

Lucretius - Editions And Topical Outline

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1. Editions

The version of Lucretius available at Perseus is the 1916 edition of [William Emory Leonard](#). Perseus has excellent searching capability, and great linkage to the Latin, but that edition, which also available at [Gutenberg](#), attempts to retain a poetic form. It is therefore open to the charge that its translation is less literal and therefore less accurate to the meaning of the original. The versions of Lucretius available currently on this website are prose versions which stress accuracy in meaning over the poetic form. They include:

1.1. The Latin Edition

[This text comes from LatinLibrary.com](#). This is the best source if you can read Latin!

1.2. 1743 Translation By Daniel Brown, Publisher, Samuel Dunster, Probable Translator

[The 1743 Edition](#) is by an unnamed translator, 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. See this link for the likelihood that the true translator was [Samuel Dunster](#).

1.3. 1893 Translation By HAJ Munro

[The Munro Edition](#) is one of the most memorable and literal translations available.

1.4. 1924 Translation by William Rouse (Loeb English and Latin)

1.5. 1936 Translation By Cyril Bailey

[The Bailey Edition](#) is one of the most recent editions in the public domain.

2. Lucretius Topical Outline

This topical outline is a paraphrased version summarizing important topics discussed in the poem. As a finding aid, it probably works best as an overview means of scanning visually for a topic and then looking for the corresponding book and line number in any complete edition of the poem, such as those of Bailey or Munro or 1743 which are linked above. A word search on this paraphrased version may be helpful in locating a topic which might be missed if a translator uses a slightly different word in a specific translation.

Another version of this document is here: <https://texts.epicureanfriends.com/LucretiusFindingAid/>

LUCRETIVS ON THE NATURE OF THINGS <i>EpicureanFriends Topical Outline</i>	BOOK ONE - Nature Leads Through Pleasure And Is Composed Of And Operates Through Atoms And Void 1.1 Pleasure (Venus / Nature) Is The Leader and Motivator of All Life 1.2 Epicurus Was a Liberating Conqueror Over False Religion 1.3 Nothing Comes From Nothing 1.4 Nothing Goes To Nothing 1.5 The Atoms Are Invisible 1.6 In Addition to Atoms There is Also Void 1.7 Nothing Exists At The Elemental	LUCRETIVS - ON THE NATURE OF THINGS Book I - Nature Leads Through Pleasure And Is Composed Of And Operates Through Atoms And Void 1.1 Pleasure (Venus / Nature) Is Leader and Motivator of All Life [1:01] Introduction; Pleasure Is Leader and Motivator of Life 1.2 Epicurus Was a Liberating Conqueror Over False Religion [1:62]
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[Three Column Topical Outline](#)

First Edition Of This Outline Prepared August 27, 2023, by Cassius Amicus.

Page numbers refer to the Loeb edition but should be usable to locate the text in most translations. Use of the Table of Contents / Outline will make locating the desired section more convenient. All headings in the text below are added for convenience and are not a part of the text

LUCRETIUS - ON THE NATURE OF THINGS

2.1. Book I - Nature Leads Through Pleasure And Is Composed Of And Operates Through Atoms And Void

2.1.1. Pleasure (Venus / Nature) Is Leader and Motivator of All Life

- [1:01] Introduction; Pleasure Is Leader and Motivator And Guide of Life

2.1.2. Epicurus Was a Liberating Conqueror Over False Religion

- [1:62] Humanity has long been oppressed under the grim weight of religion, but Epicurus was the first man with the force of mind to discover the truth of the way things really are, showing us the limits, boundaries, and benchmarks set by nature; in so doing he broke religion's oppressive hold over the minds of men, raising us equal to the heavens.
- [1:80] The sacrifice of Iphigenia illustrates that it is religion that is the true mother of wickedness in the world.
- [1:102] Religion oppresses men by causing them to fear punishment by the gods both in this life and in eternal hell hereafter.
- [1:105] The true nature of the soul is not obvious to us, so if we are to free ourselves from religious fears we must study nature and determine whether religion is correct when it alleges that we have eternal souls that are subject to the dictates of god here on earth and to eternal damnation after death.
- [1:127] The remedy to the terrors of the spirit manufactured by religion is to study and uncover the true nature of the universe.

