Lucretius - On The Nature of Things - 1743 Edition

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1. Lucretius - On The Nature of Things (Brown)

1.1. Editions at EpicureanFriends.com

1. The 1743 Translation Published By Daniel Brown - The translator of this edition is unknown, but it was published in England by Daniel Brown in 1743. This translation has the advantage that despite being older, it can sometimes be easier to read than later versions.
2. The 1893 Translation of HAJ Munro - This is one of the most memorable and literal translations available.
3. The 1920's Loeb translation by William Rouse
4. The 1936 Translation Of Cyril Bailey - This is the most recent edition in the public domain.
5. The Latin Edition - This text comes from LatinLibrary.com.

2. Book One

[01] MOTHER of Rome, Delight of Men and Gods, Sweet Venus; who with vital power does fill the sea bearing the ships, the fruitful Earth, all things beneath the rolling signs of Heaven; for it is by Thee that creatures of every kind conceive, rise into life, and view the Sun’s bright beams. Thee, Goddess, Thee the winds avoid; the clouds fly Thee and Thy approach. With various art the Earth, for Thee, affords her sweetest flowers; for Thee the sea’s rough waves put on their smiles, and the smooth sky shines with diffused light. For when the buxom Spring leads on the year, and genial gales of western winds blow fresh, unlocked from Winter’s cold, the airy birds first feel Thee, Goddess, and express thy power. Thy active flame strikes through their very souls. And then the savage beasts, with wanton play, frisk over the cheerful fields, and swim the rapid streams. So pleased with thy sweetness, so transported by thy soft charms, all living Nature strives, with sharp desire, to follow Thee, her Guide, where Thou art pleased to lead. In short, Thy power, inspiring every breast with tender love, drives every creature on with eager heat, in seas, in mountains, in swiftest floods, in leafy forests, and in verdant plains, to propagate their kind from age to age.

[21] Since Thou, alone, doest govern Nature’s laws, and nothing, without Thee, can rise to light, without Thee nothing can look gay or lovely; I beg Thee a companion to my lays, which now I sing of Nature, and I devote to my dear Memmius, whom Thou art ever pleased, sweet Goddess, to adorn with every grace. For him, kind Deity, inspire my song, and give immortal beauty to my verse.

[29]Meantime, the bloody tumults of the war, by sea and land, compose, and lay asleep. For Thou, alone, mankind, with quiet peace, canst bless; because it is Mars Armipotent that rules the bloody tumults of the war, and He, by everlasting pains of love, bound fast, tastes in Thy lap most sweet repose, turns back his smooth long neck, and views thy charms, and greedily sucks love at both his eyes. Supinely, as he rests, his very soul hangs on thy lips. This God, dissolved in ease, in the soft moments when thy heavenly limbs cling

round him, melting with eloquence, caress, great Goddess, and implore a peace for Rome.

For neither can I write with cheerful strains, in times so sad, nor can the noble House of Memmius desert the common good in such distress of things. The hours you spare, apply with close attention to my verse, and, free from care, receive true reason's rules; nor these my gifts, prepared with faithful pains, reject with scorn before they are understood. For I begin to write of lofty themes, of Gods, and of the motions of the sky, the rise of things, how all things Nature forms, and how they grow, and to perfection rise, and into what, by the same Nature's laws, those things resolve and die; which as I write I call by various names; sometimes it is matter, or the first principles, or seeds of things, or first of bodies, whence all else proceed.

For the whole nature of the Gods must spend an Immortality in softest peace, removed from our affairs, and separated by distance infinite; from sorrow free; secure from danger; in its own happiness sufficient, and nothing of ours can want, is neither pleased with good, nor vexed with evil.

[62] Indeed mankind, in wretched bondage held, lay groveling on the ground, galled with the yoke of what is called Religion; from the sky this tyrant shewed her head, and with grim looks hung over us, poor mortals, here below; until a man of Greece, with steady eyes, dared look her in the face, and first opposed her power. Him not the fame of Gods, nor thunder's roar, kept back, nor threatening tumults of the sky; but still the more they roused the active virtue of his aspiring soul, as he pressed forward, first to break through Nature's scanty bounds. His mind's quick force prevailed; and so he passed by far the flaming limits of this world, and wandered with his comprehensive soul over all the mighty space; from thence returned, triumphant; told us what things may have a being, and what cannot; and how a finite power is fixed to each; a bound it cannot break. And so Religion, which we feared before, by him subdued, we tread upon in turn. His conquest makes us equal to the Gods.

[80] But in these things, I fear, you will suspect you are learning impious rudiments of reason, and entering in a road of wickedness. So, far from this, reflect what sad flagitious deeds Religion has produced. By her inspired, the Grecian chiefs, the first of men, at Aulis, Diana's altar shamefully defiled with Iphigenia's blood; her virgin hair a fillet bound, which hung in equal length on either side of her face. She saw her father, covered with sorrow, stand before the altar; for pity to his grief the butchering priests concealed the knife. The city, at the sight, overflowed with tears; the virgin, dumb with fear; fell low upon her knees on the hard Earth; in vain the wretched princess in distress pleaded that she first gave the honored name of Father to the King; but hurried off, and dragged by wicked hands, she, trembling, stood before the altar. Alas! not as a virgin, the solemn forms being duly done, drawn with pleasing force to Hymen's noble rites, but a chaste maid, just ripe for nuptial joy, falls a sad victim, by a father's hand, only to beg a kind propitious gale for Grecian ships. Such Scenes of villainy Religion could inspire!

[102] But still I fear your caution will dispute the maxims I lay down, who all your life have trembled at the poets' frightful tales. Alas! I could even now invent such dreams as would pervert the steadiest rules of reason, and make your fortunes tremble to the bottom. No wonder! But if Men were once convinced that death was the sure end of all their pains, they might with reason, then, resist the force of all Religion, and contemn the threats of poets. Now, we have no sense, no power, to strive against prejudice, because we fear a scene of endless torments after death.

And yet the nature of the soul we know not, whether formed with the body, or at the birth infused; and then, by death cut off, she perishes as bodies do; or whether she descends to the dark caves and dreadful lakes of Hell; or, after death, inspired with heavenly Instinct, she retires into the Brutes, as our great Ennius sung, who first a crown of laurels ever green brought down from Helicon; which gained him fame through all the Italian Coasts. And yet this man, in never-dying numbers, describes the stately Palaces of Acheron, where neither our souls or bodies ever come, but certain spectres strange and wondrous pale; from whence he tells how Homer's ever celebrated shade appeared, and how his eyes began to flow with briny tears, as in immortal verse he sung of Nature and her secret laws.

[127] Wherefore, I shall not only accurately write of things above, as how the Sun and Moon their courses run, and by what power beings in Earth and Heaven are formed, but chiefly search, with nicest care, into the

soul, and what her Nature is; what it is that meets our wakeful eyes, and frightens the mind; and how, by sickness or by sleep oppressed, we think we see, or hear the voice of those who died long since, whose mouldering bones rot in the cold embraces of the grave.

[136] I know it is hard to explain in Latin verse the dark and mystic notions of the Greeks, for I have things to say that require new words, because the tongue is poor, the subject new. But your virtue, and the pleasures I expect from tender friendship, make me bear the toil, and spend the silent night with wakeful eyes, studious of words and numbers I shall use, to open to your mind such scenes of light which shew the hidden qualities of things unknown.

[146] These terrors of the mind, this darkness then, not the Sun's beams, nor the bright rays of day, can ever dispel, but Nature's light and reason, whose first of principles shall be my guide:

Nothing was by the Gods of nothing made.

For hence it is that fear disturbs the mind, that strange events in Earth and Heaven are seen, whose causes cannot appear by reason's eye, and then we say they were from Powers Divine. But when we rest convinced that nothing can arise from nothing, then the way is clear to our pursuit; we distinctly see whence every thing comes into being, and how things are formed, without the help and trouble of the Gods.

[159] If things proceed from nothing, every thing might spring from any thing, and want no seed; Men from the sea might first arise, and fish and birds break from the Earth, and herds and tender flocks drop from the sky, and every kind of beast, fixed to no certain place, might find a being in deserts or in cultivated fields: Nor the same fruit on the same trees would grow, but would be changed, and all things all things bear. For had not every thing its genial seed, how is it that every thing derives its birth from causes still the same? But now, since things are formed from certain seeds, and first rise into light, where every being has its principles and matter fitly framed, from hence we see that all things cannot spring from every thing, since each has certain secret properties peculiar to itself.

[174] Why do we see the rose adorn the Spring, the fruits in Summer, and the sweaty Autumn pressing the vine, unless the fixed seeds of things, uniting in their proper times, give life to beings, each in its stated season, while Mother Earth can trust her tender offspring with safety to the air. But if things proceed from nothing, in a moment they might spring at times uncertain, at quarters of the year unfit, and there would be no proper seeds, whose kindly influence might check their growth at seasons that would kill them in the bud.

[184] Again, if things could spring from nought, what need of time for bodies to fulfill their growth by accession of new matter? An infant then might instantly become a youth, and trees start up in full perfection from the Earth. But 'tis not so, 'tis plain; for things, we know, grow by degrees from certain seeds, and still, as they grow, keep their kind; and thus you find each being rise into bulk, and thrives from seed and matter proper to itself.

[192] Nor, likewise, can the Earth produce her fruits to cheer the heart, unless with timely showers impregnated; nor can creatures, blessed with life, deprived of food, ever propagate their kind, or save their own lives; and so you safer say that certain fixed principles belong to certain things, as letters form our words, than that from nothing any thing can rise.

[199] Further, whence is it that Nature cannot shew men so gigantic as, on foot, to wade through seas, or with their hands to tear up mighty hills, or to surpass the common bounds of life, by many ages, but that certain seeds are fixed to all things, whence they must arise? And so we must confess that nothing springs from nothing, since each kind must proceed from seed, the principle whence every creature derives its life, and feels the gentle air.

[208] Besides, we find the Earth, improved by care, exceeds the uncultivated soil, and by turning up the fruitful clods, by ploughing, and, by breaking up the ground, we force to spring. But then, if no such seeds lay there, the fruits, without our labor, would of their own accord improve, and of themselves prevent our care.

[215] **Add, here, that Nature dissolves all bodies into their principles again, nor can reduce things into nothing.**

For if every being was liable to death through all its substance, snatched from our eyes, it would directly perish; no need of violence to make a breach in all its parts, and loose the vital bands. But now, since things are formed from eternal seeds, Nature wills that nothing be destroyed unless some force prevails, which beats with blows its outward form, or pierces through the pores, with subtle art, and so dissolves the frame.

[225] Besides, such things as are removed by age, if time destroys them quite in all its parts, whence does the Power of Love restore to light the several races of beings? Whence the Earth, with nicest art, does nourish them when born, and makes them grow, and feeds with proper food each its kind? Whence do the bounteous springs and rivers, with their wandering streams from far, supply the sea? The air whence feed the stars? For that vast tract of time already past had long ago consumed things that were formed from mortal seed. But if those bodies which compose this universe of things were still supplied through all that space and periods of time that passed long since, they must surely consist of an immortal nature, and, from death secure, can never into nothing fall.

[238] Again, the same violence would everywhere destroy all beings, if the eternal power of matter did not hold fast their close compacted frame in bonds more strong or weak; a single touch would surely be the cause of death, for things formed out of mortal seed by any force must perish, and their frame be quite dissolved; but now, because the union of seeds of bodies differs, which consist of matter eternal in its nature, every being is safe from danger ‘til some proper force, proportioned to its texture, makes the assault. So nothing can return to nothing; every thing resolves by separation of its parts into its principles from whence it sprung.

[250] Lastly, the rains that Father Aether pours into the womb of mother earth do seem to perish there, but strait fair fruits spring up; the boughs grow green upon the trees, their limbs increase, and bend beneath a load of fruit; hence all living race of men and beasts are fed, our gallant cities filled with youth, our leafy woods resound with songs of birds new fledged; the weary flocks grow fat, repose their bodies on the fertile plains, while the white milky humour from their dugs distended flows; and hence their sprightly young, in wanton play, frisk with their tender limbs over the soft grass, cheering their little hearts with the pure milk; and therefore things we see do not entirely die. Nature still renews one being by another, nor does she suffer one thing to be, unless supplied with matter from something else that was dissolved before.

[265] And now, since I have taught that nothing can proceed from nothing, nor can things, once formed, to nothing be reduced, lest you by chance should doubt my reasons, since the seeds of things cannot be seen with naked eyes; hear further, that there are seeds of bodies (and you must confess there are) impervious to the sight.

[271] And first, the raging force of winds does lash the sea, o'erthrow vast ships, and chase the clouds; sometimes they scour the plains with furious storms, and spread them o'er with tallest trees, and vex the lofty hills with blasts that rend the woods. And so they bluster with a dreadful sound, and roar with threatening noise through the air. These winds are therefore bodies to the eyes unseen, which scour the sea, the lands, the clouds, and toss them, thus tormented, with their blasts. They act the same, and spread destruction round as a still stream, increased by sudden rain, and swelled by torrents pouring from the hills, the effect of driving showers, is born along, rending the limbs of trees, and then whole woods: Nor can the strongest bridges bear the force, so sudden, of the rushing flood; the stream, made mad by hasty rains, beats on the dams with force impetuous, swells through the breach with horrid noise, and rolls the massy stones under its waves, and breaks what stops its tide. Just so, the hurricanes of wind drive on which way they point their blasts, like mighty floods, force all before them, beat with frequent strokes; sometimes they snatch with rapid turns, and while things as they roll in eddies through the air. These winds, 'tis plain, are bodies still unseen, since by their furious blasts they rival in their force the largest streams, which bodies are we own.

[298] Besides, we feel the various smells of things, but can't discern how they affect the nose; nor can we see the raging heat, nor with our eyes perceive the cold, nor can we see a voice; all which by nature are of bodies

formed, because they make an impression on the sense, for nothing but body can be touched, or touch.

[305] Again, a garment hung up nigh the shore, that breaks the waves, grows wet, and, to the Sun expanded, dries; yet no one ever saw how the moist vapor fixed, or how again it fled before the heat; the watery drops must be dissolved into small parts too subtle to be at all discovered by the eye.

[311] But further, after circling many years, a ring upon the finger wears away, the fall of dropping water hollows stones, the crooked plough-share, though of iron, wastes in the fields insensibly by use; we see the streets, paved with hard stones, worn out by frequent tread of passengers; the brazen statues nigh the gates shew their right hands made less by many a kiss of those who worship, or who pass along. These things we see shew less and less, and wear; but what a share of matter every time is brushed off, nature in envy to us has not indulged the faculty to see.

[322] Lastly, what every day and nature do bestow on beings, to make them grow by just degrees, not the most piercing eye could ever find, nor yet the particles that fly and waste by age or by decay; nor can you see by what degrees the rocks are eaten through by the corroding salt of dashing waves: thus Nature works by bodies not discerned.

[329] And yet all beings are not formed of close and solid parts; in things there is a void, which in your searches into nature will be of use to know. This will preserve your wandering mind from doubt, prevent your constant toil by judging right of nature's laws, and make my words believed. Wherefore there is a place we call a void, an empty space intangible, or else no bodies could be moved, or stir; the quality all bodies have to stop and to oppose does never fail, so that to move would be in vain to try, no body first by yielding would give way. But now we see before our eyes that things move various ways in seas, in Earth, and in the heaven above; but were there no void, they would not be deprived of that activity of motion only, but would not be at all; for matter wedged and crowded close on every side had ever been at rest.

[346] Besides, though things appear of solid parts composed, yet you will find them, in some measure, formed of bodies that are rare; the liquid moisture of the water sweats through rocks and stones, and all things weep with drops abundant; the food that every creature eats disperses through the body; the trees increase and grow and in due season shew their fruit; because the juice is from the lowe roots spread through the trunk, and over all the boughs. Sounds pass through strong partitions, and fly quick through walls of houses, and the piercing cold strikes through the very bones; but were no void, no empty space, that bodies ever should pass, you'd find a thing impossible to prove.

[358] Again, why do we see some things exceed others in weight, though of equal size? For if as much of body went to form a ball of wool as made a ball of lead, their weight would be the same; for the quality of body is to press downward: but a perfect void by nature has no weight; so that a body of equal size, but lighter in its weight, proves it has more of empty space. So again, the heavier body has more of solid parts 'tis plain, and has within it less of void. And this is doubtless what with reason's searching eye we look for, mixed with things; we call it space.

[370] But I am forced to step before, and answer what some pretend, lest you should be seduced from truth: They say the waters yield to fish making their way, and open their liquid paths; for when the fish have left a space, that instant thither the yielding waters circling flow. By the same rule, all beings may be moved among themselves, and change their former place, though all things should be full: but this, 'tis plain, is false throughout; for how could fish advance at all, unless the waters gave them way? And whither should the waves retire, if the fish did not move, and leave a space behind? So that all bodies must be deprived of motion, or you must say a void is mixed with every thing from whence each being first derives a power to move.

[384] Lastly, if two broad bodies meet, and instantly are separated again, the air must needs fill up the void that is between; but this air, though it should hurry with its swiftest powers, it cannot all at once fill up the space these bodies will disclose at parting; first the nearest part will be filled up, and then the more remote, until the whole be full. If one should say when these flat bodies meet the air is condensed, but when they part

the air is rarefied, 'tis a mistake; for then here must be void where there was none before, and that void that was before must now be full; in such a case, the air can't be condensed; and if it could, it can't without a void contract itself, and so reduce its parts into a closer space. Wherefore, perplex the matter as you please, you must confess in things there is a void.

[398] I could by many arguments confirm this system of a void, and fix your faith to what I say, but these small tracks I have drawn, to such a searching mind, will be enough; the rest you may find out without a guide. For as staunch hounds, once put upon the foot, will by nose soon rouse the mountain game from their thick covers, so you, in things like these, will one thing by another trace, will hunt for truth in every dark recess, and draw her thence. But if you doubt, or in the least object to what I say, I freely promise this, my Memmius, my tuneful tongue shall, from the mighty store that fills my heart, pour out such plenteous draughts from the deep springs, that tardy age I fear will first creep through my limbs, and quite break down the gates of life, before I can explain in verse the many arguments that give a light to one particular. But now I shall go on to finish regularly what I begun.

[418] All nature therefore, in itself considered, is one of these, is body or is space, in which all things are placed, and from which the various motions of all beings spring. That there is body common sense will show; this as a fundamental truth must be allowed, or there is nothing we can fix as certain in our pursuit of hidden things, by which to find the Truth, or prove it when 'tis found. Then if there were no place or space, we call it void, bodies would have no where to be, nor could they move at all, as we have fully proved to you before.

[430] Besides, there is nothing you can strictly say, “It is neither body nor void,” which you may call a third degree of things distinct from these. For every being must in quantity be more or less; and if it can be touched, though never so small or light, it must be body, and so esteemed; but if it can't be touched, and has not in itself a power to stop the course of other bodies as they pass, this is the void we call an empty space.

Again, whatever is must either act itself, or be by other agents acted on; or must be something in which other bodies must have a place and move; but nothing without body can act, or be acted on; and where can this be done, but in a vacuum or empty space? Therefore, beside what body is or space, no third degree in nature can be found, nothing that ever can affect our sense, or by the power of thought can be conceived.

[449] All other things you'll find essential conjuncts, or else the events or accidents of these. I call essential conjunct what's so joined to a thing that it cannot, without fatal violence, be forced or parted from it; is weight to stones, to fire heat, moisture to the Sea, touch to all bodies, and not to be touched essential is to void. But, on the contrary, Bondage, Liberty, Riches, Poverty, War, Concord, or the like, which not affect the nature of the thing, but when they come or go, the thing remains entire; these, as it is fit we should, we call Events. Time, likewise, of itself is nothing; our sense collects from things themselves what has been done long since, the thing that present is, and what's to come. For no one, we must own, ever thought of Time distinct from things in motion or at rest.

[464] For when the poets sing of Helen's rape, or of the Trojan State subdued by war, we must not say that these things do exist now in themselves, since Time, irrevocably past, has long since swept away that race of men that were the cause of those events; for every act is either properly the event of things, or of the places where those things are done. Further, if things were not of matter formed, were there no place or space where things might act, the fire that burned in Paris' heart, blown up by love of Helen's beauty, had never raised the famous contests of a cruel war; nor had the wooden horse set Troy on fire, discharging from his belly in the night the armed Greeks: from whence you plainly see that actions do not of themselves subsist, as bodies do, nor are in nature such as is a void, but rather are more justly called the events of body, and of space, where things are carried on.

[483] Lastly, bodies are either the first seeds of things, or formed by the uniting of those seeds. The simple seeds of things no force can strain, their solid parts will never be subdued. Though it is difficult, I own, to think that any thing in nature can be found perfectly solid; for heaven's thunder passes through the walls of houses, just as sound or words; iron in the fire grows hot, and burning stones fly into pieces by the raging heat; the stiffness of the gold is loosed by fire, and made to run; the hard and solid brass, subdued by flames,

dissolves; the heat and piercing cold passes through silver; both of these we find as in our hand we hold a cup, and at the top pour water hot or cold: so nothing wholly solid seems to be found in nature. But because reason and the fixed state of things oblige me, here, I beg, while in few verses we evince that there are beings that consist of solid and everlasting matter which we call the seeds, the first principles of things, from whence the whole of things begin to be.

[503] And, first, because we find two sorts of things unlike in nature, in themselves distinct, body and space, 'tis necessary each should be entire, and separate in itself; for where there is a space which we call void, there nothing is of body; so were body is, there nothing is of empty space: and therefore such things are as solids and first seeds, which nothing in them can admit of void.

[511] Besides, because in all created things there is a void, 'tis necessary some solid matter should still include this void; nor can you prove, by any rule of reason, that any thing contains within itself an empty space, unless you will allow what holds it in is perfect solid; and this is nothing else but the close union of the first seeds, which bind and do confine within themselves this void. Matter therefore composed of solid parts eternal is, when all things else must die.

[520] Further, if there was no such thing as we call void, every thing would be solid; then again, unless there were some things solid to fill up the space they hold, all would be empty space. Body from space therefore is in itself distinct; for all is neither full, nor is all void; and therefore there are solid seeds which make a difference between full and space. These solid seeds by no force from without can be dissolved, nor can they be destroyed by being pierced within, nor made to yield by any other means, as proved before. For nothing can be bruised without a void, or broken or by force be cleft in two, or receive moisture, or the piercing cold, or searching fire which all things else destroys. And the more of void the solid seeds confine, the sooner when they are struck will they dissolve and fall to pieces; therefore, if these first seeds are solid, free from void, they, as I said, must be eternal, and from death secure.

[540] Again, if matter had not been eternal, long before now all beings had returned to nothing, and each being we behold again had been restored from nothing; but, as before I proved, nothing from nothing can be made, and what was once in being can never to nothing be reduced; it follows, those first seeds must be composed of principles immortal, into which at last each being must dissolve, and thence supply an everlasting stock of matter to repair the things decayed. These first seeds therefore are solid and simple, else they could not last entire through ages past and infinite, to repair beings perished and dissolved.

[551] But still, if nature had prefixed no bounds in breaking things to pieces, the parts of matter, broken by every passing age, had been reduced so small that nothing could of them be formed that would in any time become mature; for things we see much sooner are dissolved than are again restored; and therefore what an infinite tract of ages past has broken, and separated and dissolved, in future time can never be repaired; so that certain bounds of breaking and dividing must be set, because we see each being is repaired, and stated times are fixed to ever thing in which it feels the flower of its age.

[565] And yet, though the first seeds of things are solid, all beings that are compounded, such as air and water, earth and fire, may be soft, (however made, or by what power formed) and from them be produced, because there is a void still mixed with things; and, on the contrary, if these first seeds were soft, what reason can there be assigned whence hardened flints and iron could be formed, for nature would want the proper principles to work upon; and therefore these first seeds must simple solids be, by whose union close and compact all things are bound up firm, and so display their strength and hardy force.

[577] Again, because each being in its kind has certain bounds prefixed to its increase, and to the preservation of its life, and since by nature's laws it is ordained to each how far their powers to act or not extend; since nothing changes, and every thing goes on as it began, each kind of birds, most steady in their course, shew the same colors painted on their wings, the principles of matter whence they spring must be fixed and unchangeable; if the seeds of things could change by any means, it would be unknown what could be formed, what not; by what means every being is limited, and stops short within the bounds it cannot break; nor could the course of time in every age, the nature, motion, diet, and the manners of the old sire impress

upon the young.

[599] Besides, because the utmost point or the extreme of every body something is the eye cannot discern, it is not made of parts, but is in nature what we call the least; which never exists of itself, divided from body, nor ever can, because it is the very first and last of something else. For 'tis by heaping up such parts as these, one by another, that complete the being of every body. Since then they can't subsist apart, and separate, they must needs stick close, nor be divided by the utmost force. These seeds therefore are in their nature solid, and simple, formed of smallest parts bound close; not tied together by united seeds of various kinds, but in themselves entire, eternally unmixed and pure, from which nature will suffer nothing to be forced or lessened, reserving them as first seeds, to form and to repair those things that die.

[615] Again, suppose there was no least, the smallest bodies must be composed of parts boundless and infinite; the half of every being must then contain another half, so there would be no end of still dividing; and where would be the difference between the smallest and the largest bodies? None in the least; for though the whole be entirely infinite, yet bodies that are smallest would contain infinite parts alike, which, since true reason exclaims against, nor will allow the mind to give assent, you must, convinced, profess that there are bodies which are void of parts, and are by nature least; since such there are, you must admit them solid and eternal.

[628] Lastly, if nature, parent of things, had not compelled all things that perish then to be resolved into least parts, she could from them repair nothing that dies; for bodies that are formed of various parts can never be endued with properties, which the first seeds of things ought to possess, as union, weight, and force, agreement, motion, by which all things act.

And yet, suppose that nature had allowed no end to bodies being divided, yet some bodies from eternity must have been, which by no force could ever be subdued. But bodies that are formed of brittle seeds, and to be broken, could not have remained for ages infinite, vexed as they have been with endless blows, but must have been dissolved.

[635] Wherefore, those sages who have thought that fire is the first principle of things, and from that alone the whole is formed, do greatly err from the true rule of reason. The champion of these, Heraclitus, enters first the lists, more famed for dark expression among empty Greeks than with the wise, who search for truth; for none but fools admire, and love what they see couched in words abstruse; and that they take for truth which quaintly moves the ear, and painted over affects by witty jingling of the sound.

[645] For how such various beings could arise, I ask, if formed from pure and real fire? To say that the hot fire is now condensed, and sometimes rarified, could nought avail; the several parts must still retain the nature of fire, the same which the fire had when whole; the heat would be more fierce, the parts condensed, more languid when divided and made rare. There's nothing more than this you can derive from causes such as these; much less so great variety of things can be produced from fire or flame, condensed or made rare.

[655] Indeed, would they admit in things a void, fire then might be condensed or rarified; but this, because it contradicts their other schemes, they murmur at, and will allow in things no empty space: So, while they fear to grant this difficult truth, they lose the way that's right, nor do they see, by not allowing there is in things a void, all bodies would be dense, and out of all one only would be made, which could by force emit nothing without itself, as the hot fire emits both light and heat, which shews it is not composed of crowded parts, without a void.

[665] But if they think that a fire in all its parts may be extinguished, and so its body change; if they insist that this may once be done, then the whole fire must be resolved to nothing, and things new-form from nothing must arise; for whatsoever is changed, and breaks the bounds of its first nature, dies, and is no more what must still remain whole and unhurt, lest things to nothing should perfectly return; and then revive, and should again from nothing be restored. But now, since there remain some certain seeds that keep their nature still the same, whose absence or their presence, and their change of order change the nature of compound bodies, you must not think that these first seeds are fiery; if they were, what would it signify what seeds are

absent, or what retire, what others take their place, how others may their rank and order change, since all would still be in their nature fire, and beings formed from them must wholly be of fire? But, as I think, the case is thus: some certain seeds there are by whose concussion, motion, order, site, and figure, fire is formed; and when their order is changed, they change the nature of this fire; but these first seeds have nothing fiery in themselves, nor of such a nature are they as to send forth bodies to be perceived by sense, or be the object of our touch.

[690] And now to say that every thing is fire, and no true thing in nature does exist but fire, as this man does, is madness all; he contradicts his senses by his sense, and overthrows those tests of truth by which all things are known: for 'tis by them we know what thing which he calls fire, and this sense concludes, it truly knows the nature of this fire; but then all other things it will deny, which equally are true. This is to me a vain and foolish way to judge; for to what shall we apply? And what can be more sure than our senses to us, by which we fully know falsehood and truth?

[701] Besides, why any one should all things else disclaim, and only fire allow, or say there's no such thing as fire, and all things else allow, either of this is in vain, and equal madness to believe.

[705] Wherefore those sages who contend that fire is the first principle, and that of fire all things consist, and those who make the air the first seeds of bodies, and such who lay the water is the sole cause of beings, or that the Earth all things creates, and can infuse itself into the nature of all things, do strangely err, and wander wide from the truth. And so do those who doubt the first elements of things, and to produce all beings, join the air to fire, the earth to water, or believe that from all four all beings are produced, and spring from air, and water, earth and fire.

The chief of these we rank Empedocles of Agrigentum, born in Sicily, the island famed for its three promontories, whose sides the Ionian sea flows all around, with mighty windings, from whose coast the sea, by a narrow Frith, divides the bounds of Italy. Here is the fierce Charybdis, here Aetna roars, and threatens loud to suck in flames of vengeance, with greater force to belch them out again, burst from his jaws, and throw the flashing fire high as the sky. This island, though renowned by men for many things, and worth their sight, rich in the best advantages of life, by mighty men defended, yet produced nothing more glorious than this one great man, nothing more venerable, admired, and dear. Besides his verse, that from his soul divine flows sweetly, so clearly proves, and so explains the noble secrets he has found, he seems scarce born of human race, but from the gods.

[734] Yet he, with others of inferior note we named before, remarkably, by great degrees, and much below him, though these have succeeded well in their search, and many things have found as if inspired, and have pronounced their oracles (from the most close recesses of their souls) much more divine, and founded more on reason than Pythia, sacred prophetess, from Tripod, or from Apollo's laurel ever spoke. Yet they have made sad havoc, when they search into the principles of things and fell with this great man's mistakes together with him.

And first, because, denying there is void in bodies, they admit of motion, and allow that things are soft or rare; as the air, the sun, the fire, the earth, the creatures, fruits, and yet will mix no empty space in the contexture of bodies that are formed.

And then they set no bounds to bodies being divided, nor will admit an end to blows that break their frame; nor will they grant that such a thing as least is found in bodies, when we plainly see that every being has a part, a point that utmost lies, and obvious to our sense, which is the least of all; and thence conclude, that utmost point is that same least in things too small to be discovered by the sight.

Besides, these men make their principles of things consist in soft seeds, which we see are born, and altogether mortal in their frame; if so, the whole of things must have returned to nothing, and be again from thence restored; how distant both from truth you have heard before.

And then such seeds are many times at war among themselves, and poison to each other, and so will perish in the attack, or fly scattered, as in a tempest we observe the thunder, and the showers and wind disperse.

[763] Lastly, if all things from four elements are formed, and into them are finally dissolved, why should they rather the first principles of things be called, than things the principles of them? For they are produced alternately, are ever changing their form and their whole nature mutually into each other; but if by chance you think the body of the fire and earth is joined, that air is joined to water, and this united, each element preserves its nature still entire; nothing from seeds like these could have been formed, not men, nor things inanimate, as trees: for every element in this various heap of matter, ever changing, would display its proper nature still; you'd see air mixed with the earth, and fire and water joined. But the first principles whence things are formed should be in nature close and undiscerned, that nothing might appear which should oppose or jar, and thus prevent the compound body from being uniform, and make it consist of parts dissimilar, confused and void.

[782] Besides, philosophers like these derive their transmutation from celestial fire; and first, they make this fire change to air, from air is water formed, the earth from water; and then again, from earth these elements return, first water, then the air, then last the fire. Nor do these constant changes ever cease among themselves, but still proceed from heaven to earth, from earth to stars, that light the world. But the first seeds of things must by no means be thus disposed; for something immutable must needs remain, lest things should utterly to nothing be reduced: For whatsoever suffers change, by passing over the bounds of its first nature, dies, and is no more what it first was. Those elements therefore, which, as we said above, admit of change, must needs consist of other seeds which never can change at all, lest things should utterly to nothing be reduced: Then rather say, there are some certain principles in nature which are the seeds of fire, suppose, and some of these being taken away, or else by adding more, by changing of their order or their motion, they compose the air, and so all other beings may be produced by changes such as these.

[803] But you say, that common fact does clearly show that all things grow and rise into the air and are supported by the earth; and unless the season, in happy time, indulges rain, and shakes the trees with driving showers, unless the sun, on his part, cherishes and gives his heat, nor fruits, nor trees, nor creatures could increase. 'Tis true, but these are not first seeds; and we likewise, unless dry food and kindly juice preserve our bodies, they must perish, and every spark of life, out of our nerves and bones, must be extinct. We are upheld, no doubt, and nourished by certain means; and other things are staid by certain others; for many common principles of many things are mixed in each. And therefore, the various kinds of things we find supported in a different manner; but yet it much concerns with what, and in what order, these first seeds unite, and what motion they give and take among themselves; for the same seeds compose heaven, earth, the sea, the rivers, and the sun, the same compose the creatures, fruits, and trees, they differ only as they are moved by others, and as their mixture differs in themselves.

[823] So in these lines of mine, the many letters you see are common to the make and form of many words; and yet, you must confess, the verses and the words are much unlike in sense and sound: Such is the force of letters, by change of order only. But the first seeds of things being more, must needs admit of changes more different; from whence proceeds that great variety of things we see produced.

[830] Now, let us inquire into the homoeomery of Anaxagorus, the Greeks so call it, but the poverty of the Latin tongue will not allow us to express it; but yet, by a short periphrasis, we can explain that thing when he calls homoeomery, and makes the principle of bodies.

[834] For instance, bones proceed from small and little bones; and flesh is made of small and little bits of flesh; and blood is formed of many drops of blood flowing together; and gold, he thinks, consists of little grains of gold; and Earth grows firm by particles of earth; fire is made of fire; water from water springs; and all things else, he thinks, from causes such as these arise. And yet this man in no case will allow in things a void, nor that there is an end to bodies being divided: he equally mistakes in both, and so do those sages spoken of before.

[847] Besides, the seeds he chose are much too weak, if of the same frail nature they consist, as do the things themselves, they equally fall to decay, and perish, nothing hinders them from death: for which of these can long hold out against the fierce jaws of death, and so escape destruction, crushed between his very teeth? Can fire? Can Air? Can water? Which of these? Can blood? Can bone? In my opinion none. All things

in nature then would be equally liable to death, as are such things we see before our eyes by any force destroyed. But this, I think, is fully proved before, that nothing can fall to nothing, or from nothing rise.

[859] Besides, since food increases and supports the body, then we know the veins, the blood, the bones, consist of heterogeneous and parts dissimilar, as does our food. But if they say all food consists of parts various and mixed, and in itself contains the little strings of nerves and bones, and all the veins and parts of blood, then all dry meat and drink must needs consist of parts dissimilar, of bones, of nerves, of veins, and mingled blood. Further, if all things which grow from the Earth are in the Earth contained, the earth must consist of parts dissimilar, as do those things from which the earth arise. Now change the theme, but keep the terms the same; in wood if flame and smoke, and ashes lay concealed, then wood must needs consist of parts of different frame.

[875] But here a thin evasion seems to shake this argument a little; and Anaxagorus himself makes use of it: he thinks all things are mixed with all things and lie hid, but that one thing only appears, of which it most abounds, and on the surface lies; but this reply is vain, and wide from truth, for then the little grains of corn, when ground, would show some signs of blood, or of some other parts which form our bodies; and when we wear the stones, the blood would flow. But the like reason herbs would sweat sweet drops of liquor, so delightful to the taste as flow from dugs of woolly sheep, and clods of crumbled earth would show the various kinds of fruits and herbs, and leaves distinct and hid in smallest particles within the earth. And then, in wood divided, might be seen concealed ashes and smoke, and smallest parts of fire. But since experience shows nothing of this appears, we must conclude there's no such mixture as this in things; but say, that common seeds of many things in various order joined, are mixed in every thing, and lie concealed.

[897] But often, you say, upon the mountain tops, the heads of lofty trees that grow together are by the violent blasts of forcing winds so rubbed by close collision that they soon are all on fire, and flames shine out. 'Tis true, and yet there's no actual fire within the wood, but many seeds of fire, which by hard rubbing ignite, and so the wood is all in flames. For if so much of fire had lain concealed within the wood, this fire would have appeared immediately, and so consumed the wood entirely, and burnt its root branches to the ground. You see therefore of what concern it is, as we observed before, with what first principles those seeds are joined, and in what order placed, and what the motions are they give and take among themselves, and how the seeds remaining ever the same, but yet their order changed, produce a fire from wood; just as we write ignis and lignum, though quite different words, they are yet composed of letters much the same.

[915] Lastly, if things most obvious to the sense, you think, cannot be formed unless you make their seeds consist of principles the same in nature, those principles would be destroyed; you'd see some seeds would shake their little sides with laughing, and some bedew their face with tears.

[921] Now, what remains observe, attend me close; I know my theme is dark, but the great love of praise pricks on my heart with sharpest spurs, and strikes my soul at once with sweet desire of the most tuneful Nine; but this urged on, my mind in rapture, I haunt the Muses' seats, of difficult access, and yet untrod; I love to approach the purest springs, and thence to draw large draughts. I love to crop fresh flowers, and make a noble garland for my head; from thence, where yet the Muses never bound another's temples with a crown like mine. And first, I write of lofty things, and strive to free the mind from the severest bonds of when men call religion; then my verse I frame so clear, although my theme be dark, seasoning my lines with the poetic sweets of fancy, and reason justifies the method. For as the physicians, when they would prevail on children to take down a bitter draught of wormwood, first tinge the edges of the cup, that so the children's unsuspecting age may be deceived, at least their lips, and take the bitter juice, thus harmlessly betrayed, but not abused, they have their health restored: So I, because this system seems severe and harsh, to such who have not yet discerned its truth, and the common herd are utterly averse to this philosophy, I thought it fit to show the rigid principles in verse smooth and alluring, and tinge them, as it were, with sweet poetic honey, thus to charm thy mind with my soft numbers, till you view the nature of all things clearly, and perceive the figure and order they display.

[951] But since I taught the principles of matter are solid, are eternal, evermoving, nor are destroyed; now, come, let us inquire whether they have an end, or are by nature infinite: and since we have found a void or

place, or space in which all things are moved, let us now see whether the universe, made up of void and body, be circumscribed, or does to a profound immensity extend.

[958] This All, therefore, does not admit of bounds; for if it did, then it must have something extreme: Now, no extreme can be, unless it lies beyond those things whose bounds, or whose extreme it is, from whence they may be seen, and beyond which our faculty of sight can reach no further. Now since we must own, that nothing can be beyond the All, this All has therefore no extreme, it has no ends, no bounds; nor does it signify what spot of this great All you stand upon; for on what part soever you are fixed, you have a wide and infinite space around you every way.

[968] But if this wide extent of space be finite and circumscribed, let a man stand upon the utmost verge, and from thence throw a dart, whether you choose this dart, with mighty force thus cast, should reach the mark designed, and fly swift on, or whether you think that something should hinder or oppose its flight, and one of these you must confess; now either way you are caught, and can't escape: You are forced to own this All lies wide extended without bounds. For whether there be something that does hinder and stop its flight, so that it cannot reach the mark designed, and there rest still and fixed; or whether it flies forward, there this end you cannot fix: for if it stops, then something must lie beyond the utmost verge; and if it flies, there is a space beyond the extremist brink. And thus I follow close, and wheresoever you place the extremes bounds, I still demand what comes of your dart? So that no bounds can anywhere be fixed, but space immense will always give a passage to its flight.

