buildings. We know what Roman legions came into Great Britain by numbers of bricks dug out of the earth in some parts of the island, with the marks of some particular legion upon them, which must have been employed there in brick-making. We rectify some mistakes in history by statues, coins, old altars, utensils of war, &c. We confirm or disprove some pretended traditions and historical writings, by medals, images, pictures, urns, &c.

Thus I have gone through all those particular objects of our judgment which I first proposed, and have laid down principles and rules by which we may safely conduct ourselves therein. There is a variety of other objects concerning which we are occasionally called to pass a judgment, viz. The characters of persons, the value and worth of things, the sense and meaning of particular writers, matters of wit, oratory, poesy, matters of equity in judicial courts, matters of traffic and commerce between man and man, which would be endless to enumerate. But if the general and special rules of judgment which have been mentioned in these two last chapters are treasured up in the mind, and wrought into the very temper of our souls in our younger years, they will lay a foundation for just and regular judgment concerning a thousand special occurrences in the religious, civil and learned life.

THE
THIRD PART
OF
LOGIC.

OF REASON AND SYLLOGISM.

AS the first work of the mind is perception, whereby our ideas are framed, and the second is judgment, which joins or disjoins our ideas, and forms a proposition, so the third operation of the mind is reasoning, which joins several propositions together; and makes a syllogism, that is, an argument whereby we are wont to infer some things that are less known, from truths which are more evident.

In treating of this subject, let us consider more particularly,

1. The nature of a syllogism, and the parts of which it is composed.
2. The several kinds of syllogisms, with particular rules relating to them.
3. The doctrine of syllogisms, of false reasonings, together with the means of avoiding them, and the manner of solving or answering them.
4. Some general rules to direct our reasoning.

CHAP. I.

OF THE NATURE OF A SYLLOGISM, AND THE PARTS OF WHICH IT IS COMPOSED.

If the mere perception and comparison of two ideas would shew us whether they agree or disagree; then

all rational propositions would be matters of intelligence, or first principles, and there would be no use of reasoning, or drawing any consequences. It is the narrowness of the human mind which introduces the necessity of reasoning. When we are unable to judge of the truth or falsehood of a proposition in an immediate manner, by the mere contemplation of its subject and predicate, we are thus constrained to use a medium, and to compare each of them with some third idea, that by seeing how far they agree or disagree with it, we may be able to judge how far they agree or disagree among themselves: as, if there are two lines A and B, and I know not whether they are equal or no, I take a third line C, or an inch, and apply it to each of them; if it agree with them both, then I infer that A and B are equal; but if it agree with one, and not with the other, then I include A and B are unequal: if it agree with neither of them, there can be no comparison.

So if the question be, whether God must be worshipped, we seek a third idea, suppose the idea of a Creator, and say,

Our Creator must be worshipped.

God is our Creator.

Therefore God must be worshipped.

The comparison of this third idea, with the two distinct parts of the question, usually requires two propositions, which are called the premises: the third proposition, which is drawn from them, is the conclusion, wherein the question itself is answered, and the subject and predicate joined either in the negative or the affirmative.

The foundation of all affirmative conclusions is laid in this general truth, and so far as two proposed ideas agree to any third idea, they agree also among themselves. The character of a creator agrees to God, and worship agrees to a creator, therefore worship agrees to God.

The foundation of all negative conclusions is this, that where one of the two proposed ideas agree with a third idea, and the other disagrees with it, they must

needs disagree so far also with one another; as, if no sinners are happy, and if angels are happy, then angels are not sinners.

Thus it appears what is the strict and just notion of a syllogism: it is a sentence or argument made up of three propositions so disposed, as that the last is necessarily inferred from those which go before, as in the instances which have been just mentioned.

In the constitution of a syllogism, two things may be considered, viz. the matter and the form of it.

The matter of which a syllogism is made up, is three propositions; and these three propositions are made up of three ideas, or terms variously joined. The three terms are called the remote matter of a syllogism; and the three propositions the *proxime* or immediate matter of it.

The three terms are named the major, the minor, and the middle.

The predicate of the conclusion is called the major term, because it is generally of a larger extension than the minor term, or the subject. The major and minor terms are called the extremes.

The middle term is the third idea invented and disposed in two propositions in such a manner as to shew the connection between the major and minor term in the conclusion; for which reason the middle term itself is sometimes called the argument.

The proposition which contains the predicate of the conclusion, connected with the middle term, is usually called the major proposition, whereas the minor proposition connects the middle term with the subject of the conclusion, and is sometimes called the assumption.

Note. This exact distinction of the several parts of a syllogism, and of the major and minor terms connected with the middle term, in the major and minor propositions, does chiefly belong to simple or categorical syllogisms, of which we shall speak in the next chapter, though all syllogisms whatsoever have something analogical to it.

Note farther, that the major proposition is generally

placed first, and the minor second, and the conclusion in the last place, where the syllogism is regularly composed and represented.

The form of a syllogism is the framing and disposing of the premises according to art, or just principles of reasoning, and the regular inference of the conclusion from them.

The art of reasoning, or inferring one thing from another, is generally expressed and known by the practice therefore, when the argument is formed according to the rules of art; though in common discourse or writing such actual particles as for, because, manifest the act of reasoning, as well as the illative particles then and therefore: and whereoever any of these words are used, there is a perfect syllogism expressed or implied, though perhaps the three propositions do not appear, or are not placed in regular form.

CHAP. II.

OF THE VARIOUS KINDS OF SYLLOGISMS, WITH PARTICULAR RULES RELATING TO THEM.

SYLLOGISMS are divided into various kinds, either according to the question which is proved by them, according to the nature and composition of them, or according to the middle term, which is used to prove the question.

SECT. I.—Of universal and particular Syllogisms, both negative and affirmative.

ACCORDING to the question which is to be proved, so syllogisms are divided into universal affirmative, universal negative, particular affirmative, and particular negative. This is often called a division of syllogisms:

drawn from the conclusions ; for so many sorts of conclusions there may be which are marked with the letter A, E, I, O.

In an universal affirmative syllogism, one idea is proved universally to agree with another, and may be universally affirmed of it, as every sin deserves death, every unlawful wish is a sin, therefore every unlawful wish deserves death.

In an universal negative syllogism, one idea is proved to disagree with another idea universally, and may be thus denied of it, as, no injustice can be pleasing to God ; all persecution for the sake of conscience is injustice ; therefore no persecution for conscience sake can be pleasing to God.

Particular affirmative, and particular negative syllogisms may be easily understood by what is said of universals, and there will be sufficient examples given of all these in the next section.

The general principle upon which these universal and particular syllogisms are founded is this ; whatsoever is affirmed or denied universally of any idea, may be affirmed or denied of all the particular kinds of beings which are contained in the extension of that universal idea. So the desert of death is affirmed universally of sin, and an unlawful wish is one particular kind of sin, which is contained in the universal idea of sin ; therefore the desert of death may be affirmed concerning an unlawful wish : and so of the rest.

Note, In the doctrine of syllogisms a singular and an indefinite proposition are ranked among universals, as was before observed in the doctrine of propositions.

SECT. II.—*Of plain, simple Syllogisms and their rules.*

THE next division of syllogisms is into single and compound. This is drawn from the nature and composition of them.

Single syllogisms are made up of three propositions :

compound syllogisms contain more than three propositions, and may be formed into two or more syllogisms.

Single syllogisms, for distinction's sake, may be divided into *simple, complex and conjunctive.

Those are properly called simple or categorical syllogisms, which are made up of three plain single, or categorical propositions, wherein the middle term is evidently and regularly joined with one part of the question in the major proposition, and with the other in the minor, whence there follows a plain single conclusion; as, every human virtue is to be sought with diligence; prudence is a human virtue; therefore prudence is to be sought diligently.

Note, Though the terms of propositions may be complex; yet where the composition of the whole argument is thus plain, simple, and regular, it is properly called a simple syllogism, since the complexion does not belong to the syllogistic form of it.

Simple syllogisms have several rules belonging to them, which being observed, will generally secure us from false inferences; but these rules being founded on four general axioms, it is necessary to mention these axioms beforehand, for the use of those who will enter into the speculative reason of all these rules.

Axiom 1. Particular propositions are contained in universals, and may be inferred from them; but universals are not contained in particulars, nor can be inferred from them.

Axiom 2. In all universal propositions, the subject is universal: in all particular propositions, the subject is particular.

Axiom 3. In all affirmative propositions, the predicate has no greater extension than the subject; for its extension is restrained by the subject, and therefore it is always to be esteemed as a particular idea. It is by mere accident, if it ever be taken universally, and cannot happen but in such universal or singular propositions as are reciprocal.

* As ideas and propositions are divided into single and compound, and single are subdivided into simple and complex; so there are the same divisions and sub-divisions applied to syllogisms.

Axiom 4. The predicate of a negative proposition is always taken universally, for in its whole extension it is denied of the subject. If we say no stone is vegetable, we deny all sorts of vegetation concerning stones.

The rules of simple, regular syllogisms are these.

Rule I. *The middle term must not be taken twice particularly, but once at least universally.* For if the middle term be taken for two different parts or kinds of the same universal idea, then the subject of the conclusion is compared with one of these parts, and the predicate with another part, and this will never shew whether that subject and predicate agree or disagree: there will then be four distinct terms in the syllogism, and the two parts of the question will not be compared with the same third idea; as if I say, some men are pious, and some men are robbers, I can never infer that some robbers are pious, for the middle term, men, being taken twice particularly, it is not the same men who are spoken of in the major and minor propositions.

Rule II. *The terms in the conclusion must never be taken more universally than they are in the premises.* The reason is derived from the first axiom, that generals can never be inferred from particulars.

Rule III. *A negative conclusion cannot be proved by two affirmative premises.* For when the two terms of the conclusions are united or agree to the middle term, it does not follow by any means that they disagree with one another.

Rule IV. *If one of the premises be negative, the conclusion must be negative.* For if the middle term be denied of either part of the conclusion, it may shew that the terms of the conclusion disagree, but it can never shew that they agree.

Rule V. *If either of the premises be particular, the conclusion must be particular.* This may be proved for the most part from the first axiom.

These two last rules are sometimes united in this single sentence. The conclusion always follows the weaker part of the premises. Now negatives and

particulars are counted inferior to affirmatives and universals.

Rule VI. *From two negative premises nothing can be concluded.* For they separate the middle term both from the subject and predicate of the conclusion, and when two ideas disagree to a third, we cannot infer that they either agree or disagree with each other.

Yet where the negation is a part of the middle term, the two premises may look like negatives according to the words, but one of them is affirmative in sense; as, what has no thought cannot reason; but a worm has no thought; therefore a worm cannot reason. The minor proposition does really affirm the middle term concerning the subject, viz. a worm is what has no thought; and thus it is properly in this syllogism an affirmative proposition.

Rule VII. *From two particular premises nothing can be concluded.* This rule depends chiefly on the first axiom.

A more laborious and accurate proof of these rules, and the derivation of every part of them in all possible cases, from the foregoing axioms, require so much time, and are of so little importance to assist the right use of reason, that it is needless to insist longer upon them here. See all this done ingeniously in the Logic, called the Art of Thinking, Part III. Chap. III. &c.

SECT. III.—*Of the Modes and Figures of simple Syllogisms.*

SIMPLE syllogisms are adorned and surrounded in the common books of Logic, with a variety of inventions about modes and figures, wherein, by the artificial contexture of the letters A, E, I, and O, men have endeavoured to transform Logic, or the Art of Reasoning, into a sort of mechanism; and to teach boys to syllogize, or frame arguments and refute them, without any real inward knowledge of the question. This

is almost in the same manner as school-boys have been taught perhaps in their trifling years to compose Latin verses; that is, by certain tables and squares, with a variety of letters in them, wherein by counting every sixth, seventh, or eighth letter, certain Latin words should be framed in the form of hexameters or pentameters; and this may be done by those who know nothing of Latin or verses.

I confess, some of these logical subtleties have much more use than those verifying tables, and there is much ingenuity discovered in determining the precise number of syllogisms that may be formed in every figure, and giving the reasons of them; yet the light of nature, a good judgment, and due consideration of things, tend more to true reasoning, than all the trappings of modes and figures.

But lest this book be charged with two great defects and imperfections, it may be proper to give short hints of that which some logicians have spent so much time and paper upon.

All the possible combinations of three of the letters, A, E, I, O, to make three propositions amount to sixty-four; but fifty-four of them are excluded from forming true syllogisms, by the seven rules in the foregoing section: the remaining ten are variously diversified by figures and modes into fourteen syllogisms.

The figure of a syllogism is the proper disposition of the middle term with the parts of the question.

A mode is the regular determination of propositions according to their quantity and quality, that is, their universal or particular affirmation or negation; which are signified by certain artificial words wherein the consonants are neglected, and these four vowels A, E, I, O, are only regarded.

There are generally counted three figures.