2.1.3. Nothing Comes From Nothing

- [1:146] Our starting point in this study of nature is this primary observation: nothing ever comes from nothing -neither gods nor any other forces are observed to create anything from nothing. Once we see that nothing comes from nothing, but that all things come into being in accord with their basic nature, we will see that all things occur without any intervention from the gods.
- [1:159] The proof that nothing comes from nothing is to look around and see that all things are not born of all things, but from fixed seeds.
- [1:174] And things are not only born from fixed seeds, but after they are born they grow at a fixed rate.
- [1:199] And not only do they grow at a fixed rate but they stop growing according to fixed limits.
- [1:208] We also see that it takes working the land to produce specific results; unless we work the land specific crops do not grow.

2.1.4. Nothing Goes To Nothing

- [1:215] Our second primary observation is that all things pass away and change back into the essential material from which they are made, but nothing is ever absolutely destroyed to nothing.
- [1:225] Another reason we know that nothing passes away to nothing is that otherwise in the eternity of time past all things would have passed away and nothing would be left in the universe.
- [1:238] Further, if things could be destroyed to nothing, it would be easy to destroy anything by force, but rather we see that many things are hard to break up.
- [1:250] We also see that nature nourishes one thing out of the other, and that the living are born from the dead.

2.1.5. The Atoms Are Invisible

- [1:265] Do not doubt that matter is indestructible simply because the atoms are too small to see – unseen things like wind are seen to be very powerful and to rival streams of water (which all can see) in their force.
[1:298] You cannot see odors or voices either and yet you know they exist.
[1:305] We know from hanging up wet garments that the water in them is dispersed, as they dry, into tiny particles that no one can see.
[1:311] And we see over the years that rings wear away on fingers, and dripping water hollows stone, even though we cannot see it happening.
[1:322] We therefore conclude that Nature's work is done by particles so small that they are unseen

2.1.6. In Addition to Atoms There is Also Void

- [1:329] We also know that these particles are not tight-packed, and that around them is "void". We know this because we see the particles move, and therefore there must be void within which they can move.
- [1:346] No matter how hard things are, they still contain void, which we know from the examples of water seeping through the rocks of caverns, and the roots of trees bringing up water to their branches, and noise travelling through walls.
- [1:358] We also know that some things weigh more than others of the same size, and the difference is the amount of void they contain.
- [1:370] Fish do not swim because the water compresses to allow them to pass, but because there is void in the water.
- [1:384] We also know that when things collide and spring apart the air rushes in to fill the spaces, and that this does not happen instantly but gradually.
- [1:398] We know that void exists because otherwise movement would be impossible; but we see that things do move, so we know void exists. The examples we have provided are sufficient for you to deduce for yourself that there is a void, just like a hunting dog can sniff out its prey once it catches the scent, but if you remain unconvinced I can keep talking about this until we both get old.
- [1:418] We conclude that all bodies of nature are built from bodies and void. We know that bodies exist because our senses declare to us that bodies exist, and unless we hold firm to what the senses declare to us, there is nothing we can ever prove by reasoning of the mind. And we know that the void exists because bodies must have a place to exist, and through which to move.

2.1.7. Nothing Exists At The Elemental Level Other than Atoms And Void

- [1:430] There is nothing no third nature that can exist besides bodies and void, because anything that exists, if it can be touched, must be a body, and if it cannot be touched, then it must be void. Except for the void, nothing can affect something else, or be effected itself, unless it is a body. Nothing else can be sensed or reasoned to exist unless it be body or void.

2.1.8. The Properties of the Atoms Give Rise To Bodies And Their Qualities

- [1:449] Everything that we can name to exist has attributes that we consider to be properties or events/accidents of that thing. A property is something that cannot be separated from the thing without the thing being destroyed, such as you cannot separate weight from rocks, or heat from fire, or moisture from water, or touch from bodies, or emptiness from void. On the other hand, events/accident can be separated from a thing without destroying it, such as slavery, poverty, riches, freedom, war, and peace can be separated from people without destroying the person himself.
- [1:464] Time is an example of an event that does not exist by itself, but from our feelings about the motion or stillness of things. For example, consider the Trojan War, which does not exist in itself, but as an event of things that occurred in the past. The people involved in that war are long dead, and the Trojan War is but an event of the people and things that were involved at the time.
- [1:483] Bodies are therefore not only the atoms that compose them, but thing things that are created when the atoms combine. In the world around us everything is porous, but by reasoning we will see that the atoms themselves are not porous, and from them everything we see is created.