[984] Besides, were this All's extended space shut up by certain bounds in every side, and was by nature finite, then this mass of matter, pressed by its solid weight, had long ere now sunk to the lowest place, and therefore nothing under the vault of heaven could have a being, nor could there be heavens at all, or the sun's light. For then the seeds of things that had been sinking from all eternity would in confusion lie on heaps; by now the principles of bodies having no rest at all, are ever moving, because there's no such thing as lowest place, to which they may descend, no fixed abode where they should rest; but things are ever carried by motion never-ending, through every part of this vast All, from whence the active seeds of things arise, and are eternally supplied.

[998] Further, we see one thing bounds another; the air bounds in the hills, the hills the air, the earth shuts up the sea, and then again the sea surrounds the earth; but this great All nothing exterior to itself can bind.

[1002] For the nature of this place, this empty space, is such, that rivers of the swiftest stream, were they to run for ages infinite, with a perpetual current, could not run through it, or ever by their running prove that they had less of their course to run; so vastly wide this mighty space of things extended lies on all sides, every way, without all bounds.

[1008] Besides, the laws of nature do provide, that this universe of things will not admit of limits to itself, because body is bound to void, and void a bound to body; and by this mutual termination it is, that this great All becomes immense; for were not each a bound until the other, were body not a limit set to void, the void would be infinite, and all finite bodies would be dissolved, and so nor sea, nor earth, nor the bright heavens, nor mortal race of men, nor sacred bodies of gods could be one moment of an hour; for the seeds of bodies being disunited in themselves, would fly, and quite dissolved, be carried through the void; or rather, being never joined, had formed no being; for once scattered through this space, they could not be compelled to join again.

[1021] For certainly the principles of things could never range themselves in form or order, by counsel, or by wisdom of the mind, nor any compact make how each should move; but being changed in various forms, and struck with many blows, they are driven through this void for many ages, and having tried all kinds of motion, and of union, they at length by chance are so disposed to frame those bodies of which this Universe of things consists. And these seeds once thrown into convenient motions, and keeping in the same for many ages, is the true cause that rivers, with a large supply of waters from their streams, fill up the greedy sea, and the earth, supported by the sun's heat, renews the fruits, and the race of living creatures flourish, and the rolling stars of heaven are kept alive; all which could never be, if from this infinite mass a supply of seeds flowed

not, from whence decaying things might rise, and live, and be from age to age repaired.

[1037] For as the animal creation, deprived of food, must perish, and their bodies be quite destroyed, so things must be dissolved as soon as matter, turning from its course, fails to afford supply, and save the whole.

Nor, as some may object, can outward blows on all sides given, preserve this All of things we see compounded, from falling into pieces: They may indeed beat thick, and stay some part, till other atoms come, and so supply the universe. But often they are compelled to bound, and leap back, and so afford the seeds both time and place to fly away, and thus to get their former liberty again. Therefore, 'tis fit that many seeds should still arise, from time to time, for a supply; and that these blows might never cease to beat, the force of matter must be on all sides infinite.

[1052] In these inquiries, see that you avoid, my Memmius, to believe with some that say, all bodies strive to reach the middle place of this great All, and so the nature of the world stands fixed, not struck at all by outward blows; nor can the upper or lower parts be scattered any way abroad, since all things by nature to the center tend (as if you could believe that any thing could stay and rest upon itself, that heavy bodies tend upwards, and fix their rest upon the surface of the earth opposite to us, just as we see the images of bodies show themselves in water.) By the same reason they contend that creatures walk underneath, as we above; nor can they fall into the regions of the air below, than can our bodies naturally fly upwards to Heaven; and when they see the sun, we view the stars of night, and so by turns they share with us the seasons of the heavens, and with us still divide night and days.

[1067] But vain mistake hath formed this scheme for fools, who judge perversely of the seeds of things. For there can be no Middle, where there is a void or space that's infinite; or if there was, can bodies, for this reason, rather stop their course in this medium, than take up their abode in any part of space that's further off. For place, or empty space, which we call void, must equally give way to heavy movements through a medium, or through none, which way soever their motions tend; nor is there any place where bodies, when they come, throw off their weight, and stand fixed in a void, and take their rest. Nor can a void support the weight of bodies, but must by its own nature still give way. It follows then that things are not preserved or held together by this means, as if they fondly strove to reach a middle space.

[1083] Besides, all bodies, they pretend, do not incline towards the center, but those of earth and water, the sea, the rivers rolling from the hills, and those that are composed of earthy parts. But the thin air, they say, and the hot fire are carried upwards from the middle; and hence it is the sky spangled every way with stars, and the sun's flame in his celestial course is fed, because the fire flying from the center there binds up all its heat; (so from the earth all mortal things are fed, nor can the trees adorn their lofty heads with leaves unless the earth to every kind affords its due support.) They say a sort of heavenly canopy above covers the whole, and holds it in; lest the world's walls, their parts being all dissolved, should instantly be scattered through the void, like swiftest flames, and all things be overwhelmed in this great ruin; lest the thundering vaults of heaven should tumble from above, and earth should fail our trembling feet, and the whole race of men, their bodies broken and dissolved, should wander through the boundless void, amidst these mingles ruins of the earth and heavens; and in a moment nothing would be left but desert empty space, and senseless seeds. For in whatever part you will suppose the seeds to separate, here will be the gate of death to bodies; for matter through the breach will rush abroad, and press with mighty force.

[1107] If this you thoroughly know, and little pains will serve (for one thing by another you'll explain), no more shall darkness interrupt your way, but you shall view the utmost depths of nature, for things will show themselves by mutual light.

3. Book Two

[01] 'Tis pleasant, when a tempest drives the waves in the wide sea, to view the sad distress of others from the land; not that the pleasure is so sweet that others suffer, but the joy is this, to look upon the ills from which yourself are free. It likewise gives delight to view the bloody conflicts of a war, in battle ranged all over

the plains, without a share of danger to yourself: But nothing is more sweet than to attain the serene 'tho lofty heights of true philosophy, well fortified by learning of the wise, and thence look down on others, and behold mankind wandering and roving every way, to find a path to happiness; they strive for wit, contend for nobility, labor nights and days with anxious care for heaps of wealth, and to be ministers of state.

O wretched are the thoughts of men! How blind their souls! In what dark roads they grope their way, in what distress is this life spent, short as it is! Don't you see Nature requires no more than the body free from pain, that she may enjoy the mind easy and cheerful, removed from care and fear?

[20] And then we find a little will suffice the nature of our bodies, and take off every pain; nay will afford much pleasure, and Nature wishes for nothing more desirable than this. What, no golden images of boys, holding forth blazing torches in their hands, to light the midnight revels of the great, adorn they house? What thy rooms shine not with silver, nor are overlaid with gold, nor do thy arched gilded roofs rebound with the strong notes of music? Yet we find men sweetly indulge their bodies as they lie together on the soft and tender grass, hard by a river's side, under the boughs of some high tree, without a heap of wealth; chiefly when the spring smiles, and the season of the year sprinkles the verdant herbs with flowery pride. Nor will a burning fever sooner leave the body when you are tossed in clothes embroidered on beds of blushing purple, than when you lie in coarsest blankets.

[37] Since riches then afford no comfort to our bodies, nor nobleness, nor the glory of ambition, 'tis plain you are to think they do the mind no good. If, when you behold your furious legions embattled over the plains, waging mock war, or when you view your navy stand eager to engage, or bear away over the wide sea, if struck with sights like these your fearful superstitions and the dread of death forsake your mind, and leave your breast serene, and free from care, 'twere something.

But if these things are vain and all grimace, and the truth is that nor the fears of men, nor following cares fly from the sound of alarms or cruel darts, but boldly force their way among the kings and mighty of the earth; nor do they homage pay to shining gold, nor the gay splendor of a purple robe. Do you doubt but all this stuff is want of sense, and all our life is groping in the dark?

For as boys tremble and fear every thing in the dark night, so we, in open day, fear things as vain, and little to be feared, as those that children quake at in the dark, and fancy making toward them. This terror of the mind, this darkness then, not the sun's beams, nor the bright rays of day can scatter, but the light of nature and the rules of reason.

[62] But now, come on, remember you attend, while I explain by what motion the genial seeds of matter produce the various kinds of bodies, and dissolve them when produced, and by what force compelled they act, and what celerity of motion they possess to force their way through all the mighty void.

[67] For certain it is that no seeds of matter stick close and unmoved among themselves; for we see every thing grows less, and perceive all things wear away by a long tract of time, and old age removes them quite from our sight. And yet the mass of things still remains safe and entire; and for this reason, because the particles of matter which fall off, lessen the bodies from which they fall, but add to those to which they join. There they force to decay; those, on the contrary, they increase: nor do they remain in this posture. And thus the universe of things is continually renewing; generations succeed one another, one kind of animal increases, another wastes away; and in a short time the living creation is entirely changed, and, like racers, delivers the lamp of life to those that are behind.

[80] But if you think the seeds of things can be at rest, and, being themselves unmoved, can give motion to bodies, you wander wildly from the way of true reason. For since all the seeds of things are rambling through the void, they must necessarily be born along either by their own natural gravity, or by the outward stroke of something else; for then these seeds tending downward meet with others, they must all fly off, and rebound a different way, and no wonder, since they are hard bodies and of solid weight; nor is there any thing behind to stop the motion. But, that you may perceive more plainly how all the seeds of matter are tossed about, you must recollect that there is no such thing in the universe as the lowest place, where the first seeds may

remain fixed, because I have shown fully, and proved by certain reason, that space is without end, without bounds immense, and lies extended every way.

This being plain, there can be no rest possibly allowed to these first seeds, forever wandering through the empty void; but being tossed about with constant and different motion, and striking against other bodies, some rebound to a great distance, others fly off, but not so far; such of them as rebound but for a small distance, their contexture being more close, and being hindered by their natural twinings, these compose the solid root of rocks, and the hard bodies of iron, and a few other things of the same nature; but such as wander widely through the void, and moved by the blow, fly further off, and rebound to greater distances; these compose the thin air, and the Sun's bright light.

[112] Besides, there are many seeds keep wandering through the void that are refused all union with other seeds, nor could ever be admitted to join their motion to anything else. An instance or representation of this, as I conceive, is always at hand, and visibly before our eyes. When the Sun's light shoots its rays through a narrow chink into a darkened room, you shall see a thousand little atoms dance a thousand ways through the empty space, and mingle in the very rays of light, engaging, as it were, in endless war, drawing up their little troops, never taking breath, but meeting and exercising their hostile fury with constant blows. And hence you may collect in what manner the principles of things are tossed in this empty void; so small an instance will give you an example of these extraordinary motions, and open a way to your knowledge of greater events.

[125] But here it is fit you should apply yourself more closely to observe these bodies which seem so disturbed in the Sun's beams; for it appears by these disorders that there are certain secret principles of motion in the seeds themselves, though invisible to us, for some of these motes you will see struck by secret blows, and forced to change their course, sometimes driven back, and again returning, now this, now that, and every other way; and this variety of motion is certainly in the very seeds, for the principles of things first move of themselves, then compound bodies that are of the least size, and approach nearest, as it were, to the exility of the first seeds, are by them struck with blows unseen, and put into motion, and these again strike those that are something larger; so from first seeds all motion still goes on, til at length it becomes sensible to us; and thus we see how these motes that play in the Sun's beams are moved, though the blows by which they are driven about do not so plainly appear to us.

[142] And now, my Memmius, you may in brief, from the following instance, collect how rapid is the motion of the first seeds; for when the morning spreads the Earth with rising light, and sweet variety of birds frequent the woods, and fill each grove with most delightful notes through the soft air, every one perceives, and the thing we see is plain, how suddenly, and in a moment, the rising Sun covers the world and shines with instant light. But that vapour, that glittering ray, which the Sun sends forth, does not pass through mere empty space, and therefore is forced to move slower, as it has resisting air to part and divide as it goes; nor are the principles that compose this ray simple first seeds, but certain little globular bodies made up of these first seeds that pass through the air; and these first seeds being agitated by various motions, these little bodies which are formed of them are retarded by different motions within themselves, and are likewise hindered from without by other bodies, and so are obliged to move the slower.

But seeds that are solid and simple in their nature, when they pass through a pure void, having nothing to stop them from without, and being one, and uncompounded through all their parts, are carried at once, by an instant force, to the point to which they first set out. Such seeds much exceed the rays of the Sun in their motion, and be carried on with much more celerity; they must pierce through longer tracts of space in the same time in which the sunbeams pass through the air; for these seeds cannot agree together by design to move slowly, nor stop in the air to search into particulars, and be satisfied for what reason their several motions are thus carried on and disposed.

[167] But some object to this, fools as they are, and conceive that simple matter cannot of itself, without the assistance of the gods, act so agreeably to the advantage and convenience of mankind, as to change the seasons of the year, to produce the fruits, and do other things which Pleasure, the deity and great guide of life, persuades men to value and esteem. It could not induce us to propagate our race, by the blandishments of tender love, lest the species of mankind should be extinct, for whose sake they pretend the gods made all

the beings of the world; but all conceits like these fall greatly from the dictates of true reason. For though I were entirely ignorant of the rise of things, yet from the very nature of the heavens, and the frame of many other bodies, I dare affirm and insist that the nature of the world was by no means created by the gods upon our account, it is so very faulty and imperfect; which, my Memmius, I shall fully explain. But now let us explain what remains to be said of motion.

[184] And here, I think, is the proper place to prove to you that no being can be carried upwards or ascend by any innate virtue of its own, lest by observing the tendency of flame you should be led into a mistake. For flame, you know, is born upwards, as well when it begins to blaze as when it is increased by fuel; so the tender corn and lofty trees grow upwards. Nor when the flames aspire and reach the tops of houses, and catch the rafters and the beams with a fierce blaze, are you to suppose they do this by voluntary motion, and not compelled by force. 'Tis the same when the blood gushes from a vein, it spouts bounding upwards, and sprinkles all about the purple stream. Don't you observe likewise with what force the water throws up the beams and posts of wood? The more we plunge them in, and press them down with all our might, the more forcibly the stream spews them upwards, and sends them back; so that they rise and leap up at least half their thickness above the water. And yet I think, we make no question that all things as they pass through empty void are carried naturally down below. So likewise the flame rises upwards, being forcibly pressed through the air, though its weight, by its natural gravity, endeavors to descend. Don't you see the nightly meteors of the sky flying aloft, and drawing after them long trains of flame, which way soever Nature yields a passage? Don't you see also the stars and fiery vapors fall downwards upon the Earth? The Sun too scatters from the tops of heaven his beams all round, and sows the fields with light: Its rays therefore are downward sent to us below. You see the lightning through opposing showers fly all about; the fires burst from clouds, now here now there engage, at length the burning vapor falls down upon the ground.

[216] I desire you would attend closely upon this subject, and observe that bodies when they are carried downward through the void in a straight line, do at some time or other, but at no fixed and determinate time, and in some parts of the void likewise, but not in any one certain and determinate place of it, decline a little from the direct line by their own strength and power; so, nevertheless, that the direct motion can be said to be changed the least that can be imagined.

If the seeds did not decline in their descent, they would all fall downwards through the empty void, like drops of rain; there would be no blow, no stroke given by the seeds overtaking one another, and by consequence Nature could never have produced any thing.

[225] But if any one should suppose that the heavier seeds, as they are carried by a swift motion through the void in a straight line, might overtake and fall from above upon the lighter, and so occasion those strokes which produce a genial motion by which things are formed, he is entirely out of the way, and wanders from the rule of true reason. Indeed, whatever falls downward through the water, or through the air, must necessarily have its speed hastened in proportion to its weight, and for this reason, because the body of water and the thin nature of the air cannot equally delay the progress of every thing that is to pass through it, but must be obliged to give way soonest to heavy bodies. But, on the contrary, mere empty space cannot oppose the passage of any thing in any manner, but must, as its nature requires, continue for ever to give way: Therefore all things must be carried with equal force through a void that cannot resist, though their several weights be unequal, so that the heavier bodies can never fall from above upon the lighter, nor occasion those blows which may change their motions, and by which all things are naturally produced.

It follows then that the seeds do every now and then decline a little from a direct line in their descent, though the least that can be imagined, lest we should think their motion were oblique, which the nature of things refutes. For we see this is plain and obvious, that bodies by their natural gravity do not obliquely descend, when they fall swiftly from above through a void, which you may discovery by your eyes. But that nothing declines in its descent ever so little from a direct line, who is so sharp-sighted as to distinguish?

[251] Besides, were all motion of the seeds uniform, and in a straight line, did one succeed another in an exact and regular order, did not the seeds, by their declining, occasion certain motions, as a sort of principle, to break the bonds of fate, and prevent a necessity of acting, and exclude a fixed an eternal succession of

causes, which destroy all liberty, whence comes that free will, whence comes it, I say, so sensibly observed in all creatures of the world who act as they please, wholly rescued from the power of fate and necessity? That will by which we are moved which way soever our inclination leads us? We likewise forbear to move, not at any particular time, nor at any certain place, but when and here our mind pleases; and without doubt, the will is the principle that determines these motions, and from whence all motion is conveyed to the limbs.

[263] Don't you observe, when the barriers of the lists are thrown open of a sudden, the eager desire of the horses cannot start to the race with that celerity as their mind requires? Because the spirits, or particles of matter that maintain the course, must be got together from all parts of the body, and stirred through every limb, and fitly united, that they may readily follow the eager desire of the mind. You see then the beginning of motion rises in the heart, proceeds then by means of the will, and is thence diffused through every limb over the whole body.

[272] But the case is otherwise, when we act as we are compelled by force by the prevailing power and the great violence of another, for then we feel plainly that the whole weight of our body moves, and is urged on against our consent, ‘til our will restrains the motion through all our limbs. Don't you see now that though an outward force drives us on, and often compels us to proceed against our will, and hurries us headlong, yet there is something in the heart that resists and strives against that compulsion, at whose command the spirits or particles of matter are forced through the nerves into the several limbs and members, and are curbed likewise by the same nerves, and obliged to retire backwards.

[284] Wherefore you must needs confess there is something else beside stroke and weight which is the cause of those motions from whence this innate power of our will proceeds. We see nothing can arise from nothing, for weight, which is natural to bodies, hinders us to conclude that all things are moved by stroke or outward force, and lest the mind should seem to act by some necessary impulse within itself (this is, by motion that proceeds from weight) and overpowered, be compelled, as it were, to bear and suffer, this is occasioned by ever so little a declination of the seeds, which however is done at no certain or determinate time or place.

[294] Nor was the mass of matter ever more close or more loose, nor did the number of seeds ever increase or diminish, and therefore the same course in which the seeds move now, the same motion they had for the time past, and they will be carried on hereafter in the very same manner, and the things that have been hitherto produced shall be formed again in the same way; they shall come into being, grow, and arrive at perfection, as far as the laws of their respective natures will admit. For this universe of things no force can change, neither is there any place into which the least particle of matter may fly off from the whole mass, nor is there a place from whence any new seeds may break in upon this All, and so change the nature of things and disorder their motions.

[308] There is nothing wonderful in this, that when all the principles of things are in continual motion the whole should at the same time seem to be at perfect rest, though every particular body has a sort of motion peculiar to itself, for the nature of first seeds is so subtle that they lie far beyond the reach of our sense. And therefore, since you cannot perceive them by the eye, their motions are much less to be discerned, especially, as we observe many things are discovered to us by our sight whose motions we cannot perceive, by being placed at a remote distance from us. For often the wooly flock upon a hill wander about, and crop the tender grass, wherever the sweet herbs crowned with pearly dew invite. The lambs, their bellies full, wantonly play and try their tender horns. All this to us standing far off appears confused, and like a steady white spread over the green. And this a mighty army fills the plain, and moves about, and acts a real fight - the horse scour over the field and wheel at once, and in the center charge, and shake the ground with mighty force. The blaze of arms darts up to heaven, all the earth around glitters with brazen shields, and groans beneath the feet of men engaged. The neighboring hills, struck with the noise, rebound it to the skies. Yet place yourself upon a mountain-top to view this wild confusion, and you'd think it was a fixed and steady light that filled the plain.

[333] Now learn at length the form of these first seeds, these principles of things, how widely different is their shape, of what variety of figure their frame consists. For though many are endowed with a form not much

alike, yet all are far from being of the same figure. And no wonder, for since (as I have said) their number is so great that no end, no bound is to be set to them; they ought, for the same reason, to be all of a different contexture, and not fashioned alike of the same form.

[342] Besides, consider well mankind, the scaly fry of silent fish that swim the flood, the verdant trees, wild beasts, the various kinds of birds, such as flock about the banks of pleasant streams, the fountains and the lakes and those who frequent the thick covers of the woods; consider all these in their several kinds, and you will find them all consist of forms different among themselves. 'Tis by nothing else the tender young knows its own Dam, and thus the Dam distinguishes her young, thus we see each creature knows its own kind, no less than men, and so unite together. For often before the gilded temples of the gods a young heifer falls a slain victim beside the alter flaming with incense, and breathes from her heart a reeking stream of blood. The Dam, robbed of her young, beats over the fields and leaves the marks of her divided hoofs upon the pressed grass, and searches every place with careful eyes to find her the young she lost; then stops and fills the branched woods with her complaints, and often returns back to her stall, distracted with the love of her dear young - no more the tender willows, or the herbs freshened with dew, nor can the running streams within the full banks divert her mind, or turn away her care, nor can a thousand other heifers, as they play wantonly over the grass, take off her eye, or ease the pain she feels - so plain it is that she searches for her own, for what she knows full well. And thus the tender kids find by their bleat their horned Dams, and so the sporting lambs know their own flocks, and, as by Nature taught, each hastest to the full dug of its own Dam.

[371] Observe again the various sorts of corn, you'll find each grain, though in kind of the same, not so much alike; but there will be a difference in their figure; and so a great variety of shells, we see, paints the Earth's lap, where the Seas gentle waves feed the most sand along the winding Shore.

[377] And thus, by parity of reason, it must follow that the first seeds of things, as they are formed by Nature, not made by Art in any certain figure, must fly about in shapes various and different among themselves.

[377] It is easy for us now to unfold the difficulty why the flame of lightning is much more penetrating than our common fire race from fuel here below. You may give this reason, that the subtle Celestial fire of lightning consist of particles much smaller, and so passes through pores, which are fire, made from toe or wood, cannot.

[381] Besides, Light, we perceive, finds a way through horn, but water does not; because the principles of light are smaller than those of which water is composed. So we see wine passes swiftly through a strainer; on the contrary, heavy oil moves slowly through, either because it is made up of larger seeds, or its principles are more hooked and entangled among themselves. And thus it happens that the several particles cannot be so soon separated from one another so as to flow through the little holes with the same ease.

[398] Thus it is that honey and milk pass in the mouth with a pleasing sensation over the tongue; on the contrary, the bitter juice of wormwood and sharp Centaury torment the palate with a loathsome taste. From whence you collect easily that those things which agreeably affect the sense are composed of particles smooth and round; and such again that seem rough and bitter are bound together by parts more hooked, and closer twined; and therefore they tear the way to our senses, and wound the body as they enter through the skin.

[408] In short, such things as are agreeable to our senses, and those that are rough and unpleasant to the touch, are opposite, and formed of a figure very different from one another; lest you should think perhaps that the grating sound of the whetting of a saw was made of parts equally smooth, without the soft notes of a lute, which the musician forms upon the strings, awaked, as it were, by the gentle strokes of his fingers.

Nor are you to suppose that the seeds are of the same form which strike upon our nerves of smell, when a filthy carcass is burning, or when the stage is fresh sprinkled with Cilician saffron, or the altar sweetens the air with the odor of Arabian incense.

And so in colors you must not imagine such as are agreeable and delight our eyes are composed of the same fashioned seeds with those which prick our sense, and force us to weep, or seem dark or ugly, and

shocking in appearance to us; for whatever pleases and delights our senses cannot be composed but of smooth particles; and, on the contrary, things that are hurtful and harsh cannot be formed without seeds that are filthy and disagreeable.

There are other seeds, likewise, which you cannot properly call smooth, nor are altogether hooked, with their points bent, but are rather shaped with small ankles, a little jutting out, and may be sad rather to tickle than to hurt the senses; such as the acid taste of the sweet sauce made of the Lees of wine, or the sweet sauce made of the sweetish-bitter root of Elecampane. Lastly, that burning heat, or freezing cold, being formed of seeds of different figures, do affect the body with different sensation our touch is evidence sufficient to evince.

For Touch, the Touch (blessed be the Gods above!) is a Sense of the Body, either when something from without enters through the pores, or something from within hurts us, as it forces its way out, or pleases, as the effect of venery tickles as it passes through, or when the seeds, by striking against each other, raise a tumult in the body, and in that agitation confound the Sense; and this you may soon experience, if you strike yourself in any part with a blow of your hand. It is necessary, therefore, that the Principles of Things should consist of figures very different in themselves, since they affect the Senses in so different a manner.

[444] Further, those things which appear to us hard and thick, must necessarily be joined together by particles more hooked among themselves, and be held close by branched seeds. In the first rank of these, you are to place the rocks of Adamant, that defy the force of blows, and solid flints, and the strength of hard iron, and brazen hinges, that creak under the weight of their gates.

But Liquids that consist of fluid bodies, must be formed of seeds more smooth and round; for their globular particles are not entangled among themselves, and their flowing motion rolls on forward with the greater Ease.

But lastly, all such Things which you observe instantly to scatter, and fly away as smoke, clouds, and flame, if they do not consist altogether of particles that are smooth and round, yet neither are they formed of hooked Seeds, and therefore may pierce through bodies, and penetrate into stones; nor do their particles nevertheless stick mutually to one another, as we observe the particles of thorns do. From thence you may easily conclude that they are not composed of hooked or entangled, but of acute Principles.

But because you see the same things are bitter and fluid, as the Sea-water, are you to wonder in the least at this; For what is fluid is formed of Principles that are smooth and round, but with these smooth and round seeds are mixed others that are sharp, and give pain. Yet there is no necessity that these sharp seeds should be hooked and twined together; it is sufficient that they be globous as well as rough, that they may be qualified to flow along in their proper Course, as well as to hurt the sense.And that you may the sooner believe that these sharp seeds are mixed with those that are smooth, from whence the body of the sea becomes salt, the way is to separate them, and consider them distinct; for the Sea-water grows sweet by being often filtered through the Earth, and so fills the ditches, where it becomes soft; for it leaves behind the pungent seeds of the rough salt, which are more inclined to stick as they pass along, than those particles that are globular and smooth.

[478] This being proved, I shall here join another observation, which justly derives its credit from what is explained before: That the seeds of things vary their figure not without End, but after a finite manner. If it were not so, some seeds, by an infinite increase of their parts, would be of an immense size; for in so small a body as an atom consists of, the figures have not room to change often among themselves. Suppose, if you will, these atoms or first seeds consist of smallest parts, three suppose, or a few more, if you please; now, by varying these several Parts of one Atom or Seed into all possible shapes, placing the Uppermost below, or turning the right to the left, you will find the several figures that every change will give this Seed in all its Parts. But if you would change its figure still further, you must add new parts to it and, by the same reason, you must still add more, if you still think of changing its figure into more shapes, so that the body must increase in proportion as every new figure appears; and therefore, you cannot conceive, that the seeds should be distinguished by an infinite variety of forms, unless you admit that they are likewise infinite in

magnitude, which, as I said above, is impossible to be proved.

[500] Besides, the embroidered vests of Asia, the bright Melibean Purple, dipped in the blood of the Thessalian Shellfish, and the golden Brood of Peacocks, glittering with their gaudy plumes, would lie undistinguished, being exceeded by other things of greater lustre, and the smell of myrrh, and the Taste of Honey, would be despised, and the singing of the swan, and the noblest Verse sung to sweet music would, by the same rule, be outdone, and cease to please; for some other things might arise more agreeable than these.

And as some things, we observe, may advance into greater perfection, so others likewise may decline, and grow worse; for one thing may succeed another still more disagreeable to the Nose, the Ears, the Eyes, and Taste. But since this does not appear in the Nature of Things, since there is a certain boundary to what is best and worst, we are obliged to own, that matter is diversified by shapes that are finite, and within fixed Bounds.

[515] Lastly, from Fire, to the piercing Cold of Winter, a Point is set, and so, from Cold to Heat, they are both intense: for heat and cold are the extremes, the middle warmth lies between both, and thus orderly fills up the whole. This warmth is distant equally from both extremes, and is confined by bounds on both sides, kept in on this by heat, and on that by smarting cold.

[522] This being proved, I shall here join another observation, which justly derives it credit from what is explained before: This is that the seeds of things that are alike, and perfectly of the same figure, are in number infinite, for though the variety of their figures be only finite, yet the seeds themselves that are alike in nature must indeed be infinite, otherwise the whole of matter must be finite, which I have fully proved is not.

Thus having cleared the way I shall now show, in short but sweetest numbers, that the seeds of matter are infinite, and hold together the whole of things, by constant force of blows on every side.

[532] For though you observe some species of animals are less common, and nature seems less fruitful in their production, yet in other countries, in other places, and in lands more remote, you meet with many creatures of that kind, and more, in number. For you observe the elephant, chief of beats, wreathing his lithe proboscis like a snake. How many thousands of them India breeds, which fortify her with a wall of ivory impenetrable, not to be forced, but we see but few at Rome.

[541] But grant, if you please, there was only one single create of a particular kind in Nature, whose like was not to be found throughout the world, yet unless the seeds of which it was formed were in number infinite, it could never come into being, or, when once made, could it increase or be supported.

For fancy you see the finite seeds of any body tossed about through the infinite space, whence, where, by what force, by what design, could they meet and unite in that wide ocean of matter, that strange confusion? They have no reason, I suppose, to direct them to this union. But, as in dreadful wrecks, when many ships are lost, the troubled sea scatters abroad the seats, the sterns, the sail-yards, the prows, the masts, the floating oars, the flags swimming about all the shores, that they may be seen, and forewarn poor mortals to fly, and at no time to trust the treachery, the power, and the deceit of that unfaithful element, even when the perfidious flattery of her smooth face smiles upon them. So, if you allow the first seeds of things to be finite, the various agitation of matter must forever toss them about, scattered as they are, so that they could never be forced to unite; or, if they could, could they preserve that union, or admit of any increase? And yet the Nature of Things evidently proves that beings are produced, and, when produced, increase; and therefore the Principles of Things in every kind, 'tis plain, are infinite, and by them all beings are formed and supported.

[569] Nor do those motions that are fatal and destructive to beings always prevail, and cause a dissolution never to be recovered. Nor, on the contrary, do those motions by which beings are formed and increased always preserve things when they are produced, but a perpetual war has been forever carried on, with equal success, between the principles of things; one while the vital seeds prevail, and now again they are routed, and beaten out of the field. The cries of infant beings, which the send out as soon as they see the light, are mingled with the funeral of others that are departed; nor is there a night that follows the day, nor a morning

which succeeds the night, that does not hear the groans, the attendants of death, and sad obsequies, mingled with the tender laments of new-born babes rising into being.

[581] 'Tis proper likewise that in this place you fix it as an established truth, and impress it deeply upon your mind, that there is no being to be found in nature that consists altogether of principles of one kind, nor is there any thing that is not made up of mingled seeds; and the more powers and faculties any being is endued with, the more it appears to be formed of various sorts of seeds that differ in figure among themselves.

[589] And first, the Earth contains within herself first principles, from whence the fountains, flowing with their streams, do constantly supply the mighty Sea. She holds likewise within her womb the seeds of fire. We see in many places how she burns, how Aetna rages with distinguished flames. She likewise has the seeds from whence she forms sweet fruits, and pleasant trees for men; from whence she does afford the tender shrubs and verdant grass to savage beasts that wander on the hills.

[600] Therefore this Earth alone is called great Mother of the Gods, parent of beasts, and of the human race. Of her the learned Grecian bards of old have feigned that in her chariot she rides aloft, she drives a pair of lions harnessed; to teach that in the spacious air hangs the vast mass of Earth, without a lower Earth to prop it up. These beasts they yoked, to show that youth, although by nature wild, yet, softened by the parents tender care, grows tame. Her head they compass with a mural crown, because, in places strongly fortified, she bears up cities, and in this pomp adored, the image of this sacred mother is born with dread solemnity throughout the world. Her, after the ancient use of holy rites, the different nations call Mother of Mount Ida, and give her for attendants a train of Phyrgian dames, because in Phrygia corn was first raised, and thence was scattered over all the Earth. They serve her by eunuch priests, to show that those who violate the sacred character of their mother, or are found undutiful to their parents from whence they sprung, should be thought unworthy to raise a living offspring to succeed them. With their hands they beat loudly upon drums well-braced; the hollow symbols all about, and horns with their hoarse noise threaten dreadfully around her; the pipe, with Phrygian airs, mads their very souls; and they carry arms, the signs of their distracted rage, to terrify the stubborn minds and impious hearts of the vulgar, with a fear and reverence of this great deity.

When therefore she is carried in procession, through the great towns, and, dumb as she is, silently bestows health upon her votaries, they scatter brass and silver in all the way she passes, enriching her with profuse oblations; they shower down the flowers of roses, and so cover the great mother, and the whole train of her attendants. Her an armed Troop (the Greeks call them the Phrygian Curates) leap about, with a chain through their hands, and wanton in the blood they have drawn, dance to exact time, and, full of the Goddess, shake their dreadful crests upon their heads. They represent the Dictean Curetes, who are said formerly to have drowned the infant cries of Jupiter in Crete; when the young priests, all armed, struck their Brazen Bucklers together, as they danced nimbly round the boy, lest Saturn should seize upon him, and devour him, and, by that means, wound his mother to the heart, with a grief never to be Forgotten. For this reason, an armed train accompany the great mother; or else the goddess signifies that they should preserve their native country by their arms and Valor, and be a protection and honor to their parents**.**

[644] Such fancies, though well and wittily contrived, yet are far removed from truth and right reason. For the whole nature of the Gods must spend an immortality in softest peace, removed from our affairs, and separated by distance infinite; from sorrow free, secure from danger, in its own happiness sufficient, and naught of ours can want; is neither pleased with good, nor vexed with ill.

The Earth is indeed at all times void of real sense, but it contains within itself the first seeds of many things, it produces them into being after various manners. So, if anyone here resolves to call the Sea by the name of Neptune, and corn by the title of Ceres, and chooses rather to abuse the name of Bacchus, than to speak the proper appellation of wine, such a one, we allow, may style this globe of Earth the mother of the gods, when really she is no such thing.

[661] But to return, we see the wooly sheep, the warlike breed of horses, and horned bulls, living under the same covert of the sky, grazing together in the same field, and quenching their thirst in the same stream of water; yet they are each of a different species, and retain the nature of their sires, and every kind imitates the

dispositions of the race from which they came, so different is the nature of the seeds in every herb, so various are the principles of the water in every stream.

[669] Now though blood, bones, veins, heat, moisture, bowels, nerves, go to the formation of every animal, yet of what variety of figures, widely different in themselves, do their seeds consist?

[673] And then all bodies that are combustible, and burnt by fire, if they agree on nothing else, yet discharge from themselves such parts, by which they spread about their flame and light; from whence they raise sparkles, and scatter their embers all abroad.

[677] So if you examine other things by the same rule, you will find seeds of different kind lie concealed in all bodies within, and show themselves of a different figure.

[680] Lastly, you observe many things that emit both smell and taste, especially those victims you offer when your mind is religiously moved for something you have unjustly acquired. These sensations, therefore, must be raised by seeds of different figure; for smell pierces through pores where taste can find no passage. The juice likewise, and the taste of things, affect the sense by proper organs, to convince that their seeds vary in their figure. Principles therefore of various shape make up every particular mass, and things in general are composed of mingled seeds;

[688] for, in these verses of mine, you may all along observe that many letters are common to many words, and yet you must confess, that some verses and some words consist of very different letters, not because the number of letters are few, or no two words are formed of the same letters, but because every verse and every word is composed of letters altogether different. So, though the same principles are common to many things, yet the things may remain very different among themselves; and it may properly enough be said that men, and fruits, and pleasant trees are made up of different seeds.

[700] Yet we are not to suppose that all seeds of whatever figure do mutually unite to the production of beings, for then you would observe monsters springing up every day, creatures half man, half horse, the lofty boughs of trees growing out of a living body, and the limbs of land animals joined to the bodies of fish, and nature forming every where out of the earth (the mother of all things) Chimaeras from their dreadful mouths breathing out flames; but ‘tis plain, nothing of this happens, since we see all things are formed from certain seeds, and regular principles, and preserve their kind as they grow up and increase.

Nor indeed can it, by the fixed rules of reason, be otherwise; for, out of the several sorts of food, the particles of that which is proper to every animal descend into the limbs, and there united, produce the motions suitable to that animal; but, on the contrary, those particles of food that are destructive, some of them, we find, nature throws off through open passages, others are, insensibly to us, forced out of the body through the pores, such as would admit of no Union with others, no agree to promote the vital motions and purposes of life.

[718] But lest you should think that living creatures only are bound by these laws, the same reason holds with regard to all other beings; for as all bodies are in their nature different in themselves, so it is necessary that each should consist of principles of a different figure, not but that many seeds are the same in shape, but they do not all agree in form perfectly alike.

Since then the seeds differ, it is necessary that their intervals, their courses, connections, weights, strokes, concussions, and motions, should differ likewise; Properties, that not only make a distinction between animals, but divide the Earth and the Sea, and preserve the heavens separate from the earth, and secure all things from being confusedly mingled together.

[730] Now, come on, attend to the rules which I have found, by a labor very delightful to myself; lest you should think those bodies that appear white to your eyes are composed of white seeds, for such as show black, are formed of black; or what color soever a thing wears, you should conclude the cause of it to be that the seeds of which it is made are stained with the same color; For the principles of matter are void of all color, both like or unlike what appears upon the bodies they produce.

If you should chance to think that the Mind cannot possibly form an idea of seeds without color, you are under a strange mistake; for persons born blind, who never saw the light of the Sun, yet discover bodies by the touch, as if they had no manner of color belonging to them. So that seeds imbued with no color can offer themselves to our mind, and be conceived by us. And besides, the things we touch in the dark night we distinguish without any regard to the color they may otherwise appear in.

[748] That seeds may be void of color I have shown; I shall now prove that they actually are so. Now every color may be changed one into another; but the principles of things will by no means in admit of change, there necessarily must be something that remains immutable, lest all things should be utterly reduced to nothing; for whatsoever is changed, and breaks the bounds of its first nature, instantly dies, and is no more what first it was. Be cautious therefore, how you stain the seeds of things with color, lest all things should recur to nothing, and be utterly destroyed.

[757] Besides, though Nature bestows no color upon seeds, yet they are endued with different figures, from which they form and vary the colors of every kind which show upon them. (For it is of great concern what seeds unite with others, and what positions they are preserved, and what motions they give and receive among themselves;) and thus you may readily account why things that just before appeared black, should suddenly look white. As the sea, when the rough winds enrage the waters, grows white with foaming waves. So you may say of what commonly appears black to us, when the seeds of which it is formed are mingled, and their order changed, when some new seeds are added, and some old ones are removed, the direct consequence is that its color is changed, and appears white. But if the water of the sea consisted essentially of blue particles, it could by no means change into a white color. Disturb the order of the seeds how you would, the principles that are blue would never pass into a white.

But if you say that the seeds which make the sea look of one uniform white are stained with different colors, as a perfect square that is one figure, is made up of several bodies that are of several figures, then it would follow that, as we perfectly see that dissimilar figures which the square contains within it, so we might discover in the water of the sea, or in any other body of one simple color, the mixed and different colors from which that simple color proceeds.

Besides, the dissimilar figures that go to make up a square do by no means hinder that the surface of the body should appear square, but a mixed variety of colors will forever prevent that the surface of any body should appear of one fixed and uniform color.