In the first of them the middle term is the subject of the major proposition, and the predicate of the minor. This contains four modes viz. *Barbara*, *Celarent*, *Darii*, *Ferio*. And it is the excellency of this figure that all sorts of questions or conclusions may be proved

by it, whether A, E, I, or O, that is, universal or particular, affirmative or negative, as,

Bar- Every wicked man is truly miserable ;
 ba- All tyrants are wicked men :
 ra. Therefore all tyrants are truly miserable.

Ce- He that is always in fear is not happy ;
 la- Covetous men are always in fear :
 rent. Therefore covetous men are not happy.

Da- Whatsoever furthers our salvation is good for us ;
 ri- Some afflictions further our salvation :
 i. Therefore some afflictions are good for us.

Fe- Nothing that must be repented of is truly desirable ;
 ri- Some pleasures must be repented of :
 o. Therefore there are some pleasures which are not truly desirable.

In the second figure the middle term is the predicate of both the premises ; this contains four modes, viz. Cesare, Camestres, Festino, Boroco, and it admits only of negative conclusions ; as,

Cæ- No liar is fit to be believed ;
 sa- Every good Christian is fit to be believed :
 re. Therefore no good Christian is a liar.

The reader may easily form examples of the rest.

The third figure requires that the middle term be the subject of both the premises. It hath six modes, viz. Darepti, Felapton, Disamis, Datisi, Bocardo, Ferison ; and it admits only of particular conclusions : as,

Da- Whosoever loves God shall be saved ;
 rep- All the lovers of God have their imperfections :
 ti. Therefore some who have imperfections shall be saved.

I leave the reader to form examples of the rest.

The modes of these three figures are comprised in four Latin verses.

*Barbara, Celarent, Darii, Ferio quoque prima,
 Cesare, Camestres, Festino, Baroco, secunde.
 Tertia Darepti sibi vendicat, atque Felapton.
 Adjungens Disamis, Datisi, Brocado, Ferison.*

The special rules of the three figures are these.

In the first figure the major proposition must always be universal, and the minor affirmative.

In the second figure also the major must be universal, and one of the premises, together with the conclusion, must be negative.

In the third figure the minor must be affirmative, and the conclusion always particular.

There is also a fourth figure, wherein the middle term is predicated in the major proposition, and subjected in the minor: but this is a very indirect manner of concluding, and is never used in the sciences, nor in human life, and therefore I call it useless.—Some logicians will allow it to be nothing else but a mere inversion of the first figure; the modes of it, viz. Baralipon or Barbari, Celantes, Dabitis, Fapismo, Ferison, are not worthy to be explained by one example.

SECT. IV.—*Of complex Syllogisms.*

IT is not the mere use of complex terms in a syllogism that gives it this name, though one of the terms is usually complex: but those are properly called complex syllogisms, in which the middle term is connected with the whole subject, or the whole predicate in two distinct propositions, but is intermingled and compared with them by parts, or in a more confused manner, in different forms of speech; as,

Y

The sun is a senseless being :

The Persians worshipped the sun :

Therefore the Persians worshipped a senseless being.

Here the predicate of the conclusion is worshipped, a senseless being, part of which is joined with the middle term, sun in the major proposition, and the other part in the minor.

Though this sort of argument is confessed to be entangled, or confused, and irregular, if examined by the rules of simple syllogisms ; yet there is a great variety of arguments used in books of learning, and in common life, whose consequence is strong and evident, and which must be ranked under this head ; as,

I. *Exclusive propositions* will form a complex argument ; as pious men are the only favourites of heaven ; true Christians are favourites of heaven : therefore true Christians are pious men. Or thus, hypocrites are not pious men ; therefore hypocrites are no favourites of heaven.

II. *Exceptive propositions* will make such complex syllogisms ; as, none but physicians came to the consultation ; the nurse is no physician ; therefore the nurse came not to the consultation.

III. Or, *comparative propositions* ; as, knowledge is better than riches ; virtue is better than knowledge : therefore virtue is better than riches. Or thus, a dove will fly a mile in a minute ; a swallow flies swifter than a dove ; therefore a swallow will fly more than a mile in a minute.

IV. Or *inceptive and disjunctive propositions* ; as, the fogs vanish as the sun rises : but the fogs have not yet begun to vanish : therefore the sun is not yet risen.

V. Or *modal propositions* ; as, it is necessary that a General understand the art of war : but Caius does not understand the art of war ; therefore it is necessary Caius should not be a General. Or thus, a total eclipse of the sun would cause darkness at noon ; it is possible that the moon at that time may totally eclipse the sun : therefore it is possible that the moon may cause darkness at noon.

Beside all there, there is a great number of complex syllogisms which can hardly be reduced under any particular titles, because the forms of human language are so exceeding various; as,

Christianity requires us to believe what the Apostles wrote: St Paul is an apostle: therefore Christianity requires us to believe what St Paul wrote.

No human artist can make an animal; a fly or a worm is an animal: therefore no human artist can make a fly or a worm.

The father always lived in London; the son always lived with the father: therefore the son always lived in London.

The blossom soon follows the full bud; this pear-tree hath many full buds: therefore it will shortly have many blossoms.

One hail-stone never falls alone; but a hail-stone fell just now; therefore others fell with it.

Thunder seldom comes without lightning; but it thundered yesterday: therefore probably it lightened also.

Moses wrote before the Trojan war; the first Greek historians wrote after the Trojan war: therefore the first Greek historians wrote after Moses*.

Now the force of all these arguments is so evident and conclusive, that though the form of the syllogism be never so irregular, yet we are sure the inferences are just and true; for the premises, according to the reason of things, do really contain the conclusion that is deduced from them, which is a never-failing test of true syllogisms, as shall be shewn hereafter.

The truth of most of these complex syllogisms may also be made to appear, if needful, by reducing them either to regular, simple syllogisms, or to some of the conjunctive syllogisms, which are described in the next

* Perhaps some of these syllogisms may be reduced to those which I call connexive afterwards; but it is of little moment to what species they belong; for it is not any formal set of rules, so much as the evidence and force of reason, that must determine the truth or falsehood of all such syllogisms.

section. I will give an instance only in the first, and leave the rest to exercise the ingenuity of the reader.

The first argument may be reduced to a syllogism in Barbara, thus,

The sun is a senseless being ;

What the Persians worshipped is the sun :

Therefore what the Persians worshipped is a senseless being. Though the conclusive force of this argument is evident without this reduction.

SECT. V.—Of conjunctive Syllogisms.

THOSE are called conjunctive syllogisms, wherein one of the premises, namely the major, has distinct parts, which are joined by a conjunction, or some such particle of speech. Most times the major or minor, or both, are explicitly compound propositions : and generally the major proposition is made up of two distinct parts or propositions, in such a manner, as that by the assertion of one in the minor, the other is either asserted or denied in the conclusion ; or by the denial of one in the minor, the other is either asserted or denied in the conclusion. It is hardly possible indeed to fit any short definition to include all the kinds of them ; but the chief amongst them are the conditional syllogism, the disjunctive, the relative, and the connexive.

I. The conditional or hypothetical syllogism is whose major, or minor, or both, are conditional propositions ; as, if there be a God, the world is governed by Providence ; but there is a God : therefore the world is governed by Providence.

The syllogisms admit two sorts of true argumentation, where the major is conditional.

1. When the antecedent is asserted in the minor, that the consequence may be asserted in the conclusion ; such is the preceding example. This is called arguing

from the position of the antecedent to the position of the consequent.

2. When the consequent is contradicted in the minor proposition, that the antecedent may be contradicted in the conclusion; as, if atheists are in the right, then the world exists without a cause; but the world does not exist without a cause; therefore atheists are not in the right. This is called arguing from the removing of the consequent to the removing of the antecedent.

To remove the antecedent or consequent here does not merely signify the denial of it, but the contradiction of it; for the mere denial of it by a contrary proposition will not make a true syllogism, as appears thus: if every creature be reasonable, every brute is reasonable; but no brute is reasonable; therefore no creature is reasonable. Whereas, if you say in the minor, but every brute is not reasonable; then it would follow truly in the conclusion: therefore every creature is not reasonable.

When the antecedent or consequent are negative propositions, they are removed by an affirmative; as, if there be no God, then the world does not discover creating wisdom; but the world does discover creating wisdom; therefore there is a God. In this instance the consequent is removed or contradicted in the minor, that the antecedent may be contradicted in the conclusion. So in the argument of St Paul, 1 Cor. xv: "If the dead rise not, Christ died in vain; but Christ did not die in vain: therefore the dead shall rise."

There are also two sorts of false arguing, viz. (1.) from the removing of the antecedent to the removing of the consequent; or, (2.) from the position of the consequent to the position of the antecedent. Examples of these are easily framed; as,

(1.) If a minister were a prince, he must be honoured; but a minister is not a prince:

Therefore he must not be honoured.

(2.) If a minister were a prince, he must be honoured; but a minister must be honoured:

Therefore he is a prince.

Who sees not the ridiculous falsehood of both these syllogisms ?

Observ. I. If the subject of the antecedent and the consequent be the same, then the hypothetical syllogism may be turned into a categorical one ; as, if Cæsar be a king, he must be honoured ; but Cæsar is a king ; therefore, &c. This may be changed thus ; every king must be honoured ; but Cæsar is a king : therefore, &c.

Observ. II. If the major proposition only be conditional, the conclusion is categorical ; but if the minor or both be conditional, the conclusion is also conditional ; as, the worshippers of images are idolaters ; if the Papists worship a crucifix, they are worshippers of an image : therefore, if the Papists worship a crucifix, they are idolaters. But this sort of syllogisms should be avoided as much as possible in disputation, because they greatly embarrass a cause : the syllogisms whose major only is hypothetical, are very frequent, and used with great advantage.

II. A disjunctive syllogism is when the major proposition is disjunctive ; as, the earth moves in a circle or an ellipsis ; but it does not move in a circle ; therefore it moves in an ellipsis.

A disjunctive syllogism may have many members or parts, thus ; it is either spring, summer, autumn, or winter ; but it is not spring, autumn, or winter ; therefore it is summer.

The true method of arguing here is from the assertion of one, to the denial of the rest, or from the denial of one or more, to the assertion of what remains ; but the major should be so framed that several parts of it cannot be true together, though one of them is evidently true.

III. A relative syllogism requires the major proposition to be relative ; as, where Christ is, there shall his

servants be ; but Christ is in heaven ; therefore his servants shall be there also. Or, as is the captain, so are his soldiers ; but the captain is a coward : therefore his soldiers are so too.

Arguments that relate to the doctrine of proportion, must be referred to this head ; as, as two are to four, so are three to six ; but two make the half of four : therefore three make the half of six.

Besides these, there is another sort of syllogisms which is very natural and common, and yet authors take very little notice of it, call it by an improper name, and describe it very defectively, and that is

IV. A connective syllogism. This some have called copulative ; but it does by no means require the major to be a copulative nor a compound proposition (according to the definition given of it, Part II. Chap. II. Sect. 6.) but it requires that two or more ideas be so connected either in the complex subject or predicate of the major, that if one of them be affirmed or denied in the minor, common sense will naturally shew us what will be the consequence. It would be very tedious and useless to frame particular rules about them, as will appear by the following examples, which are very various, and yet may be farther multiplied.

(1.) Meekness and humility always go together ; Moses was a man of meekness : therefore Moses was also humble. Or we may form this minor, Pharaoh was no humble man ; therefore he was not meek.

(2.) No man can serve God and Mammon ; the covetous man serves Mammon : therefore he cannot serve God. Or the minor may run thus, the true Christian serves God ; therefore he does not serve Mammon.

(3.) Genius must join with study to make a great man ; Florino has genius, but he cannot study : therefore Florino will never be a great man. Or thus, Quintus studies hard, but has no genius : therefore Quintus will never be a great man.

(4.) Gulo cannot make a dinner without flesh and

fish; there was no fish to be gotten to-day: therefore Gulo this day cannot make a dinner.

(5.) London and Paris are in different latitudes; the latitude of London is 51 deg. 1 half: therefore this cannot be the latitude of Paris.

(6.) Joseph and Benjamin had one mother; Rachel was the mother of Joseph: therefore she was Benjamin's mother too.

(7.) The father and the son are of equal stature; the father is six feet high: therefore the son is six feet also.

(8.) Pride is inconsistent with innocence; angels have innocence: therefore they have no pride. Or thus; devils have pride: therefore they have not innocence.

I might multiply other instances of these connexive syllogisms, by bringing in all sorts of exceptive, exclusive, comparative, and modal propositions into the composition of them; for all these may be wrought into conjunctive, as well as into simple syllogisms, and thereby we may render them complex. But it would waste time and paper without equal profit.

Concerning these various kinds of conjunctive syllogisms, take these two observations.

Observ. I. Most of them may be transformed into categorical syllogisms by those who have a mind to prove the truth of them that way; or they may be easily converted into each other by changing the forms of speech.