- [1:503] Since we have determined that everything is composed of only two things, atoms and void, and that nothing else can exist, we conclude that wherever there is empty space there is no body there, and where any body exists, there is no void, and from this we conclude that the atoms are solid bodies free from any void.
- [1:511] By the same reasoning, since all bodies are composed of nothing but atoms and void, it is atoms which hold the void within a body, and nothing can be reasoned to hold void within it but bodies made of atoms. Therefore when any body dissolves, it is the atoms which composed that body remain.
- [1:520] If only void existed then the whole universe would be empty; if only atoms existed then the whole universe would be solid. Since this is not the case, bodies must be composed of both atoms and void, and those must be separate from each other. Bodies cannot be destroyed unless they have void in them, and the more void. Only things which have void in them can be destroyed, and since atoms have no void in them, atoms cannot be destroyed.
- [1:540] If the atoms were not everlasting, long before now everything would have passed away to nothing, and nothing that we see to have been born could have been born from nothing. This shows us that the atoms are everlasting, as in no other way could the universe have sustained itself through the ages.

2.1.9. There is a Limit to Divisibility

- [1:551] For the same reason we also conclude that there is a limit to divisibility. for if there were not a limit nothing could have been generated from them. As we know, things are more easily broken apart than put together, and if there were no limit to divisibility what has broken down in the past could never have been regenerated. But we see that things are regenerated and do grow at their natural rates, so we know there is a limit to divisibility.
- [1:565] Another proof that the atoms are solid is that we can show how solid atoms can produce soft bodies by mixing them with void. The reverse is not true if the atoms were soft, then nothing hard like flint or iron could be created.
- [1:577] If there were no limit to the breaking of things, nothing would survive from ages past, but bodies do exist despite their frail nature, and from this we know that it is the the atoms that compose them that are eternal.

2.1.10. The Eternal Atoms Produce the Continuity of Nature

- [1:584] Since Nature appoints a limit to the growth of all things, and yet the laws of nature hold fast so that birds through their generations show the same markings, and only certain things can come into being, and even the tribes can recall the nature, habits, and manner of life of their parents, it must be through the unchanging substance of the atoms that this continuity occurs.
- [1:599] Beyond the limit of our ability to observe there must be a least point which has no parts which exist in everlasting singleness.
- [1:615] If there were not a limit then the tiniest bodies would be composed of infinite numbers of parts, as any half could always be divided into another half. If that were the case, what difference would there be in anything, if everything held an infinite number of parts? Since true reasoning cries out against this, and the mind cannot accept it, we must conclude that there is a lower limit to the size of an atom, and at this lowest level that the atoms are solid and everlasting.
- [1:628] Also, if Nature had allowed all things to be dissolved into their least parts, and if those least parts were infinitely divisible, then nothing could be renewed from them, but this is contrary to what we see, as we see things are in fact renewed.

2.1.11. It Is Error To Think That All Things Are Made of Fire, Earth, Air, or Water

- [1:635] Those who allege that everything is made of fire are using faulty reasoning. Heraclitus is the leader of this pack, and he is famous for his hard-to-follow statements among those who are empty-headed and who love twisted sayings that tickle the ear more than they love the truth.
- [1:645] Things could not be as diverse as they are if they were created of fire alone, unmixed with anything else.