[788] And then the very reason that would incline us sometimes to impute colors to seeds is by this means destroyed, or, in this case, white bodies are not produced from white, or black from black, but from seeds of various colors. Now a white would much sooner proceed from seeds of no color at all, then from such as are black, or any other opposite color whatsoever.

Besides, since colors cannot appear without light, and since the seeds of things cannot appear in the light, you may thence conclude that they are covered with no colors at all. For how can any color show itself in the dark, which surround in the light itself, as it is differently struck either with a direct or oblique ray of light? After this manner, the plumes of doves, which grow about their neck, and are an ornament to it, show themselves in the sun. In one position they appear red like a fiery carbuncle, in another light, the greenness of the emerald is mixed with a sky blue. So, likewise, the tail of the peacock, all filled with light, changes its colors, as the rays strike directly or obliquely upon it. Since therefore colors are produced only by the strokes of light, we cannot suppose that they can possibly exist without it.

[810] And since the eye receives within itself one sort of stroke with when it is said to perceive a white Color, and another contrary one, when it views an object of a black or any other color, and since it is of no moment by what color any thing you touch is distinguished, but rather of what peculiar shape and figure it is, you may conclude there is no manner of occasion that seeds should be stained with any colors, but that they should cause that variety of touch by the various figures with which they are imbued.

[817] Besides, since there are no certain colors peculiar to certain figures, and since seeds of any figure may be of any color, whence is it that bodies that consist of such seeds are not in there several kinds imbued with all sorts of colors? It would be common to see crows, as they fly about, cast a white color from their white feathers, and black swans might be produced from black seeds, or be of any other one or more colors, as there seeds chance to be distinguished.

[826] Further, the more any body is broken into small parts, the more you may perceive its color languishes by degrees, and dies away. This is the case of gold, when it is divided into thin shavings, its luster is extinguished, and the purple guy, by much the richest, when it is drawn out thread by thread, is quite lost. Hence you may infer that the particles of bodies discharge themselves of all color before they come to be as small as seeds.

[834] Again, since you allow that all bodies do not emit sound and smell, and not attribute sound and smell to every body; so, since we cannot discover every thing by our eyes, you may conclude there are some bodies as much void of color, as there are others without smell or sound; and a judicious mind can properly form a notion of such bodies void of color, as it can of others that are without smell or sound, or any other qualities whatsoever.

[842] But lest you should conceive the first seeds are void only of color, you must know that they are without warmth, are altogether free from cold or heat, the emit no sound, are without moisture, nor do they send out any smell from their several bodies; so when you propose to compound a pleasant ointment of sweet marjoram, myrrh, and flowers of spikenard, that send out the richest odor up to the nose, the first thing you are to do is to choose, as far as it lies in your power, an oil that has no smell, that it may, as little as possible, infect and corrupt those few sweet ingredients, being mixed and digested with them, with its native rankness.

Lastly, the seeds do not bestow any smell upon the bodies they produce, nor any sound, for they can exhale nothing from themselves; and, for the same reason, they can communicate no taste, nor cold, nor any vapor hot or warm. You must separate all qualities from the seeds that render them liable to dissolution, such as viscous, brittle, hollow, which proceeded from qualities that are soft, putrid, and rare, the seeds must have nothing of these properties if you would fix them upon an eternal foundation, upon which alone depends the security of beings, lest all things should fall to nothing, and perish beyond recovery.

[865] Now farther, those beings we see indued with sense, you must needs own are produced from insensible seeds; nor is there anything we perceive by common experience, which refutes or opposes this opinion. Everything rather leads us on, and compels us to believe that animals, I say, proceed from principles that are void of sense; for we observe living worms come into being from stinking dung, when the earth, moistened by unseasonable showers, grows putrid and rotten.

Besides, beings of all kinds undergo continual changes; the waters, the leaves, and the sweet grass turn themselves into beasts; the beasts convert their nature into human bodies; and the bodies of wild beasts and birds increase and grow strong by these bodies of ours. Nature therefore changes all sorts of food into living bodies; and hence she forms the senses of all creatures, much after the same manner as she quickens dry wood into fire, and sets everything in a blaze. You see now it is of the utmost importance in what order these first seeds are ranged, and, when mingled together, what motions they give, and receive among themselves.

[886] But tell me, what is it that lays a force upon your mind? What moves you? What drives you into another opinion, that you should not believe a thing sensible can be formed from insensible seeds? Perhaps you observe that stones, and wood, and earth, when mingled together, can produce no creature indued with sense; but you will do well to remember, upon this occasion, that I did not say things sensible, or sense, could instantly proceed from all seeds in general, which go to the production of beings, but that it was of great consequence of what size the seeds are that created a being of sense, with what figures, motions, order, and position they are distinguished. Nothing of which we observe in wood, or clods of Earth. Yet these, when they are made rotten by moisture, produce worms, because the particles of matter, being changed from their former course by some new cause, are so united and disposed, that living creatures are formed, and creep into being.

[902] Besides, those who contend that a sensible being may be raised from sensible seeds, (and this you are taught by some philosophers), must needs allow those seeds to be soft; for all sense is joined to bowels, nerves, and veins, all which, we know, are soft, and consequently liable to change and dissolution.

[907] But grant their seeds to be eternal, yet if they are sensible, each seed must be endued with sense, either as a part or a whole, and be like a complete animal of itself; but no single part can perceive or exist of itself, for each part requires a union with the other parts, to make it capable of sense, nor can the hand feel any more, or any other part retain its sense, when separated from the body. These seeds therefore must be perfect animals, and so unite together in a vital sensibility; but how then can be seeds be said to be eternal, and secure from death, when they have the nature of animals, and are one and the same with them in all respects, and therefore are mortal, and must die?

But allow these seeds to be sensible and Incorruptible too, yet, by their union and agreement, they can produce nothing but animals and things sensible; that is, mankind, and cattle, and wild beasts, can produce nothing but men, and cattle, and wild beasts. (How then could things insensible, such as trees, metals, have a being?)

If you say these seeds, in mingling together, lose their own proper sense, and assume another, what need you impute any sense at all to them, when they must lose it again? Besides, as we have proved before, since we perceive the eggs of birds are changing into living young, and that worms break out of the earth, when it is made rotten by unseasonable showers, we may conclude, that things sensible may arise from insensible seeds.

[931] If anyone will assert here that sense indeed may proceed from insensible seeds, by sort of change made in the seeds, by virtue of the thing that generates, before the animal is formed, it will be sufficient plainly to show him, that no animal can be formed but by a union, first of the seeds, nor can anything be changed but by agreement of the seeds, so that there can be no such thing as sense in any body before the animal is completely formed.

[937] And for this reason: because the seeds lie scattered in the air, the water, the earth, the fire, nor have they yet united together, after a proper manner, into any vital motions by which the senses of any animal may be produced, in order to guide and preserve it.

[944] Besides, a blow falling upon any animal, heavier than its nature can endure, immediately torments it, and confounds all its senses both of body and mind; for the connection of the seeds is dissolved, and the vital motions are wholly obstructed, till the force of the blow being agitated violently through the limbs dissolves the vital ties of the soul from the body, and compels her, scattered and broken to pieces, to fly out through every pore. For what can we conceive to be the effect of such a stroke but to separate and dissolve the seeds that were united before?

And then it happens, when the blow falls with less violence, that the remains of vital motion often get the better, they recover and calm the great disorders of the blow, and recall everything again into its proper channel. They rescue the body, as it were, from the jaws of death, and give new life to the senses that were almost destroyed; else why should creatures rather return to life from the very gates of death with new spirits, than when they were just entering in, proceed on, and utterly perish?

[963] Further, since we feel pain when the seeds are shaken from their natural state and situation within, and are disordered through all the bowels and limbs by any outward force, and when they return again into their proper place, a quiet pleasure immediately succeeds, you may conclude that simple seeds cannot be tormented with pain, nor of themselves be affected with pleasure; because they do not consist of principles or other seeds by whose violent motions they may be disturbed, or be delighted with any pleasure they can give; and therefore they cannot possibly be endued with any sense at all.

[973] Again, if in order to produce creatures with sense, sense must be imputed to the seeds from which they are formed, of what principles, I pray, is the human race properly composed? Of such, no doubt, as laugh, and shake their little sides, such as bedew their face and cheeks with flowing tears, such as can widely talk

how things are mixed, and such as search of what first principles themselves are formed; For all things that enjoy the faculties of perfect animals must consist of other seeds like them, and these must arise from others, and thus the progression would be infinite. I urge further, whatever you observe to speak, to laugh, to be wise, must proceed from other seeds that can perform the same; but if this be ridiculous and downright madness, and things that can laugh can spring from seeds that never smile, and the wise, that learnedly dispute, are produced from foolish seeds and stupid, what hinders that sensible things may not as well be formed from seeds without any matter of sense at all?

[991] Lastly, we all spring from ethereal seed; we have all one common parent, when the kind Earth, our mother, receives the quickening drops of moisture from above, she conceives us and brings forth shining fruits, and pleasant trees, the human race, and all the race of beasts, she yields them proper food on which they feed, and lead a pleasant life, and propagate their kind, and therefore has she justly gained the name of mother. The parts that first from Earth arose return to Earth again; what descended from the sky, those parts brought back again that heavens receive; nor does death so put an end to beings as to destroy the very seeds of them, but only disunites them, then makes new combinations, and is the cause that all things vary their forms, and change their colors, become sensible, and in a moment lose all their sense again. You may know from hence of what importance it is, with what the first seeds of things are united, and in what position they are contained, and what are the several motions they give and take among themselves. And from hence you may conclude that these first seed are not the less eternal, because you perceive them floating, as it were, upon the surface of bodies, and subject to be born, and die. It is of like concern with what the several letters are joined in these verses of mine, and in what order each of them is disposed; for the same letters make up the words to signify the heaven, the sea, the Earth, the rivers, the sun; the same express the fruits, the trees, the creatures; if they are not all, yet by much the greater part are alike, but they differ in their situation. So, likewise, in bodies, when the intervals of the seeds, their courses, connections, weights, strokes, union, motions, order, position, figure; when these things are changed, the things themselves must be changed likewise.

[1023] Now apply your mind closely to the documents of true reason, for a new scheme of philosophy presses earnestly for your attention, a new scene of things displays itself before you. Yet there is nothing so obvious but may at first view seem difficult to be believed, and there is nothing so prodigious and wonderful at first that men do not by degrees cease to admire. For see the bright and pure color of the sky, possessed on every side by wandering stars, and the Moon’s splendor, and the Sun's glorious light; these, if they now first shown to mortal eyes, and suddenly presented to our view, what could more wonderful appear than these? And what before could men less presume to expect? Nothing surely, so surprising would be the sight have been. But now, quite tired and cloyed with the prospect, none of us vouchsafes so much as to cast our eyes up towards the bright temples of the sky. Therefore do not be frightened, and conceive an aversion to an opinion because of its novelty; but search it rather with a more piercing judgment. If it appears true to you, embrace it; if false, set yourself against it.

Now, I should be glad to know - since, without the walls of this world, the visible heavens, there lies an infinite space - what is contained there. This the Mind desires eagerly to search into, and, by its own vigor, to range over freely, and without obstruction.

[1048] I told yAnd first, since there is no bound to space in any part of it, on no side of it, neither above or below it, as I have proved, and the thing itself proclaims it, and the very nature of space confirms it; we are not to suppose, (since this space is infinitely extended every way, and the seeds innumerable fly about this mighty void in various manners, urged on by an eternal motion) that this one globe of Earth, and the visible heavens only, were created, and that so many seeds of matter that lie beyond do nothing; especially since this world was made naturally, and without design, and the seeds of things of their own accord, jostling together by variety of motions, rashly sometimes, in vain often, and to no purpose, at length suddenly agreed and united, and became the beginning of mighty productions, of the Earth, the Sea, and the Heavens, and the whole animal creation. Wherefore, it needs must be allowed, there were in many other places agreements and unions of the seeds of the same nature with this world of ours, surrounded as it is with the fast embraces of the heavens above.

[1067] Besides, since there is a large stock of matter already, and a place suitable, nor is there anything or cause to hinder and delay, things must necessarily be produced, and come into being. Now, since there is so great a plenty of seeds, that all the ages of men would not be sufficient to number them, and the same power, the same nature remains, that can dispose the seeds of things in any other place, by the same rule as that united in this world of ours, we must needs confess, that there are other worlds in other parts of the universe, possessed by other kinds of inhabitants, both of men and beasts.

[1077] Add to this, that in the universe there is no species that has but one of a sort, that is produced alone, that remain single, and grows up by itself; but whatever species things are of, there are many more individuals of the same kind. This you may observe in the animal creation, this you will find to be the state of the wild beasts, of the human race, of the silent fish, and the whole brood of birds. By the same reason you must own, that the heavens, the Earth, the Sun, the moon, the Sea, and all other beings that are, do not exist singly, but are rather innumerable in their kind; for every one of these have a proper limit fixed to their beings, and are equally bound by the general laws of nature, with all those whose species include a numerous train of individuals under them.

[1090] These things, if you rightly apprehend, Nature will appear free in her operations, wholly from under the power of domineering deities, and to act all things voluntarily, and of herself, without the assistance of gods. For Oh - the undisturbed bosoms of the powers above, blessed with sacred peace! How they live in everlasting ease, a life void of care! Who can rule this infinite Universe? Who has the power to hold the mighty reigns of government in his hands over this whole mass? Who likewise can turn about all these heavens? And cherish all these fruitful globes of Earth with celestial heat? Who can be present at all times, and in all places? To darken the world with clouds, to shake the vast expansion of the serene heavens with noise; to dart the thunder, and often overturn his own temples, to fly into the wilderness, and furiously brandish that fiery bolt, which often passes by the guilty, and strikes dead the innocent and undeserving?

[1105] Besides, after this world was formed, and the birthday of the Sea, the Earth, and the Sun was over, there were many particles of matter added to them from without, many seeds were received every way, which the infinite mass of universe constantly discharged; from whence the Sea and the Earth grew more strong and vigorous; from when the mansions of the heavens were enlarged, and raised their lofty arches higher from the Earth, and new air was produced. For from all the parts of the universe the proper seeds are distributed, and retire severally in all places to their proper kinds; the watery to the water, the Earth increases by earthy particles, the fiery produce fire, the airy air, til Nature, the parent and perfectress of all things, improves all beings to the utmost extent of growth they are capable of. This comes to pass, when no more is received into the vital passages, than what is perspired, and flies off; then it is that the growth of the creature is at a full stand, and nature restrains it from further increase.

For whatever creature you observe to thrive and grow lively and large, and by degrees climb up to a mature age, receives more particles into itself than it emits, because all the nourishment is easily distributed into the veins, and there confined, and the particles are not so widely scattered as in any proportion to fly off, and so receive a loss faster than they are supplied. For we must allow that many particles certainly fly off from bodies, but many others ought to be coming on, til the thing arrives to its utmost pitch of bulk. Then, by degrees, its strength and maturity of vigor decays, its age melts away and dissolves; for the larger any body is, the greater it is in size, when its growth is over, it wastes the more every way, and sends out more particles from itself; nor is the nourishment easily distributed into the veins, or nature sufficient to renew and supply those effluvia it throws off in such abundance, in proportion as the defect and the loss require. The animal therefore must necessarily perish when it is made thin by continual perspiration, and all things must at length fall by constant strokes from without; for the supplies from food must fail in old age, nor do bodies from without ever cease to batter and break to pieces all things with strokes not to be resisted.

[1144] By the same rule, the visible heavens, the surrounding walls of this great world, must tumble down by continual attacks, and fall to ruin. It is the nourishment that preserves things in being by constant supplies, but ‘tis all to no purpose: For neither are the veins capable to receive what is sufficient, nor can nature afford a proper and needful recruit. Even now, the age of the world is broken, and the Earth so feeble and worn out, that it scarce produces a puny kind of creatures, when it bore formerly a lusty race, and brought forth such

prodigious bodies of wild beasts. Or I cannot think all species of creatures descended from the sky by a Golden Chain upon the Earth, nor were they by the Sea created, nor by the waves that beat the Rocks, but the same Earth which now supports them, at first gave them being. At first she kindly, of her own accord, raised the rich fruits and delightful vines for the benefit of men. She freely of herself offered her sweet produce, the corn and tender grass, which now scare rise to perfection with all our labor.

We wear out our oxen, and the strength of our husbandmen; we can scarce find plowshares sufficient to till the fields, things are so averse to grow, and our labors are forever increasing. And now the lusty plowman shakes his head, and laments the pains he took was oft in vain; and when he compares the present times with the glorious days that are past, he blesses the good fortune of those that were before him; he talks loudly how the old race of men, filled with piety, no doubt spent their happy days within the narrow bounds of their own field, (for then every man's share of ground was much less than it is now) but has no notion, fond fool! that things by degrees decay, and, worn out by old age, hasten to ruin to the utmost period of their duration.

4. Book Three

O Epicurus, who could first strike so clear a light from so great darkness, and direct us in the proper advantages of life, Thee, the glory of the Grecian name, I follow. Thy steps I closely trace with mine, not so much from a desire to rival thee, as from the love I bear, and the ardent passion I profess to imitate thee. For how can the swallow contend in singing with the swan? Or what can kids, with feeble limbs, perform in running with the noble horse's speed?

Thou great Father, founder of philosophy! Thou with paternal precepts dost inspire thy sons, and from thy writings, most illustrious chief, as bees such honey from the flowery fields, we feed upon thy golden sentences - golden, and fit eternally to live. For when thy reason first began to prove that Nature was not formed by powers divine, the terrors of the mind all fled, the walls of this great world lie open, and I see how things are managed through the mighty void. The deity of the gods, their calm abodes appear, which neither winds disturb, nor clouds overflow with showers, nor the white-falling snow, congealed by sharpest frost, does spoil; but the unclouded air surrounds them always, and smiles on them fully with diffused light. Nature in every thing supplies their wants; nothing at any time destroys their peace. But the wide tracts of Hell are nowhere seen, nor does the interposing Earth prevent our sight, but we discover what beneath our feet is doing in the space below. In these pursuits a certain divine pleasure spreads round me, and I stand amazed, that by thy strength of mind, all nature every way lies naked to our view.

[31] Since then I have taught what are the first seeds and principles of things, how they differ in their figures, and of themselves fly about, beaten by mutual strokes, and from them all beings are produced, the nature of the Mind and of the Soul comes next to be explained in these my lines, and all the terrors of infernal pains banished, and headlong driven quite away, that from the bottom so disturb the life of man, and cover all things with the gloom of death, and leave no place for pure and unmixed pleasure to possess.

For what men vainly talk, that disease and an infamous life are more to be feared than the terrors of death, and they know that the soul consists wholly in the blood, and therefore they want no assistance from our philosophy, I would have you observe that those boasts are thrown out more for the sake of praise and popular breath (if their vanity by chance leads that way) than that they believe any such thing; for let these very men be banished from their country, and driven into a desert far from human sight, stained with the guilt of the foulest crimes, yet they live on, afflicted as they are, with all sorts of misery, and wherever the wretches come, they fall a-sacrificing, and slay black cattle, and offer victims to the infernal gods, and in this deplorable state they, with more than common zeal, apply themselves to the offices of religion.

And therefore it is proper to view men rather under a doubtful fortune, and observe how they behave in circumstances of distress, for then they speak truth from the bottom of their hearts, the mask is pulled off, and the real man shows undisguised.

[59] Besides, covetousness and the blind desire of honors, which compel unhappy men to exceed the bounds of right, and urge on the partners and assistants of their crimes to strive day and night with the utmost pains to arrive at the height of wealth: these plagues of life are chiefly nourished by fear of death; for infamy, and contempt, and sharp want seem far removed from a sweet and pure state of life, and, as it were, hover about the gates of death; and wherefore will men, possessed by a false fear, labour to avoid, and stand at the remotest distance from them, they add to their heaps by civil war, and, insatiable as they are, double their riches, heaping one murder upon another. They laugh with cruel delight at the sad funeral of a brother, and hate and fear the entertainments of their nearest relations.

[74] From the same cause and from the same fear, envy often becomes the tormentor of mankind; they complain that one is raised to power before their eyes, another to respect, a third distinguished by shining honors, whilst they lie buried in obscurity, and are trod upon like dirt, and so they pine themselves to death for the sake of statues and a name; and some men, from a fear of death, conceive so great a hatred for life, and the preservation of their being, that in a gloomy fit they become their own executioners; not considering that this fear of death is the source of all their cares, this breaks through all shame, dissolves the bonds of friendship, and in short overturns the foundations of all goodness; for some we see betray their country and their dear parents, striving by that means to deliver themselves from death, and the pains of Hell.

For as boys tremble, and fear every thing in the dark night, so we, in open day, fear things as vain and little to be feared, as those that children quake at in the dark, and fancy advancing towards them. This terror of the mind, this darkness then, not the sun’s beams, nor the bright rays of day can scatter, but the light of Nature and the rules of reason.

[94]First then, I say, the mind of man (which we commonly call the soul) in which is placed the conduct and government of life, is part of man no less than the hand, the foot, the eyes, are parts of the whole animal;

[98]though many of the philosophic herd have fancied that the sense of the mind is not fixed to any particular part, but is a sort of vital habit of the whole body, which the Greeks call Harmony; and thence flows all our sense, and the Mind has no particular place for its abode. As when we say health belongs to the body, yet it is no part of the body that is in health, so no particular part, they tell us, is the residence of the mind. But in this they seem to be egregiously wrong, for often when some visible part of the body suffers pain, we feel pleasure in some other part to us unseen; and the contrary often happens in its turn, that a man disturbed in mind is perfectly well all over his body, in the same manner as when a man has the gout in his foot, his head at the same time is free from pain.

Besides, when our limbs are given up to soft sleep, and the wearied body lies stretched at length without sense, there is something within that in the very time is variously affected, and receives into itself all the impressions of joy and empty cares that torment the heart.

[117] But to convince you that the soul is a part like other limbs, and not as a harmony, takes up the whole body, observe first that many members of the body may be cut off, yet often life remains in the rest; and again, the same life, when a few certain particles of vital heat fly off, and our last breath is blown through the mouth, immediately leaves possession of our veins and bones. And this will give you to understand that all the particles of matter are not of equal consequence to the body, nor do they equally secure our lives; but the particles of our breath, and the warm vapour, are of principal concern to preserve life to us in all our limbs. This warmth, this vapour, therefore resides in the body, and leaves our limbs as death makes approaches towards us.

[130] But since the nature of the mind and soul is discovered to be a part of the man, give these fiddler's their favorite word, Harmony, again, take from the music of the harp, or whencesoever they borrow the name, and applied it to the soul, which then - forsooth! - had no proper name of its own; however it be, let them take it again, and do you attend what follows.

[136] I say then that the mind and soul are united together, and so joined make up one single nature; but what we call the mind is, as it were, the head, and conducts and governs the whole body, and keeps its fixed

residence in the middle region of the heart. Hear our passions live, our dread and fear beat here, here are joys make everything serene; here therefore must be the seat of the Mind. The other part, the soul, spread through the whole body, obeys this mind, and is moved by the nod and impulse of it.

This mind can think of itself alone, and of itself rejoice, when the soul and body are no ways affected; as when the head or the eye is hurt by sensible pain, we are not tormented over all the body, so the mind is sometimes grieved or cheered with joy, when the other part, the soul, diffused through the limbs, is agitated with no new motion at all. But when the mind is shaking with violent fear, we see the soul through all the limbs partakes of the same disorder. Cold sweats and paleness spread all of the body over, the tongue falters, the speech fails, the eyes grow dim, the ears tingle, and the limbs quake. In short, we often see men fall down from a terror of the mind, from whence we may easily conclude that the soul is united with the mind, and when she is pressed forcibly with its impulse, then she drives on the body, and puts it in motion.

[161] By this rule therefore we find that the nature of the mind and soul is corporeal; for we see it shakes the limbs, rouses the body from sleep, changes the countenance, and directs and governs the whole man. (Nothing of which can be done without touch, and there can be no Touch without body.) Should we not then allow that the mind and soul are corporeal in their nature?

Besides, you see the Mind suffers with the body, and bears a share with it and all it endures; if the violent force of a dart pierces the body, and shatters the bones and nerves, though death does not instantly follow, yet a faintness succeeds, and a sort of pleasing desire of sinking into the ground, a passionate resolution to die, and then again the will fluctuates and wishes to live: the Mind therefore must needs be of a corporeal nature, because It suffers pain by the stroke of darts, which we know are bodies.

[177] I shall now go on to explain clearly of what sort of body this mind consists, and of what principles it is formed. And first I say that the mind is composed of very subtle and minute seeds; that it is so, attend closely, and you will find that nothing is accomplished with so much speed as what the mind attempts, and proposes to execute. The Mind therefore is swifter in its motion than anything in nature we can see or conceive. But that which is so exceedingly quick to move must consist of the roundest and most minute seeds, that may be set a-going by the lightest impulse. So water is moved and disposed to flow by ever so little force, because it is composed of small and slippery seeds; but the nature of Honey is more tenacious, its moisture is more unactive, and its motion slower; its principles stick closer among themselves; and for this reason, because it consists of seeds not so smooth, so subtle, and so round. And thus a large heap of poppy seeds is blown away by the gentlest breath of wind, and scattered abroad; but no blast can shake a heap of stones or darts. Therefore the smoother and smaller the principles of bodies are, the more easily they are disposed to motion, and the heavier and rougher the seeds are, the more fixed and stable they remain.

Since therefore the nature of the mind is so exceedingly apt to move, it must needs consist of small, smooth, and round seeds; and your knowing this, my sweet youth, will be found of great use, and very seasonable for your future inquiries.

[208] This will discover clearly to you its nature, of what tenuous parts it is formed, and how small a space it might be contained, if it could be squeezed together. For when the calm of death has possession of a man, and the mind and soul are retired, you will find nothing taken away from the body as to its bulk; nothing as to its weight. Death leaves everything complete, except the vital sense and the warm breath; the whole soul therefore must needs be formed a very small seed, as it lies diffused through the veins, the bowels, and the nerves; because when it has wholly left every part of the body, the outward shape of the limbs remains entire, and they want not a hair of their weight. And this is the nature of wine, when the flavor of it is gone, and of ointments, when their sweet odors are evaporated into air. And thus it is, when any moisture perspires through the pores of the body, the bulk does not appear less to the eye, upon that account, nor is there anything taken off from the weight; for many and small are the seeds that compose the moisture and the smell in the contexture of all bodies. And therefore we may well assured that the nature of the mind and soul is formed of exceeding little principles, because when it leaves the body, it detracts nothing from the weight.

[231] Yet we are not to suppose this nature of the mind to be simple and unmixed; for a thin breath mingled with a warm vapor, forsakes the bodies of dying men; and this vapor draws the air along with it, for there can be no heat without air intermixed, and heat being in its nature rare, must needs have some seeds of air united with it. We find then the mind consists of three principles: of vapor, air, and heat; yet all these are not sufficient to produce sense: For we cannot conceive that either of these, or all of them united, can be the cause of sensible motions that may produce reason and thought.

And therefore a fourth nature must needs be added to these (and this indeed has no name at all) but nothing can be more apt to move, nothing more subtle than this, nor consist more of small smooth seeds; and this is what first raises a sensible motion through the body: this, as it is formed of the minutest particles, is first put into motion, then the heat, and the unseen vapor receive a motion from it, and then we are and so all the limbs are set a-going; then is the blood agitated, and all the bowels become sensible, and last of all, pleasure or pain is communicated to the bones and marrow. But no pain or any violent evil can pierce so far without disordering and setting the whole into confusion, so that there is no more place for life, and the parts of the soul fly away through the pores of the body. But this motion often stops upon the surface of the body, and then the soul remains whole, and the life is preserved.

[258] Now, how these four principles are mixed, and in what matter they subsist, I am very desirous to explain, but the poorness of the Latin tongue prevents me, against my will; yet, as far as that permits, I will endeavor briefly to touch upon this subject.

[262] The seeds then of these principles move so confusedly among themselves, that no one of them can be separated from another, nor is there any place severally allotted to each, where anyone can act by itself; but they are, as it were, many powers of the same body. As in a piece of any animal there is smell, and heat, and taste, and out of all these one perfect body is composed; so heat, air, and the invisible vapor, and that fourth active quality, (which is the principle of motion to the other three), and from which all sensible motion rises through the limbs) compose by their mixture one subtle substance, or one Nature.

This fourth something is deeply fixed in the inmost recesses of the body, nor is there anything in the whole body more secretly and inwardly placed; it is, as it were, the very soul of the soul itself: For as in the limbs, and through all the body, the united force and power of the mind and soul are hid and unseen, because they are formed of small and few seeds, so this something without a name, being composed of minute principals, lies deep and concealed; it is the very soul of the whole soul itself, and governs the whole body. By the same rule, it is necessary that the vapor, the air, and the heat be so properly mingled through the limbs, and be disposed either higher or lower than one another, that one certain nature may be formed from all; lest the power of the heat, the vapor, and the air, being divided and separately placed, might destroy the sense, and prevent its operation.

[288] Heat prevails in the mind when the creature is enraged, grows hot, and fire sparkles from its glowing eyes. Much vapor is cold, and the companion of fear, it excites horror in the body, and shakes the limbs; but air is of a calm and mild quality, it resides in a quiet breast, and a serene countenance. But those have most heat whose hearts are fierce, and whose angry mind are soon inflamed into passion. of this sort, in the first place, is the distracted Fury of lions, who, roaring, often burst their very breast, and are unable to contain the torrent of Rage that swells within. The cold temperature of the deer has more of vapor, and sooner incites a chillness in the limbs, which causes a trembling motion through the whole body. But the nature of the ox consists more of soft air, nor does the smoky firebrand of anger (that spreads a shade of black darkness over the mind) too much inflame him, nor is he stupefied by the darts of chilling fear, but his nature is placed between both, between the fierce lion and the deer.

[307] The mind of man is formed of the same principles; though the discipline of philosophy may polish and correct some, yet it leaves behind the marks of the original nature of the mind, nor are we to think that the seeds of vice can be wholly rooted out. One man, we see, runs more rashly into passion, another is more disposed to fear, and a third is apt to be more merciful than just; It is impossible but the various tempers of mankind, and actions that follow them, must differ in many other instances, the reasons of which are at present out of my power to explain; nor can I find words to express that variety of figures by which the seeds

are distinguished, and from which this variety of disposition is produced. This, however, may justly be asserted on this occasion: that the traces of original nature which cannot be corrected by the rules of reason are so very small that nothing hinders us from leading a life worthy of the Gods.

[323] This nature therefore of the soul is contained by the whole body; it is the keeper of the body, and the cause of its safety: for they are both united closely together by mutual bonds, nor can they be torn asunder but by the destruction of both. As it is impossible to separate the odor from a lump of Frankincense, but the nature of both must perish, so it is equally difficult to part the mind and soul from the whole body, but they must all be dissolved. Of such interwoven principles are they formed, from their very beginning, that they enjoy a common life, nor have either of them, either the mind or the body in a separate state, the power of sense without the assistance of each other, but sense is incited in us by the nerves, from the common motions of both, and by their joint operations.

[337] Besides, the body is never born alone, nor does it grow or continue after the soul is fled, for the water throws off of vapor when it is made hot, yet it is not by that means destroyed, but remains entire. The limbs I say, cannot with the same safety bear the separation of the soul when it retires from them, but thus divided, they must all perish and rot together. For the mutual conjunction of the soul and body from the very beginning, even as they lie in the womb of the mother, does so jointly promote the vital motions, that no separation can be made without death and dissolution; from hence you learn that, since their preservation so much depends upon each other, their Natures also are inseparably joined and united together.

[350] But further, if anyone denies that the body has sense, and believes that the soul diffused through the whole body is only capable of that motion we call sense, he opposes the plainest evidence, and the truth of all experience; for who would ever pretend to say that the body has sense if the thing itself did not fully prove, and convince us of it? But it is plain, you'll say, that the body is void of all sense when the soul is gone: True, for this faculty is not peculiar to the body alone, but to the soul and body united; and we know the sense becomes weaker, and decays, as the body and soul grow old together.

[359] To say likewise, that the eyes can see nothing of themselves, but the mind looks through them as through doors laid open, this is ridiculous, when sense itself tells them the contrary, and sets it full in their view; especially when we are unable to look upon objects that dazzle the eyes, because our site is confounded by too great a lustre. This could not be, if they were mere doors, nor are open doors that we look through capable of pain. Besides, if our eyes were no more than doors, the mind would see clearer when the eyes were pulled out, and the whole frame taken away.

[370] In this case it is vain to take shelter under the sacred opinion of Democritus, who says that as many parts as there are of the body, so many parts too of the soul are answerable, and are contained in them; for since the principles of the soul are not only much smaller than those of which the body and its parts consist, but are fewer in number, and are spread thinly in distant Spaces all over the limbs, you may a firm so far, that the principles of the Soul take up only so many different spaces and intervals, as may be sufficient for those little seeds that are in us to incite those motions that produce Sensation.

That this sense does not affect every minute part of the body is plain; for we seldom feel the dust that sticks upon us, nor the particles of chalk that drop upon our limbs; nor do we perceive the dew by night, or the fine threads of the spider meeting us, when we are entangled by the subtle net as we pass along; nor the decaying web lighting upon our heads, nor are we sensible of the soft feathers of birds, nor of the flying down of thistles, which from their natural levity are scarce able to descend upon us; nor do we feel the motion of every creeping insect, nor the little traces of the feet which gnats and such animals make upon us. So that the many seeds which are diffused over all the limbs, must be first put into motion before the principles of the soul are agitated and made capable to feel, and before its seeds, by striking upon each other through so many distance spaces, can meet, unite, and part again, and be so variously moved as to produce sense and perception in us.

[396] But the mind it is that keeps up the defences of life, and has a more sovereign power to preserve our beings, then all the faculties of the soul; for, without the mind, the least part of the soul cannot secure its

residence in the body for a moment, but follows it readily as a close companion, and vanishes into air along with it, and leaves the cold limbs in the frozen arms of death. But the man whose mind is whole and entire, remains alive, though he be mangled and all his limbs lopped-off; yet his trunk, though his soul be so far gone, and his members separated from him, still lives and breathes the vital air; the trunk, if not spoiled of the whole, yet of a great part of the soul, still continues alive and holds fast its being. So, if you tear the eye all round, if the pupil remains safe, the power of sight continues entire, so long as you do no injury to the Apple, but cut the white all around, and leave that hole, this may be done without any danger or lost to the sight; but if ever so little of the middle of the eye be pricked through, though the ball otherwise looks bright and sound, the light instantly dies away, and darkness follows. This is the case of the mind and soul, and by such bonds are they always held together.

[417] And now, for your sake, my Memmius, and to let you know that the mind and soul are born in us and die with us, I will go on to write lines worthy of thy genius, and which I have been long preparing, and have at last by sweet labor happily perfected. Observe only that you apply both names indifferently, or, more plainly, when I offered to say the soul is mortal, you are to understand I mean the mind likewise, since they are both so united together, that in this respect, they make but one and the same thing.

[425] First then, since I have proved that the soul consists of very minute seeds, and is formed of principles much less than clear water, or mist, or smoke, because it is more apt to move, and is set a-going by a much lighter stroke (for it is moved by the very images of mist and smoke) as when, by sleep overcome, in dreams we see the lofty altars exhale a vapor, and send up smoke into the air, the images of these things no doubt produce these phantasms in us. And since you see, when the vessel is broken to pieces, the water breaks loose and flows away in a stream; and since mist and smoke vanish into air, conclude the soul likewise to be poured out, and that its principles much sooner perish, and its seeds are more easily dissolved, when it is separated and retires from all the limbs; for since the body, which is, as it were, a vessel to it, when it is bruised to pieces by any outward force, or rarefied by the blood being drawn out of the veins, cannot keep it in, how can you suppose it can be contained by subtle air? How can that which is more rare than this body of ours preserve it entire?

[445] Besides, we perceive the soul is born with the body, grows up with it, and both wax old together. For as children are of a weak and tender body, their mind likewise is of the same frail complexion. As their age improves, and their strength is more confirmed, their judgment ripens more, and the powers of their mind are more enlarged. But when the body is shaking by the irresistible stroke of time, and the limbs fail without strength, the understanding grows lame, the tongue and the mind lose their vigor, all the faculties fail, and go away together. The whole nature of the Soul therefore must needs be dissolved, and scattered like smoke into the air, since we see it is born with the body, increases together with it, and with it, as I said before, becomes feeble by age, and decays.

[459] Add to this, that has the body is subject to violent diseases and tormenting pains, so the mind is affected by sharp cares, by griefs and fear, and therefore must equally partake of death and dissolution with it. And then, in great disorders of the body, the Mind frequently grows mad, raves, and talks wildly; sometimes it is sunk into such a profound and never-ending sleep by a heavy lethargy, the eyes shut, and the head nodding, so that neither hears the words, nor is able to distinguish the face of those who stand about bedewing their cheeks with tears, and striving to recall the departing breath. Wherefore you must needs allow that the mind may be dissolved, since the infection of the disease pierces through it; for grief and diseases are both the causes of death, as we are taught by experience in a thousand instances.

[476] And again, why is it, when the quick force of wine strikes through a man, and the insinuating heat works in all his veins, why follows a heaviness of the limbs? The legs no longer support the reeling body, the tongue falters, the mind is drowned, the eyes swim; noise, hiccups, brawlings deafen your ears, and many other evils, the consequence of such debauches; how could this be, did not the impetuous force of the wine distract the soul as it lies diffused through the body? Now whatever can be thus disturbed, and hindered in its operations, would (were the force to grow more violent) be destroyed and utterly deprived of future being.

[487] Besides, a person surprised with a sudden fit of a disease drops down before our eyes as if he were thunderstruck. He foams, he groans and trembles all over, he is distracted, stretches his nerves, is distorted; he pants, he tosses and tires his limbs with strange and unnatural postures. The reason is because the force of the disease, driven violently through the limbs, agitates and disturbs the mind, as the foaming waves of the sea are enraged by the strong blast of winds. And then groans are forced from the wretch, because the limbs are tormented with pain, and the seeds of the voice are thrown out from the bottom of the breast, and hurried in confusion, without any distinct accent through the mouth.

The man raves, because the powers of the mind and soul are distracted, and their principles, as I said, broken, disjoined, and divided by the violence of the distemper. But when the cause of the disease gives way, and the black humor of the corrupt body retires into some convenient vessel, then the patient begins to rise, feeble and staggering; and by degrees returns to all his senses, and recovers life. Since therefore this soul is so tossed about with such strange disorders, and labors with such agonies in so miserable a manner, as it is enclosed in the body, how do you think it can subsist without the body in the open air, and exposed forever to the raging fury of all the winds?

[510] And since we see the mind can be made sound, and be affected by the powers of medicine, as well as a disordered body, this is a strong evidence that the mind is mortal; for whoever attempts to make any alteration in the mind, or offers to change the nature of any other thing, must either add some new parts to it, or take off some of the old, or else transpose the former order and situation; but what is immortal can have nothing added to it, or taken from it, nor will admit of any change in the order of its parts: for whatever is so altered as to leave the limits of its first nature, is no more what it was, but instantly dies. The mind, therefore, whether it be distempered, or relieved by medicine, shows (as I observed) strong symptoms of its mortality. So evidently does the true matter of fact overthrow all false reasoning, that there is no possibility to escape its force; and the contrary opinion is either way fully refuted.

[526] Besides, we often seen men perish by degrees, and lose their vital sense limb by limb; first, the nails and toes grow black, then the feet and legs rot; at length the traces of cold death proceed on, step by step, over the other parts of the body. Since therefore the soul is divided, and does not at such a time continue whole and entire, you must pronounce it mortal.