Observ. II. These conjunctive syllogisms are seldom deficient or faulty in the form of them; for such a deficiency would be discovered at the first glance generally by common reason, without any artificial rules of logic: the chief care therefore is to see that the major proposition be true, upon which the whole force of the argument usually depends.

SECT. VI.—*Of compound Syllogisms.*

WE properly call those compound syllogisms which are made of two or more single syllogisms, and may be resolved into them. The chief kinds are these, *Epichirema*, *Dilemma*, *Prosylogismus*, and *Sorites*.

I. *Epichirema* is a syllogism which contains the proof of the major or minor, or both, before it draws the conclusion. This is often used in writing, in public speeches, and in common conversation, that so each part of the discourse may be confirmed and put out of doubt, as it moves on towards the conclusion, which was chiefly designed. Take this instance ;

Sickness may be good for us ; for it weans us from the pleasure of life, and makes us think of dying ;

But we are uneasy under sickness, which appears by our impatience, complaints, groaning, &c.

Therefore we are uneasy sometimes under that which is good for us.

Another instance you may see in Cicero's oration in defence of Milo, who had slain Clodius. His major proposition is, that it is lawful for one man to kill another who lies in wait to kill him ; which he proves from the custom of nations, from natural equity, examples, &c. ; his minor is, that Clodius laid wait for Milo ; which he proves by his arms, guards, &c. and then infers the conclusion, that it was lawful for Milo to kill Clodius.

II. A *Dilemma* is an argument which divides the whole into all its parts or members by a disjunctive proposition, and then infers something concerning each part which is finally inferred concerning the whole. Instances of this are frequent ; as, in this life we must either obey our vicious inclinations or resist them ; to obey them will bring sin and sorrow, to resist them is laborious and painful : therefore we cannot be perfectly free from sorrow or pain in this life.

A *Dilemma* becomes faulty or ineffectual three ways ; first, when the members of the division are not well opposed, or not fully enumerated ; for then the major is false. Secondly, when what is asserted concerning each part is not just ; for then the minor is not true. Thirdly, when it may be retorted with equal force upon him who utters it.

There was a famous ancient instance of this case wherein a *Dilemma* was retorted. Euathlus promised Protagoras a reward when he had taught him the art of pleading, and it was to be paid the first day that he gained any cause in the court. After a considerable time Protagoras goes to law with Euathlus for the reward, and uses this *Dilemma* ; either the cause will go on my side, or on yours ; if the cause goes on my side, you must pay me according to the sentence of the judge : if the cause goes on your side, you must pay me according to your bargain ; therefore whether the cause goes for me or against me, you must pay me the reward. But Euathlus retorted this *Dilemma* thus : Either I shall gain the cause or lose it ; if I gain the cause, then nothing will be due to you, according to the sentence of the judge ; but if I lose the cause, nothing will be due to you according to my bargain ; therefore whether I gain or lose the cause, I will not pay you, for nothing will be due to you.

Note 1. A *Dilemma* is usually described as though it always proved the absurdity, inconvenience, or unreasonableness, of some opinion or practice ; and this is the most common design of it ; but it is plain, that it may also be used to prove the truth or advantage of any thing proposed ; as, in heaven we shall either have desires or not ; if we have no desires, then we have full satisfaction ; if we have desires, they shall be satisfied as fast as they arise : therefore in heaven we shall be completely satisfied.

Note 2. This sort of argument may be composed of three or four members, and may be called a *Trilemma*.

III. A *Prosyllogism* is when two or more syllogisms

are so connected together, that the conclusion of the former is the major or the minor of the following; as, blood cannot think; but the soul of man thinks; therefore the soul of man is not blood; but the soul of a brute is his blood, according to the scripture; therefore the soul of man is different from the soul of a brute. See another instance in the introduction to this treatise, p. 3.

IV. A *Sorites* is when several middle terms are chosen to connect one another successively in several propositions, till the last proposition connects its predicate with the first subject. Thus, all men of revenge have their souls often uneasy: uneasy souls are a plague to themselves; now to be one's own plague is folly in the extreme: therefore all men of revenge are extreme fools.

The apostle, Rom. viii. 29. gives us an instance of this sort of argument, if it were reduced to exact form: Whom he foreknew those he predestinated; whom he predestinated he called; whom he called he justified: whom he justified he glorified: therefore whom he foreknew he glorified.

To these syllogisms it may not be improper to add Induction, which is when from several particular propositions we infer one general; as, the doctrine of the Socinians cannot be proved from the Gospel; it cannot be proved from the Acts of the Apostles; it cannot be proved from the Epistles, nor the book of Revelation; therefore it cannot be proved from the New Testament.

Note; This sort of argument is often defective, because there is not due care taken to enumerate all the particulars on which the conclusion should depend.

All these four kinds of syllogisms in this section may be called redundant, because they have more than three propositions. But there is one sort of syllogism which is defective, and is called an Enthymema, because only the conclusion with one of the premises is expressed, while the other is supposed and reserved in the mind: thus, there is no true religion without good morals:

therefore a knave cannot be truly religious ; or thus, it is our duty to love our neighbours as ourselves : therefore there are but few who perform their duty.

Note, This is the most common sort of argument amongst mankind both in writing and in speaking ; for it would take up too much time, and too much retard the discourse, to draw out all our arguments in mode and figure. Besides, mankind love to have so much compliment paid to their understandings, as to suppose that they know the major or minor which is suppressed and implied, when you pronounce the other premise and the conclusion.

If there be any debate about this argument, the syllogism must be completed, in order to try its force and goodness, by adding the absent proposition.

SECT. VII.—*Of the middle Terms, of common Places or Topics, and Invention of Arguments.*

THE next division of syllogisms is according to the middle term, which is made use of in the proof of any proposition. Now the middle term (as we have hinted before) is often called Argument, because the force of the syllogism depends upon it : we must make a little delay here to treat briefly of the doctrine of topics, or places whence middle terms or arguments are drawn.

All arts and sciences have some general subjects which belong to them, which are called Topics or common places ; because middle terms are borrowed, and arguments derived from them for the proof of their various propositions which we have occasion to discourse of. The topics of Grammar, are etymology, noun, verb, construction, signification, &c. The topics of Logic are genus, species, difference, property, definition, division, &c. The topics of Ontology or Metaphysics, are cause, effect, action, passion, identity, opposition, subject, adjunct, sign, &c. The topics of Morality or Ethics, are law, sin, duty, authority, freedom of will,

command, threatening, reward, punishment, &c. The topics of Theology, are, God, Christ, faith, hope, worship, salvation, &c.

To these several topics there belong particular observations, axioms, canons or rules*, which are laid down in their proper sciences; as,

Grammar hath such canon, viz. words in a different construction obtain a different sense, words derived from the same primitive may probably have some affinity in their original meaning, &c.

Canons in logic are such as these; every part of a division, singly taken, must contain less than the whole. A definition must be peculiar and proper to the thing defined. Whatever is affirmed or denied of the genus, may be affirmed or denied of the species, &c.

Metaphysical canons are such as these; final causes belong only to intelligent agents. If a natural and necessary cause operate, the effect will follow, &c. and there are large catalogues of many more in each distinct science.

Now it has been the custom of those who teach logic or rhetoric, to direct their disciples, when they want an argument, to consult the several topics which are suited to their subject of discourse, and to rummage over the definitions, divisions and canons that belong to each topic. This is called the invention of an argument, and is taught with much solemnity in some schools.

I grant there may be good use of this practice for persons of a lower genius, when they are to compose any discourse for the public; or for those of superior parts to refresh their memory, and revive their acquaintance with a subject which has been long absent from their thoughts, or when their natural spirits labour under indisposition and languor; but when a man of moderate sagacity has made himself master of his theme by just diligence and inquiry, he has seldom need to

* A canon is a proposition declaring some property of the subject, which is not expressed in the definition or division of it.

run knocking at the doors of all the topics, that he may furnish himself with argument or matter of speaking; and indeed it is only a man of sense and judgment that can use common places or topics well; for amongst this variety he only knows what is fit to be left out, as well as what is fit to be spoken.

By some logical writers this business of topics and invention is treated of in such a manner with mathematical figures and diagrams, filled with the barbarous technical words, Napcas, Nipcis, Ropcos, Nosrop, &c. as though an ignorant lad were to be led mechanically, in certain artificial harnesses and trammels, to find out arguments to prove or refute any proposition whatsoever, without any rational knowledge of the ideas. Now there is no need to throw words of contempt on such a practice; the very description of it carries reproof and ridicule in abundance.

SECT. VIII.—*Of several Kinds of Arguments and Demonstrations.*

WE proceed now to the division of syllogisms according to the middle term; and in this part of our treatise the syllogisms themselves are properly called arguments, and are thus distributed.

I. Arguments are called Grammatical, Logical, Metaphysical, Physical, Moral, Mechanical, Theological, &c. according to the art, science or subject, whence the middle term or topic is borrowed. Thus, if we prove that no man should steal from his neighbour, because the scripture forbids it, this is a theological argument: if we prove it from the laws of the land, it is political; but if we prove it from the principles of reason and equity, the argument is moral.

II. Arguments are either certain and evident, or doubtful and merely probable.

Probable arguments are those whose conclusions are proved by some probable medium; as, this hill was

once a church-yard, or a field of battle, because there are many human bones found here. This is not a certain argument, for human bones might have been conveyed there some other way.

Evident and certain arguments are called demonstrations; for they prove their conclusions by clear mediums and undoubted principles; and they are generally divided into these two sorts:

1. *Demonstrations a priori*, which prove the effect by its necessary cause; as, I prove the scripture is infallibly true, because it is the word of God, who cannot lie.

2. *Demonstrations a posteriori*, which infer the cause from its necessary effects; as, I infer there hath been the hand of some artificer here, because I find a curious engine. Or, I infer, there is a God, from the works of his wisdom in the visible world.

The last of these is called "*demonstratio res ori*," because it proves only the existence of a thing; the first named "*demonstratio res divi*," because it shews also the cause of existence.

But note, that though these two sorts of arguments are most peculiarly called demonstrations, yet generally any strong and convincing argument obtains that name; and it is the custom of mathematicians to call all their arguments demonstrations, from what medium soever they derive them.

III. Arguments are divided into artificial and inartificial.

An artificial argument is taken from the nature and circumstances of the things; and if the argument be strong, it produces a natural certainty: as, the world was at first created by God, because nothing can create itself.

An inartificial argument is the testimony of another, and this is called original, when our information proceeds immediately from the persons concerned, or from eye or ear witnesses of the fact; it is called tradition when it is delivered by the report of others.

We have taken notice before, that testimony is either

divine or human. If the human testimony be strong it produces a moral certainty; but divine testimony produces a supernatural certainty, which is far superior.

Note. Arguments taken from human testimony, as well as from laws and rules of equity, are called moral; and indeed the same name is also applied to every sort of argument which is drawn from the free actions of God, or the contingent actions of men, wherein we cannot arise at a natural certainty, but content ourselves with an high degree of probability, which in many cases is scarce inferior to natural certainty.

IV. Arguments are either direct or indirect. It is a direct argument where the middle term is such as proves the question itself, and infers that very proposition which was the matter of inquiry. An indirect or oblique argument proves, or refutes some other proposition, and thereby makes the thing inquired appear to be true by plain consequence.

Several arguments are called indirect; as, (1.) when some contradictory proposition is proved to be false, improbable or impossible: or when, upon supposition of the falsehood, or denial of the original proposition, some absurdity is inferred. This is called a proof *per impossibile*, or a *reductio ad absurdum*. (2.) When some other proposition is proved to be true which is less probable, and thence it follows, that the original proposition is true, because it is more probable. This is an argument *ex magis probabile ad minus*. (3.) When any other proposition is proved upon which it was before agreed to yield the original question. This is an argument *ex concessio*.

V. There is yet another rank of arguments which have Latin names; their true distinction is derived from the topics or middle terms which are used in them, though they are called an address to our judgment, our faith, our ignorance, our profession, our modesty, or our passions.

1. If an argument be taken from the nature or existence of things, and addressed to the reason of mankind, it is called *argumentum ad judicium*.

2. When it is borrowed from some convincing testimony, it is called *argumentum ad fidem*, an address to our faith.

3. When it is drawn from any insufficient medium whatsoever, and yet the opposer has not skill to refute or answer it, this is *argumentum ad ignorantiam*, an address to our ignorance.

4. When it is built upon the professed principles or opinions of the person with whom we argue, whether the opinions be true or false, it is named *argumentum ad hominem*, an address to our professed principles. St. Paul often uses this argument when he reasons with the Jews, and when he says I speak as a man.

5. When the argument is fetched from the sentiments of some wise, great, or good men, whose authority we reverence and hardly dare oppose, it is called *argumentum ad verecundiam*, an address to our modesty.

6. I add finally, when an argument is borrowed from any topics which are suited to engage the inclinations and passions of the hearers on the side of the speaker, rather than to convince the judgment, this is *argumentum ad passiones*, an address to the passions; or if it be made publicly, it is called *ad populum*, or an appeal to the people.