- [1:655] The advocates of fire as the only things making up all things might wish to suggest that void is mixed with fire, but they fear where that would lead, and so they lose the track of true reasoning.
- [1:665] The advocates of fire also know that they cannot admit that fire changes into another substance, for that which exceeds its own limits becomes something else again. The truth is that it is atoms that make up fire by changing their positions and movements, and this does not change the nature of the atoms, but explains how we can make fire and heat from the unchanging atoms.
- [1:690] Besides, it is crazy to suggest that there is nothing in the universe but fire. In this argument he fights against the senses by which he first came up with the idea that everything is made of fire! For he alleges that yes, the senses can recognize fire, but that they cannot recognize anything else, and this is crazy, for what else can we look to for deciding what is true and what is false except to the senses? Why would anyone choose to pick out fire and deny the existence of everything else? Why not deny the existence of fire but accept everything else? Only madness can explain choosing one over the other.
- [1:705] The same errors are committed by those who say that everything is made of air, or of some combination of only a few elements like earth or water. This is the error made by the otherwise majestic Empedocles.
- [1:734] Empedocles and the others (who were much less intelligent than he) all failed in understanding the nature of atoms and void. They believed in infinite divisibility of the material that things are made of, and thus they cannot explain what we see in nature to be the truth.
- [1:763] All things cannot be produced from only four elements that never lose their own nature, because the union of these four could never retain their character and yet form the things that we see around us they could never form something of a distinctly new nature, which is what we know that atoms can do when they combine to form things with their own new characteristics.
- [1:782] Whenever a thing passes the limits of its own nature, that is the death of the thing that existed before, and that is the problem with those who assert that some combination of earth, air, fire, and water, which they allege to be elemental, change in nature to give rise to what we see around us.
- [1:803] If you argue that all things seem to grow from the earth up into the air and towards the fire of the sun and with the water of the rain, and that this means that these are the elements of all things, you should think again, for what is beyond doubt is that the growth of things is determined by nature, and that nature brings many things together to do its work, but it is of the greatest importance to decide what goes into making the earth and the water and the sun and the rain and how their components are combined together.
- [1:823] Think about how the words of this poem are composed of letters, and how the meaning of the words changes when the letters are moved around. The atoms have an even greater capacity than this, to make up all things by changing their positions and their motions and combining in different ways.

2.1.12. It is Error To Think That All Things Are Made Up Of Tiny Versions of Themselves

- [1:830] Let's not worry we don't have a Latin word for "homoeomeria" the theory that all things are made up of smaller pieces of the same thing: that bones are made of tiny particles of bone, and the like.
- [1:834] This theory does not accept the existence of void, or that things are not infinitely divisible, so it suffers the same problems we discussed before.
- [1:847] In addition, this theory fails because none of these little bones or other miniature things can survive ultimate destruction, so they would all by now have already passed away.
- [1:859] Another problem for that theory is that if it were true, everything must be made of things which are alien to their own kind in order to produce what we see when smoke rises from burning logs, or plants grow up out of the earth.
- [1:875] Now Anaxagorus tries to save this argument by alleging that all things in miniature are hidden in all things, but this again is false reasoning, because if it were true, we ought to be able to squeeze corn until blood flows out, or blades of grass would give off animal milk. But we see this does not happen, so theory must be false. Instead, it is the atoms and the void that make up all things.

- [1:897] Another example is how the tops of trees can rub together in the wind to spark flames. This does not mean that fire is hidden inside trees, but that the movement and positions of the atoms is what creates the fire, just like words change their meaning when their letters are rearranged.
- [1:915] In the end, if you maintain that things are composed of miniatures of themselves, then you will eventually conclude that there are no true elemental particles, but instead you will find yourself deciding that you are made of little people who are laughing aloud and wetting their faces with tears at the thought of what you are suggesting.