But if you think the soul retires out of the dying members into the more inward parts of the body, and contracts its seeds into one place, and so withdraws the sense from the rest of the limbs, yet that place to which the soul retreats, and where so much of it is crowded together, ought to enjoy a more lively and brisker sense; but, since there is no such place, it is plain, as we said before, it is scattered piecemeal through the air, and therefore perishes. But suppose we grant which is false in itself, and allow that the soul may be huddled up together in the bodies of those who die one limb after another, yet then the soul must be confessed to be by Nature mortal. For it signifies not whether the soul dies scattered through the air, or perishes with its parts contracted into one place, while the senses steal away from the whole body more and more, and the powers of life by degrees appear less and less.

And since the mind is a part of man fixed in one certain place, as the ears, eyes, and other senses that preside over life, and as the hands, and eyes, and nose, when separated from the body, are incapable of sense, or even to be, but must in a very short time corrupt and putrefy; for the Mind cannot subsist of itself without the body, (or even be in the man) which is as it were a vessel to the soul, or anything else you can conceive more closely united to it; for it sticks inseparably to the body, and cannot be divided from it.

Further, the vital powers of the body and mind exert themselves together, and live united by the strongest bonds; neither can the nature of the Mind alone dispense the vital motions of itself without the body, nor can the body, void of soul, continue or use the faculties of sense. For as the eye, torn out by the roots and separated from the body, can see nothing, so the soul and mind cannot act of themselves, because they are spread over all the body by the veins, the bowels, the nerves, and bones. Nor could the seeds of the soul exercise those vibrations that produce sense, were they disposed at wide intervals, and enclosed by no solid body. They show those sensible motions because they are shut up close, which they cannot exert when they are forced out of the body into the wide air after death, because they are not under the same restraint as they

are within the enclosure of the body; for the air would be an animal, if the soul could be confined within it, and maintain those motions of sense which before it exercised in the nerves and through the limbs. You must confess therefore, over and over, that the mind and soul (for they both make up but one substance) must needs be dissolved, as soon as they are stripped of the covering of the body, and their vital powers thrown out into the thin air.

Again, since the body cannot bear the separation of the soul, but it soon putrifies and stinks, how can you doubt but that the principles of the soul diffused through the whole body, and raised from the very inmost parts of it, flow out like smoke, and therefore the rotten body thus changed falls to pieces in so ruinous a manner, because the seeds of the soul, which preserved the whole, are moved widely from their place, and flow through the limbs, and all the winding passages of the body. And hence you are fully satisfied that the nature of the soul is spread over all the limbs, and is first broken and divided in the body itself, before it flies out into the air abroad.

Nay morel whilst the man is still living, the soul seems often to receive a violent shock, so that the limbs are dissolving all over, the face looking pale, as if it were real death, and all the members of the body wan and ghastly, falling to pieces. This happens in a swooning fit, when the soul is going, and trembles upon the verge of life, and all the faculties strive to hold fast the chain that binds up soul and body together. The mind and all the powers of the soul are then shaken, and are so staggered with the body, that a force a little stronger would drive it to utter dissolution.

Do you doubt now whether this soul thrown out of the body, abroad, destitute, into the open air, stripped naked, be so far from remaining entire to eternal ages, that it cannot subsist so much as for the least moment?

And then no dying man ever perceived his soul go out whole from all parts of the body at once, nor felt it first creeping up his throat, and then rising up to his jaws; but he finds it fail in that part of the body wherein it is placed, as he knows that every sense expires in its proper organ. But if this mind were immortal, it would not, when dying, complain of its being dissolved, but rather rejoice that it was going freely abroad, that it had thrown off his coat as a snake, or as an old stag that casts his heavy antlers.

And why is not the mind, with all its reason and conduct, produced in the head, the feet, the hands, but that every part is fixed to one place, and to a certain situation? If proper places were not appointed to all beings in which to be born, and when produced where they might abide, and where every member might be so conveniently disposed, that there might be no preposterous order of the limbs throughout the whole? So regularly does one thing follow another that fire is never raised from water, nor cold from heat.

Besides, if the nature of the soul be immortal, and enjoys the power of sense when separated from the body, you must, as I conceive, supply her with the use of the five senses, nor can we imagine how without them the soul can live in the shades below. The painters and the poets, many ages ago, have represented the souls indued with sense, but neither eyes nor nose, nor hands nor tongue nor ears can be separately in the soul, nor can they separately retain any sense nor even be, without it.

And since the vital sense, we perceive, is diffused through the body, and we see the whole body animated throughout, if any weapon cuts it in two in the middle of a sudden stroke, and divides the parts asunder, the powers of the soul, without doubt, being separated and disunited, will follow the fate of the body; but whatever is cut asunder and falls into parts can have nothing immortal in its nature. Chariots, we read, armed with Scythes, and reeking with confused slaughter, would cut off a limb with so quick a force that the divided part that fell off from the body might be seen trembling upon the ground when the mind and heart of the man feel nothing of the pain, so sudden was the wound. His whole soul is so taken up with the heat of action that he pursues the fight and the intended slaughter with the remainder of his body, nor does he imagine that the wheels and mangling hooks have torn off among the horses his left had, or that he has lost his shield.

Another knows nothing that his right hand is lopped off, as he scales the wall, and presses eagerly forward. Another attempts to rise with one leg, while the dying foot moves the toes as it lies by him upon the ground;

and the head cut off, the trunk yet warm and heaving preserves the same fierce look in the face, and keeps the eyes open, til it has lost all remains of the soul within it. And so divide with a sword, if you please, into many parts, the tail of a long snake, threatening, and brandishing his tongue, and you'll see every divided part wiggling with the fresh wound, and staining the ground with blood. You'll perceive the serpent turning his head about to find his divided body and bite it with his teeth, from the anguish of the pain he suffers. Shall we say that a proper soul belongs severally to all these parts? By this rule it will follow that the same creature is animated by many souls at the same time. Tis plain therefore that the soul before was one, and diffused through the whole body, is divided, and consequently they are both mortal, because they are both equally divided into many parts.

Further, if the nature of the soul be immortal, and is infused into the body when a child is born, why do we remember nothing of the life we led before? Nor retain any traces of things done long ago? For if the power of the soul be so utterly changed that all recollection of past actions is entirely gone, this kind of oblivion is (I think) not far removed from death itself. We must needs allow therefore that the soul that was before utterly perished, and that which now is was newly created.

But when the body is completely formed, when we are born, and enter within the door of life, if then the vital power of the sou were infused, it would have nothing to do to grow up together with the body and the limbs, and be united with the very blood, but, as it were in a cage, it would live entire of itself, and so diffuse the faculties of sense all through the body.

Again then and again it must be said that the soul is neither without beginning, nor exempt from the laws of death; for we cannot conceive that the soul, were it infused from without into the body, could be so nicely and closely united to the several parts of it, as the thing itself evdiently proves she is. She is indeed so diffused through the veins, the bowels, the nerves, and bones, that even the teeth are not without sense, This appears from the acute pain we feel from the chillness of cold water, or the grinding of a rough stone when we eat, The soul therefore being so closely connected with the several parts cannot be supposed to depart whole, or deliver herself entire from the bones and nerves and joints of the body.

But if you think the soul is infused from without, and so spread over all the limbs, she is for this reason still more liable to perish with the body; for a thing that flows through so many passages is dissolved, and therefore dies, for she must be thus divided through all the pores. And as the food, when it is distributed through the members and the limbs, loses its first form, and take up another quite different, so the soul, though it enters whole and fresh into the body, yet, in passing through, its parts are dissolved, because the particles of soul which now rules and governs the body is produced from that which perished, and was dissolved in passing through into the limbs. The nature of the soul therefore is neither without beginning nor free from death and dissolution.

Besides, in a dead body some particles of the soul remain, or they do not. If they do remain and abide in it, you can by no means properly say she is immortal, because she withdrew with her seeds divided, and with some of them left behind. But if she retired from the body with all her parts whole, how comes the carcass to breed so many worms in the corrupted bowels? And whence do such abundance of creates without bones and blood swarm over the bloated limbs? But if you fancy that souls are formed without creep into these worms, and every single worm has a particular soul, nor think it strange that so many thousand sould should flow together from without to the place from whence one departed, yet it is proper to enquire into and to examine this, whether every particular soul searches into the several seeds of the worms, and chooses for itself what seeds are most proper to make itself a body, or whether she enters into a body already formed.

But there is no reason to be given why she should build a dwelling for herself, and go through such fatigue, especially since, disentangled from matter, she cannot be tormented with diseases, with cold and hunger, for body only can labor under these calamities, and the soul suffers many such distresses only by her conjunction with it. But allow it incovenient for souls to fashion out bodies for themselves to dwell in, yet there is no way possible for them to do this. They do not therefore make up bodies and limbs for themselves, nor are they infused into bodies ready made, for they could not be so nicely united as to inform every part of the body, nor could the vital motions be mutually carried on between them.

Besides, why does fierce rage affect the sullen breed of lions? Why is craft derived to the fox, and flight to stags, from their sires, and paternal fear give wings to all their limbs? Whence comes other passions of this kind? Why do they belong to all creatures from their tender age, and seem born with them, if the peculiar powers of the soul were not produced from peculiar seeds in ever particular kind, and did not grow up together with the whole body? But were the soul immortal and used to change her body, creatures would be strangely confused in their dispositions and qualities; the fierce dog of Hircanian breed would fly the attack of the horned stag, and the fearful hawk would tremble in the air at the approach of a dove; men would be void of reason like brutes, and the savage race of beasts might become philosophers.

But what is said in this case is supported by false reasoning, that the immortal soul is changed according to the different body it is united with, for what is changed is dissolved, and therefore dies, the parts are transposed, and vary in their situation. It follows therefore that the principles of it may be dissolved through the limbs, and may all perish together with the body. But they cry that the souls always pass into bodies of the same kind, the souls of men into the bodies of men. Then I would ask why a soul from being wise should become a fool, and a child is not made a privy counsellor? And why a young colt has not the paces of a full-grown horse? If the peculiar powers of the soul were not produced from peculiar seeds in every particular kind, and did they not grow up together with the whole body? They'll say perhaps that he mind becomes equally weak in a tender body; if so, they must allow the soul to be mortal because, when infused into the body it is so much changed it loses the life and sense it enjoyed before.

And why should the powers of the soul desire passionately to grow and attain to a full maturity of age together with the body if it were not a companion with it from the very beginning? And why is she fond of flying away out of old decaying limbs? Is she afraid of being confined a close prisoner in a rotten body, and lest her old tabernacle, worn out by time and age, should all and crush her to pieces? But no danger can affect a nature that is immortal.

Besides, it is ridiculous to suppose that a flock of souls are ready hovering about, whilst brutes are in the act of lust, and drop their young, that they, immortal as they are, should attend upon perishing bodies, in troops without number, hurrying and coming to blows as it were, which first should get possession and enter in; unless perhaps they rather choose to agree among themselves that the first come should be first served, and there should be no further dispute about it.

Again, there are no trees in the sky, no clouds can be in the deep sea, nor can fish live in the fields, nor can there be blood in wood nor moisture in stones. It is fixed and established where every thing should grow and subsist. The soul therefore cannot come into being along without the body, nor can she exist separately without the nerves and the blood; if this could be, the powers of the soul you would rather feel sometimes in the head or shoulders, or even in the very bottom of the feet, or in any other part of the body, and so you would perceive it diffusing itself through the whole body, as water poured into a vessel first covers one part, then spreads over the whole. Since therefore there is a proper and determinate place in this body of ours for the mind and soul distinctly to be and increase in, we have the more reason to deny that they can continue or be born without it; and consequently when the body dies, the soul, diffused through the whole body, must be allowed to die likewise.

And then to join a mortal nature to an immortal, and to think that they can agree together, and mutually unite in their operations, is folly and nonsense. For what can be conceived more absurd, what can be more impracticable in itself, more disagreeing to reason, than a mortal nature joined to one eternal and immortal, and so united as to be liable to all the pains and distresses of human life?

Besides, whatever is immortal must be so either because it is solid, and cannot be affected by blows, so that nothing can pierce it, and break through the close union of its parts (such are the first seeds of matter, as we proved before) or it is eternal, and lasts forever, because it is free from stroke, as a void is, which is not liable to touch, nor affected by the force of blows; or lastly, because there is no space any way about it into which its broken parts can be dispersed, (in this sense the universe is eternal; beyond which there is no place where its parts may retire, nor any bodies to fall upon it, and dissolve and break it to pieces by mighty blows from without). But, as I said, the nature of the mind is not solid, because there is empty space in all

compound beings; nor yet is it a void, nor are there wanting bodies for ever beating upon it from without, and driving the whole frame of this mind by impetuous force into utter dissolution, or to distress it any other way with extremest danger; nor is there any want of place or space where the seeds of the soul may be dispersed, or where they may be dissolved by any violence whatsoever. The gate of death therefore is not barred against the soul.

But if you think she may the rather be pronounced immortal, because he is placed secure from things that may destroy her being, or that things opposite to her safety never come out of her, or if they do, they are diverted by some cause before you perceive they have done her any signal injury, this is a great mistake, and far from the truth. For, not to mention how she sickens with the diseases of the body, how something happens that torments her about future events, how she is disordered by fear, and vexed by cares, and how the conscience of crimes past, many years ago, pierces her through; consider the peculiar distraction that affects the mind, how she forgets everything, and is overwhelmed by the black waves of a lethargy.

Death therefore is nothing, nor is it of the consequence of a rush to us, since the nature of the soul is certainly mortal; and as we were no way concerned at what formerly happened when the Carthaginians mustered their armies on all sides against us, and all the world trembled and shook with the dreadful alarms of war, and it was undecided under the power of which empire the land and the sea, and all things here below should be subjected; so, when we shall be no more, when the separation happens between the soul and the body, which together make up our being, nothing shall befall us when that shall nowhere be, nor affect our sense; not tho' the earth be swallowed up by the sea, and the sea confounded with the heavens above. But if the nature of the soul, and the powers of it, when divided from the body, had the faculty to think, this would signify nothing to us, who are formed and compounded by a strict and inseparable union of soul and body together. Nay, if time could collect together our scattered particles after death, and reduce them into the same frame they are now in, and the light of life were again bestowed upon us, can all this, if it were done, relate anything to us, when all the memory of past life were interrupted and gone? And now we give ourselves no trouble over what we were formerly, nor are we under any anxiety what persons the time to come will raise from our matter, when it is moulded up again; for when you look back upon that infinite space of time that is past, and consider how various are the agitations of matter, you will easily believe those seeds of ours have been often aranged in the same order they are now in, tho' we can recollect nothing of what was then transacted; for a pause of life is thrown in between, and the seeds, so variously tossed about, took such motions as were averse and opposite to all sense. For whoever is to become wretched and miserable must exist at that very time when such misfortunes are to fall upon him; but since death puts an end to his being, and hinders the man from feeling those misfortunes which we the living endure, it is plain that we have nothing to fear in death, and none can be unhappy who are not in being; nor is it of the consequence of this whether such a one had ever been born, whose mortal life immortal death had once put an end to.

And then, when you see a man lament himself, because his rotten body shall after death putrefy in the earth, or be consumed by fire, or by the jaws of wild beasts, this man you must observe does not speak out, but has some secret sting concealed at his heart within, tho' he pretends to say that the whole of him is deprived of life when he dies, but, like a fool, that something of himself remains still. When a man alive torments himself that birds or beasts will tear his body to pieces after death, he bemoans the misery of his fate, but does not fully distinguish, nor set himself at a proper distance from his dead carcass; he believes himself to be that, and rots with all his senses about him. Hence it is he grieves that he was born mortal, nor sees that in death there can be no other self that can survive, and mourn over him after he is dead, that can stand by him as he lies along, or suffer pain or affliction for him. For if it be an evil to be crushed after death by the teeth and jaws of wild beasts, I do not see why his fate is not equally wretched to be laid upon a burning pile, and consumed to ashes, or to be suffocated with honey, or to be stiff with cold, as he lies upon the top of a bleak rock, or pressed with a heavy weight of earth on him.

But now no more will your glad family welcome you home, nor your best of wives, nor sweet children run to meet you, and strive who shall have the first kiss, and make your heart leap with silent delight; no more shall you be a defense to yourself and your friends by your brave exploits: Ah wretch, thou criest, Ah miserable me! One woeful day has robbed me of so many blessings of my life. But in this case, he never goes on and says that the desire of these things is gone likewise. If men would well consider and accordingly express their

complaints, their minds would be free from much anxiety and imaginary fear; for thou, sleeping in the arms of death, shalt lie forever discharged from all sorrow and pain, but we shall never cease to lament thee, reduced to ashes, near thy sad urn, and no time shall remove our never-ending grief from our minds. Now I would gladly know, if the matter be no more than sleeping and going to rest, what there is so exceeding bitter in death, that any one should upon that account pine his life away in eternal lamentation?

And yet this the gayest part of mankind do, even when they sit down at their carousells, with bumpers in their hands, and their heads crowned with flowers; they turn serious and cry, “Short is the pleasure of us poor creatures, we can just say it was, and once gone, it will never return more. As if the greatest evil in death to them was that a parching thirst should scorch the wretches, and burn them up, or an insatiable desire of any thing they love should follow them beyond the grave. No man gives himself any concern about himself or his life when the soul and body are sleeping at rest together (tho we were to sleep so eternally); no appetite for any thing we love best would then affect us; and yet when the principles of the soul are alive, and are moved almost with a sensible motion within us, the man roused from his sleep soon recollects and recovers himself; death, therefore, we should imagine, would give us much less anxiety than sleep, if there can be less than what seems nothing at all; for there is in death a wider separation of the seeds, nor does the man ever awake, when once the cold pause of life comes upon him.

But if the Nature of Things should offer to speak of a sudden, and upbraid the folly of any one of us in a manner like this: Prithee, Man, Why is it that thou indulgest thyself in such sharp sorrow and complaints? Why dost thou groan and weep because thou shalt die? If your life past has been agreeable to you, and all the abundant delights of it did not pass your mind as through a sieve, and perished without pleasure to you, why do not you, as a guest plentifully regaled with life, take your leave - and, fond Fool, enjoy your sweet repose with a cheerful mind? But if the good things thou has received have been idly squandered and are gone, and life is grown a burden to you, why do you covet more, that may come to the same unhappy end, and vainly die away like those that were before, and not rather put a period to thy life and all thy cares? For there is nothing further I can contrive or invent that can please thee more. Things always continue the same; if thy body was not to decay by years, nor thy limbs grow feeble by age, things will ever remain the same, tho' thou were to go on and live forever, and much more so if thou wert never to die. What could we say but that Nature gave a very just reproof, and set the case in a very proper light?

But the wretch that deplores his death beyond all bounds, may not she deservedly cry out the louder upon such a one, and chide him in sharper note: Get thee gone with thy tears, thou booby, and leave sobbing. If he be an old fellow, and far advanced, that complains: Dost thou fret thyself that hast run through all the delights of life? Because thou are reaching after absent pleasures, thou despisest the present, and so thy life passes away imperfect, and without relish, and death stares thee in the face before thou art aware, before thou has enough, and canst go off the stage satisfied and full of joy. It is high time to take thy leave of everything that does not agree with thy age; come, make way cheerfully for others, there is no help for it.

I think Nature, upon such occasions, would act justly, and, by such a rebuke, use him as he deserves, for old things must be thrust off, and give way as new come, and one thing must needs be repaired by another; but nothing sinks into Hell, or descends into the dark shades. There must still be a stock of matter to produce future generations, all which likewise, when their race is run, shall follow thee, nor did things less pass away in the ages before than they do now, and so shall they do for the ages to come, for beings never cease to rise from the ruins of one another, and life was given to none for a property, but to all for use. Look back, then, how that infinite tract of time that vanished before we were in being, how it has no relation to us; and the nature of all time to come will be of the same concern to us after we are dead. And now does anything show dreadful in death? Has it anything melancholy in its appearance? Is it not more serene than the softest sleep?

And truly, all those dreadful things that are said to be in the shades below are all felt by us whilst we are in this life; nor is there, as they tell us, such a miserable wretch, so stupified with idle fear, as Tantalus, who dreads the fall of the huge impending stone upon him from above; but rather, a vain fear of the gods torments men in this life, and terrifies them with all the ills that Fortune thinks fit to lay upon them. Nor do the vultures dig into the bowels of Tityus, as he lies in Hell, nor can they find in that large breast of his a liver they shall be

forever tearing out, tho' his body were ever so big, tho' he not only covered nine acres with his expanded limbs, but could spread them over all the Earth; yet he would not be able to bear eternal pains, nor could he furnish an everlasting meal out of his body. But that man is Tityus, whom by love oppressed the birds of prey devour, and piercing sorrow eats through, or any other impetuous passion tears in pieces. Sisyphys walks visibly before us in this life - it is he who sets his heart to court the people for honors, for the rods and cruel axes, and is ever repulsed, and retires sad and disappointed; for in vain to hunt after empty power which is never obtained, and to suffer the hardest labor in the pursuit of it. This is to thrust with all one's might the stone up the hill, which again tumbles down upon us from the top, and rolls swiftly into the plain below.

And then to be always obliging an ungrateful mind, to be ever pouring favors upon it, and never satisfy it, which the seasons of the year, as they turn about, are always doing; they produce their fruits, and the whole variety of their delights, and yet we are never filled with the blessings of life. This, I think, is what they feign of the young Maids below, that they pump water into a leaky vessel, which all their labor can never raise to the top.

Besides, Cerberus and the Furies, and Hell void of light, belching flames from its jaws; there are no such things in nature, nor ever can be; but the fear of sore punishment in this life for distinguished crimes, and the rewards of villainy affright us. The prison, the terrible fall from the Tarpeian Rock, stripes, executioners, the gallows, melted pitch, saws, and suffocating smoke; and if there be none of these, yet the mind, conscious of guilt, is ever in dread of these tortures, it stings us to the heart, and lashes us with rods not to be endured. Nor has the wretch a prospect of any end to the miseries he suffers, nor what can set limits to his punishment, and he fears lest these tortures should fall the heavier upon him in death, so that the fools live as deplorable a life as if they were really in Hell.

Thus you may justly reason with yourself: The good King Ancus has long-since bid adieu to life, a better man by much than such a wretch as thou, and so have many kings and potentates of the earth who ruled over mighty nations. Consider, even He that He himself who formerly made a road over the wide sea, gave a passage to his legions to march over it, and taught them to walk upon the salt Deep; who despised and insulted the waves and the roarings of the ocean: This Xerxes, covered with darkness, has breathed his soul out of his body long ago.

Scipio, that thunderbolt of war and dread of Carthage, has given up his bones to the Earth, as if he had been the meanest of slaves.

Add to these the founders of Arts, and the inventers of Verse; and further the companions of the Muses, the mighty Homer, the sole sovereign of them all – he sleeps quietly in the same grave with the rest.

Besides, when a ripe old age gave Democritus warning that the strength of his mind decayed, he met death half-way, and cheerfully obeyed the summons.

Epicurus himself, who excelled the whole world in wisdom, and darkened all about him with his superior lustre, as far as the bright mid-day sun outshines the stars, is dead, and his light of life run out.

Shalt thou then repine and grieve to die, whose life is little more than a scene of death whilst thou livest with thy eyes open? Who wearest the greater party of thy life away in sleep, who snorest and art ever dreaming whilst thou art awake, and hast thy mind always tormented with empty fear, nor art able to find what is the malady that troubles thee, when thou reelest about, born down on all sides by the severest of misery, and wanderest in the uncertain mazes of doubt and error?

But if men would really consider, as they would be thought to do, that they are pressed down by the natural weight of their own minds, and find out the causes whence this proceeds, and whence so heavy a load of evils torment their breast, they would not spend their lives as we now see they do, not knowing their own desires, but every one striving to change his situation, as if that was the way to ease him of his burden.

One, tired at home, leaves his noble seat, and goes often abroad, but returns suddenly again; for he finds no relief by shifting his place. Another hurries and drives full-speed to his country house, as if was all on fire and

he came to extinguish it; he no sooner sets his foot within the doors but he presently begins to yawn, or falls heavily to sleep, and strives to forget himself, or else posts as hard back and returns to town again. Thus he tries all ways to fly himself, but that self it is, as it must be, our of his power to escape; he sticks close to him against his will, and sorely torments him. The restless fool does not know the cause of his disease; if he thoroughly did, every one would give up all other pursuits and apply chiefly to search into the nature of things; I do not mean to trouble himself about the events of the present hour, but inquire into the doubtful state of eternity after death, which is everyone's concern, and which must be the lot of all mankind.

Lastly, how many evils does a fond desire of life oblige us so much to apprehend though they may never happen? But there is a boundary fixed to the age of man; we cannot avoid the stroke of death; die we must.

Besides, we are ever running on in a circle of the same actions, and ever pursuing them; nor does living on afford us any new delight. The pleasure we covet eagerly exceeds everything we enjoyed before, as lot as it is different; but when we have it in possession, we long passionately for another, and the same thirst of life hangs upon us, still gaping for more; and yet we know nothing what the time to come may produce, what chance may happen to us, and how the scene will end. Nor can we, by living forward, take off a moment from the length of death; it will always show as if we had been dead ever so long. Though you live ever so many ages, the state of death will be still eternal, and he that died today is to all purposes as long dead as he that died a thousand years ago.

5. Book Four

Inspired, I wander over the Muses seats, of difficult access, and yet untrod; I love to approach the purest springs, and thence to draw large draughts; I love to crop fresh flowers and make a noble garland for my head from thence, where yet the Muses never bound another's temples with a crown like mine. And first I write of lofty things, and strive to free the mind from the severest bonds of what men call religion; then my verse I frame so clear, although my theme by dark; seasoning my lines with the poetic sweets of fancy, and reason justifies the method; for as physicians when they would prevail on children to take down a bitter draught of wormwood, first tinge the edges of the cup with sweet and yellow honey, that so the children's unsuspecting age, at least their lips, may be deceived, and take the bitter juice; thus harmlessly betrayed, but not abused, by tasting thus they rather have their health restored: So I, because this system seems severe and harsh to such who have not yet discerned its truth, and the common herd are utterly averse to this philosophy, I thought it fit to show these rigid principles in verse, smooth and alluring, and tinge them, as it were, with sweet poetic honey, thus to charm your mind with my soft numbers till you view the nature of all things clearly, and perceive the usefulness and order they display.

Now since I taught what are the first principles of all things, and how they differ in their figures, and wander of their own accord, urged on by an eternal motion, and how of them all beings are first formed, and I have shown the nature of the mind, of what seeds composed, and how it exerts itself united with the body, and separated from it, how it returns to its first principles again: I shall now begin to explain what is of the nearest concern to these inquiries, and prove that there are what we call the images of things, which, like membranes, or films, flowing from the surface of bodies, fly every way abroad through the air. These, while we are awake, often rush upon our minds and terrify us, and likewise sleeping, when we think we see strange phantoms and specters of the dead, which shake us horribly when fast asleep. For sure we are not to imagine that the souls are broke loose out of Hell, or that the ghosts hover and play about the living, or that any part of us remains after death; since the soul and body, once dissolved, return severally to their first seeds from whence they were produced.

I say then that images or tenuous figures are always flowing, or sent out from the surface of bodies, which may be called the membranes of the bark of things; and these several images bear the same shape and form as the particular body from whence they flow.

This requires no extraordinary apprehension to conceive, for to give a plan instance, many things emit bodies from themselves, some more rare and diffused, as wood discharges smoke and fire a vapour; others more dense and compact, as when grasshoppers in summer cast their old coats, and calves new-born drop the

pellicules in which they are enclosed; or as the winding snake leaves his skin among the thorns, for the briers we often see adorned with their light spoils. This being so, it follows that a very subtle image may fly off from the utmost surface of bodies; for there can be no reason given why these, and not others more thin than these, may not fall off and be discharged; especially since in every surface there are many minute corpuscles that may be cast off in the very same order they are ranged in the body, and so preserve their old form and figure; and they are the readier to fly off because they are small, and no so liable to be stopped, and are placed likewise upon the utmost surface.

For it is certain that many particles are not sent out and get loose only from the middle and inward parts, as we said before, but color itself is discharged from the surface of bodies. And so curtains, yellow, of a deep red, or blue (as they hang in lofty theatres, waving expanded on the beams, and flowing on the pillars with the wind) do this; for they stain the stage, and scenes, and audience, senators, matrons, and the images of the gods; and cause them to wave in their own gaudy dye; and the more the walls of the theatre are darkened, and the daylight shut out, every thing which is spread over and shines out with a brighter luster. Since therefore these curtains discharge their colors from the surface, all things, by the same rule, may emit subtle images, for those are thrown off from the surface as well as these.

There are therefore certain images of things, of a fine and subtle contexture, that are always flying about, and are impossibly severally to be discovered by the eye.

Besides, all smell, smoke, vapour, and other such things fly off from bodies in a diffused and scattered manner, because as they pass to the outside of bodies from within they are broken and divided by the crooked pores they must make their way through; the road they are to take is full of windings, as they attempt to rise and fly out; but, on the contrary, when the membrane of color is thrown off, there is nothing to disorder it, because it lies disentangled upon the very surface.

And then since the forms that appear to us in looking-glass, in water, and all polished bodies are exactly like the things whose images they are, they must necessarily be composed of the images that flow from the substance of the things themselves, for why those particles should fall away and be discharged from bodies which are discovered by the eye rather than these that are more thin and subtle no reason can properly be assigned.

There are therefore tenuous and fine shapes of the same figure with the things themselves, which, though they cannot singly be distinguished by the sight, yet being reflected, and swiftly and constantly repelled from the smooth plane of the glass, become visible, nor can any other reason be so properly offered why forms so like the things are returned to us.

And now conceive, if you can, of what a tenuous and subtle nature an image consists, and for this reason, in the first place, because the seeds of things are so much beyond the reach and discovery of our senses, and are infinitely less than those bodies that escape the observation of the most curious eye; as a proof how subtle the first principles of things are, attend to these short observations.

And first there are animals so exceeding small, that one third part of them cannot possibly by any means be discovered. What are you to conceive of the bowels of these creatures? Of their little hearts and eyes? What of their members? What are you to think of their limbs? How small are they? What besides of the seeds which compose the soul and mid, don’t you imagine how subtle and minute they are?

Besides, herbs that exhale a sharp smell from their bodies, such as all-heal, bitter wormwood, strong southernwood, and four centaury, if you shake any of these ever so lightly you may be sure many particles fly off, and scatter every way, but without force, and too weak to affect the sense; yet how small and subtle are the images that are formed from these, no one can conceive or express.

But lest you should think that the images that fly off the surface of bodies are the only things that wander abroad, there are other shapes that are fashioned of their own accord, and are produced in the lower region we call the air; these are framed in various manners, are carried upward, and being very subtle and less compact in their contexture, are ever changing their figure, and assume all variety of forms. Thus we see the

clouds sometimes thicken in the sky, darkening the serene face of the heavens, and wounding the air by violence of their motion; now the shape of giants seem to fly abroad, and project their shadows all round; and then huge hills, and rocks torn from the mountaintop, are born before the sun, and hide his light. Others again advance and represent the shape of monsters wandering through the sky.

Now learn in how easy and swift a manner these images are produced; how they continually fly and fall off from the surface of bodies; for there is always a store of forms upon the outside of things ready to be thrown off. These, when they light upon some things, pass through them, as a garment for instance; but when they strike upon sharp rocks, or upon wood, they are immediately broken and divided, so that no image can be reflected; but when they are opposed by dense and polished bodies, such as looking-glass, then nothing of this happens; for they can neither pass through this as through a garment, nor are they divided before the glass preserves their figure perfect and entire. Hence it is that these forms are presented to our sight, and place a thing ever so suddenly, and in a moment of time, before the glass, and the image instantly appears. So that you find there are subtle textures of things, and subtle images continually flowing from the surface of bodies; and therefore many of these forms are produced in a short space of time, and may be justly said to receive their being from a very swift motion.

And as the sun is obliged to emit many of its rays in an instant, that the whole air might be full of light, so many images of things must needs be carried off in the smallest point of time, and scattered every way abroad; for place your glass in what manner you please, the things appear in the same color and figure they really are.

So often, when the face of the sky is most serene and bright, it becomes on all sides black and horrid of a sudden, that you would think the while body of darkness had left the regions below, and filled the wide arch of heaven, so dreadful does the night appear from driving clouds, and scatters gloomy terror from above, but how small in comparison of these clouds are the images of things no one can conceive or express.

And now, with how swift courage these images are carried on, how suddenly they make their passage through the air, how they outstrip dull time, wherever by various motion they intend their way, I choose in sweetest numbers than in tedious verse to show: As the swan’s short song is more melodious than the harsh noise of cranes, scattered by winds through all the air.

First then, we observe that light things that are formed of small particles, are very swift in their motion; of this sort are the rays and heat of the sun, because they are composed of very minute seeds which are easily thrust forward, as it were, through the interjacent air, the following urging on the part that went before; for one beam of light is instantly supplied by another, and every ray is pressed on by another behind. By the same rule, the images may pass through an unaccountable space in a moment of time: first, because there is always a force behind to drive and urge them forward, and then their texture, as they fly off, is so thin and subtle, that they can pierce through any bodies, and, as it were, flow through the air that lies between.

Besides, if those corpuscles that lie in the inward parts of bodies are discharged from above down upon the earth, such as the light and heat of the sun; if these, we observe, descend in a point of time, and spread themselves through all the expansion of the air, and fly over the sea, the Earth, and the upper regions of the heavens; if these are diffused with such wonderful celerity, what shall we say? Those particles that are always ready upon the utmost surface of things, when they are thrown off, and have nothing to obstruct their motions, don’t you see how those may fly swifter, and go further, and pass through a much greater space in the same time than the beams of the sun take up to make their way through?

Another notable instance which fully proves with how swift a motion the images are carried on is this: as soon as a bowl of clear water is placed in the open air, in starlight night, the shining stars are seen twinkling in the still water; don’t you see therefore in what point of time the images descend upon the earth from the upper regions of the air?

Again then, and again, you must allow that particles are perpetually flowing fro the surface of bodies, which present themselves to our eyes and strike our sight: from some bodies a train of smells are always flying off,

so cold is emitted from the rivers, heat from the sun, a salt vapor from the water of the sea that eats through walls along the shore, and sounds are always flying through the air. Lastly, as we walk upon the strand a salt taste offends our mouth; and when we see a bunch of wormwood bruised, the bitterness strikes upon the palate. So plain it is that something is continually flowing off from all bodies, and is scattered all about; there is no intermission, the seeds never cease to flow, because we still continue to feel, to see, to smell, and hear.

Besides, since any figure we feel with our hands in the dark, we know to be the same we before saw by day, and in the clearest light, the touch and sight must needs be moved by the same cause; and therefore, if we feel a quadrangular figure and distinguish its shape in the dark, what can present that shape to us in the light but its quadrangular image? The cause therefore of our sight must arise from the images, nor indeed can we distinguish any thing without them.

Now these images I am speaking of are carried about every way, and are thrown off and scattered on all sides; and therefore it is, since with our eyes alone we are able to see, that which way soever we turn our eyes, the objects strike upon them in their proper form and color.

The image likewise is the cause that we discover, and takes care to satisfy us at what distance bodies are removed from us, for as soon as it is emitted, it instantly thrusts forward, and drives on the air that is placed between itself and the sight; this stream of air then glides to the eye, and as it were grates gently upon the ball, and so passes through. Hence it is that we perceive how far things are distant from our sight; for the more air there is that is driven before the image, and the longer the stream of it that rubs upon the ball, the longer the interval of space between the object and the eye must be allowed to be. All this is done with the utmost celerity, for we see what the object is and know its distance in the same instance.

Nor are we to think it at all strange in this case that the objects may be perfectly seen, and yet the images that singly strike the eye cannot themselves be discovered, for when the wind blows gently upon us, and its sharp cold pierces our bodies, we cannot distinguish the several particles of wind or cold that so affect us, but we are sensible of their whole strength together; we perceive their blows laid upon our bodies as if something were beating us, and made us feel the effects of its outward force upon us. And so when we strike a stone with our fingers we touch the surface and out most color of the stone, but then we feel nothing of the color or surface by our touch, we perceive no more than the hardness of the stone that lies within.

And now learn why the image is always seen beyond the glass, for it certainly appears at a remote distance from us. For instance: when you are placed in an inner room, and things are seen at a distance from you, when the door is open, and gives you a clear prospect, and allows you plainly to discover any object without, your sight in this case is formed, as I may say, by a double air; the air that lies within the door is the first, then the door is placed in the middle between, and then the light without that rubs gently upon the eye, this is the other air; and at length the object is discovered. So when the image of the glass first flies off, as it makes a passage to our sight, it strikes forward, and drives on the air that lies between itself and the eye, so that we feel all this interjacent air before we see anything of the glass; but when we discovery the glass, the image that is emitted from us instantly flies to it, and being reflected and sent back, returns again to our sight, and forces the air that is before it, which is the reason that we perceive this interjacent air before the image is seen by us. Now when two airs are driven (the image of the glass forcing on one, and the image reflected another) the interval must of necessity be more extended, and even doubled. Hence it is that the images appears not in the surface of the glass, but beyond it, and therefore we are not to wonder at all that the images of things reflected to our sight, from the surface of a smooth glass, by means of a double air, because it appears plainly that they are so.

But more: That the part of the body that is the right side appears in the glass to be the left, because the image, when it strikes upon the surface of the glass, is not reflected again unchanged, but is turned a different way about. For instance: Take a mask made of clay, before it is dry, and dash it against a pillar or beam; if it preserves its figure entire, and appears inverted only so that the face fills up the hollow, the event will be that the right eye will now be the left, and the left the right.

And then it may be contrived that the image shall pass from one glass into another, so that five or six images shall be reflected at once; and objects that are placed backwards in the inward part of the house, let them be ever so much out of sight, and the turnings ever so crooked, they may be drawn out through the winding passages, and by the placing of so many glasses be perfectly discovered. The image may be so transferred from one glass into another that it will change its left into its right, but when it is again reflected from the second glass into the third it will resume its left part again, and will continue to change in the same manner as it passes into all the glasses that follow.

But in glasses joined together in the convex figure of a pillar, the side of the image reflected is returned so that the right part of the image answers to the right of the object or thing seen; either because the image, being transferred from one glass into another, is reflected twice, or that the image, when it comes to us, is turned about; for that the face is turned about as it passes backwards we learn from the figure of the glass.

Besides, you would believe that the image moves with us, and attends all our steps, and imitates our gestures, because, when you retire from any part of the glass, the image cannot be reflected from that part; for Nature ordains that all images that are emitted from bodies should be returned and reflected by equal angles.

The eyes, you observe, fly and avoid a glaring object; the sun likewise blinds you if you look too intensely against it, because its force is great, and its images are discharged from above through the pure air, and strike violently upon the eyes, and disturb and loosen their contexture; besides, a brightness too powerful for the sight often burns the eye, because it contains many seeds of fire, which piercing the ball, give it sensible pain.

And then, whatever a person looks upon that has the yellow jaundice becomes pale and lurid; because many lurid seeds flow from such a body, and meet with the images of things as they advance. And further, there are many seeds within the eyes of one so distempered which stain all things with their infection and make them look pale.

Again, if we are placed in the dark, we see objects that are in the light, because when the dark air, which is nearer, first enters and takes possession of the open eyes, the bright clear air immediately follows, which as it were purges the eye and dissipates the darkness the dusky air has infused into it; for this lucid air is by many degrees more apt to move, is more subtle, and has more force. This, as soon as it has filled the passages of the eyes with light, and opened those pores that the dark air has stopped before, the images of things conveyed in the light immediately follow, and strike upon the eye, and move the sight. But if we are placed in the light, we cannot discover objects in the dark, because a train of dark and thicker air follows the bright, which is nearest the eye, and stops up all the pores, and so chokes up the passages of the sight that the images of things cannot be moved or received into it.