After all these divisions of syllogism or argument arising from the middle term, there is one distinction proper to be mentioned, which arises from the premises. An argument is called uniform when both the premises are derived from the same spring of knowledge, whether it be sense, reason, consciousness, human faith, or divine faith: But when the two premises are derived from different springs of knowledge, it is called a mixed argument.

Whether the conclusion must be called human or divine, when one or both premises are matters of divine faith, but the conclusion is drawn by human reason, I leave to be disputed and determined in the schools of theology.

Thus the second chapter is finished, and a particular account given of all the chief kinds of syllogisms or

arguments which are made use of among men, or treated of in logic, together with special rules for the formation of them, as far as is necessary.

If a syllogism agree with the rules which are given for the construction and regulation of it, it is called a true argument: If it disagree with these rules, it is a paralogism, or false argument: but when a false argument puts on the face and appearance of a true one, then it is properly called a sophism or fallacy, which shall be the subject of the next chapter.

CHAP. III.

THE DOCTRINE OF SYLLOGISMS.

FROM truth nothing can really follow but what is true; whensoever therefore we find a false conclusion drawn from premises which seem to be true, there must be some fault in the deduction or inference: or else one of the premises is not true in the sense in which it is used in that argument.

When an argument carries the face of truth with it, and yet leads us into mistake, it is a sophism: and there is some need of a particular description of these fallacious arguments, that we may with more ease and readiness detect and solve them.

SECT. I.—*Of several Kinds of Sophisms and their Solution.*

As the rules of right judgment and of good ratiocination often coincide with each other, so the doctrine of prejudices, which was treated of in the second part of logic, has anticipated a great deal of what might be said on the subject of sophisms: yet I shall mention the most remarkable springs of false argumentation, which are reduced by logicians to some of the following heads.

I. The first sort of sophism is called *ignorantia elenchi*, or a mistake of the question; that is, when something else is proved which has neither any necessary connection or inconsistency with the thing inquired, and consequently gives no determination to the inquiry, though it may seem at first sight to determine the question; as, if any should conclude that St Paul was not a native Jew, by proving that he was born a Roman; or if they should pretend to determine that he was neither Roman nor Jew, by proving that he was born in Tarsus in Cilicia; these sophisms are refuted by shewing that these three may be true; for he was born of Jewish parents in the city of Tarsus, and by some peculiar privilege granted to his parents, or his native-city, he was born a denizen of Rome. Thus there is neither of these three characters of the apostle inconsistent with each other, and therefore the proving one of them true does not refute the other.

Or if the question be proposed, whether excess of wine cannot be hurtful to him that drinks it, and the sophister should prove that it revives his spirit, it exhilarates his soul, it gives a man courage, and makes him strong and active, and then he takes it for granted that he has proved his point.

But the respondent may easily shew, that though wine may do all this, yet it may be finally hurtful both to the soul and body of him that drinks it to excess.

Disputers, when they grow warm, are ready to run into this fallacy; they dress up the opinion of their adversary as they please, and ascribe sentiments to him which he doth not acknowledge, and when they have with a great deal of pomp attacked and confounded these images of straw of their own making, they triumph over their adversary, as though they had utterly confounded his opinion.

It is a fallacy of the same kind which a disputant is guilty of, when he finds that his adversary is too hard for him, and that he cannot fairly prove the question first proposed; he then with slyness and subtlety turns the discourse aside to some other kindred point which

he can prove, and exults in that new argument wherein this opponent never contradicted him.

The way to prevent this fallacy is by keeping the eye fixed on the precise point of dispute, and neither wandering from it ourselves, nor suffering our antagonist to wander from it, or substitute any thing else in its room.

II. The next sophism is called *petitio principii*, or a supposition of what is not granted; that is, when any proposition is proved by the same proposition in other words, or by something that is equally uncertain and disputed: as if any one undertake to prove that the human soul is extended through all the parts of the body, because it resides in every member, which is but the same thing in other words. Or, if a Papist should pretend to prove that his religion is the only Catholic religion, and is derived from Christ and his apostles, because it agrees with the doctrine of all the fathers of the Church, all the holy Martyrs, and all the Christian world throughout all ages: whereas this is a great point in contest, whether their religion does agree with that of all the ancients, and the primitive Christians or no.

III. That sort of fallacy which is called a Circle is very near a-kin to the *petitio principii*; as, when one of the premises in a syllogism is questioned and opposed, and we intend to prove it by the conclusion: or, when in a train of syllogisms we prove the last by recurring to what was the conclusion of the first. The Papists are famous at this sort of fallacy, when they prove the scripture to be the word of God by the authority or infallible testimony of their church; and when they are called to shew the infallible authority of their church, they pretend to prove it by the scripture.

IV. The next kind of sophism is called *non causa pro causa*, or the assignation of a false cause. This the Peripatetic philosophers were guilty of continually, when they told us that certain beings, which they called substantial forms, were the springs of colour, motion, vegetation, and the various operations of natural beings in the animate and inanimate world; when they informed

us that nature was terribly afraid of a vacuum, and that it was the cause why the water would not fall out of a long tube if it was turned upside down; the moderns as well as the ancients fall often into this fallacy, when they positively assign the reasons of natural appearances, without sufficient experiments to prove them.

Astrologers are overrun with this sort of fallacies, and they cheat the people grossly by pretending to tell fortunes, and to deduce the cause of the various occurrences in the lives of men from the various positions of the stars and planets, which they call Aspects.

When comets and eclipses of the sun and moon are construed to signify the fate of princes, the revolution of states, famine, wars, and calamities of all kinds, it is a fallacy that belongs to this rank of sophisms.

There is scarce any thing more common in human life than this sort of deceitful argument: If any two accidental events happen to concur, one is presently made the cause of the other. If Titius wronged his neighbour of a guinea, and in six months after he fell down and broke his leg, weak men will impute it to the divine vengeance on Titius for his former injustice. This sophism was found also in the early days of the world: for when holy Job was surrounded with uncommon miseries, his own friends inferred, that he was a most heinous criminal, and charged him with aggravated guilt as the cause of his calamities; though God himself by a voice from heaven solved this uncharitable sophism, and cleared his servant Job of that charge.

How frequent is it among men to impute crimes to wrong persons? We too often charge that upon the wicked contrivance and premeditated malice of a neighbour, which arose merely from ignorance, or from unguarded temper. And, on the other hand, when we have a mind to excuse ourselves, we practise the same sophism, and charge that upon our inadvertence or our ignorance, which perhaps was designed wickedness. What is really done by a necessity of circumstances, we sometimes impute to choice. And again, we charge that upon necessity, which was really desired and chosen.

Sometimes a person acts out of judgment in opposition to his inclination ; another person perhaps acts the same thing out of inclination, and against his judgment. It is hard for us to determine with assurance what are the inward springs and secret causes of every man's conduct : and therefore we should be cautious and slow in passing a judgment, where the case is not exceeding evident : and if we should mistake, let it rather be on the charitable than on the censorious side.

It is the same sophism that charges mathematical learning with leading the minds of men to scepticism and infidelity, and as unjustly accuses the new philosophy of paving the way to heresy and schism. Thus the reformation from Popery has been charged with the murder and blood of millions, which in truth is to be imputed to the tyranny of the princes and the priests, who would not suffer the people to reform their sentiments and their practice according to the word of God. Thus Christianity in the primitive ages was charged by the Heathens with all the calamities which befel the Roman empire, because the Christians renounced the Heathen gods and idols.

The way to relieve ourselves from those sophisms, and to secure ourselves from the danger of falling into them, is an honest and diligent inquiry into the real nature and causes of things, with a constant watchfulness against all those prejudices that might warp the judgment aside from truth in that inquiry.

V. The next is called *fallacia accidentis*, or a sophism wherein we pronounce concerning the nature and essential properties of any subject according to something which is merely accidental to it. This is a-kin to the former, and is also very frequent in human life. So if opium or the Peruvian bark has been used imprudently or unsuccessfully, whereby the patient has received injury, some weaker people absolutely pronounce against the use of the bark or opium upon all occasions whatsoever, and are ready to call them Poison. So wine has been the accidental occasion of drunkenness and quarrels ; learning and printing may have been the acciden-

tal cause of sedition in a state ; the reading of the bible by accident has been abused to promote heresies or destructive errors ; and for these reasons they have been all pronounced evil things. Mahomet forbid his followers the use of wine ; the Turks discourage learning in their dominions ; and the Papists forbid the scripture to be read by the laity. - But how very unreasonable are these inferences, and those prohibitions which are built upon them.

VI. The next sophism borders upon the former ; and that is, when we argue from that which is true in particular circumstances to prove the same thing true absolutely, simply, and abstracted from all circumstances ; this is called in the schools a sophism, a dicto secundum quid ad dictum simpliciter ; as, that which is brought in the shambles is eaten for dinner ; raw meat is brought in the shambles : therefore raw meat is eaten for dinner. Or thus, Livy writes fables and improbabilities when he describes prodigies and omens ; therefore Livy's Roman history is never to be believed in any thing. Or thus, there may be some mistake of transcribers in some part of scripture : therefore scripture alone is not a safe guide for our faith.

This sort of sophism has its reverse also ; as when we argue from that which is true simply and absolutely to prove the same thing true in all particular circumstances whatsoever * ; as if a traitor should argue from the sixth commandment, Thou shalt not kill a man, to prove that he himself ought not to be hanged ; or if a madman should tell me I ought not to withhold his sword from him, because no man ought to withhold the property of another.

These two species of sophisms are easily solved by shewing the difference betwixt things in their absolute nature, and the same things surrounded with peculiar circumstances, and considered in regard to special times, places, persons and occasions ; or by shewing the dif-

* This is arguing from a moral universality, which admits of some exceptions, in the same manner as may be argued from metaphysical or a natural universality, which admits of no exception.

ference between a moral and metaphysical universality, and that the proposition will hold good in one case, but not in the other.

VII. The sophisms of composition and division come next to be considered.

The sophism of composition is when we infer any thing concerning ideas in a compounded sense, which is only true in a divided sense. And when it is said in the gospel that Christ made the blind to see, and the deaf to hear, and the lame to walk, we ought not to infer hence, that Christ performed contradictions; but those who were blind before were made to see, and those who were deaf before were made to hear, &c. So when the scripture assures us the worst of sinners may be saved, it signifies only, that they who have been the worst of sinners may repent and be saved, not that they shall be saved in their sins. Or if any one should argue thus, two and three are even and odd; five are two and three; therefore five are even and odd. Here that is very falsely inferred concerning two or three in union, which is only two of them divided.

The sophism of division is when we infer the same thing concerning ideas in a divided sense, which is only true in a compounded sense; as, if we should pretend to prove, that every soldier in the Grecian army put an hundred thousand Persians to flight, because the Grecian soldiers did so. Or if a man should argue thus; five is one number; two and three are five: therefore two and three are one number.

This sort of sophisms is committed when the word All is taken in a collective and a distributive sense, without a due distinction; as, if any one should reason thus; all the musical instruments of the Jewish temple made a noble concert; the harp is a musical instrument of the Jewish temple; therefore the harp made a noble concert. Here the word All in the major, is collective, whereas such a conclusion requires that the word All should be distributive.

It is the same fallacy when the universal word All or No refers to species in one proposition, and to indivi-

duals in another ; as, all animals were in Noah's ark ; therefore no animals perished in the flood : whereas in the premise all animals signifies every kind of animals, which does not exclude or deny the drowning of a thousand individuals.

VIII. The last sort of sophisms arises from our abuse of the ambiguity of words, which is the largest and most extensive kind of fallacy ; and indeed several of the former fallacies might be reduced to this head.

When the words or phrases are plainly equivocal, they are called Sophisms of Equivocation ; as, if we should argue thus, he that sends forth a book into the light, desires it to be read ; he that throws a book into the fire, sends it into the light : therefore he that throws a book into the fire desires it to be read.

This sophism, as well as the foregoing, and all of the like nature, are resolved by shewing the different senses of the words, terms or phrases. Here light in the major proposition signifies the public view of the world ; in the minor it signifies the brightness of flame and fire, and therefore the syllogism has four terms, or rather it has no middle term, and proves nothing.

But where such gross equivocations and ambiguities appear in argument, there is little danger of imposing upon ourselves or others. The greatest danger, and which we are perpetually exposed to in reasoning, is, where the two senses or significations of one term are near a-kin, and not plainly distinguished, and yet they are really sufficiently different in their sense to lead us into great mistakes, if we are not watchful. And indeed the greatest part of controversies in the sacred or civil life, arise from the different senses that are put upon words, and the different ideas which are included in them ; as hath been shewn at large in the first part of Logic, Chap. IV. which treats of words and terms.

There is, after all these, another sort of sophism which is wont to be called an imperfect Enumeration, or a false Induction, when from a few experiments or observations, men infer general theorems and universal propositions. But this is sufficiently noticed in the

foregoing chapter, where we treated of that sort of syllogism which is called Induction.