2.1.13. The Universe is Infinite In Extent

- [1:921] Let's now cover what remains of these difficult questions, inspired by the Muses, and happy to think of the fame that will come in following paths never before tread by poets before us. We are talking about great things that will free the mind and free us from the bondage of religion, and we are acting as healers who, in giving wormwood to children, cover the rim of the medicine cup with honey so that they can drink the bitter medicine, charmed by the honey but not harmed by the taste, and rather be brought to health. That's the way of this philosophy it seems bitter, and many shrink back from it, but if you stay with me you will come to see the big picture of the whole nature of things.
- [1:958] The universe is infinite in extent, and has no boundaries no matter how far you travel in any direction. We know this because the universe has no extreme point beyond which nothing else exists, and it makes no difference where we stand there is boundlessness on all sides and in all directions.
- [1:968] A thought experiment confirms this: Consider that we throw a javelin in any direction. Either something will stop it, or it will keep on going. In neither case is the universe shown to be bounded, because if it hits something, then that something is part of the universe, and you can then move there and throw the javelin again. There is no evidence to suggest a boundary point to the universe as whole in the way that the things we see around us, such as the mountains or the sea, are bounded.
- [1:984] In addition, if the universe were bounded, then all the matter in the universe would have flowed from all directions through its weight toward a bottom, and everything would be piled together. But we know that there is no bottom to the universe at all, and thus there can be no final resting place for matter.
- [1:1002] Even the thunderbolts, as fast as they travel, could travel on indefinitely, and no matter how far they travel they have no less distance to continue to travel.
- [1:1008] The universe could not exist if either atoms or void did not surround each other, were limited, because if either were limited then the other would spread out to dominate the universe, which we see does not happen.
- [1:1021] It was not by intelligent design that the elemental particles placed themselves came together as we see them now, but rather by the unceasing movement of the atoms over the ages. Those movements created and sustain this world and all living things, which could not happen if the atoms and void were not as they are.
- [1:1037] All things are dissolved when their atomic material ceases to be replaced, and therefore it is necessary for the universe to survive any length of time for there to be limitless matter on all sides.

2.1.14. The Universe Has No Center

- [1:1052] Be sure not to accept the idea that all things press toward a center, and that this explains how the world stays together, and explains how animals can walk on the other side of the earth without falling off.
- [1:1067] The universe in fact infinite and has no center, so all things do not fall down toward the center of the earth. There is no place for anything to rest and stand still in the universe, and it is foolish to believe otherwise.
- [1:1083] Those who advocate for the earth being the center of the universe are not consistent, because they think this applies only to earth and liquid but not to air and fire, which fly upward. Instead, the truth is that there is an infinite supply of matter, and this restrains both the matter of the earth from flying outward, and the matter of the skies from crushing us down from above. Remember: on whatever side you argue that there is a limited supply of matter, that side will be the gate of death for things, because in that direction all of matter will throw itself.

- [1:1107] These basic lessons lead to all the rest that follows. Each spark of knowledge will lead to more knowledge, and from these you will see the truth of nature and kindle a light for others.

2.2. Book II - All Things Born of Atoms Will Grow And Die According to Nature

2.2.1. It Is Pleasurable to Understand the Nature of the Universe And Not To Suffer Fears and Anxieties Caused By Errors

- [2:01] It is sweet to perceive misfortunes from which we are ourselves free, and nothing is more gladdening than to live firmly protected by the teachings of the wise, avoiding the confusion and struggles of those who go astray in seeking the way to live. How sad it is to see that men do not realize that Nature calls us only to keep the body and mind free from pain so that it may enjoy pleasure!
- [2:20] The body needs only that which takes away pain, and it feels no loss when it does not experience luxury.
- [2:37] Since great wealth and power do not benefit the body, they do not benefit the mind, as they are not able to drive away to fears of religion or the dread of death. The power to drive away those fears belongs only to reasoning, and these terrors cannot be scattered even by sunlight, but only by an understanding of Nature. (Note see 125 for why daylight alone is insufficient.)

2.2.2. The Atoms Are In Constant Motion

- [2:62] Now we will address how the atoms move to create bodies, and eventually to destroy them, and why occurs, and at what speed the atoms move in doing so.
- [2:67] Material things do not last forever, and over time they lose their substance, but the universe itself remains undiminished, as the atoms move from things that grow old to things that are young and growing. The sum of things is always replenished even as old things pass away, even as nations do, like runners handing on the torch of life.
- [2:80] Atoms would not beget new things if they stayed motionless, but they move due to their own weight or by the force of collisions with other atoms, never coming to rest.
- [2:112] Atoms move like the dust we see illuminated by shafts of light, and this is an example of how in small things we can get a conceptual picture of how greater things work.
- [2:125] The movement of the atoms leads gradually to formation of larger bodies, and those larger bodies in turn receive the movements of their atoms, with this movement passing upward little by little until it comes forth to the level of our senses which we can perceive in the light of day.
- [2:142] The movement of light and heat is impeded by the atoms, but the movement of the atoms themselves through the void is unimpeded.
- [2:167] Yet some people, ignorant of how the atoms work, believe that Nature cannot change the seasons of the year without the direction of the gods, or create crops, or do any of those things which divine pleasure, guide of life, leads living things to do so that they will not perish. These people are mistaken in believing that the gods direct these things for the sake of men, and even if we did not understand the atoms we would see that the world is not made for men, so great are the harmful things which it includes.
- [2:184] No bodies, even fire, can travel upwards on their own without being driven to do so by some force, because weight naturally draws all things downward.