Further, when we see the square towers of a city at a distance they commonly appear round to us, because all angles, seen far off, show obtuse, or rather they do not show at all. Their strokes die away, and the blows never reach our eyes, for, as the images are carried through a long tract of air, the air beats upon them continually in their passage, and so wears off their corners. Hence it is that since no manner of angle strikes the eye the stony fabric appears of a circular figure; yet the roundness is not so distinct as if the object itself were really round and seen at a small distance, but it bears a kind of resemblance to such a figure, yet is not completely so.

Our shadows seem to move with us in the sun, to follow our steps, and imitate our gestures (if you can suppose that air, void of light, is able to walk, and to follow the motions and gestures of the body; for what we usually call shadow can be nothing but the air deprived of light). The reason is because as we walk we hinder the rays of the sun from striking upon a certain part of the earth, which by that means becomes dark; but that as we leave the place it is covered with light, and therefore it is that the shadow of the body over against it follows us in all our motions. For a train of new rays are continually flowing from the sun; and the first dies away like thread of wool drawn through a flame, and by this means that part of the earth is soon deprived of light, and again becomes bright, and discharges the black shade that hung upon it.

But in this case we are not in the least to allow that the eyes are deceived; it is their business to discover only where the light and shade are, but to determine nothing whether the light be the same, or the shadow be the same that moves from one place to another, or whether it be as we explained above. It is the office of the mind and judgment to distinguish this, for the eyes can know nothing of the nature of things, and therefore you are not to impute to them the failures of the mind.

When we are on ship-board, the vessel drives on when it seems to stand still, and when it lies at anchor it seems to move; the hills and plains seem to fly and retire from us as we row, or scour with full sails before the wind.

And thus all the stars seem fixed in the vaulted sky, when they are all in continual motion: they rise, and when they have measured the heavens with their bright orbs, they set again at an immense distance. The sun and moon, by the same rule, appear fixed, when experience tells us that they move.

And mountains, standing at a distance from one another in the middle of the sea, so that a fleet of ships may sail easily between them, appear like one continued ridge of rocks, and though widely separated, yet show like one vast island, formed by all of them joined together.

So boys, when they have made themselves giddy, so strongly fancy that the walls are turned about, and the pillars run round, that even when they stand still, they can scarce believe but that the whole house threatens to tumble upon their heads.

Thus, when nature begins to display the bright splendor of the sun with trembling light, and to raise it above the top of the mountains, that hill over which the sun just appears, and glowing seems to scorch with his beams, is scarce two thousand bow-shot distant from us, perhaps not five hundred casts of a dart; when yet, between that and the sun lie many mighty seas, spread under a vast expansion of the heavens; many thousand leagues of land lie between, possessed by many nations, and the whole race of wild beasts.

So a puddle of water, no deeper than one of your fingers, that lies in the street between the stones, affords a prospect so deep under the earth as the distance between the earth and the wide arch of heaven, so that you seem to look down upon the clouds to take a clear survey of the sky and view with wonder the celestial bodies contained in it, as they seem beneath the earth.

Observe, when your mettled horse stands still with you in the middle of a river, and you look down upon the rapid stream of the water, the force of the current seems to drive your horse violently upwards, and hurry you swiftly against the tide; and on which side soever you cast your eyes, all things seem to be borne along, and carried against the current in the same manner.

A long portico, though it be of equal breadth from one end to the other, and reaches far, supported by pillars of equal height, yet when you stand at one end to take a view of its whole extent, it contracts itself by degrees to a narrow point at the further end; the roof touches the floor, and both sides seem to meet, ‘til it terminates at last in the sharp figure of a dark cone.

The sun, to Mariners, seems to rise out of the sea, and there again to set and hide his light; for they see nothing but the water and the sky; but therefore you are not to conclude rashly that the senses are at all deceived.

To those who know nothing of the sea, a ship in the port seems disabled, and to strive against the waves with broken oars; for that part of the oar and of the rudder that is above the water appears straight, but all below, being refracted, seems to be turned upwards, and to be bent towards the top of the water, and to float almost upon the surface of it.

So when the winds drive the light clouds along the sky in the night, the moon and stars seem to fly against the clouds, and to be driven above them in a course quite opposite to that in which they naturally move.

And if you chance to press with your fingers under one of your eyes, the effect will be that every thing you look upon will appear double, every bright candle will burn with two flames, and all the furniture of the house will multiply and show double; every face about you, and every body, will look like two.

Lastly, when sleep has bound our limbs in sweet repose, and all the body lies dissolved in rest, we think ourselves awake; our members move, and in the gloomy darkness of the night we think we see the sun in broad day-light, and, though confined in bed, we wander over the heavens, the sea, the rivers, and the hills, and fancy we are walking through the plains. And sounds we seem to hear; and, though the tongue be still, we seem to speak, when the deep silence of night reigns all about us.

Many more things of this kind we observe and wonder at, which attempt to overthrow the certainty of our senses, but to no purpose - for things of this sort generally deceive us upon account of the judgment of the mind which we apply to them, and so we conclude we see things which we really do not; for nothing is more difficult than to distinguish things clear and plain from such as are doubtful, to which the mind is ready to add its assent, as it is inclined to believe everything imparted by the senses.

Lastly, if anyone thinks that he knows nothing, he cannot be sure that he knows this, when he confesses that he knows nothing at all. I shall avoid disputing with such a trifler, who perverts all things, and like a tumbler with his head prone to the earth, can go no otherwise than backwards.

And yet allow that he knows this, I would ask (since he had nothing before to lead him into such a knowledge) whence he had the notion what it was to know, or not to know; what it was that gave him an idea of Truth or Falsehood, and what taught him to distinguish between doubt and certainty?

But you will find that knowledge of truth is originally derived from the senses, nor can the senses be contradicted, for whatever is able by the evidence of an opposite truth to convince the senses of falsehood, must be something of greater certainty than they. But what can deserve greater credit than the senses require from us? Will reason, derived from erring sense, claim the privilege to contradict it? Reason – that depends wholly upon the senses,which unless you allow to be true, all reason must be false. Can the ears correct the eyes? Or the touch the ears? Or will taste confute the touch? Or shall the nose or eyes convince the rest? This, I think, cannot be, for every sense has a separate faculty of its own, each has its distinct powers; and therefore an object, soft or hard, hot or cold, must necessarily be distinguished as soft or hard, hot or cold, by one sense separately, that is, the touch. It is the sole province of another, the sight, to perceive the colors of things, and the several properties that belong to them. The taste has a distinct office. Odors particularly affect the smell, and sound the ears. And therefore it cannot be that one sense should correct another, nor can the same sense correct itself, since an equal credit ought to be given to each; and therefore whatever the senses at any time discover to us must be certain.

And though reason is not able to assign a cause why an object that is really four-square when near, should appear round when seen at a distance; yet, if we cannot explain this difficulty, it is better to give any solution, even a false one, than to deliver up all Certainty out of our power, to break in upon our first principle of belief, and tear up all foundations upon which our life and security depend. For not only all reason must be overthrown, but life itself must be immediately extinguished, unless you give credit to your senses. These direct you to fly from a precipice and other evils of this sort which are to be avoided, and to pursue what tends to your security. All therefore is nothing more than an empty parade of words that can be offered against the certainty of sense.

Lastly, as in a building, if the principle rule of the artificer be not true, if his line be not exact, or his level bear in to the least to either side, every thing must needs be wrong and crooked, the whole fabric must be ill-shaped, declining, hanging over, leaning and irregular, so that some parts will seem ready to fall and tumble down, because the whole was at first disordered by false principles. So the reason of things must of necessity be wrong and false which is founded upon a false representation of the senses.

And now, in what manner each of the other senses distinguishes its proper object is a subject of no great difficulty to explain. And first, sound and all voices are heard when they enter the ears, and strike with their

bodies upon the sense; for we must allow that sound and voice are bodies, because they have power to make impression upon the sense; for the voice often scrapes the jaws, and the noise makes the windpipe rough as it passes through. When the seeds of words begin to hurry in a crowd through the narrow nerves, and to rush abroad, those vessels being full, the throat is raked and made hoarse, and the voice wounds the passage through which it goes into the air. There is no question then but voice and words consist of corporeal principles, because they affect and hurt the sense. You are likewise to observe how much a continual speaking, from morning to night, takes off from the body; how much it wears away from the very nerves and strength of the speaker, especially if it be delivered in the highest stretch of the voice. Of necessity therefore voice must be a body, because the speaker loses many parts from himself. The roughness then of the voice depends upon the roughness of the seeds, as the smoothness is produced from smooth seeds; nor are the seeds from the same figure that strike the ears when the trumpet sounds with grave and murmuring blasts, as when the sackbut rings with its hoarse noise, or swans in the cold vales of Helicon sing out with mournful notes their sweet complaint.

When therefore we press out this voice from the lungs, and send it abroad directly through the open mouth, the nimble tongue, with curious art, fashions it into words, and the motion of the lips assists likewise in the formation of them. And when the distance is not long from whence any voice proceeds, the words must of necessity be plainly heard and articulately distinguished, for in this case the voice preserves its proper frame and figure; but if the interjacent space be more than it should be, the words must needs be confused by reason of the length of air, and the voice be disordered as it passes through. Hence it is that you may hear a sound only, but discover nothing at all of the meaning of the words, the voice becomes so broken and obstructed. Besides, one sentence delivered from the mouth of a bawling cryer strikes the ears of all about him; for the one general voice, that is pronounced instantly, breaks instantly into innumerable little voices, and so reaches every particular ear, giving a proper form and a distinct sound to every word. But that part of the voice that does not reach the ear is diffused through the air to no purpose, but there dies; some parts strike upon solid places, and being reflected return a sound, and sometimes disappoint us with the echo or image of the word. If you well consider this, you will be able to account to yourself and others why, in solitary places, the rocks regularly return words the same with those we speak, while we seek our companions wandering over the dark mountains, or call after them aloud when they are dispersed and lose their way. I myself have seen places that return six words for one; the hills so reverberate the words from one another that they severally repeat them and send them back. The neighboring people fondly imagine such places to be frequented by goat-footed satyrs and nymphs, and tell stories of the fawns. They say that the dead silence of the night is disturbed by their late revels and wanton sports, that they hear the sound of music, and the soft notes of the harp, as the artist touches and sings to it together; that the swains all about can distinguish when Pan, shaking his garland of pine-leaves upon his head, with long-hung lip, runs over the hollow reeds, and so his pipe prolongs his rural song. They speak of many other strange sights, and monstrous fables of the same kind; lest, perhaps, they should be thought to dwell in places where the gods never come, and therefore they invent their wonderful tales like these; or they are induced by some reason or other, as mankind in general are mighty eager after prodigies.

In short, it is nothing strange that those places through which the eye can see nothing, that through such the voice can pass and strike the ears. We can converse together in different rooms, when the doors are shut, as we frequently do, because voice can pierce safely through the crooked pores of bodies, which images cannot, for they are broken if the passages are not straight; such are the pores of glass through which all sorts of images freely find way. Besides, the voice divides itself into several little voices, and these are broken again into others, as soon as the first single voice breaks into many more, like a spark of fire that leaps abroad into a thousand; so that all places about, even those behind you, are filled with voice, and are moved by the sound; but all images direct their course through straight passages as soon as they are thrown off from bodies, and therefore no one can see anything over his head; you hear words that are spoken without, yet even these, as they pass through the doors that are shut, grow weak, and strike the ear in a confused manner, so that we seem to hear a sound than to distinguish the words.

Nor is the account of the tongue and palate, by which we taste, a subject of greater nicety or more difficult to explain. And first, we perceive a taste in the mouth when we squeeze the juice from our food by chewing, as

if we were to press a sponge full of water in our hands to make it dry; then the juice we draw out is spread over the pores of the palate, and through the crooked passages of the spongy tongue. When the seeds of this flowing juice are smooth, they gently touch, and affect all the moist and sweating surface of the tongue with sweet delight; but the seeds, the more rough and sharp they are, the more they stimulate and tear the sense. And then the pleasure of taste we feel no further than the palate; when the food is driven down through the jaws and divided among the limbs, the pleasure is gone; nor is it of any concern with what meat our bodies are nourished, if you can but digest what you eat, and separate it among the members, and preserve the moist tenor of the stomach.

I shall now account why, as we find, different sorts of food are agreeable to different palates; or why, what is sour and bitter to some seems to others exceeding sweet. In these cases the variety and difference are so great that what is food to one will prove sharp poison to another; and it happens that a serpent touched with the spittle of a man expires and bites himself to death.

Besides, to us Hellebore is strong poison, but goats it fattens, and is nourishment to quails; and to understand by what means this comes to pass, you must recollect what we observed before, that seeds of different kinds are mingled in the composition of all bodies.

And then all animals supported by food, as they differ in outward shape, and after their several kinds have a different form of body and limbs, so they consist of seeds of different figures, and since their seeds differ, the pores and passages which (as we said) were in all the parts, and in the mouth and palate itself, must differ likewise; some must be less, some greater, some with three, some with four squares; many round, and some with many corners in various manners: For as the frame of the seeds and their motions require, the pores must differ in their figure. The difference of the pores depends upon the texture of the seeds, and therefore what is sweet to one is bitter to another: It is sweet because the smoothest seeds gently enter into the pores of the palate; but the same food is bitter to another because the sharp and hooked particles pierce the jaws and wound the sense.

Now by observing this things will appear plan, for when a man has a fever, either by the overflowing of the gall, or whether the violence of the disease be raised by any other means, in such a case the body is disturbed, and all the order and disposition of the seeds are changed. And hence it is that the juices that were before agreeable to the sense are no longer pleasing, and those are more fit to enter the pores that fret and produce a bitter taste; for even in honey there is a mixture of rough and smooth seeds, as we had frequent occasion to mention to you before.

And now shall I pass on and show in what manner the approach of smells affect the nose. And first, a various stream of odors is continuously flowing from all bodies; for you must suppose that smells are perpetually thrown off, are emitted and dispersed abroad; but some are more peculiar to some animals than others, because they consist of seeds of different figures; and therefore the bee is attracted by the smell of honey in the air afar off, and vultures by the stink of carcases; and so the natural quality of the hound drives him on where the hoof of the stag has led the way, and the white goose (the savior of the capitol) can perceive the smell of a man at a great distance.

So it is the difference of smell, peculiar to different creatures, that directs every species to its proper food, and makes it start at the approach of poison; and by that means the race of beasts is constantly preserved.

But this smell or odor that affects the nose, some kinds of it are emitted much further than others, but no one of them is carried so far as sound or voice (not to speak of those images that strike the eye and provoke the sight) for they wander about and move lazily, and being scattered through the air, die away by degrees before they have gone far, and for this reason because they flow with difficulty from the most inward parts of bodies; and that odors are emitted from the lowest profundity of the subject is proved from this, that the more they are broken or scattered by fire, the stronger they smell.

And then we may observe that smells are formed of larger seeds than those of voice; for they cannot pierce through walls of stone, where voice and sound can freely pass; and therefore we cannot so easily distinguish

on which side of us the body is placed that diffuses the smell, for the stroke grows cold as it moves through the air, nor does the hot scent briskly touch the organ, and therefore hounds are often at fault and hunt about for the trail.

And this happens not only in cases of smell and taste, but the images of things, and all colors, do not affect the eyes of men all alike, but to some they are more sharp and painful to the sense than they are to others.

For the cock that claps his wings and drives away the darkness and by his clear notes calls forth the morning light, the fiercest lion dares not stand against this creature, nor look him in the face, but instantly prepares for flight; and for this reason, because there are certain seeds in the body of the cock that when emitted into the eyes of the lion fret and tear the balls, and cause a very acute pain, which the beast in all his courage is not able to bear; and yet these particles are in no way hurtful to our eyes; either they do not pierce them, or if they do, they find a free passage and return easily from the eyes again, so that they do not the least prejudice to the sight.

And now attend, and observe in short, what things affect the mind, and from whence proceed those objects that make an impression upon it. First then, I say that subtle images of things, a numerous train of them, wander about in every way and in various manners. These, as they meet, easily twine and are joined together in the air, as threads of gold or the web of a spider; for these are much finer in their contexture than those images that strike the eye and move the sight. These pierce through the pores of the body and move the subtle nature of the mind within, and affect the sense. Hence it is that we see Centaurs, and the limbs of Scylla's, and the heads of Cerberus, and the shadows of those who have long since been dead, and whose bones are rotting in the grave; because images of all kinds are ever wandering about; some of their own accord are formed in the air, some are continually flying off from various bodies, and others rise from these images mixed together. For it is certain that the image of a Centaur never flowed from one that was alive; for there was never such an animal in nature, but when the image of a horse met by chance with the image of a man, it immediately stuck to it, which it easily does, by reason of the subtlety of its nature and the fineness of its texture; and all other monstrous figures are formed after the same manner. These images being exceeding light, and easily put in motion (as I observed before) each of them affects the mind at one stroke; for the mind is of a very subtle nature, and wonderfully disposed to move.

That the mind is moved, as I observed, by the images of things, you may easily collect from hence, that what we perceive by the mind is exactly like what we see with our eyes, and therefore they must of necessity be both affected by the same things, and in the same manner. And so, when I said, for instance, that I see a lion by means of the image that strikes upon the eyes, I know by the same rule that the mind is moved by another image of a lion, which it equally and no less sees, than the eye sees the image proper to it; with this difference only, that the mind can perceive images of a more thin and subtle nature.

Nor from any other reason is the mind awake when the body is asleep, but because those very images affect the mind which were used to move the sense when we were awake, so that we fully believe we see a person who has been long since dead and buried in the grave; and it cannot well be otherwise, because all the senses of the body are obstructed and bound up by sleep, and therefore have no power to convince us of the contrary. Besides, the memory is feeble and languishes by rest, and makes no objection to satisfy us, that the man has been long in the arms of death, whom the mind really believes it sees alive.

And then it is no wonder that the images seem to move, and to throw their arms and the rest of their limbs to exact time, and thus they seem to do when we are in a dream, for when the first image is gone, and another springs up in a different posture, the first, we think, has changed its shape; and all this, you must conceive, is done in an instant of time. There are many other inquiries about things of this nature and we must enter into long disputes if we attempt to give a distinct answer to every one.

First then, it is asked, How is it that whatever we desire to think of the mind immediately thinks upon that very thing? Is it that the images are always ready at the command of the will? Does the image immediately occur to us the moment we desire? If we fancy to think of the sea, the earth, the heavens, of senates, shows, feasts, battles, does nature form these and provide them ready at our nod? Especially since the minds of

others, that are in the same country and in the same place with us, think things quite different from these?

And then, since we see images in our sleep to step to time, to move their pliant limbs, and throw about their tender arms alternately, and keep due measure with their feet, are they taught this by Art? Have they learnt to dance, that thus they play their wanton sports by night? Is not this the truth rather, that what we take for one moment of time, this present Now, has many parts included, as we find by reason? And therefore it is that in every instant there are a thousand different images always ready in every place, so numerous are they, and so apt to move; and then they are so exceeding subtle, that the mind cannot possibly perceive them distinctly, without the nicest diligence. And so those images die away unobserved, which the mind does not apply itself to receive, but it does apply itself closely to distinguish the image it hopes to find, and therefore sees it.

Don't you observe that the eyes, when they would discover an object exceeding small, contract themselves close and provide for it, nor can they accurately distinguish, except they do so? And you will find, even in things ever so plain, unless you strictly apply your mind, they will be as if they were utterly obscure, and at the greatest distance undiscovered. Where is the wonder then that the mind should lose the observation of all other images but those it particularly inquires after and is employed about?

Besides, we often mistake small objects for great, and so we contribute to our own delusion and impose upon ourselves.

It happens likewise that sometimes an image of a different kind presents itself to the mind. Thus the form that was before a woman now shows itself a man, or some other person of a different age and complexion, but this we are not to wonder at, since the senses are all asleep, and we are wholly in a state of forgetfulness.

But in subjects of this nature, guard yourself to the utmost of your power against that error, that gross mistake, and never believe that those bright orbs, the eyes, were made that we might see; of that our legs were made upright, and things fixed upon them, and were supported by feet, that we might walk and take large strides; that our arms were braced with strong sinews, and that our hands hung on both sides, to assist us in those offices that are necessary to the support of life. And whatever constructions they put upon other parts of the body, they are all absurd and against reason; for no member of the body was made for any particular use, but after it was made each member found out a use proper to itself; for there was no such thing as to see before the eyes were made, nor to speak before the tongue was formed, but the tongue was rather in being before there was speech, and the ears were made long before any sound was heard. In short, all the members, in my opinion, were in being before their particular uses were set out. This is so true that, to engage in battle, to mangle the limbs, and to stain the body over with blood, these were in being before any shining darts flew through the air, and nature taught us to avoid a wound before the left hand learnt to oppose a shield in our defense; and so, to commit the body to rest was long before the invention of soft beds, and to quench the thirst was practiced before the use of cups. All these things, we may believe, were invented for common benefit, as they were found proper and convenient for the occasions of life. All things therefore that were in being before the use of them was determined applied themselves afterwards to the office that was most suitable and serviceable to them. Of this kind principally are the senses and members of our bodies, and therefore you are to avoid, upon all accounts, so much as to think that they were at first formed for any particular design or use.

Nor is it wonderful at all that it is the nature of every animal to require meat; for I have told you that a train of effluvia are ever flowing from all bodies, in various manners, but most are discharged from those animals that are most used to motion; many particles forced from within are carried off by sweat, and many exhale through the mouth, when we are fatigued and pant for breath. The body, therefore, by these discharges becomes rarefied, and all nature is falling to pieces, which is attended with great pain. Food therefore is taken to prop up the limbs, and being given from time to time, it renews the strength, and satisfies that gaping desire of eating through the limbs and veins.

The cooling drink likewise descends into all the parts that require moisture, and the flowing liquor scatters all that heap of hot particles that set our stomach in a flame, and extinguishes them as fire, so that the heat has

no longer power to scorch our bowels, and thus is panting thirst washed away from our bodies, thus our craving hunger is satisfied.

And now attend, and you shall know how it is that we are able to walk when we will, that we have a power to move our limbs as we please, and what it is that thrusts the body forward with all its weight.

I say then, that the images of motion first affect and strike the mind, as we observed before. This makes the Will, for we never attempt to do any thing before the mind knows what it is we desire to do, and the image of that thing which occurs to the mind must be present before it. And thus the mind, having moved itself so as to resolve to go forward, strikes immediately upon the soul, which is diffused through the whole body, and this is easily done, because they are both closely joined together. The soul then strikes the body, and so the whole bulk by degrees is thrust forward and put into motion.

Besides, the body by this means is rarefied, and the air, which is ever disposed to move, enters the open passages, and pierces through the pores in great abundance, and so is dispersed through every minute part of the body. By these two therefore (by the soul laboring within, and by the air entering from without) the body is moved, as a ship is by oars and wind.

Nor is this at all strange, that particles so very small should turn about the bulk of our bodies, and move so great a weight; for the driving wind, formed of so fine and subtle seeds, thrust forward a large ship with mighty force, and one hand can govern it under full sail, by turning one little helm which way it pleases; and an engine with small labor is able, by pulleys and wheels, to move many bodies of a great weight.

Next, how soft sleep dissolves the limbs in rest, and frees the mind from anxious care, I choose in few but sweetest numbers to explain; as the swan’s short song is more melodious than the harsh noise of cranes scattered by winds through all the air. Hear me, my Memmius, with attentive ears and a discerning mind, lest what I shall prove, you think impossible to be; and so your mind refusing to admit the truth I shall relate, you make no progress in philosophy, when the fault is in yourself, that you will not see.

And first, sleep comes on when the power of the soul, diffused through the limbs, part of it is thrown out and fled abroad, and part being squeezed more close retires further within; then are the limbs dissolved and grow weak. For without doubt the business of the soul is to stir up sense in us, which since sleep removes, we must conclude that the soul then is disturbed and driven abroad: Not the whole soul, for then the body would lie in the cold arms of eternal death; then no part of the soul would lie retired within the limbs, as a fire remains covered under a heap of ashes; from whence the senses might be kindled again through the body, as a flame is soon raised from hidden fire.

But by what means this wonderful change is brought about, how the soul is thus disordered and the body languishes, I shall now explain. Do you see that I do not scatter my words unto the wind.

And first, the outward surface of bodies which are always touched by the adjacent air, must of necessity be struck by it and beaten with frequent blows; and for this reason all things almost are covered either with skin, or bristles, or shells, or buff, or bark. This air then, as it is drawn in and breathed out by respiration, strikes upon the inward parts of the body. Since therefore the body is beat upon from within and without, and since the stokes pierce through the little pores into the seeds and first principles of it, this cause a kind of ruin and destruction through all the limbs; the situation of the seeds, both of the body and mind, are disordered, so that part of the soul is forced out, and part retires and lurks close within, and the part that is diffused through the limbs is so broken and divided, that the seeds cannot unite to perform their mutual operations, for nature stops up all the passages of communication between them, and therefore the regular motions being exceedingly changed, the sense is entirely gone. Since therefore there is not power sufficient to support the limbs, the body becomes weak; all the members languish; the arms, the eyelids fall, and the knees sink under the weight of the body.

Thus sleep follows when the belly is full, because food, when it is distributed through all the veins, has the same effect upon the soul as the air had; and that sleep is by much the soundest which you take when you are weary or full, because then more of the seeds being agitated and put into motion by the hard labour,

mutually disturb and disorder one another. And for this reason the soul retires further within, and a greater part of it is thrown out, and the parts that remain within are the more separated and the further disjoined.

And then the business we more particularly follow, the affairs we are chiefly employed in, and what our mind is principally delighted with when we are awake, the same we are commonly conversant about when we are asleep. The lawyer is pleading of causes and making of statutes, the soldier is fighting and engaging in battles, the sailor is warring against the winds; for myself, I am always searching into the nature of things, and writing my discoveries in Latin verse; and so, many other arts and employments are commonly the empty entertainments of the minds of men when they are asleep.

And they who spend their time in seeing plays for many days together, when those representations are no longer present to the waking senses, there still remain some open traces left in the mind, through which the images of those things find a passage, so that for many days after the whole performance is acting over again before their eyes; and even while they are awake they fancy they see the dancers leaping, and moving their active limbs, and hear the speaking strings; they see the same audience, the same variety of the scenes and decorations of the stage. So strong impressions do use and custom make upon us; such effects do the common business of life produce in the minds of men, and beasts likewise.

For you shall see the gallant Courser, when his limbs are at rest, to sweat in his sleep, to breath short, and, the barriers down, to lay himself out as it were on the full stretch for the prize.

And hounds frequently in their soft sleep throw out their legs, and of a sudden yelp and snuff the air quick with their nose, as if they were full cry upon the foot of the deer; and when awake they still pursue the empty image of the game, as if they saw it fun swiftly before them, till undeceived they quit the chase, and the fancied image vanishes away.

And the fawning breed of house-dogs, that live at home, often rouse and shake the drowsy fit from their eyes, and start up of a sudden with their bodies, as if they saw a stranger or a face they had not been used to.

The sharper the seeds are of which the images are formed, they strike in the sleep with the greater violence; so, many birds will fly about, and hide themselves in the inmost recesses of sacred groves by night, if in their soft sleep they see the hawk pursuing them upon the wing, or pouncing or engaging with his prey.

And then, what mighty deeds are men hurrying themselves about in their dreams? Then they show their valor, and do wonderful exploits; they engage with kings, and are taken captive, are in the confusion of battle; they cry out as if they were expiring on the spot. Some are the hottest in the fight, and groan with the anguish of their wounds, and fill the air with complaints, as if they were torn by the teeth of a panther or fierce lion. Some in their sleep talk of the mysteries of State, and frequently discover the treason of their own contriving. Some think they are dying away, and others, falling from the dreadful precipices with all their weight upon the earth, are terrified, and awake almost out of their senses, and can scarce recover themselves from the hurry and distraction of their spirits. Another, parched up with thirst, sits on the river's bank, or by the side of a pleasant fountain, and almost drinks down his throat the whole stream. And children in their sleep often fancy that they are near some sink or public pissing place; they think they are taking up their clothes that they may make water freely, and so the Babylonian coverlid with its purple dye and the rich bedding are wet through.

And further, those who are in the heat of youth, whose ripening age has well digested the semen through all the limbs, on such the images of every beauteous object strike deeply, and show the lovely face and blushing cheek which so provoke and stimulate the parts, swelling with seed in abundance, that they discharge, as if the deed were done, large floods of moisture and pollute the robe.

For (as I said before) the seed begins to boil as soon as mature age has well-braced the limbs. Other thing are moved and provoked by other impressions, but nothing but the power of beauty can put the human semen into motion, which, as soon as it is ejected from its little cells, flows through the limbs and through every part of the body, and being received into the receptacle of the nerves proper for it, in an instant stimulates the genitals. These parts grow turgid with the semen, and thence proceeds the will to project it where the heat of lust strives to reach; for the mind drives furiously toward the lovely body from when it

received the wound of love. Men generally fall upon their wound, and the blood gushes with violence toward the part from which we received the blow. If the murderer be near, the red liquor will spout all over him. So he that is struck with the darts of Venus (whether some beauteous boy, with female charms, the arrow casts, or some more beauteous maid, that shoots out love from every pore) tends to the part that gave the stroke; he is in raptures to enjoy, to inject and to consummate, for the hot desire to the act foreshows the mighty pleasure that attends it. This is properly Venus to us, this is the Deity of Love. Hence the drops of sweet delight first strike upon the heart, and the burning fever of succeeding care follows it close, for if the object of your love be absent, her charming image is always before you, and her sweet name is ever thrilling in your ears.

But take care that you fly those images, and avoid those incentives to love, and divert your mind some other way; choose to bestow your favors in common, don't reserve your whole stock for one only, lest by that means you entail anxiety and certain sorrow upon yourself, for the ulcer spreads and grows stubborn by feeding it, the madness increases every day, and trouble becomes the heavier unless you cure old wounds by new, or like a Rover, remove your first smart by wandering over all the sex, or turn the passion of your mind into some other channel.

Nor is he without the pleasures of Venus who disdains the fetters of love, but rather takes the sweet without the pain that follows it; for such a sober lover takes more certain and more unmixed delight, than those wretches, those furious votaries, whose mind in the very instant of enjoyment is tossed with a thousand doubts and fears. These know not what sweets they shall first rifle with their hands and eyes, what they fasten upon, they strain hard and give pain to the body; they often fix their teeth in the fair-one's lips, and pin her down with kisses. And for this reason, because the joy is imperfect, and some stings remain which provoke them to hurt the thing, whatever it is, that first put them into a rage. But Venus in the encounter of love gently sooths the pain, and the sweet pleasure intermixed restrains the lover's teeth from biting too hard.

The lover hopes, perhaps, that his flame may be extinguished by the same object that first blew the fire, but experience shows the contrary of this, for this is the only thing which, the more we enjoy of it, our soul still burns with the eager desire of more. Meat and drink are taken down into the body, and because they fill up certain empty spaces, therefore the appetite of eating and drinking is easily satisfied; but from a lovely face and a fine complexion, the body can enjoy nothing but empty images, and a fleeting hope scattered by every wind. As a thirsty man desires to drink in his sleep, and has no moisture to allay the heat within, but vainly catches at the images of rivers, and labours to no purpose, and is parched up while he fancies himself quaffing a full stream, so in the business of love Venus deludes the lover with empty images, nor can he quench his desire by gazing upon the charming object, nor bring away anything from the tender limbs with his hands, as he wanders with wild excess over all the body of his mistress.

Besides, when they sport in the flower of their age with their limbs mingled in the embrace, when their bodies feel the coming joy, and Venus is fully employed to sow the female soil, though they eagerly twine with amorous folds, and dart their humid tongues, and bite, and ardently receive each other's breath, 'tis all to no purpose, for they can carry nothing away from the parts they strain, nor can bodies pierce or be in bodies lost. For this they sometimes wish, for this they contend when they engage, so eagerly are they entangled in the nets of love, that their very limbs are dissolved in the excess of pleasure. Then, when the collected lust has burst from the nerves, a cessation of the violent ardor ensues for a while, but the same rage soon returns, the same fury is renewed, and again they strive to touch the point, the end of their desires: They can find no device to subdue the pain they feel, and so they pine and languish by a secret wound.

And then, they waste their strength, and perish by the labor they go through. And more, they lie under the power of another's will, while their fortune decays and their debts increase, their duty is neglected and their tottering reputation sickens. Rich pearls and fine shoes of Sicyon shine upon the feet of their mistress; the large emeralds, with their green luster, are set in gold; and the blue vest is daily stained, and continually in use drinks up the sweat of lust. The family estate, acquired with honor, is changed into coronets of ribbons, and headdresses sparkling with jewels, and is sometimes turned into costly gowns, or garments of Melita, or Cean robes. Besides, they add to these the luxury of feasts and stately couches, plays, frequent carousals, crowns and garlands. But in vain! For some bitter bubbles up from the very fountain of his delight, and

poisons all his sweets; either his own guilty mind stings him for leading such a life of sloth, and murdering so large a part of his time, or his mistress has dropped some doubtful word, which kinds in his fond heart like fire; or he thinks she has thrown her eyes too freely abroad, and glanced upon another, and he discovers the remains of a smiling pleasure upon her face.

These are the misfortunes that attend an amour ever so fortunate and constant; but the miseries of a wretched and disastrous love are innumerable, and obvious to everyone with his eyes open. You had better therefore be upon your guard beforehand, and observe the rules I have laid down to prevent your being caught; for ‘tis not so difficult to avoid being drawn into the snares of love as to disengage yourself from the net when you are taken, and to break through the strong knots which Venus ties close upon all her votaries.

And though you are entangled and within the net, you may still avoid much of the evil, unless you willfully set yourself against the remedy. First then, you are to take no notice of any imperfections, either of mind or body, you find in the mistress you admire and fondly love. All lovers, blinded by their passion, observe this, and attribute beauties to the fair to which they have no real pretence; and therefore the ugly and deformed we see have their several charms, and secure a sovereign power over their admirers. The lover that has such a forbidding Dowdy for a mistress is laughed at by his companions, who advise him to appease Venus and render her propitious, while they think nothing of their greater misfortunes in placing their esteem upon others less lovely and less beautiful. The black seems brown; the nasty and rank is negligent, the owl-eyed is a Pallas, the sinewy, with her dry skin, is a little Doe, the dwarf, of the Pygmy Breed, is one of the Graces, wit and spirit all over; the large and gigantic is surprising and full of majesty. If she stammers and cannot speak, then she lisps; she is modest if she is dumb; but the Turbulent, the violent and the talkative is all Fire. If she is worn away with a consumption, she is my Slender Love, you may span her in the waist if she is dying with a cough. The two-handed Virago, with her full Duggs, is Ceres herself, a bedfellow for Bacchus; the flat-nosed is my Silene, a little Satyr; the pouting lip is a very Kiss. It would be endless to say all that might be offered upon this subject.

But allow your mistress all the advantages of beauty in her face, that charms of love arise from every limb, yet there are others as lovely as she, and time was when you lived without her, and we know she plays the same game that homelier women can do as well. And then she perfumes, rank as she is with filthy smells, that her maids cannot come near her, but make a jest of her when they are not seen.

But when the lover is shut out, and all in tears crowns the gates with flowers and garlands, and pours ointments upon the stately pillars, and the wretch warms the very doors with his kisses; yet when he is admitted, and one blast from her armpits strikes full upon him as he enters, he presently seeks for a plausible reason to be gone, and all his long-labored speeches of complaint are forgotten, and he condemns himself of folly for raising such ideas of her beauty, which no mortal could lay claim to. This secret is well known to women of the town, and they act cunningly behind the scenes as it were, and conceal their failings from those whose love they would secure fixed and lasting to themselves. But all to no purpose, for you may easily imagine how things are, and discover all, and prevent their utmost endeavors to deceive you. And if your mistress be of an open temper, and not sullen and reserved, she will not so much as hide her defects, but hope you will allow for imperfections that are common to the whole sex.

Nor does the woman always breathe with feigned desire when joined in strict embrace with him she loves, when she holds him close, and on his pressed lips imprints her balmy kisses; for she often does it heartily, and strives to share the common joy, and run the heats with vigor to the goal. Nor for any other reason would birds and herds and wild beasts and cattle and mares bear the weight of the male if they did not burn and rage with equal heat, and so receive with joy the lusty leap. Don’t you observe how those whom mutual pleasure has bound fast are tortured as it were in common bonds? How dogs in the street are striving to untie the knot and pull with all their might a different way, yet they stick fast in the strong ties of love? This they would never do if not engaged in mutual joys, which cheat them with delight and hold them fast. The pleasure then is common to them both.

If, in the mixing of the seed, the female draws in and snatches with sudden force the male seed, the child, the female seed is prevailing, is like the mother, as he is like the father if his prevails. But those who, you

observe, express jointly the resemblance, and mingle the features of both parents, are formed equally from the juices of both; for then the mutual ardor of the combatants has justly tempered the conflicting seed, which, raised by the stings of Venus, is sent in due proportion through all the limbs. The success of the battle is equal, neither is victor nor vanquished. It happens sometimes that children are like their grandfathers, and resemble the persons of their remote ancestors, because the parents have frequently many seeds concealed and variously mingled in their bodies, which preserve the features of the family, and are delivered down from one to another. These Venus forms into different figures, as the qualities of the seeds require, and represents the complexion, the voice and hair of the progenitors; for these no less arise from proper seeds than the face, the body, or any parts of it. And a female child proceeds partly from the father's seed, and a male from the mother's, for the issue always consists of the seed of both; but the greater likeness it bears to the one than to the other, it partakes of more than a just proportion of the seed of that sex, which you easily apprehend, whether the child be male or female.

Nor do divinities above ever destroy the prolific virtue of the seed, or prevent a man's being called father by a number of sweet children, or curse him all his life with unfruitful love, as some vainly think, and therefore with much concern stain the altars with the blood of many victims, and make them smoke with clouds of incense, to implore a blessing upon the showery seed and promote conception; but to no purpose they tire out the gods and fatigue the oracles, for they are frequently unfruitful because the seed is too thick or too thin. The thin seed will not stay in the parts where it was injected, but soon dissolves and flows back; and the thick has no effect, because it is sent out heavy and condensed, or it does not carry home to the mark, or it cannot rightly penetrate the passages, or if it does, it is not at all disposed to mix kindly with the female juice.

For the harmony of love between the sexes is widely different; men are more prolific with some women, and women conceive more readily, and swell with their burden after the embrace of some men than with others. Many women have been barren in a first and second marriage, and been fruitful at last, have borne lusty boys and blessed the family with a sweet offspring; and men, after marrying several times without issue, have at length found out a wife of a constitution agreeable to their own, and supported their old age with many children. Of so great concern it is that the seed of both should kindly mix and mutually glow with genial heat, that the thick and the thin should incorporate together, and that the woman, in the art of love, should engage with a man whose nature be suitable to her own.

And the food we live upon is of no small importance, for the seed increases through the limbs by some meats, and it becomes watery and feeble by others.

[1743 TRANSLATOR'S NOTE: "I can translate no further. Dryden, in his Miscelllanies, goes on in full vigor, and keeps up to the original."]

If like importance is the posture, too, in which the genial feat of love we do. For, as the females of the four-foot kind receive the leapings of their males behind, so the good wives, with loins uplifted high, and leaning on their hands, the fruitful stroke may try. For in that posture they will best conceive, not when supinely laid they frisk and heave, for active motions only break the flow, and more of strumpet than of wives they show; when answering stroke with stroke, the mingled liquors flow. Endearment eager, and too brisk a bound, throw off the plow-share from the furrowed ground. But common harlots in conjunction heave, because tis less their business to conceive than to delight and to provoke the deed, a trick which honest wives but little need.

Nor is it from the gods, or the darts of Venus, that a woman of ordinary beauty is sometimes beloved. She often secures the affection by her discreet conduct, by the sweetness of her deportment, and an exactness in the decency of her person, so that a man by use, may spend his life happily with her.