SECT. II.—*Two general Tests of true Syllogisms, and Methods of solving all Syllogisms.*

BESIDES the special description of true syllogisms and sophisms already given, and the rules by which the one are framed, and the other refuted, there are these two general methods of reducing all syllogisms whatsoever to a test of their truth or falsehood.

I. The first is, that the premises must (at least implicitly) contain the conclusion; or thus, one of the premises must contain the conclusion, and the other must shew, that the conclusion is contained in it. The reason of this rule is this; when any proposition is offered to be proved, it is necessary to find another proposition which confirms it, which may be called the containing Propositions; but because the second must not contain the first in an express manner, and in the same word*, therefore it is necessary that a third or ostensive proposition be found out, to shew that the second proposition contains the first, which was to be proved. Let us make an experiment of this syllogism. Whosoever is a slave to his natural inclinations is miserable; the wicked man is a slave to his natural inclinations: therefore the wicked man is miserable. Here it is evident that the major proposition contains the conclusion: for under the general character of a slave to natural inclinations, a wicked man is contained or included; and the minor proposition declares it; whence the conclusion is evidently deduced, that the wicked man is miserable.

* It is confessed, that the conditional and disjunctive major propositions do expressly contain all that is in the conclusion; but then it is not in a certain and conclusive manner, but only in a dubious form of speech, and mingled with other terms, and therefore it is not the same express proposition.

In many affirmative syllogisms we may suppose either the major or the minor to contain the conclusion, and the other to shew it; for there is no great difference. But in negative syllogisms it is the negative proposition that contains the conclusion, and the affirmative proposition shews it; as, every wise man masters his passions; no angry man masters his passion: therefore no angry man is wise. Here it is more natural to suppose the minor to be the containing proposition; it is the minor implicitly denies wisdom concerning an angry man, because mastering the passions is included in wisdom, and the major shews it.

Note, this rule may be applied to complex and conjunctive, as well as simple syllogisms, and is adapted to shew the truth or falsehood of any of them.

II. The second is this, as the terms in every syllogism are usually repeated twice, so they must be taken precisely in the same sense in both places: for the greatest part of mistakes, that rise in forming syllogisms, is derived from some little difference in the sense of one of the terms in the two parts of the syllogisms wherein it is used. Let us consider the following sophism.

1. It is a sin to kill a man; a murderer is a man; therefore it is a sin to kill a murderer. Here the word kill in the first proposition signifies to kill unjustly, or without a law; in the conclusion it is taken absolutely for putting a man to death in general, and therefore the inference is not good.

2. What I am you are not; but I am a man; therefore you are not a man. This is a relative syllogism: but if it be reduced to a regular categorical form, it will appear there is ambiguity in the terms, thus: what I am is a man; you are not what I am: therefore you are not a man. Here what I am in the major proposition, is taken especially for my nature; but in the minor proposition the same words are taken individually for my person; therefore the inference must be false; for the syllogism does not take the term what I am both times in the same sense.

3. He that says you are an animal, says true; but

he that says you are a goose, you are an animal; therefore he that says you are a goose, says true. In the major proposition the word animal is the predicate of an incidental proposition; which incidental proposition being affirmative, renders the predicate of it particular, according to the Chap. II. Sect 2. Axiom 3. and consequently the word animal there signifies only human animality. In the minor proposition, the word animal, for the same reason, signifies the animality of a goose; whereby it becomes an ambiguous term, and unfit to build the conclusion upon. Or if you say the word animal, in the minor, is taken for human animality, then the minor is evidently false.

It is from this last general test of syllogisms that we derive the custom of the respondent in answering the arguments of the opponent, which is to distinguish upon the major or minor proposition, and declare which term is used in two senses, and in what sense the proposition may be true, and in what sense it is false.

CHAP. IV.

SOME GENERAL RULES TO DIRECT OUR REASONING.

Most of the general and special directions given to form our judgments aright in the preceding part of Logic might be rehearsed here; for the judgments which we pass upon things are generally built on some secret reasoning or argument by which the proposition is supposed to be proved. But there may be yet some farther assistances given to our reasoning powers in their search after truth, and an observation of the following rules will be of great importance for that end.

I. Rule. *Accustom yourselves to clear and distinct ideas, to evident propositions, to strong and convincing arguments.* Converse much with those friends, and those books and those parts of learning, where you meet with the greatest clearness of thought and force of reasoning. The ma-

thematical sciences, and particularly arithmetic, geometry, and mechanics, abound with these advantages: and if there were nothing valuable in them for the uses of human life, yet the very speculative parts of this sort of learning are well worth our study; for by perpetual examples they teach us to conceive with clearness, to connect our ideas and propositions in train of dependence, to reason with strength and demonstration, and to distinguish between truth and falsehood. Something of these sciences should be studied by every man who pretends to learning, and that (as Mr Locke expresses it) not so much to make us mathematicians, as to make us reasonable creatures.

We should gain such a familiarity with evidence of perception and force of reasoning, and get such a habit of discerning clear truth, that the mind may be soon offended with obscurity and confusion: then we shall, as it were, naturally and with ease restrain our minds from rash judgment, before we attain just evidence of the proposition which is offered to us; and we shall with the same ease, and, as it were, naturally seize and embrace every truth that is proposed with just evidence.

This habit of conceiving clearly, of judging justly, and of reasoning well, is not to be attained merely by the happiness of constitution, the brightness of genius, the best natural parts, or the best collection of logical precepts. It is custom and practice that must form and establish this habit. We must apply ourselves to it till we perform all this readily, and without reflecting on rules. A coherent thinker, and a strict reasoner, is not to be made at once by a set of rules, any more than a good painter or musician may be formed extempore by an excellent lecture on music or painting. It is of infinite importance therefore in our younger years, to be taught both the value and the practice of conceiving clearly and reasoning right: for when we are grown up to the middle of life, or past it, it is no wonder that we should not learn good reasoning, any more than that an ignorant clown should not be able to learn fine language, dancing, or a courtly behaviour, when his

rustic airs have grown up with him till the age of forty.

For want of this care, some persons of rank and education dwell all their days among obscure ideas; they conceive and judge always in confusion; they take weak arguments for demonstration, they are led away with the disguises and shadows of truth. Now, if such persons happen to have a bright imagination, a volubility of speech, and a copiousness of language, they not only impose many errors upon their own understandings, but they stamp the image of their own mistakes upon their neighbours also, and spread their errors abroad.

It is a matter of just lamentation and pity, to consider the weakness of the common multitude of mankind in this respect, how they receive any thing into their assent upon the most trifling grounds. True reasoning hath very little share in forming their opinions. They resist the most convincing arguments by an obstinate adherence to their prejudices, and believe the most improbable things with the greatest assurance. They talk of the abstrusest mysteries, and determine upon them with the utmost confidence, and without just evidence either from reason or revelation. A confused heap of dark and inconsistent ideas make up a good part of their knowledge in matters of philosophy as well as religion, having never been taught the use and value of clear and just reasoning.

Yet it must be still confessed that there are some mysteries, in religion, both natural and revealed, as well as some abstruse points in philosophy, wherein the wise as well as the unwise must be content with obscure ideas. There are several things, especially relating to the invisible world, which are unsearchable in our present state, and therefore we must believe what revelation plainly dictates, though the ideas may be obscure. Reason itself demands this of us; but we should seek for the brightest evidence both of ideas, and of the connection of them, wheresoever it is attainable.

Rule II. Enlarge your general acquaintance with

things daily, in order to attain a rich furniture of topics, or middle terms, whereby those propositions which occur may be either proved or disproved; but especially meditate and inquire with great diligence and exactness into the nature, properties, circumstances and relations of the particular subject about which you judge or argue. Consider its causes, effects, consequences, adjuncts, opposites, signs, &c. so far as is needful to your present purpose. You should survey a question round about, and on all sides, and extend your views as far as possible, to every thing that has a connection with it. This practice has many advantages in it; as,

1. It will be a means to suggest to your mind proper topics for argument about any proposition that relates to the same subject.

2. It will enable you with greater readiness and justice of thought to give an answer to any sudden question upon that subject, whether it arises in your own mind, or be proposed by others.

3. This will instruct you to give a plainer and speedier solution of any difficulties that may attend the theme of your discourse, and to refute the objections of those who have espoused a contrary opinion.

4. By such a large survey of the whole subject in all its properties and relations, you will be better secured from inconsistencies, that is, from asserting or denying any thing in one place, which contradicts what you have asserted or denied in another; and to attain these ends, an extensiveness of understanding and a large memory are of unspeakable service.

One would be ready to wonder sometimes, how easily great and wise and learned men are led into assertions in some parts of the same treatise, which are found to be scarce consistent with what they have asserted in other places: but the true reason is the narrowness of the mind of man, that it cannot take in all the innumerable properties and relations of one subject with a single view; and therefore whilst they are intent on one particular part of their theme, they bend all their force of thought to prove or disprove some proposition that

relates to that part, without a sufficient attention to the consequences which may flow from it, and which may unhappily affect another part of the same subject ; and by this means they are sometimes led to say things which are inconsistent. In such a case the great dealers in dispute and controversy take pleasure to cast nonsense and self-contradiction on their antagonist with huge and hateful reproaches. For my part, I rather choose to pity human nature, whose necessary narrowness of understanding exposes us all to some degrees of this frailty. But the most extensive survey possible of our whole subject is the best remedy against it. It is our judging and arguing upon a partial view of things, that exposes us to mistakes, and pushes us into absurdities, or at least to the very borders of them.

Rule III. In searching the knowledge of things, always keep the precise point of the present question in your eye. Take heed that you add nothing to it while you are arguing, nor omit any part of it. Watch carefully lest any new ideas slide in, to mingle themselves either with the subject or predicate. See that the question be not altered by the ambiguity of any word taken in different senses ; nor let any secret prejudices of your own, or the sophistical arts of others, cheat your understanding by changing the question, or shuffling in any thing else in its room.

And for this end it is useful to keep the precise matter of inquiry as simple as may be, and disengaged from a complication of ideas, which do not necessarily belong to it. By admitting a complication of ideas, and taking too many things at once into one question, the mind is sometimes dazzled and bewildered ; and the truth is lost in such a variety and confusion of ideas ; whereas by limiting and narrowing the question, you take a fuller survey of the whole of it.

By keeping the single point of inquiry in our constant view, we shall be secured from sudden, rash, and impertinent responses and determinations, which some have obruded instead of solutions and solid answers, before they perfectly know the questions.

Rule IV. When you have exactly considered the precise points of inquiry, or what is unknown in the question, then consider what, and how much you know already of this question, or of the ideas and terms of which it is composed. It is by a comparison of the known and unknown parts of the question together, that you may find what reference the part known hath unto, or what connection it hath with the thing that is sought: those ideas, whereby the known and unknown parts of the question are connected, will furnish you with middle terms or arguments whereby the thing proposed may be proved or disproved.

In this part of your work, viz. comparing ideas together, take due time, and be not too hasty to come to a determination, especially in points of importance. Some men, when they see a little agreement or disagreement between ideas, they presume a great deal, and so jump into the conclusion: this is a short way to fancy, opinion, and conceit: but a most unsafe and uncertain way to true knowledge and wisdom.

Rule V. In choosing your middle terms or arguments to prove any question, always take such topics as are surest, and least fallible, and which carry the greatest evidence and strength with them. Be not so solicitous about the number, as the weight of your arguments, especially in proving any proposition which admits of natural certainty, or of complete demonstration. Many times we do injury to a cause by dwelling upon trifling arguments. We amuse our hearers with uncertainties, by multiplying the number of feeble reasonings, before we mention those which are more substantial, conclusive, and convincing. And too often we yield up our own assent to mere probable arguments, where certain proofs may be obtained.

Yet it must be confessed there are many cases, where in the growing number of probable arguments increases the degree of probability, and gives a great and sufficient confirmation to the truth which is sought; as,

(1.) When we are inquiring the true sense of any word or phrase, we are more confirmed in the signifi-

cation of it, by finding the same expression so used in several authors, or in several places of the same author.

(2.) When we are searching out the true meaning or opinion of any writer, or inquiring into any sacred doctrine of scripture, we come to a surer determination of the truth by several distinct places wherein the same thing is expressed or plainly implied; because it is not probable that an honest skilful reader should mistake the meaning of the writer in many places, as he may in one or two.

(3.) When we would prove the importance of any scriptural doctrine or duty, the multitude of texts, wherein it is repeated and inculcated upon the reader, seems naturally to instruct us that it is a matter of greater importance than other things which are but slightly or singly mentioned in the bible.

(4.) In searching out matters of fact in times past, or in distant places, (in which case moral evidence is sufficient, and moral certainty is the utmost which can be attained), here we derive a greater assurance of the truth of it by a number of persons, or a multitude of circumstances concurring to bear witness of it.

(5.) From many experiments in natural philosophy, we more safely infer a general theorem, than we can from one or two.