2.2.3. The Swerve of the Atom Breaks The Grip of Fate

- [2:216] But atoms are not carried downward in a straight line at no fixed time and no fixed place, the atoms swerve slightly from the fixed path downward, and we know this because if they did not do so, no collisions would ever occur to bring all bodies into being.
- [2:225] Do not think that these collisions could have been brought about by heavier atoms falling onto lighter ones, because all atoms move through the void at equal speed. It is the swerve that brings about collisions, but this swerve is no more than the very least change in direction, and certainly not sideways. We can plainly see that bodies on their own cannot travel sideways, but our senses are not strong enough to detect the deviation of the swerve from the straight downward path.

- [2:251] If all motions were predetermined from prior motions without any swerve of the atoms, all events would be decreed by fate, and there would be no free will for living things, but due to the swerve we have free will to move and follow pleasure where it leads our minds to choose.
- [2:263] An example of this is the racehorse, straining against the barriers, which desires first in its mind to burst forth from the gates before the movement is carried from the minds to the body and limbs.
- [2:271] Another example is how we can decide in our minds to resist blows or forces from outside ourselves.
- [2:284] Nothing comes from nothing, and mind does not feel necessity forcing it to do all things, and this will to deviate from the force of weight or resist outside blows must come from the swerve.
- [2:294] Matter was never in the past more tightly or loosely packed than it is now, nor will it so be in the future, and the atoms move and swerve now as they have always done and will always do, because there is nothing outside the sum of things which can bring a new force into the universe, nor is there a place outside the universe to which matter can escape.
- [2:308] We need not wonder why bodies appear to be motionless when they are composed of atoms which are in motion. The bodies appear motionless because the motion of the atoms is below the ability of our senses to detect. This is like looking at a herd of sheep or an army of men far away on a hillside the groups appears to be a single mass.

2.2.4. The Atoms Have Varying Shapes

- [2:333] The atoms are numberless, but they are not all unique, and they have many differing shapes.
- [2:342] All living things too are of differing shapes, and by this they can identify one another. This is how mothers identify their young, and a cow knows that her calf is missing when it has been sacrificed to the gods. Even individual grains of corn and seashells, though of similar kinds, have differences in shape between them. This is the way Nature makes them, and they are not made as if by hand according to a fixed pattern.
- [2:381] The differing motions of certain types of fire, and certain types of liquids, are also explained by the differing shapes of their atoms.
- [2:398] The differing feelings of pleasure and pain are also explained by the shapes of the atoms involved, with smooth bodies seeming pleasant and sharp atoms being painful. This applies to sounds and smells and colors as well. For it is touch by the gods I swear! that allows the senses to receive pleasure or pain, and therefore the atoms must have differing forms to produce these differing results.
- [2:444] Hard things, like diamonds, are formed by atoms whose shapes are hooked or branched, allowing them to cling together more firmly. Liquids, on the other hand, are formed by rounder atoms, and things which fly like gases or flames are not closely linked, but more pointed.

2.2.5. The Atoms Have A Limited Number of Shapes

- [2:478] The atoms, however, are limited in number of shapes and sizes, and we know this because if they were not bounded in bulk then some would be of huge size, which cannot be the case because something unlimited in size would consume the universe and must be rejected as per our earlier reasoning.
- [2:500] If the atoms were unlimited in shape and size then you would see new colors and smells and sounds constantly arising, some more magnificent than before, and some more horrible, but this does not occur, and thus we know there is a fixed limit to both smallness and largeness, and thus a limited number of shapes.
- [2:515] For example, the distance from the heat of fire to the cold of ice is limited, and occurs within a set range.
- [2:522] The atoms are limited in shape, but are not limited in number, and there are an unlimited number of atoms which are alike each other. This must be so since the amount of matter in the universe is itself unlimited.
- [2:532] An analogy to this is found in animals, where we see a limited number of kinds, but an unlimited number of individuals of each kind, with some animals being more prolific than others.