To sum it all up: it is custom that reconciles the delights of love, for beat upon anything with constant blows, though ever so lightly, it is overcome at last, and crumbles to pieces. Have not you observed how drops of water falling upon a hard stone, by length of time, wear it away?

6. Book Five

Who can, with all his soul inspired, compose fit numbers, worthy the majesty of so great things, of these discoveries? Or who, in words alone, can sing his praise, and equal his deserts, who from the labour of his mind has left such benefits, and bestowed rewards so glorious on mankind? No mortal man alive, as I conceive, for could I raise my verse to reach the dignity of things he knew – he was a god, my noble Memmius, a god he was, who first found out that rule of life which is now called true wisdom; and who this human life, so tossed with storms, and so overwhelmed in darkness, has been rendered by his art so calm, and placed in so clear a light.

Compare the benefits long since found out by those who now are gods. Ceres, they say, discovered first the use of corn, and Bacchus gave to me the knowledge of the vine and its sweet juice. Yet men might still have lived without both these, as many nations, we are told, do now. But no true life could be, without the mind easy and free, and therefore with better right is he to us a god, whose gentle rules, received throughout the world, bestowed on men tranquility and peace.

If you should think the great exploits of Hercules exceeded his, you are carried far from truth. For how could the wide, gaping jaws of the Nemaean Lion, or the terrible Arcadian Boar, affright us now? How could the bull of Crete, or Hydra, the Plague of Lerna, encompassed with his poisonous snakes? Or Geryon, with his triple face, and the collected strength of his three bodies? Or what can we now suffer from Diomedes' horses, from their nostrils breathing fire, dreadful to Thrace, the Bistonian Plains, and all about Mount Ismarus? Or what from the Arcadian birds of Stymphalus, feared for their crooked talons? Or that huge dragon, fierce and terrible in look, that, twining round the tree, guarded the gold fruit of the Hesperides? How could he hurt us here, removed far from us near the Atlantic shore, and the rough seas, where neither Roman nor barbarian dared to visit? And other monsters, which that hero slew, had they not been subdued, how could they hurt us now, were they alive? Not in the least, I think. For now the world abounds with frightful beasts, that fill with dreadful terror the forests, the high mountains and thick woods; yet these places commonly 'tis in our power to avoid.

But unless the mind be purged, what wars within, what dangers wretched mortals must endure? What piercing cares of fierce desire must tear the minds of men? And then, what anxious fears? What ruin flows from pride, from villany, from petulance? What from luxury and sloth?

The man therefore that has subdued these monsters, and drove them from the mind by precept, not by force; should not this man be worthy to be numbered with the gods? Especially since of these immortal deities he has spoken nobly and at large, and by his writings has explained to us the laws of universal nature?

His steps I follow, and now pursue his rules, and by my verse I teach that things must needs subsist by the same laws by which they were first formed; nor can they break through the strong bonds that Nature has fixed to their being. Of this sort the soul, in the first place, I have proved to be originally derived from mortal seeds, nor can it remain eternally undissolved; and that images commonly deceive the mind in our dreams, when we fancy we see a person that has been long since dead.

And what remains but now, as the order of my design requires to convince, by proper reasons, that this world is formed of mortal seeds; that it began to be, and must have an end; and to show how the seeds of matter were united and disposed to produce the Earth, the Heavens, the Sea, the Stars, the Sun and Moon; and then what creatures sprung from the Earth, and what never had a being, and how the human race, with various language, began to give names to things, and to converse together.

And by what means that dread of deities above first crept into the heart, which preserves the holy things throughout the world – the Temples, the Lakes, Groves, Altars, and Images of the gods.

Besides, I shall explain the course of the sun and moon, and by what over-ruling force Nature directs their motions; lest you should suppose these luminaries travel their constant stages freely and of their own accord between Heaven and Earth, and by their kind influence promote the growth of fruits and the whole animal creation; or conceive that they are rolled about by the will of the gods. For those who well know that the gods live a life of ease, if they should wonder by what power the world is carried on, especially in the things they

see over their heads in the Heavens above, they relapse again into their old superstition; they raise over themselves a set of cruel tyrants, who the wretches fancy can do all things, because they know nothing of what can or what cannot be, or by what means a finite power is fixed to every being, and a boundary immoveable which it cannot pass.

And therefore, to keep you no longer in suspense in what I promised, take a view in the first place of the seas, the Earth, and the Heavens; this triple nature, these three bodies, my Memmius, these beings of so different a frame, three so wonderfully formed, one Day shall put an end to; and the whole mass and fabric of the world, that has stood for many ages, shall tumble to pieces.

I know how this, this future ruin of Heaven and Earth, seems strange and surprising to your apprehensions, and how difficult it is to convince you of the truth of it. This is a common case, when you offer a subject to the ear it has been unused to, and which you cannot discover with your eyes, nor feel with your hands, the ways by which knowledge and belief generally find a passage to the breast, and affect the mind. I'll go on, however. The very nature of the things perhaps will give a credit to my words, and you may soon see the whole fabric of the world shaken grievously by terrible convulsions; but the commanding power of Chance remove that day far from us! And let reason, rather than the thing itself, convince us that all things dissolved by the last dreadful crack will fall to ruin.

But before I attempt to teach these truths, more sacred and much more worthy of belief than what the Pythoness delivers from the Tripod and Laurel of Apollo, I shall first offer some encouragements against your fears, lest, being under the check of religion, you should by chance imagine that the Earth, the Sun, the Heavens, the Sea, the Stars, the Moon, being animated by a Spirit diffused throughout the whole, were a Deity, and would remain forever; and consequently, that all those deserve justly the same punishment as the rebel giants, for their impiety, who by their arguments would assault and break down the walls of the world, and would extinguish the sun (the bright luminary of the sky) and pronounce a sentence of dissolution upon things in their own nature immortal.

And yet these things are so far from having anything of divinity about them, and so unworthy of being ranked in the number of the gods, that they may be thought rather to give us a notion of something as remote from sense and vital motion as possible; for we are not to imagine that the Powers, mind and Soul, can be united with all sorts of bodies. As there are no trees in the sky, no clouds can be in the deep sea, nor can fish live in the fields, nor can there be blood in wood, or moisture in stones. The soul therefore cannot come into being alone, without the body, nor can she exist separately, without the nerves and the blood. If this could be, the powers of the soul you would feel sometimes in the head or shoulders, or even in the very bottom of the feet, or in any other part of the body, and so you would perceive it diffusing itself through the whole body. As water poured into a vessel first covers one pat, and then spreads over the whole. Since therefore there is a proper and determinate place in the body for the mind and soul to be and increase in, we have the more reason to deny that they can continue or be born without it, or that the form of life can reside in rotten clods of earth, or in the fire of the sun, or in the water, or in the lofty regions of the sky. These therefore are so far from being endued with a divine understanding that they are incapable even of being animated with common life.

Nor are you to believe that the sacred mansions of the gods are placed in any parts of this world of ours, for the nature of the gods is so subtle, and at so remote a distance from our senses, that it can scarce be apprehended by the mind. Since therefore it cannot be touched or felt by our hands, it can touch nothing that it is the object of our senses, for nothing has a power to touch that is incapable of being touched itself. For this reason the abodes of the gods must be far different from ours; they must be subtle, and answerable to their own nature. But the truth of this I shall more fully prove in another place.

And then, to say that the gods designed this noble fabric of the world for the sake of man, and therefore we are to speak honorably of this excellent work, and conceive it to be eternal, and shall remain forever; and that it is impious to prove that this frame of the world, contrived by the gods to continue forever for the use of man, shall fall to ruin; or to offer to disturb its duration by words or arguments, and so overturn things from their very foundations – to pretend and enlarge upon this, and more such stuff, my Memmius, is all madness; for what advantage can any acknowledgements of ours bestow upon divinities happy and immortal, that they

should give themselves any trouble upon our account?

Or what new pleasure could prevail upon the gods, who lived at rest for so many ages before, to desire to change their former state of ease and tranquility? Those generally rejoice in a new condition who have been unhappy in the last, but the man who has felt no misfortunes in his former state, but has lived pleasantly and undisturbed, what could excite the love of novelty in such a one as this? Was the life of the gods spent in darkness and melancholy till the structure of the World shone out and cleared their spirits? Or what evil had we suffered if we had never been created? Indeed, when we are once born, we should strive (whoever he be) to preserve our life, so long as we find an engaging pleasure in our being, but he who never tasted the love of life, nor was enrolled among the living, what harm could he complain of if he had never been?

Besides, what model had the gods to work by, when the set about the creation of the world? From whence had they any previous knowledge of man to inform them, and give their mind an idea of what they proposed to make? How could they become acquainted with the powers and force of the atoms, and with what they were able to effect by the changes of their site and order, if Nature herself had not afforded them first a specimen of creation? For the seeds of bodies were from all eternity so variously agitated by blows from without, and driven so about by their own weight, and tried every way to unite, and attempted all sorts of motion that might end at last in the formation of things, that no wonder they at last fell into such dispositions, and so decent order, as to produce the universe, and continually preserve and renew it.

For were I wholly ignorant of the origin of things, yet I could prove this truth from the heavens, and by many other reasons, that the frame of the world was by no means raised by the gods for the use of man, so faulty it is, and contrived so ill.

And first, the Earth, covered over by the violent whirl of the heavens, huge mountains and woods, the harbor of wild beasts, and rocks and vast lakes, and the sea, which widely separates the distant shores, take up a great part of it; and then the torrid heat, and continual cold, rob mankind almost of two parts, and make them uninhabitable.

The fruitful fields that remain, nature of herself would spread over with thorns if the labor of man did not prevent it; if he did not, to preserve life, force the earth by constant toil with strong tools, and cut it through with the plough; if we did not turn up the fruitful clods with the crooked share, and compel the soil to exert its strength, of its own accord it would produce nothing.

And yet, when the fruits are raised with great labor, when they look green upon the ground, and all things flourish; either the sun’s rays burn everything up with their fierce heat, or sudden showers, or piercing frosts, destroy our hopes; of the blasts of wind, with terrible hurricanes, blow them away.

And then, why does Nature nourish and increase the dreadful race of wild beasts, by sea and land, the professed enemies to humankind? Why do the seasons of the year bring disease with them? Why does untimely death wander every way abroad?

Besides, a child, like a shipwrecked mariner on shore by the cruel tide, lies naked upon the ground; a wretched infant, destitute of every help of life, as soon as Nature, by the mother’s pangs, has thrown him from the womb into light; and then he fills the air with mournful cries, as he has reason to do, since in the course of life he has such a series of evils to pass through. But cattle of every kind, and herds, and wild beasts, grow up with ease. They have no need of rattles to divert them; they have no occasion for the kind nurse, by her fond and broken words, to keep them in humor; they require no difference of dress for the several seasons of the year; they have no need of arms, nor high walls, to secure their property; for the Earth, with curious contrivance, of herself produces everything in abundance for the whole variety of creatures to feed and support them.

And further, since the body of the earth, the water, and the light breath of the air, and the hot fire, of which this universe of things consists, had all a beginning, and are all formed of mortal seeds, the nature of the world must be the same, and must die likewise. For a body whose parts and members we know were born, and were produced from mortal principles, that being must be the same in nature with its parts; it must have a

beginning, and be equally mortal. And therefore when I observe the four elements (the great limbs of the world) are continually changing, are wasted away, and then renewed; I conclude that the whole world, the earth and the heavens, had a time of beginning, and will in time fall and be destroyed.

But my Memmius, that you may not think I rashly supposed what I should have proved upon this subject, when I said that the earth and the fire were mortal, and made no doubt but the air and the water were so too, and that they began to be, and by degrees increased, you are to observe, first, that some part of the earth is burnt up by the continual strokes of the Sun, and much of it, being worn by the continual treading of the feet, rises into flying clouds of dust, which the fierce winds scatter through all the air, and part of the earth, by soaking showers, is turned into water, and the encroaching rivers eat away their banks. Besides, whatever increases another body with any of its parts, must lose so much from itself, and since the Earth is certainly the great parent and common selpulchre of all things, it must sometimes be diminished, and then increase and be renewed again.

And then the Sea, the Rivers, the fountains, about always with sweet water, and flow with everlasting streams. There is no need of many words; the prodigious currents that flow every way to the sea prove this effectually. But less the mass of waters should flow too great, some of it is continually licked up, and wastes away; the strong winds, brushing over its surface, take off part of its flood, and a part the sun exhales and draws up into the air, and some is divided through the subterraneanous passages of the earth. There the saline particles are strained off, and then the waters flow back, and start up in fountains, and form themselves into rivers, which glide sweetly with their collected strength over the earth, through those channels where the streams first made their liquid way.

And now, to speak of the Air, which is changed with its whole body every moment, in various manners not to be numbered; for whatever is continually flowing off from bodies is carried into the vast ocean of the air; unless the air therefore restored again those particles to the bodies from whence they came, and renewed them as they wasted away, all things had long since been changed into Air, and wholly dissolved. The air therefore is continually produced from bodies, and continually returns into them again, for things never remain the same, but are in a perpetual fluctuation.

The Sun likewise, that large fountain of liquid light, constantly bedews the heavens with a new brightness, and instantly supplies one ray by the succession of another; its first beams of light, as soon as they have shone out, die away. This you may collect from hence, that as soon as a cloud interposes between the sun’s orb and us, and as it were breaks through the rays of light, the lower part of the beams immediately perishes, and the earth, as the clouds pass over it, is made dark. This proves that things require a constant stream of new rays, and that every first emission of light dies; nor could things otherwise be seen in the light unless the Sun (the fountain of brightness) continually sent out fresh supplies.

After the same manner our nightly lights that we use here below, our hanging lustres, our lamps shining with a bright flame, and fat with oily smoke, are continually sending out new streams of light by the help of fire. They press on and discharge their trembling rays without intermission; they never cease, nor is the light ever interrupted, or leaves the place dark for a moment, so swiftly is the destruction of the first rays repaired from the constant fire of the lamps (the fountain of light) and a new beam instantly flies off as the old expires. We conclude therefore that the Sun, the Moon, and the Stars are continually throwing off new supplies of light, and that the first rays they emit perish and die away; lest you should believe these beams remained perfect and undissolved, and were eternally the same.

Besides, don’t we observe how stones are worn away by time? That lofty towers fall to ruin, and rocks moulder to dust? That the temples and images of the gods are tired with standing, and are forced to give way? Nor can the gods themselves extend the bounds of fate, or strive against the laws of nature. Don’t you see the monuments of men burst asunder at last, to grow old, and suddenly break in pieces? That the rocks are torn, and tumble from the high mountains, and are unable to bear or resist the mighty force even of a finite time? For they would never have fallen with this sudden ruin had they from all eternity endured the strokes of time secure and unshaken.

And then look up to those surrounding heavens that above and below embrace this body of the earth; those heavens which, some say, produce all things out of themselves, and to which all things are at last resolved. They surely had a beginning, are formed of mortal seeds, and must have an end, for whatever seeds and contributes to the increase of other bodies must lose some of its parts and must again be repaired by those bodies when they are dissolved.

Further, if the heavens and the earth had no beginning, but were from eternity the same, how comes it that no poets have sung of any great events beyond the Theban War and the destruction of Troy? How came the exploits of so many heroes to be buried in oblivion that none of their great actions are recorded in the eternal monuments of fame, to live forever? For no other reason, I conceive, but that the universe is of a late creation, that the substance of the world is new, and began not long ago. And therefore some arts are but lately known, others are polished and refined, many new discoveries are made in navigation, and the matters of music have been not brought sound and harmony to perfection; and, in the last place, this very nature of things which I now write of, and the reasons of them, are but lately found out, and I call myself one of the first who have attempted to convey them to posterity in Latin verse. But if you think that these things were long before they same they are now, but that mankind was destroyed by the rage of fire, or cities were overwhelmed by earthquakes (the great terrors of the world) or that the rapid rivers, by continual showers, overflowed the earth, and covered whole towns, you have still the more reason to be convinced, and to allow, that the earth and the heavens will at last be destroyed. For if things were liable to feel so great convulsions, and suffer so great dangers, it is plain if the cause of these ruins had been more violent, they must have perished and been utterly dissolved. Nor have we any other rule to judge that we ourselves are mortal, and must die, but that we sicken with the same diseases as those endured whom death has removed from this life.

Besides, whatever is eternal must be so either because it consists of solid seeds, or it cannot be broken by blows; nor will it suffer anything to pierce it, to disunite the close contexture of its parts; of this sort are the seeds of matter, whose nature we have shown before; or things would remain forever, because they are out of the power of stroke, as a void is, which is not to be touched nor can be affected by force; or because there is no extent of space about them into which their parts may fall when they are dissolved. For this reason the universe, or all, is eternal – there is no place beyond, where its scattered seeds may retire, nor are there any bodies to beat upon it, and by violent blows break it into pieces. But as I said, the substance of the world is not formed altogether of solid seeds, because a void is mixed with its parts, nor is it wholly void, nor are there wanting bodies, rising to strike and overthrow with mighty force this world, or to bring it into danger of run some other way; nor is there any defect of place or space beyond, into which the walls of the world may tumble down, or they may fall to pieces by some other force, and be dissolved. The Gate of death therefore is not barred against the heavens, nor the sun, nor the earth, nor the deep waters of the sea; but stands open, with its wide and gaping jaws, to receive them all. For these reasons it must needs be allowed that these things had a beginning, for whatever is formed of mortal seeds, and must die, could not from eternity resist the strong attacks of infinite past time and the power of age.

Lastly, since the elements (the first principles of the world) are continually fighting, and carrying on an implacable war among themselves; can there be no end, think you, or their long contests? If the sun, suppose, or the fire, by sucking up all the moisture should get the better, which they strive to do, but have not yet effected their design; such a supply of water do the rivers pour in, and the sea from its mighty deeps rather threatens to drown the world. But in vain – the brushing winds are continually licking up and lessening the tide, and the hot sun, with its rays, drinks up a part, and things rather seem in danger of being dried up than of perishing by a flood of waters. With such equal success is the war carried on, and their powers are so disputed with equal force. Yet time was when the rage of fire once prevailed over the world; and the water (as they say) once got the dominion, and drowned the earth. The fire had the victory, and set everything in a flame, when the mad fury of the horses of the sun, flying out of their course, dragged the wretched Phaeton through the whole heavens, and over all the regions of the world; but great Jupiter, in his fierce rage, suddenly struck the daring youth with a thunderbolt, and tumbled him headlong from his horses to the Earth. And Phoebus, meeting him as he fell, gathered up the scattered rays of the sun, the great luminary of the world, brought back the distracted horses, and harnessed them trembling to the chariot again; and driving

them in the right course, recovered things to their proper order. This tale the Grecian poets sung of old, which is absurd and against all belief, yet the fire may get the mastery, if the large supplies of fiery seeds are brought from the great mass of matter into the world. The rage of these seeds must by some force be weakened and suppressed, or things by so scorching heats must perish and be burnt up. The Water likewise prevailed once, as they say, when it overthrew many cities, but when the seeds that were supplied from the mass of matter were turned into some other channel, the rain ceased and the rivers flowed again within their banks.

But now I shall explicate in order by what chance the violent agitation of matter produced the heavens, and the earth, and the deeps of the sea, and the courses of the sun and moon. For surely the principles of things could never fall into so regular a disposition by counsel or design, nor could they by agreement resolve what motions they should take among themselves. But the seeds of things, being from eternity beaten upon by outward blows, or used to be driven by the force of their own weight, met every way, tried all motions that might at last, by their uniting, end in the production of things; and then having attempted for an infinite time all sorts of union, and moved every way about, those seeds at length met and united, and became the principles of the great productions that followed, of the Earth, the sea, the heavens, and the whole animal creation.

But as yet there was no chariot of the sun to be seen, driving with his large stock of light through the sky; no sea, no heavens, no air, nothing like any beings of this world of ours to be seen; but a strange confusion, a mass of rude and undigested seeds. From this heap the various parts retired to their proper place, and seeds of like nature joined together and formed this world. Then were its mighty parts divided, and disposed in order, though produced from this confused mass, and from seeds of every kind; for the disagreeing powers of those seeds so disturbed their several courses, intervals, connections, weights, strokes, unions, and motions, and kept them so continually at war, that they could never all unite, nor agree upon any regular motions among themselves. Thus the heavens separated, and raised their bodies on high above the earth, and the sea, with its vast extent of collected waters, retired apart, and the pure and bright fires of the sky fled upwards and divided from the rest.

And first, the particles of earth, being heavy and entangled, met and sunk downwards towards the middle place of the mass, and the more closely twined the parts of it were, the more they squeezed out those seeds that composed the sea, the stars, the sun, and that formed the moon, and the heavens (the walls of this great world). For these consist of seeds much more smooth and round, and of much less principles than the Earth, and therefore the heavens (the abode of the stars) first got free through the subtle pores of the Earth, and ascended upwards; and being light, drew many seeds of fire along with them, much in the same manner with what we frequently observe when the golden rays of the bright morning sun first shine upon the grass decked with pearly dew, and the standing lakes and running rivers exhale a mist into the air, and the Earth sometimes seem to smoke. These vapors, when they are raised upwards and united, become clouds, and with their condensed bodies darken the whole sky, and so the light and spreading ether, being condensed, stretches widely over every place, and being diffused on all sides abroad, embraces every thing with its large circumference, and incloses it about.

The beginnings of the sun and moon follow next, whose orbs are rolled in the air between the ether and the Earth, and whose principles would unite neither with those of the Earth nor the Sky; they had not weight enough to sink so low as the one, nor were they sufficiently light to rise so high as the other; yet they are so placed between both that they constantly turn about their bodies, and so become parts of the whole world. As in these bodies of ours, some members are continually at rest when others are always in motion.

These things being separated, a great part of the earth sunk suddenly, and made a channel where the tides of the sea now flow, and formed a cavern for the salt waters. And the more the heat of the sky and the beams of the sun pressed every way with frequent strokes upon the Earth, full of pores on the outside (that so its particles, being driven towards the middle, might be more firm and condensed) the more the salt water like sweat was squeezed out, and by flowing enlarged the surface of the sea, and spread wider abroad; and the more the many corpuscles of fire and air disentangled themselves and flew off from the Earth, and formed themselves above, at a great distance, into the shining frame of the heavens. The valleys subsided, the mountains raised their lofty heads, nor could the rocks sink down, nor all parts of the Earth fall equally low.

And thus the weight of the Earth, with its heavy body, stood firm, and its whole mass, like thick mud, fell to the bottom, and sunk the lowest, as the dregs of all.

And thus were produced the Sea, the Air, and the Sky (or the ether) spangled with stars. All the finer seeds went to the formation of these fluid bodies, but some were more light than others; and the most light and liquid ether mounted higher, and spread over the body of the air, but its liquid parts never mixed with the turbulent blasts of the air below it. The airy region is tormented by violent whirlwinds, and disturbed by uncertain storms, while the ether calmly glides and bears along its fires in a fixed course. And that the ether may flow thus gently, and in a regular motion, we have an instance in the Euxine Sea, that runs with one certain tide, and preserves one constant stream in the current of its waters.

Now let us show from what cause proceeds the motion of the stars. And first, if the whole orb of the heavens be moved, then we must allow that the air bounds and encloses the outward surface of the heavens, and both the poles. The upper part of this air presses above, and drives the skies down to the west, the course in which the stars (the great lights of the world) are to move; the under part flows below, and lifts up this orb from beneath, and makes it rise, as we see the wheels of a mill, or buckets, are turned about by a running stream.

Or perhaps the whole body of the heavens may remain fixed, and yet the stars may execute their motions, either because some rapid particles of the sky are shut up, and struggling to find a way into the empty space, are whirled about, and drag the stars along with them; or some external air, rushing in from some other place, may turn them about; or they may move severally forward of themselves through the sky, where proper nourishment invites them to feed and keep alive their fires. But it is hard to resolve for certain what is the particular cause of these motions in this world of ours. I rather propose reasons in general for what may be done through the universe, in the multitude of worlds contained in the great All, and formed after various manners, And I offer many causes that may account for the whole, yet one only can be the true one that produced these effects; but to pronounce which it is, no wary philosopher will take upon him to do.

But that the Earth should rest in the middle region of the world it is necessary that its weight should in some degree lessen and be laid aside, and for this end it was fit that another substance should be placed under it, to which from the very beginning it should be united closely by natural and congenial ties, and upon which it should be staid. This substance being the surrounding air, which is a part of the same whole, and as it were of a piece with the earth, the earth therefore hangs suspended in the middle, and is no weight or pressure to the air at all; and so the limbs are no load to the body of a man, nor is the head a burden to the neck, nor do we perceive the weight of the whole body to press heavy upon the feet; but whatever weight is laid upon us from without, and is no part of us, is a pain to us, though it be ever so small. Of so great concern it is to what every being is severally united. For the earth was not brought from any other place and then thrust into the strange embrace of a different air, but was formed together with it, and became a regular part of the world, as our limbs were produced with the body, and are essential parts of it.

Besides, the earth, when it is shaken of a sudden by a violent thunder, makes every thing that is upon it tremble, which it could by no means do unless it was closely joined to the airy parts of the world, and to the heavens above; for they all stick closely together by common bonds, and kindly unite from the very beginning. Don’t you observe how the most subtle power of the soul supports the body with all its weight, because it is so strictly connected and so closely joined to it? And what is it but the force of the soul which actuates the limbs that raises the body, and makes it leap nimbly from the ground? Don’t you perceive now what a substance of the most subtle nature is able to do, when united with such a heavy body; such as the air when it is joined to the Earth, and as the soul to this body of ours?

But further, the orb of the sun is not much larger, nor is its heat much greater, than what our senses discovery to us; for at whatever distance the fire can send out its rays of light, and warm us with its heat, that distance takes away nothing from the bigness of the flame, nor does the fire appear less contracted to the eye. And therefore since the heat of the sun, and hi diffused light, do reach our senses, and shine upon the earth, you are to conclude that his form and magnitude are no greater nor less than they appear to be.

And the moon, whether she views the world with borrowed light, or whether she shoots out her beams from her own body, however it be, she is of no greater size than to our sense she appears. For all objects we look upon at a great distance, and through a long tract of air, show first irregular and confused, before we discover their utmost figure and proportion. And therefore since the moon at once presents to us the certain form and the complete appearance of the whole orb, she shows to us above as great as she really is.

Besides, since all our fires here below, when they are seen at great distance, so long as their light is clear, and their brightness shines out to us, do seem to change a little, and show more or less contracted, we may conclude that the stars we view either the heavens are very little either greater or less than they appear.

Nor are we to wonder how it comes to pass that so small a body as the sun is able to emit so much light as to spread over the seas the whole earth and the heavens, and to cherish all things with its kindly heat. For you may imagine that from the sun one large fountain of light breaks out, and flows abundantly, like a river, over the whole world, and that the seeds of fire from all parts of the universe meet in the body of the sun, and are there collected as into a spring, from whence the heat of the whole world is diffused abroad. Don't you observe how widely a small fountain of water spreads its stream over the meadows and overflows the fields?

Or perhaps the heat flowing from the small body of the sun may inflame the adjacent air, if the air be properly tempered and disposed to catch the fire from the feeble strokes of heat, as we sometimes see the corn and the stubble to be set all in a blaze from one small spark falling upon it. Or it may be the sun, shining above with the rosy light, has many dark and unseen stores of fire about it, which, though distinguished by no outward brightness, may yet increase the heat of its rays and make their strokes more inflamed.

Nor can one certain reason be assigned why the sun declines from its summer height and bends his winter course toward the tropic of Capricorn, and then returning, reaches the tropic of Cancer, and makes summer solstice; and that the moon in every month finishes the same course through the twelve signs, as the sun takes up a whole year in running through. I say, one certain reason cannot be assigned for these events, for perhaps the cause may be what the venerable opinion of that great man Democritus has laid down, that the nearer the stars are to the Earth, they are carried more slowly about by the general motion of the heavens. For the rapid force and celerity of the upper sky are much lessened before they reach the inferior orbs, and therefore the sun, with the lower signs that follow it, is in some measure left, because it is much lower than the high region of the stars. And the moon is much lower still, and the greater distance from the heavens she observes in her course, and the nearer she approaches the earth, the less is she capable of keeping pace with the motions of the signs, and the slower she is in her motion than the sun as she moves below him; and the signs may the more easily overtake her, and pass about and beyond her the oftener. And therefore the moon seems the sooner to run through all the signs when in reality the signs return to her.

Or perhaps two several airs may at certain seasons blow from the opposite parts of the world by turns; the one may drive the sun down from the summer signs into his winter course, and the extremity of cold; the other may raise it from the cold winter signs into the summer solstice. And for the same reason the moon and the stars, which fulfil their periods and revolutions in their long courses, may be forced upwards and downwards in the heavens by two several streams of air likewise. Don't you observe the clouds, driven by contrary winds, move different ways, the lower opposite to those above? What then should hinder that the stars should not be carried on by contrary blasts of air through the great circles of the sky?

And the night, we imagine, covers the earth with thick darkness, either because the sun in his long course has reached the extremity of the heavens, and being tired, has blown out his fire scattered by the swiftness of his motion, and decayed by the tract of air he passed through, or the same force that raised his orb, and drove it round above, compels him to change his course and roll beneath the earth.

And Matuta, the goddess of the morning, at a fixed time leads Aurora blushing through the regions of the sky, and opens the day, either because the sun, returning from under the earth, attempts to inlighten the world with his rays, before he appears himself; or because the sees of fire that were dispersed abroad in his journey the day before flow together in the eastern sky, and illustrate the Earth with a faint light, before they have kindled up anew the globe of the sun. This (they say) is easily discovered from the top of Mount Ida;

where, upon the rising of the sun, we first discovery his scattered rays, which are afterward contracted into one orb and make up one ball of light.

Nor are you to wonder that these seeds of fire should flow together constantly every day and repair the splendor of the sun; for we observe many things in nature that act regularly and at a fixed time. The trees look green at a certain season, and at a certain season cast their leaves. Children at a certain time shed their teeth, and the boy grows ripe at a certain time, and shows the soft down upon his cheeks. And lastly, the thunder, the snow, the rains, the clouds, the winds, are no less certain, and fall out in fixed seasons of the year, for the course which things observed from the beginning of the world they pursue the same, and continue still to act in the same certain order.

The days likewise increase, and the nights grow shorter, and the nights increase, and the days shorten, either because the sun, in his course above and below the earth, moves obliquely in unequal lines, and divides the heavens into unequal parts, and what he takes off from one part of the heavens he adds so much to the opposite part again, till he arrives at that sign in the heavens where he cuts the Aequinoctial line, and makes equal day and night, for this line is equally distant from the two tropics, which are the bounds of the sun's motions toward the north and south; and this is owing to the obliquity of the zodiac through which the sun finishes his annual revolution, and shines upon the earth and the heavens with an oblique light, such is the opinion of those who have marked out all the regions of the heavens, and adorned them with twelve constellations.

Or because, at certain seasons of the year, the seeds of light which repair the decayed splendor of the sun flow together sooner or later and so occasion his rising in different parts of the heavens.

The moon may shine with rays borrowed from the sun, and appear to us every day with greater light, as she retires further from the sun's orb, till being directly opposite to him, she shines out with full beams, and climbing up the earth, views him from above setting in the west; and then goes backwards as it were, and hides her light gradually as she passes through the different signs in her nearer approaches to the sun. Thus they explain her phases who conclude her round like a ball, and that she moves below the sun, and they seem to be right in their opinion, and speak the truth.

But the moon, possibly, may steer her course by her own light, and show different phases and forms of brightness, for another body may move below her, and attending to all her motions, may interpose and hinder her light from being seen; but this body, being thick and dark, cannot be discovered by the eye.

And perhaps the moon may roll around her axis like a ball, whose one half only is bright. This ball, as it moves round its center, will express the different appearances of light, till it turns the whole bright side to us, and shines full upon the open eye, and then by degrees it turns backward, and takes away its bright side as it rolls, and we see no more of it. This was the doctrine of the Chaldeans, who followed the hypothesis of Berosus, and attempted to overthrow the vulgar astrology of the Greeks; as if the schemes of both could not be true, or you had less reason to embrace the one than the other.

Lastly, why may not a moon be created new every day, and be distinguished by regular phases, and certain forms of light? And this new orb die, and be succeeded the next day by another, that should supply its place in the same part and quarter of the heavens? It is difficult to assign a reason, and to prove the contrary, especially since we observe so many things are formed, and succeed one another in regular order. And first the spring begins, and Venus enters, with her harbingers (the winged Zephyrs) marching by her side; then mother Flora spreads the way before with flowers of richest dye, and fills the air with sweetest odors; and next advance the scorching summer, and her companion the dusty harvest, and the Etesian Blasts of Northern Winds; and then comes autumn, and jolly Bacchus steps along; now follow ruffling storms and boisterous winds, the roaring southeast, and the sultry south full fraught with thunder; at last the cold brings on the snow and chilling frost, and then creeps winter, all benumbed, and chattering with his teeth. It is the less wonder then that the moon should be formed anew at certain times, and at fixed seasons again expire, since so many things are so regularly produced, and succeed one another.

The eclipses of the sun and moon may proceed, you may suppose, from many causes, for why should the moon deprive the earth of the sun's light, and as she shines above oppose her body to him, and stop his burning rays by thrusting her dark orb between; and not another body, wholly dark, be thought to interpose at such a time, and produce the same effect? And why may not the sun grow faint, and deaden his light at a certain time, and renew it again when he has passed certain regions of the air that are enemies to his beams, and destroy and extinguish his fires? And then again, while the moon in her monthly course passes by the rigid shadow of the earth, which is of a conic figure, why should the earth rob the moon of light, and being above the sun, hold his rays shut in; and why many not another body at the same time move below the moon, and pass above the body of the sun, that may intercept his rays and stop his spreading fires? And yet, if the moon be allowed to shine with her own beams, why may not her brightness decay in certain parts of the world, as she passes through places that are enemies to her light?

And now, since I have explained from what causes proceed the motions of all the celestial bodies, and given you a rule to know what force, what power, dries on the various courses of the sun, and the wanderings of the moon; in what manner their several rays are intercepted, and the earth is covered over with surprising darkness, as if they winked, and how again they spread open their beams, and visit the world with shining light: I now return to the new-formed earth, and her tender soil, to find what kind of beings she first raised into the light, what offspring she first ventured to commit to the faithless winds.

And first the Earth produced the herbs, and spread a gay verdure over all the hills, and the gaudy fields shone all around with green; and nature gave the several trees a power to raise themselves, and grow up with their spreading branches into the air. As feathers, and hair, and bristles, were at first produced from the limbs of beasts and the bodies of birds, so the new earth first bore the herbs and the trees, and then she formed many kinds of living creatures, for various ends, and after a different manner: For the race of animals did not originally fall down from the skies, nor could terrestrial beings rise out of the salt sea; and therefore we say that the Earth justly obtained the name of Mother, because out of her all things were formed. Even no many animals rise from the earth, and are produced by moisture and the heat of the sun; and therefore the wonder is the less that many more should have been created in the beginning of the world, and of a larger size, when the earth was fresh as a young bride, and her husband Aether in the flower of his age.

Of all the animal creation, the feathered kind, and various breeds of birds, first broke through the prison of the egg in time of spring; as grasshoppers in the summer now burst their curious little bags, and of themselves know how to seek their food and preserve their life. And the earth next produced the race of men and beasts, for then there was abundance of vital heat and moisture in the soil, and where the place was proper, a sort of womb group up, fixed and sticking in the earth by their roots. These the infants ripe for birth broke through they left their moist enclosure, and sprung out into the air. In those places nature prepared the pores of the earth, and forced her to pour from her open veins a liquor like milk; as a woman after delivery is full of sweet milk, because the principal juices of her food fly into her breasts. The earth gives nourishment to the infant, the warmth of the sun is instead of clothes, and the grass abounding with plenty of soft down affords the bed.

But this new world produced no chilling cold, nor too much heat, nor force of rushing winds, for things increased and grew violent by degrees. And therefore by the strictest laws of justice does the Earth claim the name of Mother, because in this manner, for some time, she herself produced mankind, and formed every savage beast that wildly roars upon the mountaintops, and the great variety of birds, distinguished by the beauty of their feathers.

And that the earth might have some release, and not be always in labor, she at length left off, as a woman worn out and past her prime; for time changes the nature of the whole world, one body continually rises from another, no being remains long like itself, things are in a perpetual flux, one thing decays and grows weak by time, another becomes vigorous and flourishes in its strength. Thus time alters the face of the whole world; and the earth passes from one state to another. She can no more produce the creatures she once did, and now she bears what she could not do before.

The Earth, it may be supposed, was at first delivered of many monstrous births, of a wonderful shape, and of an uncommon size (and some between the two sexes, not properly of both, yet not far removed from either)

some without feet, and others without hands, many without a mouth and eyes; some had their limbs growing and sticking together over all their bodies that they could do no office of life, nor move from their place, nor fly what was hurtful, nor receive food to preserve their beings. Many other monsters, and strange productions of this kind, were at first formed, but in vain! For nature was shocked, and would not suffer them to increase; they could not arrive to any maturity of age, nor could they find their food; nor taste the pleasures of love; for many circumstances, we observe, must kindly agree that creatures might be able to propagate their kind. First of all there must be proper food, and then fit organs for the genial seed to flow through from all the limbs; and that the male and female may be closely joined, they must be furnished with those parts that may promote the mutual delights of both.

And therefore many kind of animals must needs be extinct, nor could they all by propagation continue their species, for almost every race of creatures we now see living, either their cunning, or their courage, or their swiftness, have secured and preserved them from the very beginning. And there are many that, from their usefulness to mankind, have recommended themselves to our defense. And first the fierce breed of lions, and their savage race, their courage protected; craft secures the fox, and swiftness the stag. But the watchful and faithful race of dogs, all beasts of burden, the flocks and herds, all these, my Memmius, are committed to the care of man. These fly swiftly from the rage of wild beasts; they love a quiet life, and depend upon us for their fill of provision, without any labor, of their own, which we allow them plentifully, as a reward for the benefits we receive from them. But those creatures on whom Nature has bestowed no such qualities, that cannot support themselves nor afford us any advantage, why should we suffer such a race to be fed by our care, or defended by our protection? These, by the unhappy laws of their nature being destitute of all things, became an easy prey to others till their whole species was at last destroyed.

But never have there been any such things as centaurs, nor could a creature at any time be formed from a doubtful nature, from two bodies, and out of members so different and disagreeable. The limbs and faculties of a man and a horse could never act uniformly together, with all their power; and this is obvious to a very mean apprehension. For a horse at three years old is strong and active; a child is far from being so, at that age he is commonly feeling for the mother’s breast in his sleep; and when the horse’s strength decays by old age, and his feeble limbs fail him at the end of life, then the boy flourishes in the prime of youth, and the beginnings of a beard appear upon his cheeks. Never think, therefore, that there is or ever can be such a creature as a centaur, made up of a human nature and the servile seed of a horse; or that there are any such things as Scyllas, having their loins surrounded with the ravenous bodies of half sea-dogs. Believe nothing of other monsters like these, whose members we observe so opposite and disagreeing, which neither live to the same age, nor grow strong or decay together, which are neither inflamed with the same sort of love, nor have the same dispositions, nor preserve their bodies by the same food; for goats, we see, often grow fat with hemlock, which to men is sharp poison. And since fire will scorch and burn the yellow body of a lion, as well as the bowels of any other creature living with blood in its veins, how could a chimera, with his body of three kinds, with a lion’s head, a dragon’s tail, and the middle like a goat, blow abroad a fierce flame out of his body?