(6.) In matters which require present practice, both sacred and civil, we must content ourselves oftentimes with a mere preponderation of probable reasons or arguments. Where there are several reasons on each side, for and against a thing that is to be done or omitted, a small argument added to the heap may justly turn the balance on one side, and determine the judgment, as I have noted in the second part of Logic.

To conclude; a growing acquaintance with matters of learning, and a daily improvement of our understandings in affairs human and divine, will best teach us to judge and distinguish in what cases the number of arguments add to their weight and force: it is only experience can fully inform us when we must be determined by probable topics, and when we must seek and expect demonstrations.

Rule VI. Prove your conclusion, as far as possible, by some propositions that are in themselves more plain, evident and certain than the conclusion; or at least such as are more known, and more intelligible to the person whom you would convince. If we neglect this rule, we shall endeavour to enlighten that which is obscure by something equally or more obscure, and to confirm that which is doubtful, by something equally or more uncertain. Common sense dictates to all men, that it is impossible to establish any truth, and to convince others of it, but by something that is better known to them than that truth is.

Rule VII. Labour in all your arguings to enlighten the understanding, as well as to conquer and captivate the judgment. Argue in such a manner as may give a natural, distinct, and solid knowledge of things to your hearers, as well as to force their assent by a mere proof of the question. Now to attain this end, the chief topic or medium of your demonstration should be fetched, as much as possible, from the nature of the thing to be proved, or from those things which are most naturally connected with it.

Geometricians sometimes break this rule without necessity, two ways, viz.

I. When they prove one proposition only by shewing what absurdities will follow if the contradictory proposition be supposed or admitted. This is called *Reductio ad absurdum**, or *Demonstratio per impossibile*; as for instance, when they prove all the *Radii* of a circle to be equal, by supposing one *Radius* to be longer or shorter than another, and then shewing what absurd consequences will follow. This, I confess, forces the assent, but it does not enlighten the mind by shewing the true reason and cause why all *Radii* are e-

* Note, This rule chiefly refers to the establishment of some truth, rather than to the refutation of error. It is a very common and useful way of arguing to refute a false proposition, by shewing what evident falsehood or absurdities will follow from it. For what proposition soever is really absurd and false, does effectually prove that principle to be false from which it is derived; so that this way of refuting an error is not so usually called "*Reductio ad absurdum*."

qual, which is derived from the very construction of a circle: for since a circle is formed by fixing one end of a strait line in the centre, and moving the other end round, (or, which is all one, by compasses, kept open to a certain extent), it follows evidently that every part of the circumference being thus described must be equally distant from the centre, and therefore the *Radii*, which are lines from the centre to the circumference, must be all equal.

2. Geometricians forget this rule when they heap up many far-fetched lines, figures and proportions to prove some plain, simple, and obvious proposition. This is called a Demonstration *per aliena et remota*, or an argument from unnatural and remote mediums: as if in order to prove the *Radii* of a circle are all equal, I should make several triangles and squares about the circle, and then from some properties and propositions of squares and triangles prove that the *Radii* of a circle are equal.

Yet it must be confessed, that sometimes such questions happen, that it is hardly possible to prove them by direct arguments drawn from the nature of things, &c. and then it may not only be lawful, but necessary to use indirect proofs, and arguments drawn from remote mediums, or from the absurdity of the contradictory suppositions.

Such indirect and remote arguments may also be sometimes used to confirm a proposition which has been before proved by arguments more direct and immediate.

Rule VIII. Though arguments should give light to the subject, as well as constrain the assent, yet you must learn to *distinguish well between an explication and an argument: and neither impose upon yourselves, nor suffer yourselves to be imposed upon by others, by mistaking a mere illustration for a convincing reason.*

Axioms themselves, or self-evident propositions, may want an explication or illustration, though they are not to be proved by reasoning.

Similitudes and allusions have oftentimes a very happy influence to explain some difficult truth, and to ren-

der the idea of it familiar and easy. Where the resemblance is just and accurate, the influence of a simile may proceed so far as to shew the possibility of the thing in question: but similitudes must not be taken as a solid proof of the truth or existence of those things to which they have a resemblance. A too great deference paid to similitudes, or an utter rejection of them, seem to be two extremes, and ought to be avoided. The late ingenious Mr Locke, even in his inquiries after truth, makes great use of similes for frequent illustration, and is very happy in the invention of them, though he warns us also lest we mistake them for conclusive arguments.

Yet let it be noted here, that a parable or a similitude used by any author, may give a sufficient proof of the true sense and meaning of that author, provided that we draw not this similitude beyond the scope and design for which it was brought: as when our Saviour affirms, Rev. iii. 3. *I will come to thee as a thief*; this will plainly prove that he describes the unexpectedness of his appearance, though it will by no means be drawn to signify any injustice in his design.

IX. Rule. *In your whole course of reasoning, keep your mind sincerely intent in the pursuit of truth; and follow solid argument wheresoever it leads you.* Let not a party spirit, nor any passion or prejudice whatsoever, stop or avert the current of your reasoning in quest of true knowledge.

When you are inquiring therefore into any subject, maintain a due regard to the arguments and objections on both sides of a question: consider, compare, and balance them well before you determine for one side. It is a frequent, but a very faulty practice, to hunt after arguments only to make good one side of a question, and entirely to neglect and refuse those which favour the other side. If we have not given a due weight to arguments on both sides, we do but wilfully misguide our judgment, and abuse our reason by forbidding its search after truth. When we espouse opinions by a secret bias on the mind through the in-

fluences of fear, hope, honour, credit, interest, or any other prejudice, and then seek arguments only to support those opinions, we have neither done our duty to God nor to ourselves; and it is a matter of mere chance if we stumble upon truth in our ways to ease and preferment. The power of reasoning was given us by our Maker for this very end, to pursue truth; and we abuse one of his richest gifts, if we basely yield up to be led astray by any of the meaner powers of nature, or the perishing interests of this life. Reason itself, if honestly obeyed, will lead us to receive the divine revelation of the gospel, where it is duly proposed, and this will shew us the path of life everlasting.

THE
FOURTH PART
OF
LOGIC.

OF DISPOSITION AND METHOD.

It is not merely a clear and distinct idea, a well-formed proposition, or a just argument, that is sufficient to search out and communicate the knowledge of a subject. There must be a variety and series of them disposed in a due manner, in order to attain this end: and therefore it is the design of the last part of Logic to teach us the art of method. It is *that* must secure our thoughts from that confusion, darkness, and mistake, which unavoidably attend the meditations and discourses even of the brightest genius who despises the rules of it.

1. We shall here consider the nature of method, and the several kinds of it.
2. Lay down the general rules of method, with a few particulars under them.

CHAP. I.

OF THE NATURE OF METHOD, AND THE SEVERAL KINDS OF IT, VIZ. NATURAL AND ARBITRARY, SYNTHETIC AND ANALYTIC.

METHOD, taken in the largest sense, implies the placing of several things, or performing several operations

in such an order as is most convenient to attain some end proposed: and in this sense it is applied to all the works of nature and art, to all the divine affairs of creation and providence; and to the artifices, schemes, contrivances and practices of mankind, whether in natural, civil, or sacred affairs.

Now this orderly disposition of things includes the ideas of prior, posterior, and simultaneous; of superior, inferior, and equal; of beginning, end, and middle, &c. which are described more particularly among the general affections of being in ontology.

But in Logic method is usually taken in a more limited sense, and the nature of it is thus described: method is the disposition of a variety of thoughts on any subject, in such order as may best serve to find out unknown truths, to explain and confirm truths that are known, or to fix them in the memory.

It is distributed into two general kinds, viz. natural and arbitrary.

Natural method is that which observes the order of nature, and proceeds in such a manner as that the knowledge of the things which follow depends, in a great measure, on the things which go before, and this is twofold, viz. Synthetic and Analytic, which are sometimes called Synthesis and Analysis*.

* The word Analysis has three or four senses, which it may not be improper to take notice of here.

1. It signifies the general and particular heads of a discourse, with their mutual connections, both co-ordinate and subordinate, drawn out by way of abstract into one or more tables, which are frequently placed like an index at the beginning or end of a book.

2. It signifies the resolving of a discourse into its various subjects and arguments; as when any writing of the ancient prophets is resolved into the prophetic, historical, doctrinal, and practical parts of it, it is said to be analysed in general. When a sentence is distinguished into the Nouns, Verbs, Pronouns, Adverbs, and other particles of speech which compose it; then it is said to be analysed grammatically. When the same sentence is distinguished into Subject and Predicate, Proposition, Argument, Act, Object, Cause, Effect, Adjunct, Opposite, &c. then it is analysed logically, and metaphysically. This last is what is chiefly meant in the theological schools, when they speak of analysing a text of scripture.

3. Analysis signifies particularly the science of algebra, wherein a

Synthetic method is that which begins with the parts *, and leads onward to the knowledge of the whole; it begins with the most simple principles, and general truths, and proceeds by degrees to that which is drawn from or compounded of them: and therefore it is called the method of composition.

Analytic method takes the whole compound as it finds it, whether it be a species or an individual, and leads us into the knowledge of it by resolving it into its first principles or parts, its generic nature, and its special properties; and therefore it is called the method of resolution.

As synthetic method is generally used in teaching the sciences, after they are invented, so analytic is most practised in finding out things unknown. Though it must be confessed that both methods are sometimes employed to find out truth, and to communicate it.

If we know the parts of any subject easier and better than the whole, we consider the parts distinctly, and, by putting them together, we come to the knowledge of the whole. So in grammar we learn first to know letters, we join them to make syllables, out of syllables we compose words, and out of words we make sentences and discourses. So the physician or apothecary knows the nature and powers of his simples, viz. his drugs, his herbs, his minerals, &c.; and putting them together, and considering their several virtues, he finds what will be the nature and powers of the bolus, or

question being proposed, one or more letters, as, x, y, z, or vowels, as, a, e, i, &c. are made use of to signify the unknown number, which being intermingled with several known numbers in the question, is at least by the rules of art separated or released from that entanglement, and its particular value is found out by shewing its equation, or equality to some known number.

* It signifies analytical method, as here explained in Logic.

* Note, It is confessed that synthesis often begins with the genus and proceeds to the species and individuals. But the genus or generic nature is then considered only as a physical or essential part of the species, though it be sometimes called an universal or logical whole. Thus synthetic method maintains its own description still, for it begins with the parts, and proceeds to the whole which is composed of them.

any compound medicine. This is the synthetic method.

But if we are better acquainted with the whole than we are with particular parts, then we divide or resolve the whole into its parts, and thereby gain a distinct knowledge of them. So in vulgar life we learn in the gross what plants or minerals are; and then by chemistry we gain the knowledge of salt, sulphur, spirit, water, earth, which are the principles of them. So we are first acquainted with the whole body of an animal, and then by anatomy or dissection we come to learn all the inward and outward parts of it. This is analytic method.

According to this most general and obvious idea of synthetic and analytic method, they differ from each other as the way which leads up from a valley to a mountain differs from itself, consider as it leads down from the mountain to the valley; or as St Matthew and St Luke prove Christ to be the son of Abraham; Luke finds out by analysis, rising from Christ to his ancestors; Matthew teaches it in the synthetic method, beginning from Abraham, and shewing that Christ is found among his posterity. Therefore it is an usual thing in the sciences, when we have by analysis found out a truth, we use synthetic method to explain and deliver it, and prove it to be true.

In this easy view of things, these two kinds of method may be preserved conspicuously, and entirely distinct: but the subjects of knowledge being infinite, and the ways whereby we arrive at this knowledge being almost infinitely various, it is very difficult, and almost impossible, always to maintain the precise distinction between these two methods.

This will evidently appear in the following observations.

Obs. I. *Analytic method* being used chiefly to find out things unknown, it is not limited or confined merely to begin with some whole subject, and proceed to the knowledge of its parts, but it takes its rise sometimes from one single part of property, or from any

thing whatsoever that belongs to a subject which happens to be first and most easily known, and thereby inquires into the more abstruse and unknown parts, properties, causes, effects, and modes of it, whether absolute or relative; as for instance,

(1.) Analysis finds out causes by their effects. So in the speculative part of natural philosophy, when we observe light, colours, motions, hardness, softness, and other properties and powers of bodies, or any of the common or uncommon appearances of things, either on earth, or in heaven, we search out the causes of them. So by the various creatures we find out the Creator, and learn his wisdom, power and goodness.

(2.) It finds out effects by their causes. So the practical and mechanical part of natural philosophy considers such powers of motion, as the wind, the fire, the water, &c. and then contrives what uses they may be applied to, and what will be their effects in order to make mills and engines of various kinds.

(3.) It finds out the general and special nature of a thing, by considering the various attributes of the individuals, and observing what is common, and what is proper, what is accidental, and what is essential. So by surveying the colour, the shape, motion, rest, place, solidity, extension of bodies, we come to find that the nature of body in general is solid extension; because all other qualities of bodies are changeable, but this belongs to all bodies, and it endures through all changes; and because this is proper to a body alone, and agrees not to any thing else; and it is the foundation of all other properties.