- [2:541] Even if there were something unique in the universe, that unique thing could not have been brought into being unless there were an unlimited number of atoms to have brought its atoms together. The atoms have no plan for union themselves, but as with a shipwreck, the flotsam would never come together, or stay fixed together, or grow together, as we see that the atoms in fact do.
- [2:569] In this way we know that the forces of destruction can never prevail without limit, nor can the forces of birth and growth continue without limit, but both must remain in balance, as we see birth and death continue together in the cycle of life.

2.2.6. All Things Contain Many Shapes of Atoms

- [2:581] Remember this well: nothing is seen by us to contain only one kind of atom, but all is created from differing atoms, and the more forces and powers a body possesses, the more different kinds of atoms it contains.
- [2:589] We can see this is both the sea and in the earth, which is called the mother of all things and gives birth to crops and all living things.
- [2:600] The Greek poets portrayed the earth as a goddess followed around by worshippers and tell many fantastic tales about her and her actions.
- [2:644] But these tales of the Greek poets are far from true reasoning. For the gods enjoy everlasting life in perfect peace, far away from this world, free from all pain and danger, mighty in their own resources, and never wanting anything from us, and their favor cannot be won by virtuous service nor their wrath kindled against us. But the earth herself is without feeling, and it is only due to her atoms that she brings forth so many things into the light of the sun. Therefore if anyone is tempted to misuse the names of the gods and call the sea and earth by their names, or to call the earth the mother of the gods, let him at least not stain his own mind with shameful superstitious awe.
- [2:661] Flocks of sheeps and herds of horses eat the same grass and drink the same water under the same canopy of heaven, yet live their lives in very different ways, each after the nature of its own kind, even though all of them are made of bones, blood, and the like, so great are the differences in the atoms that compose the fields of grass and the streams of water.
- [2:673] All things that can be burned by fire, for example, store in their bodies atomic seeds that can be changed into light and sparks and cinders, and if you apply the same reasoning to other aspects, you will see that bodies contain many diverse shapes that are the seeds of diverse colors and tastes and smells.
- [2:688] Even in these words you see many letters common to many words, yet combined in different ways to form very different meanings, and these can exist in bodies very different from one another, so that humans and corn and trees can be composed of differing particles.

2.2.7. There Are Limits To The Ways Atoms Can Be Combined

- [2:700] But you must not think that all particles can be linked together in all ways, because if they could you would see monsters of many types, some half man and half beast, and giants, and flame-breathing animals. But we see no such thing, because all things are born of fixed seeds, of fixed parents, and so preserve their own kind, while other particles are driven out as alien to the bodies.
- [2:718] This limitation of possibilities does not apply just to living things, but to all things in earth and sea and sky.

2.2.8. The Atoms Have No Color

- [2:730] Colors are not formed by colored atoms, because the atoms have no color at all, and this is knowable to us because our minds can separate touch and color, just as blind people can recognize bodies though never having seen color.
- [2:748] We also know that the atoms have no color because we see colors change into other colors, and the atoms, as eternal and unchanging, would not change color or anything else, because that which changes is no longer what it was, and the atoms are eternally the same. Take care not to consider the atoms to be colored, or you will convince yourself the atoms are changeable, and all will pass away to nothing.

- [2:757] Colors are explainable by the differences in the atoms and their movements and positions, but if the atoms were of one color for example if the sea were composed of blue atoms the sea could never change color and be seen as shining and white, as we see that it does. The differing shapes of the atoms in no way restrict a body from being square in its outline, but when we see differing colors we know that thing is not composed of a single color.
- [2:788] Once we see that the atoms are colorless but combine to form color, there is no reason to think that individual atoms have color, and since we cannot see color without light, and there is no color in darkness, there is no reason to think that the atoms are colored. Think of the tail of a peacock, which changes color as it moves through the light. Diverse shapes of atoms produce different kinds of touch upon the eye, and thus it is the differing colors arise from the differing shapes.
- [2:817] No fixed color belongs to any fixed shape, and crows and swans can be made of diverse atoms no matter what their color might be. The more you pull things apart, the more the color fades, and this shows that the tiny shreds lose their color before we get down to the atomic level.
- [2:834] No one thinks that all bodies send out sounds or smells, and so we do not assign sound or smell to everything, and likewise there is no reason to assign a set color to all things.
- [2:842] The atoms not only have no color, but they also have no heat or cold, sound or taste or scent, and we must realize that the atoms do not possess these changing qualities, or we will find that all things will pass away into nothing.