And therefore those who pretend that this new Earth and vigorous Aether could produce such creatures as these, and support their fictions only upon the empty argument of their being new, may with the same reason put upon us other fables. They may as well tell us that golden rivers flow through the earth, that trees blossom with diamonds, that men were made with such mighty strength and bulk of limbs that they could stride with their feet over wide seas, and whirl about the body of the heavens with their hands. For though there were many seeds of things in the womb of the earth when she first began the production of living creatures, this is no rule that animals could be formed of a mixed nature, and compounded of different bodies. The various products of the earth, which are in great abundance – the herbs, the fruits, and pleasant trees – never blended in such confusion together; every thing proceeds in its own proper order, and preserves its distinct kind by the established laws of Nature.

And the first race of men were the much hardier upon the earth, as twas fit they should, for the hard earth bore them. They were built within upon larger and more solid bones, and their limbs were strained with stronger nerves, nor did they easily feel the inclemency of heat and cold, or were affected with the strangeness of their food or any weakness of body. They led a long life of many rolling years, and wandered

about like wild beasts. There was no husbandman to guide the plow, or that knew how to cultivate the fields; none to plant young stocks in the ground, or with pruning-hooks to lop the old branches from the high trees. What the sun, the rain, and the earth voluntarily produced, that bounty satisfied their grateful hearts. They commonly refreshed their bodies with acorns among the oaks, and with those wild apples which you see ripen in winter, of a red color, which the earth then bore in abundance, and of a larger size. Many other excellent fruits the new earth, fresh and in her prime, produced in great plenty for her wretched offspring.

But the rivers and springs invited them to cool their thirst, as the fall of waters from the high hills call now upon the thirsty race of beasts; and wandering in the night, they rested in hollow caves, the Sylvan temples of the nymphs, when flowed a running stream that washed the slippery stones with its large current; among the slippery stones, covered with mossy green, it found its way, and some of its little tide broke out and spread into the plain below.

As yet they knew nothing of fire to dress their foods, nor the use of skins, or how to cover their bodies with the spoils of beasts; but inhabited the groves, the hollow mountains and the woods, and hid their naked bodies among the shrubs; this they did to avoid the rains and the blasts of wind. They had no regard for the common good; they had no order among them; or the use of laws; every man seized for his own what fortune gave into his power; every one consulted his own safety, and took care of himself. Their amours were consummated in the woods; either the ladies were urged on by their mutual heat, or they were overcome by the superior force and raging fire of their gallants, or were softened by presents, a dish of acorns, of apples, or of choice pears.

These unpolished mortals, relying on the mighty strength of their arms and the swiftness of their feet, pursued the wild beasts through the woods, with missive stones and heavy clubs. Many they hunted down, some secured themselves in the thick brakes; when night overtook them, like bristly hogs, they through their rough bodies naked upon the ground, and rolled themselves up in leaves and grass; nor did they run howling about the fields, frightened that the day was gone and the sun was set, or wandered about in the darkness of the night, but they waited without complaint, and lay buried in soft sleep, till the sun with his rosy beams should again spread light over the heavens. For, from their very infancy, they had been used to observe that there was a regular succession of light and darkness, and therefore they did not think it possible, they never feared or distrusted, that an eternal night could cover the earth, or that the light of the sun would never more return.

But what disturbed them most was that the wild beasts often surprised and destroyed them when they were asleep. They were forced to quit their haunts, and fly out of the caverns of the rocks at the approach of the rough boar or the strong lion; and trembling, in the dead of night, to give up their beds of leaves to their cruel guests.

And yet in those times fewer died than do now, for then the one unhappy wretch that was seized was sure to be devoured alive between their cruel teeth, and therefore he filled the groves, the mountains, and the woods with his cries, as he saw his reeking bowels buried in a living grave. But those who saved themselves by flight, with their bodies torn and covering their smarting wounds with trembling hands, called upon death in dreadful accents, till gnawing worms put an end to their life, for they were unskilled in medicine, and ignorant what to apply to their gaping sores.

But then many thousands did not fall in battle in one day; no boisterous waves dashed ships and men against the rocks. The sea then, and its swelling tides, raged in vain, and to no purpose, and laid aside its empty threats, and grew calm again; nor could the deceitful flattery of its smooth waters cheat any one into the deceit, or tempt him to venture upon the smiling surface. The dangerous art of sailing was then unknown. Many then languished and died wretchedly for want of food, but now plenty is the destruction of mankind. Some then, through ignorance, would mix poison for themselves; now they study the art, and give it to others.

But when they began to build huts, and provide themselves with skins and fire; when one to one was joined for life together, and the chaste sweet delights of constant love were now first felt, and they saw a lovely train of children of their own; then this hardy race first began to soften, for being used to fire, their tender bodies

could not bear so well the cold of the open air; and love impaired their strength, and children, by their little acts of fondness, easily softened the haughty temper of their parents. Then those who lived together began to cultivate a friendship, and agreed not to hurt or injure one another. They undertook the protection of children and women, and declared, by signs and broken words, that the weaker should be understood as proper objects of compassion. This mutual amity, though it did not prevail among them all, yet the greater and better part key their faith, and lived peaceably together; otherwise the whole race of men had been soon destroyed, and the species could never have been preserved to this time.

Nature compelled them to use the various sounds of the tongue, and convenience taught them to express the names of things, like children, before they can well speak. are forced to make use of signs, and are obliged to point with their finger to the objects that lie before them, for every creature is sensible what faculties it has, and how to use them. So calves, before the horns appear upon their foreheads, will butt fiercely, and push with them, when they are enraged; and the whelps of panthers and lions will defend themselves with their claws and feet and teeth when their claws and teeth are scarce to be seen; and all kind of birds, we observe, trust to their wings and rely upon the fluttering support of their pinions.

But to think that one man gave names to all things, and that men from thence learnt the first elements of speech, is absurd and ridiculous; for why should one man distinguish every thing by a name, and use the various accents of the tongue, and at the same time another not be as capable of doing this as he?

Besides, if others had not the use of words among them as soon, how could they be made acquainted with the use of them? Or by what art would this one man make them known and understand what he designed? One alone could not compel the rest, and by force make them learn the catalogue of his names. He could not prevail by reason, or persuade men so unfit to hear, to do so as he directed; nor would they bear with patience, or by any means endure, to have the strange sounds of unintelligible words any longer ratting in their ears to no purpose.

And then, what is there so very wonderful in this, that men, to whom nature has given a voice and a tongue, should, according to the various knowledge they had conceived of the great variety of things, distinguish each of them by a proper name; when mute cattle, and the several kinds of wild beasts, express their passions by different voices and sounds, when their fear, their grief, or their joys are strong upon them? And that they do so you may observe from evident examples.

For when fierce mastiffs are at first provoked, they snarl, and grin, and shew their hard white teeth, and threaten, in their rage, with lower sounds than those they read the air with when they bark and roar aloud; but when they gently lick their whelps, with their soft tongue, or toss them with their feet, or seem to bite, and fondly gape as if to eat them up, but never touch them with their teeth, they show their pleasure with a whining voice. Not so as when they howl, left by themselves at home; or when they whimper, with their crouching bodies, to shun the coming blow.

And does not the horse with different neighings fill the air when, hot in blood and in the prime of youth, he is sorely galled with the spurs of winged love, and rages in his lust among the mares, and, eager to engage, with open nostrils snuffs the scent? Does he not shake his trembling limbs and neigh, for other reasons, with far other sounds?

And then, the feathered race, the various kinds of birds, the hawk, the osprey, and sea gulls, that live and seek their food in the salt waves, they throw out other notes at other times, than when they strive for food and fight for prey; and some will change their hoarse voice according to the different qualities of the air, as the long-lived ravens, and the flocks of crows, when they are said to call for rain and showers, and sometimes to cry for wind and storms. If therefore the different perception of things will compel these creatures, mute as they are, to send out different sounds, how much more reasonable is it that men should be able to mark out different things by different names?

You may desire, perhaps, to be satisfied in other inquiries. Know then that thunder first brought down fire to the earth. All the fire in this lower world is in a great measure derived from thence; for many things, we

observe, are set on fire by lightning, when the vapors fly out from certain quarters of the heavens, and the branches of trees, pressing hard upon one another, when they are driven backward and forward by the winds, grow hot, and by the violent agitation burst out into a rapid flame; and sometimes the boughs and bodies of trees, by rubbing together, will kindle and fly out into a blaze. And thus fire might be produced from either cause.

But the sun first taught mankind to dress their food, and soften it by heat; for they observed the fruits in the fields grew tender and ripe by the warmth and power of his rays. And so those who had more wit and sense taught their neighbors every day to leave their old diet, and their former way of life, to enter upon a new course, and use the benefit of fire.

And now their kings began to build cities, and to raise castles, as a defense to themselves, and refuge in time of danger. They divided the cattle and the fields and gave to every one as he excelled in beauty, in strength, and understanding; for beauty and strength were then in great repute, and bore away the prize. At least riches and gold were found out, which soon took away the honor from the strong and beautiful; even the brave and beautiful themselves commonly follow the fashion of the rich.

[1117] But if men would govern their lives by the rule of true reason, to live upon a little with an even mind, would be the greatest riches. This little no man can fear to want; but men strive to be renowned and powerful, that their fortune may stand firm upon a lasting foundation, and the wealthy cannot fail to live at ease. All absurd! For those who labor to reach the highest honors make a very unhappy journey in the end. Envy, like a thunderbolt, strikes them from the pinnacle of their glory, and tumbles them down with scorn into an abyss of misery. So that it is much safer, as a subject, to obey, than to wish for empire and to govern kingdoms. Let those that will tire themselves in vain, and spend their blood and their sweat in climbing the narrow track of ambition (for the highest of them all are blasted with envy, as with a thunderbolt; and the higher they are, they are the more exposed) since they depend wholly upon others for their wisdom, and try things more by their ears than by their understanding. This is the present case; it always was so, and ever will be.

Those kings being slain, the former majesty of their thrones, and their proud sceptres, were laid in the dust; and the diadem, the noble ornament of kings, all stained with blood, is now trodden by vulgar feet, and weeps over its expiring honors; for we eagerly spurn at what we too much feared before.

The government now returned to the rabble, and the very dregs of the people, whilst everyone reached at empire, and the supreme power for himself. And therefore the wisest among them taught the rest to settle a magistracy, and to establish laws, by which they would be governed. Men grew weary of living in a state of force, and were worn out with continual bickering among themselves, and therefore, of their own accord, more readily fell under the power of Laws and the bonds of justice; for every one, in his resentment, pursued his revenge with more violence than the equity of the laws would now allow him, and therefore men were tired of this hostile way, which soured all their pleasures of life with the fears of punishment; for force and wrong entangle the man that uses them, and commonly recoil upon the head that contrived them. Nor is it easy for that man to live a secure and pleasant life who by his conduct breaks through the common bonds of peace. Though he has the cunning to deceive both gods and men, his heart always trembles for fear of being discovered; for men often talk in their sleep, and are said to reveal things when they are delirious by a disease, and to bring to light their plots that had been long concealed.

And now I'll show the cause that first dispersed the notions of the gods throughout the world, and filled the towns with altars, and ordered solemn rites to be performed, and holy ceremonies now in use, when victims smoked on every sacred fire; and whence that fixed horror in the minds of men, that builds new temples to the gods in every corner of the earth, and compels men to celebrate their festivals: tis not so hard a thing to show the cause.

For men, in the beginning of the world, were used to see divine and glorious forms, even when awake; and in their sleep those images appeared in more majestic state, and raise their wonder. And these they thought had sense. They fancied that they moved their limbs and spoke proud words, suitable to the grand appearance they showed, and to the mightiness of their strength. They ascribed eternity to them, because a

constant stream of images incessantly came on, in form the same (that could not change) and then, they could not die, because no power, they thought, could crush beings so strong in force, so large in size. And they thought them infinitely happy, because they were never vexed with the fears of death, and likewise in their dreams they saw them do things strange and wonderful with ease, and without fatigue.

Besides, they observed the motions of the heavens were regular and certain, that the various seasons of the year came orderly about, but could discover nothing of the causes of these revolutions, and therefore they had this resort: they ascribed every thing to the power of the gods, and made every thing depend upon their will and command.

The habitation and abode of these gods they placed in the heavens, for there they saw the sun and moon were rolled about; the moon, I say, they observed there, and the day and the night, and the stars serenely bright, and the blazing meteors wandering in the dark, the flying lightning, the clouds, the dew, the rain, the snow, the thunder, the hail, the dreadful noises, the threatenings and loud roarings of the sky.

Unhappy race of men! To ascribe such events, to charge the gods with such distracted rage. What sorrows have they brought upon themselves? What miseries upon us? What floods of tears have they entailed upon our posterity?

Nor can there be any piety for a wretch with his head veiled, to be ever turning himself about towards a stone, to creep to every altar, to throw himself flat upon the ground, to spread his arms before the shrines of the gods, to sprinkle the altars abundantly with the blood of beasts, and to heap vows upon vows. To look upon things with an undisturbed mind, this is Piety. For when we behold the celestial canopy of the great world, and the heavens spread over with the shining stars; when we reflect upon the courses of the sun and moon, then doubts – that before lay quiet under a load of other evils – begin to awake, and grow strong within us. What! Are there gods endued with so great power that can direct the various motions of all the bright luminaries above? For the ignorance of causes gives great uneasiness to the doubting mind of man. And hence we doubt whether the world had a beginning, and shall ever have an end; how long the heavens (the walls of this world) shall be able to bear the fatigue of such mighty motions, or whether they are made eternal by the gods, and so shall forever roll on, and despise the strong power of devouring age.

Besides, what heart does not faint with a dread of the gods? Whose are the limbs that will not shrink, when the scorched earth quakes with the horrible stroke of lightning, and the roaring thunder scours over the whole heavens? Do not the people and the nations shake? And proud tyrants, struck with fear of those avenging powers, tremble every limb, lest the dismal day were come to punish them for the baseness of their crimes and the arrogance of their speeches?

And when the raging force of a violent storm upon the sea tosses the admiral of a fleet over the waves, with all his elephants and his stout legions about him, does not he fall to praying to the gods for pity? And, trembling upon his knees, begs a peace of the winds, and a prosperous gale? In vain! For he is often snatched up by the violence of the hurricane, and carried with all his devotion to the Stygian ferry. With such contempt does some hidden power continually trample upon human greatness, it treads with scorn upon the gaudy rods and the cruel axes, those ensigns of empire, and makes a sport with them.

And then, when the whole Earth reels under our feet, and the cities are shaken, and tumble about us, or at least threaten to fall, what wonder if men at such a time despise their own weak selves, and ascribe infinite power and irresistible force to the gods, by which they direct and govern the world?

And last of all brass, and gold, and iron were discovered, and the value of silver, and the weight of lead. For when the whole forests upon the high hills were consumed by fire, whether it came by lightning from the heavens or men carried on a war among themselves in the woods, and set them in a blaze to terrify their enemies; or whether, induced by the goodness of the soil, they resolved to enlarge their fruitful fields and make pastures for their cattle; or whether it was to destroy the wild beasts and enrich themselves with their spoils (for the first way of taking the game was by pitfalls, and fire before they surrounded the brakes with nets, or hunted with dogs); however it was, or whatever was the cause of this raging fire, that burnt up the

woods to the very roots with frightful noise, and set the Earth a boiling with its heat - Then streams of silver and gold, of brass and lead, flowed out of the burning veins into hollow places of the Earth that were proper for them. And when the metal grew hard, and men observed it looking beautifully and shining bright upon the ground, they were charmed with its gay and sparkling luster, and dug it up. And finding that it received the exact shape of the hollow molds in which it lay, they concluded, when it was melted by the heat, it would run into any form and figure they pleased, and they might draw it into a sharp point or a fine edge, and make themselves tools to cut down the woods, to smooth, to square, and to plane timber, to pierce, to hollow, and to bore. These instruments they attempted to make of silver and gold, no less, than by powerful blows to form the stronger brass; but in vain! For the soft quality of those metals gave way, and could not bear the force and violence of the stroke; and so brass was in most value, and gold was neglected, as a blunt useless metal that would not hold an edge. But now brass is in no esteem, and gold succeeds to all its honors. And thus a course of flowing time changes the dignity of things. What was highly prized is now treated with contempt, and what was despised comes into its place, and is every day more eagerly pursued, is cried up with the greatest applause, and receives the respect and admiration of mankind.

And now, my Memmius, you may easily, of yourself, perceive by what means the force of iron was discovered. The first weapons were hands, and nails, and teeth, and stones, and the broken boughs of trees; and then they learned to fight with fire and flame, and afterwards was the strength of iron and brass found out. But the use of brass was known before the benefit of iron was understood, for it was a metal more easy to work, and in greater plenty. With brazen shares they ploughed the ground, with arms of brass they carried on the rage of war, and dealt deep wounds about, and seized upon their neighbors cattle and their fields, for everything naked and unarmed was easily forced to give way. But the iron sword came gradually into use, and instruments of brass were laid aside with contempt. And now they began to plough with iron, and with weapons of iron to engage in the doubtful events of war.

And men first learned to mount the horse, with their left hand to manage the reins, and they fought with their right, before they tried the dangers of war in a chariot drawn by two. They first used a chariot with a pair, and then they harnessed four, before they knew how to engage in chariots armed with scythes. The Carthaginians taught the Libyan elephants, with their serpentine proboscis and towers upon their backs, to bear the smart of wounds, and to disorder the embattled ranks of the enemy. And thus the rage of discord found out one art of slaughter after another, as the dreadful scourges of mankind, and increased the terrors of war every day. They tried the fury of bulls in their battles, and drove boars against their cruel enemies. The Parthians placed roaring lions before their ranks, with their armed keepers, and fierce leaders, to govern their rage and hold them in chains. In vain! For growing hot with the mixed blood they had tasted, they broke in their fury through the troops of friends and enemies without distinction, shaking their dreadful manes on every side. Nor could the horsemen cool their frightened horses, distracted with the roaring of the beasts, or turn them with reins against the foe. The lions with rage sprung out, and threw their bodies every way, and flew upon the faces that they met. Others they suddenly fell on behind, and clasped with their paws, and with sore wounds overcome, they flung them to the ground, and held them down with their strong teeth and with their crooked claws. The bulls would toss the boars and crush them with their feet, and with their horns would gore the sides and bellies of the horses, and in their rage bear them to the earth. The bears with their strong teeth destroyed their friends (and cruelly stained the darts unbroken, with their master’s blood, the darts that broke upon themselves were stained with their own) and brought confused ruin upon man and horse; for though the horse, by leaping aside, would strive to fly the cruel biting of their teeth, or, rearing up, pawed with their feet the yielding air; yet all in vain! You would see them, hamstrung by the beasts, fall down and with their heavy weight would shake the ground.

These creatures therefore that men saw were tame at home, now brought into the war grew mad with wounds, with noise, with flying, with terror, and the tumult of the battle; nor could they by any means be brought back or cooled again, but every kind flew wildly over the plains; as when a bull, not rightly struck by the priest’s sacrificing axe, breaks loose, after much mischief done to all about him. These were the first arts of war; yet I cannot believe but the first inventors must consider and foresee the common evils and sad calamities they must occasion. This, it is safer to say, was the case in general in some of all the worlds that were created in various manners, than to be particular and fix it upon one only. But they made use of beasts

in their wars not so much from a hope of victory as to annoy and torment their enemies; being themselves sure to die because they distrusted their numbers and were unskilled in the use of arms.

Their garments were skins of beasts, pinned together with thorns, before they had learned to weave. The art of weaving came in after the discovery of iron, for their tools were made of that metal; nor could the smooth treadles, the spindles, the shittles, and the ratting beams be formed any other way. But nature at first compelled the men to card and spin, before the women undertook the trade; for men by far exceed the other sex in the invention of arts, and work with greater skill. The sturdy peasants at length reproached these male spinsters, and obliged them to give up the business into the women's hands; and then they betook themselves to more laborious employments and hardened their limbs and their hands with rougher work.

But Nature herself (the great mother of all things) first taught men to sow and to graft, for the berries and the acorns that fell from the trees, the observed, produced young shoots underneath in a proper season of the year. And hence they began to graft fruitful slips into boughs, and to plant young stocks over all the fields. Then they tried every other art to improve the kindly soil, and they found the wild fruits grew sweet and large by enriching the earth, and dressing it with greater care. They employed themselves continually in reducing the woods to narrower bounds upon the hills, and to cultivate the lower places for corn and fruits. Thus they had the benefit of meadows, of lakes, of rivers, of corn fields, and pleasant vineyards upon the side of the hills, and in the dales, and of green rows of olives regularly running between upon the rising grounds, and in the valleys, and spread all over the plains. As you see our country farms now laid out in all the variety of beauty, where the sweet apples are intermixed and adorn the scene, and fruitful trees are delightfully planted round all the fields.

And men attempted to imitate by the mouth the charming voice of birds, before they tried to sing, or to delight the ear with tuneful verse: and the soft murmurs of the reeds, moved by a gentle gale, first taught them how to blow the hollow reed, and by degrees to learn the tender notes: such as the pipe, by nimble fingers pressed, sends out when sweetly sung to; the pipe, that now is heard in all the woods and groves, and all the lawns, where shepherds take their solitary walks, and spend their days in innocence and ease. Thus time by degrees draws everything into use, and skill and ingenuity raise it to perfection. Thus music softened and relieved the minds of these rude swains, after their rural feasts; for then the heart's at ease; and then they sweetly indulge their bodies, as they lie together on the soft grass, hard by a river's side, under the boughs of some high tree, without a heap of wealth. Chiefly when the spring smiles, and the season of the year sprinkles the verdant herbs with flowery pride; then jests, and smart conceits, and the loud laugh went round; and then the rustic music sung out, and, gay and jocund in their sports, they crowned their heads, and on their shoulders hung garlands of flowers and leaves, and with unequal steps they rudely moved their limbs, and shook their mother earth with their hard feet; and then the laugh began, and pleasant grin, at these strange gambols, never seen before. And thus they kept awake; and, as refreshed my comfortable sleep, they spent the night in trolling country songs, and making mouths to many an awkward tune, and running over the reeds with crooked lip. These are the pleasures now our wanton youth pursue, who sit up all the night; they learn to dance in measure, but receive no more delight than did that rustic race of earthborn swains so long ago.

For while we know no better, and enjoy a present good, it wonderfully pleases and delights us above all things; but when we discover something more agreeable, this destroys and changes the relish of what went before. So acorns became odious to the palate, and the beds of grass and leaves were laid aside; and skins when out of use, and that savage sort of clothing was despised; and yet, I think, he that first wore it raised such envy to himself that he was treacherously slain, he was torn to pieces, and his leathern garment stained with his own blood, nor was he suffered to enjoy the fruit of his own invention.

At that time men fought for skins, but now gold and purple employs their cares, and set them together by the ears. And, I think, we are much more to blame of the two, for without the use of skins, the cold would have been very grievous to those earth-born wretches, but we suffer nothing if we go without purple or cloth of gold, embroidered in the richest figures, since a meaner dress would as well secure us against the cold.

Wretched therefore, and vain, are the troubles of mankind; they spend their whole life in the pursuit of empty cares, and no wonder, since they fix no limit to what they possess, and know nothing how far the bounds of true pleasure may extend. And this ignorance carries them by degrees into a sea of evils, and raises the most violent storms of war throughout the world.

But the wakeful sun and moon, surveying with their light the great and rolling skies, have taught men that the seasons of the year are turned about, and that things are carried on by certain rules and in a fixed order.

And now mankind enclosed themselves and lived in castles; the lands were parted out, and each enjoyed his own; the sea was sailed over by crooked ships, and men joined together for defense, and formed alliances by certain bonds. The poets then began to celebrate in verse the great exploits, and letters were not long before discovered. What was transacted many ages past, those times knew nothing of, but what their reason darkly traced out.

Use therefore, and the experience of an inquiring mind, led men by degrees into the knowledge of navigation, of agriculture; taught them to build walls, to make laws, arms, public ways, garments, and other things of the same nature; made them acquainted with poetry, painting, and statuary. Thus time gradually produces every thing into use, and reason shows it in a clear light. One art, we observe, is refined and polished by another, till they arrive at the highest point of perfection.

7. Book Six

[01] Renowned Athens, first to wretched man gave the sweet fruits, and human life refreshed, and published laws; but comforts nobler far than these she gave, when to the world she showed great Epicurus, formed with such a soul; who from his mouth delivered sublime truths, as from an oracle, whose fame for so divine discoveries dispersed every way abroad and was raised after death above the skies.

[09] For when he saw how little would suffice for necessary use, and by what small provisions life might be preserved; that Nature had prepared every thing ready to support mankind; that men abounded with wealth, and were loaded with honor and applause, and happy in their private concerns, in the good character of their children, and yet their minds were restless at home, complaining and lamenting the misery of their condition; he perceived the vessel itself (the mind) was the cause of the calamity, and by the corruption of that, every thing, though ever so good, that was poured into it was tainted: it was full of holes, and run out, and so could never by any means by filled; and whatever it received within, it infected with a stinking smell.

And therefore he purged the mind by true philosophy, and set bounds to our desires and our fears. He laid open to us the chief good, that point of happiness we all aim at, in what it consists, and showed us the direct way that leads to it, and puts us into the straight road to obtain it. He taught what misfortunes commonly attend human life, whether they flow from the laws of nature or from chance, whether from necessity or by accident; and by what means we are to oppose those evils, and strive against them. And he has fully proved that men torment themselves in vain, and are tossed about in a tempestuous ocean of cares to no purpose. For as boys tremble and fear every thing in the dark night, so we in open day fear things as vain, and little to be dreaded, as those that children quake at in the dark. and fancy advancing towards them. This terror of the mind, this darkness then, not the Sun's beams nor the bright rays of day can scatter, but the light of nature and the rules of reason; and therefore I shall the more readily proceed to execute what I have begun.

[43] And since I taught the fabric of the world was mortal, and that the heavens are formed of corruptible seeds, and whatever they do, or ever will contain, must necessarily be dissolved; attend now to what remains, especially since the hope of carrying the prize has encouraged me to ascend the chariot and engage in so noble a race; and since the difficulties that once attended the course are removed, and the roughness of the way is made favorable and easy.

The various wonders men behold in the earth and in the heavens perplex their minds, trembling and in suspense, and make them humble with the fear of the gods, and press them groveling to the ground; and being ignorant of the cause of these events, they are forced to confess the sovereignty and give up

everything to the command of these deities. And the effects they are unable to account for by reason they imagine were brought about by the influence of the gods; for such as well know that the gods lead a life of tranquility and ease, if they should still wonder by what power the world is carried on, especially in the the things they see over their heads in the heavens above, they relapse again into their old superstition; they raise over themselves a set of cruel tyrants who, the wretches fancy, can do all things, because they know nothing of what can or what cannot be, or by what means a finite power is fixed to every being, and a boundary immovable which it cannot pass. Such are more liable to mistakes and to be carried widely from the right way.

[68] Unless you purge your mind of such conceits, and banish them from your breast, and forebear to think unworthily of the gods, by charging them with things that break their peace, those sacred deities you will believe are always angry and offended with you; not that the supreme power of the gods can be so ruffled as to be eager to punish severely in their resentments, but because you fancy those beings, who enjoy a perfect peace in themselves, are subject to anger and the extravagances of revenge: and therefore you will no more approach their shrines with an easy mind, no more in tranquility and peace will you be able to receive the images, the representations of their divine forms, that form from their pure bodies and strike powerfully upon the minds of men: From hence you may collect what a wretched life you are to lead.

[80] That the rules therefore of right reason may keep these evils at the greatest distance from us, though I have offered many things upon this subject before, yet much still remains to be observed, which I shall adorn with the smoothest verse. And first, the nature and phenomenons of the heavens must be explained. And now I sing of tempests, and the flaming blasts of lightning; how they fly and from what cause they dart through all the air, lest, when you view the several parts of heaven, you tremble and, mad with superstitions, ask whence comes this winged fire, and to what quarter of heaven does it direct its course; how does it pierce through walls of stone, and having spent its rage goes out again? The causes of which events, since men cannot assign by the laws of reason, they must, they suppose, be effected by the power of the gods.

[92] And thou Calliope, my skillful muse, the joy of men and pleasure of the gods, lead on the course and guide me to the goal, that by thy conduct I may gain a crown and end the race with glory.

[96] First, the blue arch of heaven is shaken with thunder because the airy clouds, flying aloft, are forced by adverse winds and strike together; for where the sky is clear you hear no noise; but where the clouds are thick and drive in troops, thence comes the louder sound and murmur through the air. Besides, the clouds are not so solid in their contexture as stones and wood, nor so thin as mists and flying smoke, for then, depressed by their own weight, they would either fall abruptly down as stones, or like smoke they would disperse, and not be able to keep in the chilling snow and showers of hail.

[108] They give the crack through the wide space of heaven, as curtains strained upon the posts and beams in lofty theatres, when ruffled by the boisterous winds and blown to pieces, they make a rattling noise like paper torn. This thunder, you observe, will sound like cloths spread out, or flying sheets, when tossed by strokes of wind they roll and flutter through the sky. And sometimes the clouds will not directly meet, and engage front to front, but in their different motions will rudely shock the sides of one another as they pass. Hence comes that dry crashing sound we hear that lasts for some time before it breaks its close prison and roars out.

[121] All things, you see from hence, will shake and tremble at the dreadful clap. And the heavens (the mighty walls of this wide world) are torn and burst asunder in a moment when a collected force of restless wind gets suddenly within a cloud, and there enclosed it rolls furiously about, and stretches the hollow space, still more and more, until the sides grow thick and are condensed, and when it summons it whole strength, and rages to get free, then comes the frightful break; it flies abroad with horrid noise. Nor is this strange when a small bladder full of wind will likewise give a mighty crack when it is suddenly burst.

[132] When the winds strike violently upon the clouds this may produce a noise, for we see the branched clouds, with their rough edges, are driven about in various manners, as the blasts of south-west winds, blowing hard upon the thick woods, the boughs give a sound and the branches rattle through the air.

[137] And sometimes the violent force of a fierce wind will beat directly, with all its rage, upon a cloud, and cut it asunder. That the winds will shatter the clouds is evident by experience, for here below, where their power is much weaker, they will overturn the strongest trees and tear them up by the roots.

[142] And then the clouds, like waves, roll about in the wide ocean of the air, and cause a roaring noise by dashing together. The same happens in large rivers, and in the wide sea, when it is broken and rages with the tide.

[145] And sometimes the fiery force of lightning falls from one cloud into another. If a cloud full of moisture receives this fire it extinguishes it with great noise, as a red-hot iron, just taken out of the glowing heat, hisses when we plunge it hastily into cold water. But if a dry cloud receives the flame, it takes fire instantly, and rattles in the air, as when a fire, raging with mighty force, is driven by rushing winds upon a hill covered with laurels, and sets all in a blaze. For nothing burns with a more dreadful noise and crackling flame than the leaves of the Delphic Laurel, sacred to Apollo.

[159] And lastly, pieces of ice and showers of hail, enclosed in mighty clouds, will often sound like thunder, for the winds have driven and pressed them close; these mountainous clouds, being condensed, will burst and discharge their weight of ice and hail.

[160] It lightens when the clouds, by violent strokes in meeting, beat out many seeds of fire and strike as flint and steel, or stone and stone; for then the light leaps out and scatters shining sparks of fire.

[164] But we never hear the thunderclap til we have seen the lightning, for the images of things approach our ears much slower than they reach our eyes. This you prove when you observe a fellow at a distance is cutting down a tree; you see the blow struck before you hear the stroke. And so we see the lightning before we hear the thunder, though the noise and flame fly out together, and proceed from the same cause, the same shock and bursting of the clouds.

[173] And so the clouds will blaze with winged fire, and tempests will shine with trembling flame, when the winds get within a cloud, and roll about, and make it hollow (as I said before) til it grows condensed, and then by motion kindles and breaks into a flame. For things made hot by motion, we see, will fall on fire, and leaden bullets, in a long course through the air, have melted as they fled. Therefore this fiery wind, when it has burst the sides of this dark cloud, forces and instantly scatters many seeds of fire, which makes the sudden flash of lightning strike our sight. This happens when the clouds are thick and roll on heaps, one pile above another, with wondrous swiftness through the air. Nor must you think this false because the clouds, to us that stand below, seem rather broad than deep, or raised on heaps; for see how the winds will whirl along the air these rolling clouds, raised mountain-high; and on the mountain-tops the clouds, observe, are higher some than others, and piled on heaps; and, when the winds are still, the higher row will press the lower down. Then you may judge of their prodigious weight, and view their hollow caverns, formed as it were in hanging rocks, where in a tempest the rough winds are shut, and scorn to be confined, and roar with horrid noise, like savage beasts within their dens chained down. They grumble here and there, on every side, within the clouds, and striving to get free, roll every way about, and as they move collect the fiery seeds in great abundance, and in the heated caverns toss them about until the clouds burst, and then they flash in shining flame.

[204] And for this reason, perhaps, the lightning (that swift and golden stream of pure fire) flies down upon the earth, because the clouds must needs contain within themselves plenty of fiery seeds, and such as are without moisture, look bright and of a fiery color, for they must receive many fiery particles from the sun, and therefore cannot but look red, and send out flame. These, when the force of winds have pressed and driven into a narrow space, the fiery seeds, being squeezed, fly out and make that glaring flame to shine abroad.

[214] Or it lightens because the clouds above are rarefied; for when the winds blow on them as they pass, and gently stretch them out, and wear them thin, the seeds of fire that make the light must needs fall out, but then it shines without much noise and terror, and causes no confusion in the sky.

[219] Now of what seeds the lightning is composed its strokes will show, and marks of fire it leaves behind, and steams of stinking sulphur in the air, for these are signs of fire, not wind or rain, for lightning will set on fire whole towns, and with swift flames consume the houses to the ground.

[225] Nature has formed this subtle fire of seeds of heat the most minute, and particles most apt to move, which nothing can resist. It passes forcibly through the walls as voice and sound. I flies through stones and brass, and in a moment melts both brass and gold. It has strange power to draw the liquor out, and leave the vessel whole: This it does by loosening the contexture of the cask, and by widening its pores every way, that so its heat may more easily find a passage through; and by then, by the swiftness of its motion, it dissolves the body of the liquor, scatters its seeds, and forces it out. And this the heat of the sun is not able to do in an age, so much stronger is the force of this bright flame, its motion more swift, and its power more irresistible.

[239] But how these fires are formed, and how they rage with so great force, as by their strokes to beat down towers, to overturn houses, to tear up posts and beams, to shake and tumble down monuments of stone, to strike men dead, and kill whole herds at once; by what power they cause such scenes of ruin, this I shall now explain, as I promised, and keep you no longer in suspense.

[246] You are to observe, then, that thunder is produced from thick clouds, raised high one above another in the air; for the thunder never roars in a clear sky, nor is discharged from clouds that are not thick and condensed; and this is evident from common observation. The clouds thicken every way over all the heavens, as if the whole mass of darkness had left the shades of Hell, and filled the spacious hollows of the sky; and this dark heap of clouds spreads a dreadful night over our heads, and makes us tremble here below. These are the signs when a tempest is forging thunder in the air.

[256] Besides, a black cloud is often observed at sea, below the dark regions of the clouds that falls from the sky like a stream of flowing pitch into the water; and being full of fire and wind, draws a black tempest with it, loaded with storms and thunder, so that those at land tremble and fly for shelter to their houses. Those clouds then, you must think, are high above our heads. They could not overwhelm the earth with so much darkness were they not raised on heaps above, and driven between us and the sun's light; nor could they load the earth with so great showers, and make the rivers swell and drown the plains, unless the clouds were raised on heaps in the upper regions of the air.

[269] These clouds are fully charged with wind and fire, and thence the lightnings flash and thunders roar; for, as I said above, these hollow clouds are full of fiery seeds, and many they received from the sun's rays and borrow from their heat. And when the wind compels them to retreat to a closer room, it drives out many seeds of fire, and mingles with the flame. Then the loud tempest rolls along the sky, and in its heated entrails forms and points the thunder. This wind is set on fire, either by the rapidity of its own motion, or catches from the fiery seeds within the cloud, and when it is raging hot, and in a flame, it collects all its fury, and then the ripened thunder instantly splits and bursts the cloud. The fiery tempest blazes all abroad with the darts of flashing light, followed by frightful noise, as if the temples of the gods above were rent asunder. The earth below trembles dreadfully at the shock, and the loud murmurs scour through all the heavens; for the whole tempest shakes and roars aloud. Then grievous showers in great abundance follow the concussion, as if the skies were all dissolved in rain, and poured down inundations from above. So dreadful is the clap that flies abroad with red-hot lightning, when the clouds burst, and storms of fiery wind rage through the air.

[295] Or else the lightning flies when, from without, a furious wind beats hard upon a cloud, replete with thunder ripe for birth; which, when it bursts the fierty vortex falls (we in our language call it thunder) and makes its way where the strokes most prevailed.

[300] Sometimes a furious wind will burst the cloud before tis set on fire, but kindles as it flies in its long passage through the air; for in its course it throws off the heavy seeds that lay behind, and could not make their way, and brushed and carried off other small seeds from the air, which join and fall on fire as they fly. Just as a ball of lead melts in its course and, throwing off the cold and stubborn sears, takes fire and softens in the air.

[309] And the fury of the stroke, perhaps, may raise a fire, when the force of a cold wind, unkindled, beats hard with all its power; for then the seeds of fire may flow together upon the violence of the stroke, not only from the wind, but from the thing it strikes; as when we strike the flint with steel, the fire flies out; and though the iron be by nature cold, yet when it feels the blow the hot seeds of fire will spread abroad. And thus, whatever the lightning falls upon may easily be set on fire, if it be in its nature fit and disposed to burn. Nor can the wind be supposed to be perfectly cold, since it is discharged from above with so much violence; and if it be not inflamed as it drives through the air, yet it must have some degree of heat when it comes to the earth.

[323] The swiftness and heavy stroke of the thunder, and the violence of its fall, proceed from hence. The wind, shut up within a cloud, rages in all its strength, and struggles hard to get free; and when the cloud can no longer bear the fury of its efforts, it breaks out and flies abroad with mighty force, as stones and darts from mighty engines thrown.

[330] Besides, the thunder is formed of small and smooth seeds, so subtle that nothing can withstand its force. It gets between and pierces through the smallest pores; it meets with nothing that can divert its passage, and therefore flies abroad with the swiftest motion.

[335] And then, since all bodies of weight naturally descend, when blows or outward force is added to their innate gravity, their motion doubles, and the violence of the strokes drives them downwards with greater speed, and consequently they beat through every thing that obstructs their motion much sooner and with more vehemence pursue their course.

[340] And lastly, the greater the distance is from whence a body descends, its swiftness in proportion increases. It still gathers strength as it moves, grows more violent, and the blow is the heavier when it falls, for all its seeds are driven down by that length of violence to one point, and unite all their powers in the same motion; or perhaps they carry with them other seeds in their passage through the air which beat them on and keep them steady in their descent.

[348] The lightning makes its way and passes through bodies that are rare, and leaves them safe and unhurt; but other bodies it rends asunder, because its fiery seeds strike through their solid corpuscles which hold them together: And therefore it easily dissolves brass and gold, because it consists of exceeding small and smooth particles, which work themselves without difficulty into the very principles, and in an instant melt the whole contexture, and loosen the ties and bonds by which they were secured.

[357] And in autumn, and when the flowery season of the spring displays its beauty, then the high palaces of heaven with all its shining stars, and the whole earth, are shaken most with thunder; for in the winter there wants fire, and in summer there is no supply of wind, nor will the clouds grow thin in too much heat. But in the middle quarters of the year, all things occur to make the thunder roar. Those seasons are made up of heat and cold blended together; of both these is formed the thunder; that so these jarring elements may raise the greater combustions, and the tormented air toss with more confusion by the strokes of wind and fire; for the end of winter and the beginning of summer make the spring. And then the heat and cold, two enemies so opposite, must needs engage, and when they meet and mix, raise strange confusions in the air. And then the end of summer and the beginning of winter bring on the autumn; now the retiring heat and coming cold engage again. These are the times, we say, when the elements go forth to war. Where is the wonder if loud thunders roar in seasons such as these, and dreadful tempests rattle in the sky, since the elements rage in every way with doubtful war, on one side fire, on the other furious winds mingled with rain?