(4.) It finds out the remaining properties or parts of a thing, by having some parts or properties given. So the area of a triangle is found by knowing the height and the base. So by having two sides, and an angle of a triangle given, we find the remaining side and angles. So when we know cogitation is the prime attribute of a spirit, we infer its immateriality, and thence its immortality.

(5.) Analysis finds the means necessary to attain a

proposed end, by having the end first assigned. So in moral, political, economical affairs, having proposed the government of self, a family, a society, or a nation, in order to their best interest, we consider and search out what are the proper laws, rules and means to effect it. So in the practices of artificers, and the manufactures of various kinds, the end being proposed, as, making cloth, houses, ships, &c. we find out ways of composing these things for the several uses of human life. But the putting any of these means in execution to attain the end, is synthetic method.

Many other particulars might be represented, to shew the various forms of analytic method, whereby truth is found out, and some of them come very near to synthetic, so as hardly to be distinguished.

Obs. II. Not only the investigation of truth, but the communication of it also is often practised in such a method, as neither agrees precisely to synthetic nor analytic. Some sciences, if you consider the whole of them in general, are treated in synthetic order; so physics, or natural philosophy, begins usually with an account of the general nature and properties of matter or bodies, and by degrees descends to consider the particular species of bodies, with their powers and properties; yet it is very evident, that when philosophers come to particular plants and animals, then by chemistry and anatomy they analyse or resolve these bodies into their several constituent parts. On the other hand, Logic is begun in analytic method; the whole is divided into its integral parts, according to the four operations of the mind; yet here and there synthetic method is used in the particular branches of it, for it treats of the ideas in general first, and then descends to the several species of them; it teaches us how propositions are made up of ideas, and syllogisms of propositions, which is the order of compositions.

The ancient scholastic writers have taken a greater deal of pains, and engaged in useless disputes about these two methods; and after all have not been able to give such an account of them as to keep them entirely

distinct from each other, neither in the theory nor in the practice. Some of the moderns have avoided this confusion in some measure, by confining themselves to describe almost nothing else but the synthetic and analytic methods of geometricians and algebraists, whereby they have too much narrowed the nature and rules of method, as though every thing were to be treated in mathematical forms.

Upon the whole, I conclude, that neither of these two methods should be too scrupulously and superstitiously pursued, either in the invention or in the communication of knowledge. It is enough if the order of nature be but observed in making the knowledge of the things following depend on the knowledge of the things which go before. Oftentimes a mixed method will be found most effectual for these purposes; and indeed a wise and judicious prospect of our main end and design must regulate all method whatsoever.

Here the rules of natural method ought to be proposed, (whether it be analytic, or synthetic, or mixed :) but it is proper first to give some account of arbitrary method, lest it be thrust at too great a distance from the first mention of it.

Arbitrary method leaves the order of nature, and accommodates itself to many purposes; such as, to treasure up things, and retain them in memory; to harangue and persuade mankind to any practice in the religious or civil life; or to delight, amuse or entertain the mind.

As for the assistance of the memory, in most things, a natural order has an happy influence; for reason itself, deducing one thing from another, greatly assists the memory, by the natural connection and mutual dependence of things. But there are various other methods which mankind have made use of for this purpose, and indeed there are some subjects that can hardly be deduced to analysis or synthesis.

In reading or writing history, some follow the order of the governors of a nation, and dispose every transaction under their particular reigns: so the sacred books

of Kings and Chronicles are written. Some write in annals or journals, and make a new chapter of every year. Some put all those transactions together which relate to one subject, that is, all the affairs of one war, one league, one confederacy, one council, &c. though it last many years, and under many rulers.

So in writing the lives of men, which is called Biography, some authors follow the tract of their years, and place every thing in the precise order of time when it occurred: others throw the temper and characters of the persons, their private life, their public stations, their personal occurrences, their domestic conduct, their speeches, their books or writings, their sickness and death, into so many distinct chapters.

In chronology, some writers make their epochas to begin all with one letter: so in the book called *Ductor Historicus*, the periods all begin with C; as, Creation, Cataclysm or deluge, Chaldean empire, Cyrus, Christ, Constantine, &c. Some divide their accounts of time according to the four great monarchies, Assyrian, Persian, Grecian and Roman. Others think it serves the memory best to divide all their subjects into the remarkable number of sevens; so Prideaux has written an Introduction to History. And there is a book of divinity called *Fasciculus Controversiarum*, by an author of the same name, written in the same method, wherein every controversy has seven questions belonging to it; though the order of nature seems to be too much neglected by a confinement to this septenary number.

Those writers and speakers, whose chief business is to amuse and delight, or allure, terrify, or persuade, mankind, do not confine themselves to any natural order, but in a cryptical or hidden method adapt every thing to their designed ends. Sometimes they omit those things which might injure their design, or grow tedious to their hearers, though they seem to have a necessary relation to the point in hand: sometimes they add those things which have no great reference to the subject, but are suited to allure or refresh the mind and the ear. They dilate sometimes, and flourish long.

upon little incidents, and they skip over, and but lightly touch the drier part of their theme. They place the first things last, and the last things first, with wondrous art, and yet so manage it as to conceal their artifice, and lead the senses and passions of their hearers into a pleasing and powerful captivity.

It is chiefly poesy and oratory that requires the practice of this kind of arbitrary method: they omit things essential which are not beautiful; they insert little needless circumstances, and beautiful digressions; they invert time and actions, in order to place every thing in the most affecting light, and for this end in their practice they neglect all logical forms; yet a good acquaintance with the forms of Logic and natural method, is of admirable use to those who would attain these arts in perfection. Hereby they will be able to range their own thoughts, in such a method and scheme, as to make a more large and comprehensive survey of their subject and design in all the parts of it; and by this means they will better judge what to choose and what to refuse; and how to dress and manage the whole scene before them, so as to attain their own ends with greater glory and success.

CHAP. II.

THE RULES OF METHOD, GENERAL AND SPECIAL.

THE general requisites of true method in the pursuit or communication of knowledge, may be all comprised under the following heads. It must be (1.) Safe. (2.) Plain and easy. (3.) Distinct. (4.) Full, or without defect. (5.) Short, or without superfluity. (6.) Proper to the subject and the design. (7.) Connected.

I. Rule. Among all the qualifications of a good method, there is none more necessary and important than that it should be safe and secure from error; and to this end these four particular or special directions should be observed.

1. Use great care and circumspection in laying the foundations of your discourse, or your scheme of thoughts upon any subject. Those propositions which are to stand as first principles, and on which the whole argument depends, must be viewed on all sides with the utmost accuracy, lest an error, being admitted there, should diffuse itself through the whole subject. See therefore that your general definitions or descriptions are as accurate as the nature of the thing will bear: See that your general divisions and distributions be just and exact, according to the rules given in the first part of Logic: See that your axioms be sufficiently evident, so as to demand the assent of those that examine them with due attention. See that your first and more immediate consequences, from these principles, be well drawn; and take the same care of all other propositions that have a powerful and spreading influence through the several parts of your discourse.

For want of this care, sometimes a large treatise has been written by a long deduction of consequences from one or two doubtful principles, which principles have been effectually refuted in a few lines, and thus the whole treatise has been destroyed at once; so the largest and fairest buildings sink and tumble to the ground, if the foundations and corner-stones of it are feeble and insufficient.

2. It is a very advisable thing that your primary and fundamental propositions be not only evident and true, but they should be made a little familiar to the mind, by dwelling upon them before you proceed farther. By this means you will gain so full an acquaintance with them, that you may draw consequences from them with much more freedom, with greater variety, brighter evidence, and with a firmer certainty, than if you have but a slight and sudden view of them.

3. As you proceed in the connection of your arguments, see that your ground be made firm in every step. See that every link of your chain of reasoning be strong and good: for if but one link be feeble and doubtful, the whole chain of arguments feels weakness

of it, and lies exposed to every objector, and the original question remains undetermined.

4. *Draw up all your propositions and arguments with so much caution, and express your ideas with such a just limitation, as may preclude or anticipate any objections.* Yet remember this is only to be done as far as it is possible, without too much entangling the question, or introducing complicated ideas, and obscuring the sense. But if such a cautious and limited dress of the question should render the ideas too much complicated, or the sense obscure, then it is better to keep the argument more simple, clear and easy to be understood, and afterwards mention the objections distinctly in their full strength, and give a distinct answer to them.

II. *Rule. Let your method be plain and easy, so that your hearers or readers, as well as yourself, may run through it without embarrassment, and may take a clear and comprehensive view of the whole scheme.* To this end the following particular directions will be useful.

1. *Begin always with those things which are best known, and most obvious, whereby the mind may have no difficulty or fatigue, and proceed by regular and easy steps to things that are more difficult.* And as far as possible let not the understanding, or the proof of any of your positions, depend on the positions that follow, but always on those which go before. It is a matter of wonder that in so knowing an age as this, there should be so many persons offering violence daily to this rule, by teaching the Latin language by a grammar written in Latin, which method seems to require a perfect knowledge of an unknown tongue, in order to learn the first rudiments of it.

2. *Do not affect excessive haste in learning or teaching any science, nor hurry at once into the midst of it, lest you be too soon involved in several new and strange ideas and propositions, which cannot be well understood without a longer and closer attention to those which go before.* Such sort of speech is but a waste of time, and will constrain you to take many steps backward

again, if you would arrive at a regular and complete knowledge of the subject.

3. *Be not fond of crowding too many thoughts and reasonings into one sentence or paragraph, beyond the apprehension or capacity of your readers or hearers.* There are some persons of good genius, and a capacious mind, who write and speak very obscurely upon this account; they affect a long train of dependencies, before they come to a period; they imagine that they can never fill their page with too much sense; but they little think how they bury their own best ideas in the crowd, and render them in a manner invisible and useless to the greatest part of mankind. Such men may be great scholars, yet they are but poor teachers.

4. *For the same reason, avoid too many subdivisions.* Contrive your scheme of thoughts in such manner as may finish your whole argument with as few inferior branchings as reason will admit; and let them be such as are obvious and open to the understanding, that they may come within one single view of the mind. This will not only assist the understanding to receive, but it will aid the memory also to retain truth: whereas a discourse cut out into a vast multitude of gradual subordinations has many inconveniences in it; it gives pain to the mind and memory, in surveying and retaining the scheme of discourse, and exposes the unskilful hearers to mingle the superior and inferior particulars together; it leads them into a thick wood, instead of open day-light, and places them in a labyrinth instead of a plain path.

5. *Give all diligence in your younger years to obtain a clear and easy way of expressing your conceptions, that your words, as fast as you utter them, may stamp your ideas exactly on the mind of the hearer.* This is a most happy talent for the conveyance of truth, and an excellent security against mistakes and needless controversies.

III. Rule. *Let your method be distinct, and without the perplexing mixture of things that ought to be kept separate, and this will be easily practised by four directions.*

1. Do not bring unnecessary heterogeneous* matter in your discourse on any subject; that is, do not mingle an argument on one subject with matters that relate entirely to another, but just so far as is necessary to give a clearer knowledge of the subject in hand. Examples in Logic may be borrowed from any of the sciences to illustrate the rules: but long interpositions of natural philosophy, of the imagination and passions, of agency of spirit united to bodies, &c. break the thread of discourse, and perplex the subject.

2. Let every complicated theme or idea be divided into its distinct single parts, as far as the nature of the subject, and your present design requires it. Though you must not abound in needless subdivisions, yet something of this work is very necessary; and it is good judgment alone can dictate how far to proceed in it, and when to stop.

Compound ideas must be reduced to a simple form, in order to understand them well. You may easily master that subject in all the parts of it by a regular succession, which would confound the understanding to survey them at once. So we come to the knowledge of a very perplexed diagram in geometry, or a complicated machine in mechanics, by having it parcelled out to us into its several parts and principles, according to this, and the foregoing rule of method.

3. Call every idea, proposition and argument to its proper class, and keep each part of the subject in its own place. Put those things all together that belong to one part or property, one consideration or view of your subject. This will prevent needless repetitions, and keep you from intermixing things which are different. We must maintain this distinction of things and places, if we would be safe from error: it is confusion that leads us into endless mistakes, which naturally arise from a variety of ideas ill-joined, sorted, or ill-disposed. It is one great use of method, that multitude of thoughts

* Things of one kind are called homogeneous, things of different kinds are called heterogeneous.

and propositions may be so distinctly ranged in their proper situations, that the mind may not be overwhelmed with a confused attention to them all at once, nor be distracted with their variety, nor be tempted to unite things which ought to be separated, nor disjoin things which should be united.

4. *In the partition of your discourse into distinct heads, take heed that your particulars do not interfere with the general, nor with each other.* Think it is not enough that you make use of distinct expressions in each particular, but take care that the ideas be distinct also. It is mere foolery to multiply distinct particulars in treating of things, where the difference of your particulars lies only in names and words.

IV. Rule. The method of treating a subject should be plenary or full, so that nothing may be wanting; nothing which is necessary or proper should be omitted.

When you are called to explain a subject, do not pass by, nor skip over any thing in it which is very difficult or obscure.

When you enumerate the parts or the properties of any subject, do it in a complete and comprehensive manner.

When you are asserting or proving any truth, see that every doubtful or disputable part of the argument be well supported and confirmed.

If you are to illustrate or argue a point of difficulty, be not too scanty of words, but rather become a little copious and diffusive in your language: set the truth before the reader in several lights, turn the various sides of it to view, in order to give a full idea and firm evidence of the proposition.

When you are drawing up a narrative of any matter of fact, see that no important circumstance be omitted.

When you propose the solution of any difficulty, consider all the various cases wherein it can happen, and shew how they may be solved.

In short, let your enumerations, your divisions, and distributions of things be so accurate, that no needful part or idea be left out.

This fulness of method does not require that every thing should be said which can be said upon any subject; for this would make each single science endless: But you should say every thing which is necessary to the design in view, and which has a proper and direct tendency to this end; always proportioning the amplitude of your matter, and the fulness of your discourse, to your great design, to the length of your time, to the convenience, delight and profit of your hearers.

V. Rule. *As your method must be full without deficiency, so it must be short, or without superfluity.* The fulness of a discourse enlarges our knowledge, and the well-concerted brevity saves our time. In order to observe this rule, it will be enough to point out the chief of those superfluities or redundances, which some persons are guilty of in their discourses, with a due caution against them.

1. *Avoid all needless repetitions of the same thing in different parts of your discourse.* It must be confessed there are several cases, wherein a review of the same foregoing proposition is needful to explain or prove several of the following propositions; but let your method be so contrived, as far as possible, that it may occasion the fewest rehearsals of the same thing; for it is not grateful to the hearers without evident necessity.

2. *Have a care of tedious prolixity, or drawing out any part of your discourse to an unnecessary and tiresome length.* It is much more honourable for an instructor, an orator, a pleader, or a preacher, that his hearers should say, I was afraid he would have done, than that they should be tempted to shew signs of uneasiness, and long for the conclusion.

Besides, there is another inconvenience in it; when you affect to amplify on the former branches of a discourse, you will often lay a necessity upon yourself of contracting the latter and most useful parts of it, and perhaps prevent yourself in the most important part of your design. Many a preacher has been guilty of this fault in former days, nor is the present age without some instances of this weakness.

3. *Do not multiply explications where there is no difficulty, or darkness, or danger of mistake.* Be not fond of tracing every word of your theme through all the grammatical, the logical and metaphysical characters and relations of it; nor shew your critical learning in spreading abroad the various senses of a word; and the various origin of those senses; the etymology of terms; the synonymous and the paronymous or kindred names; &c. where the chief point of discourse does not at all require it. You would laugh at a pedant, who, professing to explain the Athanasian Creed, should acquaint you, that Athanasius is derived from a Greek word which signifies immortality, and that the same word (Athanasia) signifies also the herb Tansy.

There are some persons so fond of their learned distinctions, that they will shew their subtlety by distinguishing where there is no difference: and the same silly affectation will introduce distinctions upon every occurrence, and bring three or four negatives upon every subject or discourse; first to declare what it is not, and then what it is: whereas such negatives ought never to be mentioned where there is no apparent danger of mistake. How ridiculous would that writer be, who, if he were speaking of the Nicene Creed, should declare negatively, 1. That he did not mean the doctrine which the inhabitants of Nice believed; nor, 2. A creed written by them; but, 3. Positively a creed composed by several Christian bishops met together in the city of Nice? The positive is sufficient here, and the two negatives are impertinent.

4. *Be not fond of proving those things which need no proof;* such as self-evident propositions and truths universally confessed; or such as are entirely agreed to and granted by our opponents. It is this vain affectation of proving every thing that has led geometricians to form useless and intricate demonstrations to support some theorems, which are sufficiently evident to the eye by inspection, or to the mind by the first mention of them; and it is the same humour that reigns sometimes in the pulpit, and spends half the sermon in proving some ge-

neral truth which is never disputed or doubted, and thereby robs the auditory of more useful entertainment.

5. As there are some things so evidently true, that they want no proof, so there are others so evidently false, that they want no refutation. It is mere trifling, and a waste of our precious moments; to invent and raise such objections as no man would ever make in earnest, and that merely for the sake of answering and solving them: this breaks in notoriously upon the due brevity of method.

6. *Avoid in general all learned forms, all trappings of art, and ceremonies of the schools, where there is no need of them.* It is reported concerning the late Czar of Muscovy, that when he first acquainted himself with mathematical learning, he practised all the rules of circumvallation and contravallation at the siege of a town in Livonia; and by the length of those formalities he lost the opportunity of taking the town.

7. *Do not suffer every occasional and incidental thought to carry you away into a long parenthesis, and thus to stretch out your discourse, and divert you from the point in hand.* In the pursuit of your subject, if any useful thought occur which belongs to some other theme, note it down for the sake of your memory on some other paper, and lay it by in reserve for its proper place and season: but let it not incorporate itself with your present theme, nor draw off your mind from your main business, though it should be ever so inviting. A man, who walks directly but slowly towards his journey's end; will arrive thither much sooner than his neighbour, who runs into every crooked turning which he meets, and wanders aside to gaze at every thing that strikes his eyes by the way, or to gather every gaudy flower that grows by the side of the road.

To sum up all; there is an happy medium to be observed in our method, so that the brevity may not render the sense obscure, nor the argument feeble, nor our knowledge merely superficial: and, on the other hand, that the fulness and copiousness of our method may not waste the time, tire the learner, or fill the mind with trifles and impertinencies.

The copious and the contracted way of writing have each their peculiar advantages. There is a proper use to be made of large paraphrases, and full, particular, and diffusive explications and arguments; these are fittest for those who design to be acquainted thoroughly with every part of the subject. There is also an use of shorter hints, abstracts and compendiums to instruct those who seek only a slight and general knowledge, as well as to refresh the memory of those who have learned the science already, and gone through a larger scheme. But it is a gross abuse of these various methods of instruction, when a person has read a mere compend or epitome of any science, and he vainly imagines that he understands the whole science. So one boy may become a philosopher by reading over the mere dry definitions, and divisions of Scheibler's compendium of Peripatecism: so another may boast that he understands Anatomy, because he has seen a skeleton; and a third profess himself a learned divine, when he can repeat the apostles' creed.

VI. Rule. Take care that your method be proper to the subject in hand, proper to your present design, as well as proper to the age and place wherein you dwell.

1. Let your method be proper to the subject. All sciences must not be learned or taught in one method. Morality and theology, metaphysics and logic, will not be easily and happily reduced to a strict mathematical method: those who have tried have found much inconvenience therein.

Some things have more need to be explained than to be proved; as axioms or self-evident propositions; and indeed all the first great principles, the chief and most important doctrines both of natural and revealed religion; for when the sense of them is clearly explained, they appear so evident in the light of nature or scripture, that they want no other proof. There are other things that stand in need of proofs as well as explication, as many mathematical theorems, and several deep controversies in morality, and divinity. There are yet other sorts of subjects which want rather to be

warmly impressed upon the mind by fervent exhortations, and stand more in need of this than they do either of proof or explication; such are the most general, plain and obvious duties of piety towards God; and love towards men, with a government of all our inclinations and passions. Now these several subjects ought to be treated in a different manner and method.

Again, There are some subjects in the same treatise which are more useful and necessary than others, and some parts of a subject which are eminently and chiefly designed by a writer or speaker: true method will teach us to dwell longer upon these themes, and to lay out more thought and language upon them; whereas the same art of method will teach us to cut short those things which are used only to introduce our main subject, and to stand as a scaffolding merely to aid the structure of our discourse. It will teach us also to content ourselves with brief hints of those matters which are merely occasional and incidental.

2. Your method must be adjusted by your design; for if you treat of the same subject with two different views and designs, you will find it necessary to use different methods. Suppose the doctrine of the sacred Trinity were your theme, and you were to read a lecture to young students on that subject, or if you designed a treatise for the conviction of learned men, you would pursue a very different method from that which would be proper to regulate a practical discourse, or a sermon to instruct vulgar Christians merely in the pious improvement of this doctrine, and awaken them to their duties which are derived thence.

In short, we must not first lay down certain and precise rules of method, and resolve to confine the matter we discourse of to that particular form and order of topics; but we must well consider and study the subject of our discourse thoroughly, and take a just survey of our present design, and these will give sufficient hints of the particular form and order in which we should handle it, provided that we are moderately skilled in the general laws of method and order.

Yet let it be noted here, that neither the subject, nor matter of a discourse, nor the particular design of it, can so precisely determine the method, as to leave no room for liberty and variety. The very same theme may be handled, and that also with the same design, in several different methods, among which it is hard to say which is the best. In writing a system of divinity, some begin with the scripture, and thence deduce all other doctrines and duties. Some begin with the being of God and his attributes, so far as he is known by the light of nature, and then proceed to the doctrines of revelation. Some distinguish the whole subject into the *Credenda* and *Agenda*, that is, things to be believed, and things to be done. Some think it is best to explain the whole Christian religion by an historical detail of all the discoveries which God has made of himself in his lower world, beginning at the creation in the first chapter of Genesis, and so proceeding onward according to the narrative of the Old and New Testament. And there are others that endeavour to include the whole of religion under these four heads, viz. the Apostles' Creed, the Lord's Prayer, the ten Commandments, and the two Sacraments; though I cannot but think this is the least accurate of any. The same variety may be allowed in treating other subjects; this very treatise of Logic is an instance of it, whose method differs very considerable from any others which I have seen, as they differ also greatly from one another, though several of them are confessed to be well written.

Though a just view of our subject and our design may dictate proper rules of natural method, yet there must be some little difference at least paid to the custom of the age wherein we dwell, and to the humour and genius of our readers or hearers, which if we utterly reject and disdain, our performances will fail of desired success, even though we may have followed the just rules of method. I will mention but this one instance: in the former century it was frequent with learned men to divide their theme or subject into a great multitude of co-ordinate members or parts: they abounded also in

the forms of Logic and distinction, and indulged numerous ranks of subordination. Now though we ought not to abandon the rules of just method and division, in order to comport with the modish writers in our age who have renounced them; yet it is prudent to pay so much respect to the custom of the age, as to use these forms of division with due moderation, and not effect to multiply them in such a manner, as to give an early and needless disgust to the generality of our present readers. The same may be said concerning various other methods of conduct in the affairs of learning, as well as in the affairs of life, wherein we must indulge a little to custom: and yet we must by no means suffer ourselves so far to be imposed upon and governed by it, as to neglect those rules of method, which are necessary for the safe, easy and complete inquiry into truth, or the ready and effectual communication of it to others.

VII. Rule. The last requisite of method is, that the parts of a discourse should be well connected; and these three short directions will suffice for this purpose.

1. Keep your main end and design ever in view, and let all the parts of your discourse have a tendency towards it, and as far as possible make that tendency visible all the way: otherwise the readers or hearers will have reason to wonder for what end this or that particular was introduced.

2. Let the mutual relation and dependence of the several branches of your discourse be so just and evident, that every part may naturally lead onward to the next, without any huge chasms or breaks which interrupt and deform the scheme. The connection of truths should arise and appear in their successive ranks and order, as the several parts of a fine prospect ascend just behind each other, in their natural and regular elevations and distances, and invite the eye to climb onward with constant pleasure till it reach the sky. Whatsoever horrid beauty a precipice or a cataract may add to the prospect of a country, yet such sort of tedious and abrupt appearances in a scene of reasoning are real blemishes and not beauties. When the

reader is passing over such a treatise, he often finds a wide vacancy, and makes an uneasy stop, and knows not how to transport his thoughts over to the next particular, for want of some clue or connecting idea to lay hold of.

3. Acquaint yourself with all the proper and decent forms of transition from one part of a discourse to another, and practise them as occasion offers. Where the ideas, propositions and arguments, are happily disposed, and well connected, the truth indeed is secure; but it renders the discourse much more agreeable, when proper and graceful expression joins the parts of it together in so entertaining a manner, that the reader knows not how to leave off till he hath arrived at the end.

These are the general and most important rules of true method; and though they belong chiefly to the communication of knowledge, yet an early and thorough acquaintance with them will be of considerable use towards the pursuit and attainment of it.

Those persons who have never any occasion to communicate knowledge by writing or by public discourses, may also with great advantage peruse these rules of method, that they may learn to judge with justice and accuracy concerning the performances of others. And besides, a good acquaintance with method will greatly assist every one in ranging, disposing, and managing all human affairs.

The particular means or methods for a farther improvement of the understanding are very various, such as, meditation, reading, conversing, disputing by speech or by writing, question and answer, &c. And in each of these practices, some special forms may be observed, and special rules may be given to facilitate and secure our inquiries after truth: but this would require a little volume by itself, and a treatise of Logic has always been esteemed sufficiently complete without it.