[379] From hence you must collect the true principles of thunder, and discover how it works and sends abroad its fires, for tis in vain to look back into old Tuscan legends and from thence inquire into the secret purposes of the gods, from what quarters of the heavens the lightning flies, and to what part it points its forked beams, and how it pierces through the walls of houses, and having spent its rage it finds a passage out, and what evil it portends by flashing from the sky.

[387] For if great Jupiter, and the rest of the gods, delight to shake the shining battlements of heaven with horrid noise, and throw about these fires as please themselves, why are not those shot through who love to act flagitious crimes, and why their hearts not struck with fiery bolts, as dreadful monuments to future times? Why rather are the good and innocent scorched with these blasts, and tortured in the flames, and caught up in these whirlwinds of the air, and in the fire consumed?

[396] And why do they spend their shafts on solitary places, and fatigue themselves in vain? Is it to exercise their arms, to try their strength? Or why do they permit their father's bolts to be blunted against the bare earth? Why does he suffer this himself, and not rather reserve his stores to blast his enemies? Why does not Jove vouchsafe to roar with thunder, and smite the earth with his bolts in a clear sky? When the clouds spread over the heavens, does he descend within them, in order to be nearer, and to throw his darts with a surer aim? Why does he send his fires upon the sea? Why does he chastise the waves, the wide ocean, or the plains covered with water?

[406] Besides, if he would have us avoid the stroke of his thunderbolts, why does he not contrive that we may see them as they fly? If he resolves to blast us with his fire before we are aware, why does he first flash out his lightning from that quarter whence his bolts are to be discharged that we may avoid them? Why does he give us notice by raising darkness, noises, and murmurs in the air?

[411] And then how think you that he is able to cast so many darts in many various places at once? Will you offer to say this is never done, and insist there are never more darts flying about at the same time? It is certain that numbers of them are thrown together, and it cannot be otherwise, for as the rain and showers fall upon many countries at once, so many strokes of thunder are discharged at the same time.

[417] In the last place: Why does he with his deadly thunder beat down the sacred temples of the other gods, and the stately fabrics devoted to himself? Why does he dash to pieces the curious statues of the other deities, and destroy with furious strokes the honors offered to his own images? Why does he level his shafts at lofty places, for we discover many traces of this fire upon the tops of highest mountains?

[423] It is easy, from what has been observed, to apprehend the cause of those whirlwinds (which the Greeks, from the Nature of Things, justly call Presters) and how they descend from above and fall into the sea. They are sometimes seen to descend from the air into the water like a pillar, and the sea, raging about with violent blasts of wind, seems to boil, and is exceedingly tossed, and whatever ships are caught with the reach of the hurricane are in the utmost danger of being cast away.

[431] This happens when the force of the wind, impetuously whirling within the cloud, is not able to break it, but drives it on, so that it falls like a column let down into the sea. This descent is gradual, as if it was thrust by some hand or arm, and spread over the waters. When the cloud bursts, the fury of the wind breaks out among the waves, and violently whirling round takes fire, and raises a wonderful heat and fermentation in the waters; for a rolling whirlwind descends with the cloud, which being slow in its motion, it bears along with it through the air, and when it has thrust the heavy body of the cloud into the sea, it plunges furiously with it into the water, and with a dreadful noise sets all the elements in a blaze.

[443] It sometimes happens that a whirlwind, as it passes through the air, will scrape off some seeds from the bodies of the clouds, and rolling itself within, will look like a prester descending from above into the sea. When this vortex of wind falls upon the earth, it bursts out without being kindled into flame, it whirls with mighty force, and raises a tempest and bears down everything before it. This sort of whirlwind is not common on land, for the high hills hinder its descent and breaks its force, bit it appears frequently in the wide sea and in the open air.

[451] Now for the origin of clouds: These are formed when certain rough and hooked seeds, as they fly about, at length unite in the higher region of the air that is above us, but are held together loosely, and not bout in any close and strict embrace. Of these the thin and small clouds are first produced, and many of them meeting together, and pressing close, make the large and heavy clouds, which the winds drive every way abroad till they break out into a raging storm.

[459] And then, the nearer the tops of mountains approach the sky, the higher they are, the more they smoke, and appear covered with the thick darkness of a yellow cloud, because the mists that arise are so thin and subtle that before they are discovered by the eye they are carried aloft by the winds to the tops of the highest hills. And since they unite there in larger bodies, and show thick and condensed, they seem to rise from the tops of these hills into the air, for when we ascend a high mountain, the thing itself and the sense demonstrate that the winds tend to the highest places and reign there.

[470] Besides, that nature raises many exhalations from the wide sea is plain, by observing that garments expanded upon the shore will soon be wet; and therefore, to form such vast bodies of clouds, many seeds are thrown off and arise from the motion of salt waters.

[476] And we see that mists and watery particles rise from all the rivers, and from the earth itself; which, like a vapour, are from thence squeezed out and carried upwards, and cover the whole heavens with darkness, and uniting together by degrees, are sufficient to produce the clouds. For the seeds that are continually descending from above in a confused manner, continually beat these mists upon the back, and by condensing and pressing them close, form them into clouds over all the sky.

[483] It may be, likewise, that seeds from without, from the immense space of the universe, may flow hither, and unite in the production of the flying clouds, for I have proved before that these seeds are without number, and that the void is infinite. I have shown how suddenly and with what celerity they pass through this boundless space. It is no wonder therefore that tempests and dark clouds are in so short a time frequently spread over the whole heavens, and cover the high mountains, the seas, and the earth, with so quick a motion; since, from every quarter, through all the passages of the air, through all the breathing-places, I may say, of the universe, the seeds can make their way hither and unite, or withdraw and fly away again.

[495] And now I shall explain in what manner the rain is formed within the clouds above, and falls down in showers upon the earth. I shall first show that many seeds of rain are raised from every thing, together with the clouds, and that they increase together, both the clouds and the rain contained within, in the same manner as the blood increases in proportion with our bodies, or as sweat or any other moisture diffused through the limbs. The clouds likewise, like hanging fleeces of wool, suck up many particles of salt water when the winds drive them over the open sea. And so by the same rule a quantity of moisture is raised into the clouds from all the rivers, and there these many seeds of waters meeting from all parts, and uniting variously together, the clouds being full, are obliged to discharge their load of moisture for two reasons: either the force of winds drives them close, or the number of them, raised one above another, presses them down from above with their own weight, and makes the showers to pour down. Besides, when the clouds are made rare and thin by the winds, or are dissolved by the heat of the sun striking upon them, they discharge their rainy moisture and drop, as wax dissolves and melts over a hot fire.

[517] But expect a violent storm of rain when these clouds, heaped up, are pressed, not only by their own weight, but driven close by the stroke of winds from without. The rains used to confine us long at home, and to last for some time, when there are seeds of moisture in abundance; when the dropping clouds are raised on heaps above, and are driven every way abroad, and when the earth, thoroughly soaked, sends back the vapors into the air.

[524] And when the sun, in a dark storm of rain, strikes with its beams directly upon an opposite cloud, full of moisture, then you see the colors of the rainbow drawn upon the black clouds.

[527] And all other appearances which are formed and increase in the upper regions of the air., and all the meteors that are raised in the clouds, the snow, the winds, the hail, and chilling frosts, and the strong ice that hardens the surface of the waters, and stops and binds up the current of rivers as they flow; it is easy to account for all these, and to apprehend their causes, and how they are produced, if you consider well the virtue and power of the seeds from whence they spring.

[535] Learn now the cause of earthquakes: And first, you are to suppose that the Earth is the same below as it is above, that it is every way full of winds and caverns, and that it holds within its bowels many lakes, and

pools, and rocks, and broken stones. You must believe that many hidden rivers flow with rapid waves within, and roll the jagged rocks along their tide, for the laws of nature require that the Earth within and without should be the same.

[543] This being premised and supposed: the Earth trembles and shakes above with dreadful ruin, when age has tumbled in these mighty caverns; for then whole mountains sink, and in a moment, with the horrid shock, spread frightful tremblings all abroad. And no wonder, since whole houses by the highway-side will quake as carts, with no great weight, pass through the streets, and so they start as chariots swiftly drive with mettled horses, they shake at every jumping of the wheel.

[552] This happens likewise when great weights of earth, loosened by time, plunge down into these deep and mighty lakes, for then the waters rage, and the earth reels and staggers with the shock; as a vessel on the ground cannot stand firm unless the liquor ceases to ferment and toss within.

[557] Besides, when winds, collected in the caverns of the earth, direct their force one way, and beat with fury on these hollow places, the earth inclines that way where the winds point their stroke; and our buildings raised above, nod that way too. The highest shake the most; the hanging beams start from the wall, and threaten to fly out. And yet men are afraid to think that Nature has fixed a fatal time when this great world shall be destroyed, and fall to ruin, although they see the heavy mass of earth leaning and tumbling to pieces. And did not the winds take time to breathe, nothing could check their fury, or keep them from destroying everything before them. But since they cease by turns, then rage again, and storm with double force, and are again repelled, hence it is that the earth oftener threatens us with ruin than actually effects it. It inclines only, and then falls back, and though moved aside, settles with all its weight again in its former place. For this reason all our houses tremble and reel; the highest shakes the most, the middle less, the lowest little or nothing.

[577] The great tremblings of the earth may arise yet from another cause, when wind or violent blasts (raised either from without or within the earth itself) throw themselves furiously into these hollow caverns, and in these vast dens roar and toss themselves about, and when they have rolled within, and raged with all their might, they break abroad at last, and cleave the solid Earth, and make a hideous chasm. This happened at Sidon, a city of the Tyrians, and at Aegae in Peloponnesus. What cities has this eruption of the wind destroyed? What earthquakes has it produced? At land, the walls of many towns have tumbled down by these violent concussions; and many cities, with all its inhabitants, have sunk together into the sea.

[591] But if the wind does not break through, yet the fury and raging force of its blasts are scattered through the many pores of the earth like a shivering cold, and cause a shuddering in its bowels; as the Cold, when it seizes upon our limbs, makes us shake against our will, and tremble all over. Then men stagger with doubtful fear in all the cities; they are in dread of their houses above them, and of the earth under their feet, lest Nature should instantly break to pieces the caverns below; lest the divided earth should open wide its jaws and fill them with the utter desolation of men and houses.

[601] Even those who think the heavens and the earth are eternal, and will be preserved safe forever, yet the present dread of impending danger staggers them, and raises terrible apprehensions, lest the earth should instantly fall under their feet and sink into the great abyss; lest the dissolution of the universe, from the very foundation, should follow, and the fabric of the world should fall into ruin and confusion.

[608] And now we are to account why the waters of the sea are never increased. And first, men wonder that nature does not enlarge the bounds of the sea, in proportion to the falls of water, and the streams of so many rivers that from all parts flow into it. Besides the wandering showers and flying storms that pour down and discharge themselves upon lands and seas, you may add the fountains and springs likewise. But all these, compared to the vastness of the sea, are hardly more than one drop of water, and therefore can contribute little to its increase. No wonder then that the wide sea rolls within the same bounds.

[616] And then the Sun licks up a great part of its water with its heat, for we see the Sun dries a garment, dripping wet, with its burning rays. And the sea, we know, is widely spread, and exposed to the influence of

his beams. And though the Sun draws up but a very little quantity of moisture from every part of the sea, yet, with so vast a circumference a great store of water must be drawn off.

[623] The winds likewise, brushing over the surface of the sea, carry off a large part; for we observe the roads are frequently dried in one night, and the soft dirt grows hard.

[627] Besides, I have shown that the clouds suck up a great deal of moisture from the wide sea, and then scatter it down over the whole earth, when the rain falls, and the winds drive the clouds through the sky.

[631] Lastly, since the earth is of a rare contexture, and full of pores, and every way surrounds the body of the sea which joins to it, it follows that, as the waters flow from the earth into the sea, so they must return from thence into the earth again. In these subterraneous passages the saline particles are strained off, and the waters flow back, and unite together at the fountainheads, from whence they glide sweetly, with their collected strength, over the earth, through those channels where the streams first cut their liquid way.

[639] Now learn the cause why fires break out with so much fury from the jaws of mount Aetna; for we are not to suppose such a tempest of fire rages over the pains of Sicily, and brings such destruction with it from the gods, as if it only raised the admiration of all the neighboring people, who seeing the whole heavens sparkling with fire, and full of smoke, trembled with anxious concern and wondered what new phenomenon nature was going to produce.

[647] The reason of these events requires a deeper and wider search. You must enter further into all their parts, and then you will recollect that the universe of things is infinite, and observe how small a part (scarce one of a thousand) is one heaven, in comparison of the whole, and what a poor pittance of the whole earth is one man. If you consider this well, and observe closely, you will cease wondering at many things which now raise your admiration.

[655] For where is the wonder with any of us if a man receives the burning heat of a fever within his veins, or feels the anguish of any other disease in his limbs? For our foot often swells of a sudden, a sharp pain frequently seizes upon our teeth, and attacks our eyes. There is such a thing as the Holy Fire, that spreads over the body, and burns the part if fixes upon, and creeps over the limbs. Nothing strange! For the seeds of things are in great abundance, and the earth and the heavens affords sufficient supplies of hurtful seeds from whence the sharpest diseases may be produced in us. And therefore you must think that large store of seeds may flow from the infinite space and supply the earth and the whole heavens. These may cause those sudden and violent tremblings of the earth, that rapid whirlwinds scour along the land and sea, and that there is abundant fuel for the flames of Aetna, and that the sky is all in a blaze. For this happens and the heavens are on fire, when the seeds of flame unite, as the storms of rain are the more violent when the seeds of water are collected and joined together.

[673] But you will say the fire of Aetna is too great and impetuous. By the same rule a river, not very large, appears a mighty stream to one who never saw a greater, and so a man or a tree that seems prodigious, and all other bodies that we see, we imagine are extraordinary; when alas! all beings, with the heavens, the earth, and the sea together, are nothing to the vast universe of all.

[680] And now I shall explain by what means the raging flame bursts suddenly abroad from the vast fiery entrails of this mountain. And first, Nature has formed the whole mountain hollow within, and supports these cavities by arches of stone. Now all caverns are filled with wind and air, for air, when it is violently moved, becomes wind. And this wind, when it is grown hot, and furiously whirling about, has inflamed the stones and the earth by beating upon them, and from them has struck out sparks of fire with rapid flame. Then it raises itself up, and throws itself violently out of the open jaws at the top into the air. Then it pours the fire abroad, and spreads the burning embers all about, and belches dusty clouds of rolling smoke, and shoots out rocks of wondrous weight. This, no doubt, is done by furious blasts of wind within.

[694] Besides, the sea, for a great way, dashes its waves against the roots of this mountain, and then again sucks up its tide. The waters press into these caverns that lie directly under those open jaws above. This you must allow, and the flames yielding to the driving flood there force their passage out, and fly abroad, and cast

the fire on high, and throw out rocks, and raise whole clouds of sand, for on the summit there are certain basins where wind is generated: the Greeks call them so; we call them mouths and jaws.

[703] There are some things, observe, for which it is not sufficient to assign one reason, but many: out of which only one is the true. As when you see the dead body of a man lying at a distance upon the ground, you are to recollect all the causes which possibly might occasion his death in order to find out the right, for you cannot correctly say whether he died by the sword, or by cold, or by disease, or perhaps by poison, though we know it was by one of these, and every one thinks so. The same method you are to observe in many other cases.

[712] The Nile, the only river in all Egypt, increases in the summer, and overflows the fields. It waters the country of Egypt about the middle of summer either because in summer the north winds are opposite to the mouths of the river, at the season when the Etesia's blow, and beating hard against the stream stop the current, and driving the waters upwards fill the channel, and force back the flood; for without doubt those northern winds blow directly against the tide. The river flows from the warm climate of the south and divides the country of the black Aethiopians that are thoroughly sodden with the sun's heat, and rises far in the most southern part of the world.

[724] And it may be that great heaps of sand that are raised against the stream choke the mouths of the river when the sea, by the violence of the winds, drives the sand into the channel and stops it up. By this means the passages of the river are more confined and the current of the water is slower and of less force.

[729] Or perhaps the rains are more violent near the head of the river at that season of the year when the Etesian winds blow from the north, and drive all the clouds to the more southern parts. When the clouds meet in that warm quarter they are condensed and pressed hard against the high mountains, and by that force the rain is squeezed out.

[735] Or, lastly, the increase in the river may proceed from the high mountains of the Aethiopians when the sun, that searches all things with his dissolving rays, forces the melted snow to descend into the plains.

[738] And now the nature of that place or lake we call Avernan I shall next explain.

[740] And first, it takes its name from its effect, because tis fatal to birds; for when the feathered kind fly to this place their flight is stopped, they flutter in the air, and fall with hanging wing and bended head upon the earth, if haply it be earth, or in the water if it be a lake. At Cuma there is a place like this, and on the Mount Vesuvius, which, filled with burning sulphur, throws out smoke.

[749] Another of the same there is within the walls of Athens, upon the top of that high tower near which the kind Tritonian Pallas has her temple. Here the hoarse ravens never steer their flight, not when the altars smoke with slaughtered victims. They do not shun this tower to fly the rage of angry Pallas for their officious care, as Greek poets sing, but tis the noxious nature of the place that drives them hence.

[756] They say there's such a place as this in Syria, where beasts no sooner venture with their feet but the pernicious vapor strikes them dead, as if by sudden stroke they fell a sacrifice to infernal gods.

[760] All these things proceed from natural causes, and what these causes are will soon appear, by tracing out their principles, lest you should think in places such as these Hell-Gates are fixed, and fancy that the gods below draw through these passages departed souls into the infernal shades, as the swift deer are said by smelling to draw out the lurking serpents from their holes. But how absurd to reason are such thoughts; observe, for now I am going to explain.

[769] And first I say, as I have often said before, that in the earth are seeds of things of very shape, many that prolong the life of man, and many that inflict disease and hasten death. And I have shown that there are other seeds peculiarly disposed to serve the use of other creatures, and support their life; because these seeds are different in their nature they vary in their texture and their shape. Many hurtful seeds pass through the ears and many sharp and stinking seeds affect the nose; some are offensive to the touch, some to be avoided by

the sight, and others bitter to the taste.

[781] And thus you see how many things there are deadly, distasteful, odious to the sense. Some trees are so pernicious by their shade that they affect the head with grievous pain if one lies on the grass beneath the boughs. There is a tree that grows on the high hill of Helicon, whose blossoms by their smell give present death; for in the earth are seeds of every kind, variously mixed, which she with curious art separates and applies to things, as each in its own nature most requires. A lamp, just extinguished, is by its smell so offensive to the nose that it stupefies, as if a man were struck down by a fit of apoplexy. A woman will fall dead asleep at the nauseous smell of an ointment made of the testicles of the beaver; her fine work will drop from her tender fingers, especially if she smells it when her fluors are upon her. Besides, there are many things that entirely dissolve the feeble limbs all over the body, and shake the soul within out of her place. If you stay long in a warm bath, and continue in the vessel of hot water when the belly is full, how apt will you be to faint before you get out? The suffocating power of charcoal and its stifling smell, how soon do they find a passage to the brain, unless you have drank plentifully of water before?When a burning fever has seized upon the limbs, the smell of wine is like a stroke that takes away the sense. Don't you observe likewise that sulphur and bitumen, with its noxious smell, are generated in the bowels of the earth itself? And so when men pursue the veins of gold and silver, and with their tools dig in the very entrails of the earth, what hurtful vapors do the mines exhale? What deadly damps flow from the golden ore? How wretchedly the miners look? How wan their color? Have you not seen or heard how soon they die, how short their life is who are condemned to this sad servitude? The earth then must needs belch out these poisonous exhalations, and send them all abroad, and taint the open air.

[818] The Averni thus throw out these deadly streams, so fatal to the birds. They rise out of the earth into the air, and to some distance blast the lower skies. Here, when the bird arrives upon the wing, this latent poison seizes on his blood; his flight is stopped, and down he falls; the force of these effluvia carries off the small remains of life from all his limbs and strikes him dead. These vapours first excite a sort of boiling in all his veins, and when he drops into the fountain whence the poison springs, he dies; for there the noxious vapors rage the most.

[830] Or else, sometimes, the force and rising blasts of these Averni dispel the air that lies between the birds and the earth, and the intermediate space becomes a void. Here, when birds are carried by their flight, they immediately flutter in the air, they clap their wings in vain, their pinions flag, and when they can no longer bear them up, nature must drive them down upon the earth with all their weight; and as they, helpless, in the vacuum lie, they breathe their soul abroad through every pore.

[840] The water in some wells, we find, is cold in summer, because the earth is rarefied by the sun's heat, and by that means the seeds of fire it contains within break freely out into the Air: And therefore the more the earth is affected by the heat, the colder the water will be that is inclosed within. But when the earth is contracted with the cold, when its surface grows close, and its pores are stopped, this restraint hinders the heat from flying out; it is then squeezed together into the wells, and the water becomes hot.

[848] There is a fountain, near the temple of Jupiter Ammon, that is cold in the day, and hot by night. Men strangely wonder at the quality of this spring, and imagine that when the night has spread her dreadful darkness over the world the water is warmed by the violent heat of the sun through the body of earth. But this reason is far from being true; for if the sun, striking upon the open body of water, is not able to warm even the surface of it, when it receives the force of his descending rays with all their heat, how can he warm the water, and infuse his heat through so thick a body as the Earth; especially since he is scarce able, with his scorching beams, to pierce through the walls of our houses?

[861] What then is the reason? Doubtless this: because the Earth, near this fountain, is more rare and spongy then it is in other places, and contains within it many seeds of fire near the body of the water itself. Here, when the night has spread the world with dewy shades, the earth below grows initially cold, and is contracted; by this means it is compressed, as with your hand, and squeezes out those seeds of fire into the spring, which make the water warm to feel and taste. But when the sun has driven away the night with his bright rays, and with his heat has rarefied the Earth, and made it loose, these seeds of fire return into their

former place, and all the heat that warmed the spring retires within the earth again, and so the fountain in the day is cold.

[874] Besides, the water in the day is strongly moved by the sun's rays, and by his trembling streams of heat grows rare, and so lets out the seeds of fire it held by night; just as by the heat it shakes off seeds of cold, and melts the ice, and loosens all its bonds.

[879] There is likewise a cold spring over which if you place tow or flax it immediately takes fire and is all in a blaze. A torch, newly extinguished, in the same manner, gently drawn over the surface, is lighted by this water, and flames out at every breath of air. And no wonder, for there are many seeds of fire in the water itself, and many must needs rise out of the earth, and ascend through all the fountain, and flow abroad, and make their way into the air, but yet they are not so hot as to set the spring on fire.

[890] Besides, the innate force of these seeds, dispersed through the water, compels them to move upwards, and to unite upon the surface; as we see sometimes a fountain of sweet water bubble up in the middle of the sea, and beat off the salt waves that are about it. The sea affords many of these springs that bring a seasonable relief to the thirsty mariners by throwing out streams of fresh water among the salt. The seeds of fire may in the same manner break through the water of this fountain, and flow out into the tow. Here, when they unite and stick to the body of the torch, they immediately fall into a flame; for flax and tow contain many seeds of fire within which make them easily disposed to burn.

[900] Have you not observed, when you hold a candle newly extinguished to another that is lighted it catches fire before it touches the flame? A torch likewise, by that same rule, will do the same; and many other things will take fire at a distance, before the flame reaches them. And this you may imagine is the case of the fountain above-mentioned.

[906] And now I shall begin to show by what power of nature it is that the stone (which the Greeks call a magnet, from the country that produces it, for it is found in the region of the Magnetes) has the virtue to attract iron. Men are amazed at the qualities of this stone, for it will make a chain of several little rings of iron, without a link between, to hang together entirely from itself. You may sometimes see five or more hanging straight down, and play in the gentle air, as they stick close and depend at the bottom one upon another; the ring that follows feels the attraction and power of the stone from that above it. So strongly is the virtue of the magnet communicated to the several rings; it acts with so great a force.

[917] In inquiries of this nature many things are to be first proved before we can fix upon the true cause; we must trace the subject through many long and intricate difficulties; and therefore I beg you will hear me with a willing mind, and with the closest attention.

[921] And first, certain seeds must necessarily flow, be sent out, and continually dispersed abroad, from all things whatever we see, which must strike upon the eye and affect the sight. From some bodies a train of smells are always flying off. So cold is emitted from the rivers; heat from the sun; a salt vapor from the water of the sea that eats through walls along the shore, and various sounds are always flying through the air. And as we walk upon the strand, a briny taste frequently offends our mouth, and when we see a bunch of wormwood bruised, the bitterness strikes upon the palate. So plain it is that something is continually flowing off from all bodies, and is scattered about. There is no intermission, the seeds never cease to flow, because the sense is continually affected, we still continue to feel, to see, to smell and hear.

[936] Now I shall repeat what I have proved at large in the first book of this poem, that no bodies are perfectly solid, for though it is proper to know this upon many accounts, yet it is of principal use in the subject I now offer to explain. In this place it is necessary to establish this truth, that there is nothing in Nature but body mixed with void. And first, in the deep caverns of the earth, the rocks above will sweat with moisture, and weep with flowing drops; and sweat will flow from all our bodies and through every pore. The beard will grow, and hairs spread over our members and our limbs. Nature divides our food through all the veins; it feeds and nourishes the extreme parts, our very nails. We find that cold and heat will pass through brass, will make their way through gold and silver. We know, by feeling the outside of a cup, whether the juice within be hot or

cold. And lastly, sounds will pierce stone walls of houses, and so will smells, and cold, and heat. The force of fire, thrown from without, will pass through iron, and scorch the soldiers limbs, though armed about with coats of mail. And tempests, rising from the earth or skies, and sent from thence, will strike through every thing before them, for nothing in nature is without some void.

[959] Besides, all seeds that are thrown off from bodies are not the same in quality and shape, nor do therefore they equally agree to things they strike or act upon; for first the sun burns up and dries the earth, but thaws and melts the snows so deep upon the mountaintops. And wax will drop when placed before the fire, and brass will run, and gold dissolve by heat, but skin and flesh it shrinks and shrivels up. Water will harden steel made weak by fire, but softens skin and flesh made hard by heat. Leaves of wild olive please the bearded goats as if they flowed with juice of nectar or ambrosia, when nothing is more bitter than that leaf to us. The swine fly every strong perfume, and fear the smell of every ointment; 'tis the sharpest poison to the bristly race, but cheers our spirits with a sweet delight. And then, to roll in the mud is the most odious filthiness to us, to them a cleanly pleasure; they are never tired of wallowing in the mire.

[979] But before I enter fully upon the subject before us it is proper first to premise that, since there are many pores of little spaces in all compound bodies, it is necessary that these passages should be of different natures, and should vary severally in their size and figure, for all creatures are formed with different organs, every one of which has an object proper and peculiar to itself. Sounds, we perceive, make their passage one way, and taste another, and smell another, according to the different nature and texture of the things that strike the sense. One thing, we find, will make its way through stones, another through wood, another will pierce through gold, another through silver, and another will fly through glass. This the images flow through, through these the heat, and some seeds will sooner pierce through the same pores than others. This is owing to the different figures of these passages which vary wonderfully in shape, as we said before.

[998] These things therefore, being fully proved and laid down, and every thing made ready and easy for the grand inquiry, we shall easily discovery the reason, and open every cause that moves and invites the iron to the stone.

[1002] And first, many seeds or effluvia are continually flying off from the stone, and by their blows disperse and drive away the air that liest between the magnet and the iron. This space being empty, and void made between, the corpuscles of the iron rush out suddenly in a train, all linked together, into this vacuum, so that the whole body of the iron ring, to which they are joined, immediately follows, for nothing is made up of seeds more entangled and connected together than the cold and tough substance of iron. And therefore (as we said before) it is the less to be wondered if the seeds cannot fly off from the iron into the void but those before must draw on those behind, and the whole ring follows at last; which it does, and continues to move, till it comes close to the stone and, fixed by secret bonds, sticks to it. And these effluvia of the iron that lie nearest the stone rush into the void every way, upwards or across, wherever the space is empty, for they are driven by the force of other seeds, nor have they any power to move upwards by their own natural motion.

[1022] You may add another reason to account for this experiment, which is that the iron is driven forward, and assisted in its motion from without, for the air before the steel being more rare, and the space between more empty and void than it was, hence it is that the air that is behind strikes upon the back of the ring, and drives and forces it on; for the air that surrounds all bodies beats upon them with continual blows; but then only it drives on the iron when the space is empty on that side, and fit to retrieve it. The air therefore, which I observe, entering into the many pores of the iron, and subtly conveying itself into the little passages, thrusts and forces it on, as a ship is driven by wind and sails. And then all things must contain within some parts of air, for all bodies are rare, and full of pores, and air surrounds and pierces through everything. This air therefore that lies concealed in the body of the iron is always tossed with violent motion, and beats upon the ring, and agitates it within, and so the iron is carried on toward the void to which it was moving, and whither all its force was first directed.

[1042] But sometimes the substance of the iron will fly from the magnet; it will withdraw sometimes as well as press towards it. For I have seen little Samothracian rings of iron, and filings of steel, put into a brazen pot; and the stone being applied to the bottom of the vessel, the iron will leap and dance upwards, so eager is it to

be gone and avoid the stone. And this great aversion arises from the interposition of the brass, for when the particles of the brass have entered and filled up the open pores of the iron, then come the effluvia of the loadstone; and finding the passages of the iron full, and no more open for them to pierce through as before, they beat upon the bits of iron and drive them forward with all their force. And thus the particles of the stone, passing through the brass, throws the iron from it, which otherwise it would take to its embrace.

[1056] Do not be surprised to find that the effluvia of the stone do not drive away other bodies from it in the same manner, for some remain unmoved upon the account of their weight; gold is of this sort. Others because they are rare, and their pores are wide, so that the particles that fly off from the stone pass through without touching, and therefore can have no power to move them, of this kind is the texture of wood. The nature of iron is placed between these two, and when its pores are full of those brazen particles, then it is that the effluvia of the magnet beat upon it and drive it off. Nor is the friendship between the loadstone and the steel so singular a case.

[1065] I can produce instances of many things whose natures are peculiarly fit and suited to each other. And first, your observe that stones are cemented together only by lime, and boards are so joined together by glue made of the ears and genitals of bulls, that the solid wood of a table will sooner split than the strong joints of glue will start or fall asunder. Wine will mingle with spring water, when heavy pitch and smooth oil will not. The purple color of the Murex incorporates so into the body of wool that it can never be taken out; no, not if you strive to recover it to its native whiteness by all the waves of the sea, not if you wash it in all the water of the ocean. There is but one mineral that will solder gold and silver together, and brass is joined only by white lead. How many things of this nature might be produced? To what purpose? I would by no means lead you so far out of the way, nor give myself so much trouble in such inquiries. I have many things yet to explain, but I shall be as short as possible. Those things whose textures so mutually answer to one another that the cavities of this thing agree with the plenitudes of that, and the cavities of that with the plenitudes of this, may be conjoined most easily and in the strictest manner. And some things may be so joined to others as if they were fastened together by hooks and rings, and in this manner it is that the loadstone seems to be connected to the steel.

[1090] Now I shall teach from whence diseases spring, and whence arise the pestilential blasts that spread their deadly poison and destroy both man and beast. And first (as I have said) the seeds of many things are ever flying through the air; some are sound and vital to mankind, and others bring on disease and death: these when they arise and taint the sky, and air becomes infected. Now the morbid force of all diseases, every pestilence, comes either from without, as clouds and mists fall from the heavens above, or rises from the earth itself when, drenched by fierce and unseasonable showers, and pierced by the sun's scorching beams, it sends unwholesome vapors through the air.

[1103] Have you not seen that those who search out foreign lands, and leave their country and their native homes, contract new pains from the strange water, and the air they breathe? The mighty difference of the air occasions this, for don't you think the air of Britain is widely different from the air of Egypt, where he North Pole is never seen? Or that the air of Pontus differs from that of Gades and AEthiopia, where the black race of men are thoroxxughly sodden with the sun's heat? The four quarters of the air, we may suppose, are different in their temper and their quality, because they are opposed to the four quarters of the earth, where men, we find, in every region widely disagree in face and complexion, and are tormented with diseases peculiar to the countries where they live. The leprosy was known first in Egypt, near the river Nile, and no where else. The Athenians are tortured with the gout, the Acheaens with sore eyes. So every country is an enemy to one part and member of the body or other, and this must be imputed to the air.

[1119]And when the morbid pestilential air of a country, remote from us, moves from its first abode, and the fatal vapor begins to advance, it creeps first by degrees like a cloud or mist, and disturbs and changes every thing as it goes. And when it comes to the climate where we live, it corrupts every thing, and makes it like itself, and therefore is deadly and destructive to us.

[1125] This wasting plague, these sad infectious blasts, fall either in the water or fix upon the fruits or other food of men, or on the provender of cattle, or they may hang suspended in the air above, that when we draw

our breath we needs must suck this poison, mingled with it, into our bodies. In the same manner the pestilence seizes on the cattle, and the contagion infects the sheep. And the danger is the same whether we change our climate and travel into a country where the air is pernicious to us or whether Nature of her own accord brings the cruel infection from abroad, or introduces a disease we are not used to, which upon its first approach may prove hurtful to us.

[1138] Once such a plague as this, such deadly blasts, poisoned the coasts of Athens, founded by Cecrops. It raged through every street, unpeopled all the city, for coming from far (from Egypt, where it first began) and having passed through a long tract of air, and over the wide sea, it fixed at last upon the subjects of King Pandion. Men soon, by heaps, fell victim to the rage of death and the disease.

[1145] The head was first attacked with furious heats, and then the eyes turned bloodshot and inflamed; the jaws within sweated with black bloods; the throat (the passage of the voice) was stopped by ulcers; the tongue (the interpreter of the mind) overflowed with gore, and, faltered with the disease, felt rough, and scarce could move. And when the poison, through the jaws, had filled the breast, and flowed into the miserable stomach, then all the springs of life began to fail; the breath sent out a filthy smell abroad, like the rank stench of rotten carcasses, the powers of all the soul and all the body flag and grow faint, as in the gates of death. To these innumerable evils followed close a sad distress and sinking of the mind, loud sighs with bitter moans, and frequent sobbings, all the day and night, twitched and convulsed the nerves and every limb, and loosened every joint, and sorely racked the wretches, tired out with pains before.

[1163] Yet you could not perceive, by the touch, that the surface of the body was inflamed with any extraordinary heat; it felt only warm to the hand, and looked red all over with burning pustules, as when the sacred fire spreads over the limbs. But all within was in a flame that pierced the very bones; the heat raged in the stomach as in a furnace; no garment, ever so light or thin, could be endured upon their limbs; they rushed into the wind and cold, some plunging their bodies, scorched with the disease, in rivers, and naked threw themselves in chilling streams; some ran with open mouths and headlong leaped into deep wells; the parching thirst, insatiable, so burnt their bodies it made whole showers of water seem no more than a few drops.

[1178] The pain was without intermission, without end; the body lay quite spent, stretched out, the burning eyes wide open and, without sleep for many a restless night, rolled dreadfully about. The physician muttered to himself in silent fear, and leaves the patient in despair,

[1182] for many signs of coming death appeared. The mind distracted with death and horror; a stern brow; a countenance fierce and furious; the ears tormented with a buzzing noise; the breath thick, or deep and seldom drawn; a frothy sweat, flowing in abundance over the neck; the spittle thin and dry, and yellow as saffron, and the salt matter could scarce be brought up through the jaws by coughing; a contraction of the nerves in the hands, and a trembling over all the limbs, and a coldness creeping up gradually from the feet; the nostrils pinched in, as at the point of death; the nose sharp, the eyes sunk, the temples hollow, the skin cold and hard, a frightful distortion of the mouth, and the skin of the forehead stretched and shining. Nor did the wretches lie long under the cold hands of death, for they expired commonly upon the eighth, or at the farthest upon the ninth day.

[1199] But if any of the infected, as some did, escaped with life, either the filthy ulcers breaking, or by a most offensive looseness, they fell at last into a consumption, and then died; or streams of corrupted blood, with grievous headache, flowed from his stuffed nostrils, and thus his strength and life ran out, and the wretch bled to death. Such as escaped a sharp flux of filthy blood at the nose, the poison pierced into their nerves and limbs, and seized upon their very genitals; and some were so terrified at the approach of death that they suffered the virile member to be cut off to preserve life. Some remained alive without hands and feet, and some lost their eyes, so terrible was the fear of death to these miserable wretches. Some were seized with an entire forgetfulness of every thing; they did not so much as know themselves.

[1215] When heaps of bodies lay one upon another, unburied, upon the ground, yet the birds of prey, and the wild beasts, either kept at a distance to avoid the noisome stench, or if they tasted they soon died. At that

time no birds appeared abroad in the day, nor did the wild beasts leave the woods by night; many of them were infected with the disease, and fell down dead; the faithful dogs especially lay gaping out their infected breath in every street, for the poison drove out life from every limb.

[1225] The many funerals of the dead were hurried away without order, and unattended. Nor was their any certain remedy to be applied; for what was of service to some, and relieved the patient, and preserved life, was fatal and brought death to others.

[1230] But the most wretched and deplorable thing of all, at this time, was that when once a person found himself infected with the disease, as if a sentence of death had passed upon him, his spirits failed him, he fell into melancholy and despair, thought of nothing but death, and so gave up the ghost. And funerals were heaped one upon another, because the fierce contagion of the disease incessantly raged, and carried on the infection. And if any one, too fond of life, and fearing to die, avoided to visit the miserable sick, the same want of help was soon his own punishment; he died in a filthy and deplorable manner, abandoned, and without assistance, and perished by neglect, like the wretched beasts of the field. And those who were compelled by shame, and by the moving cries and piteous moans of their friends, to attend them in their distress, were seized by the infection, and died by the disease and the fatigue. Indeed the most pious among them lost their lives in this manner:

[1247] And when they had endeavored to bury the bodies of whole families of their friends, among those of the friends of others, they returned, wearied with grief and weeping, and most of them took to their beds for sorrow. And there was not one to be found who, in this calamitous time, had not grievously suffered, either by the disease, or by death, or by the most bitter pain and anguish of mind.

[1252] Besides, the shepherds and the herdsmen, and the lusty ploughman pined away with the infection; their bodies lay miserably stretched out in their close narrow huts, and died of poverty and the disease. You might frequently see the dead parents lying over their dead children, and again, the children expiring upon the bodies of their wretched mothers and fathers.

[1259] Nor was it a small addition to this plague that was brought from the country to the city; for the infected peasants flocked higher in multitudes from all parts, and carried the sickness along with them. They filled all the houses, and all places; and as they were pent up close together, death had the greater power to slay them in heaps. Many bodies lay along in the streets, gasping for thirst; and, rolling to the public conduits, they drank insatiably and were suffocated with water. Others you might see in the highways and common places, languishing, with their bodies half dead, horrible with filth, covered with rags, and rotting with the corruption of the limbs; there was nothing but skin upon the bones, and that putrefied with eating ulcers, and buried in nastiness.

[1272] And lastly, death had filled all the temples of the gods with dead bodies, all the shrines of the celestial deities were loaded everywhere with carcasses. The priests furnished these places with such wretched guests. Nor was there any reverence paid to the gods; their divinities were no more regarded; for the present calamity overcame everything. Nor did the people any longer observe that custom of sepulture they had ever followed, which was to bury their dead in the city. They were all distracted and amazed, and every one buried his wretched friend as the exigency of things would permit. And sudden rage, and dreadful poverty, drove men into many outrageous actions: They would place their relations, with violent outcries, upon the funeral piles that were raised for others, and light the fire; and often quarrel, with much loss of blood, rather than forsake the bodies of their friends.

END OF POEM