2.2.9. The Atoms Do Not Possess Sense Or Life

- [2:865] Further, like color and the rest, things which have sense are made of atoms that have no senses. The evidence compels us to this conclusion: living things are made of non-living atoms. Pastures change into cattle, cattle change into our bodies when we eat them, and this is no different than logs which catch fire and turn into flame. This is why it is so important to understand how the atoms are arranged into bodies and compose all things.
- [2:886] What makes it hard to believe that living things are composed of non-living atoms? No doubt you observe that simply mixing together stones and wood and earth cannot create a living creature. This is true, but the important thing is the size and form and motion and arrangement of the atoms. These arrangements are not present in every log or lump of earth, and yet when the rain falls worms can rise up from the ground and stirred from their old arrangements.
- [2:902] Sensible things are soft, and these could not be made from soft atoms.
- [2:907] The parts of a sensible thing cannot have sense on their own, because the parts depend on the other parts to form a sensible whole. Atoms cannot do this, or else they would be living themselves. And if atoms did have their own senses, this would not solve anything, because a group of atoms would still be a group of senses, and not a single sensible thing. In the same way that we know that insensible eggs can turn into chickens, and worms can swarm from the mud after a rain, we know that things that have sensation can be created from things that do not have sensation.
- [2:931] Sensation does not come to non-sensible atoms because the atoms have changed, but because of the combination of the atoms, which must occur before sensation can arise.
- [2:944] Further, living things can lose sensation if they are struck by too heavy a blow sufficient to scatter the arrangements of the atoms.
- [2:963] There is pain when the arrangements of the atoms are scattered by a blow, but pleasure comes to pass when the atoms settle back into their proper places, and this shows that the atoms feel no pleasure or pain themselves, but only through their arrangements do we feel pleasure or pain.
- [2:973] If living things that sense must be formed of sensing particles, what about humans? Are humans composed of human particles, shaking and crying with laughter, which themselves ask how they (the human particles) are formed? This is madness humans can laugh, even though they are not composed of laughing atoms, and humans can think, even though they are not made of thinking atoms.
- [2:991] All living things plants, animals, and humans are sprung from the atoms of the earth, for which reason we think of the earth as our common mother, and to the earth our atoms eventually return. Death simply scatters the atoms, but does not destroy them, and nature joins them again into new things, and from this you must realize that the combinations and positions and motions give rise to all

things we see around us, and that nothing that we see on the surface of things is eternal. The same letters are used in words like sky, sea, and earth, and just like those words change when their letters are rearranged, all things around us change as their atoms are rearranged.

- [2:1023] Now turn your attention to true reasoning, for a wondrous truth is now before you. Nothing wondrous is easy to accept at first, but over time even the wondrous becomes commonplace to us. If the world around us were seen by us as for the first time, what could be more wondrous? Nothing could, but as we are, no one even looks up at the sky. So do not let the novelty of these words cause you to reject true reasoning, but eagerly weigh these things. If you find these things to be true, then embrace them; if you find them false, then battle against them. For our minds and spirits desire to look outward past the walls of this world to seek the truth about boundless space.

2.2.10. There Are Many Worlds In The Universe With Life In Them Like Ours

- [2:1048] The universe in every direction is boundless in size, and there is no reason to think that this world is the only such world in the universe. The same processes that formed this world has created other worlds as well.
- [2:1067] Since there is no little to the matter of the universe, and since the same forces at work here are at work elsewhere, we must conclude that there are other worlds which have other type of animals and other races of humans.
- [2:1077] Another reason for this conclusion is that we see nothing single, unique, and of its own kind. Consider all the types of animals and men and fish and birds. In the same way that the earth, moon, and sun are not unique, but rather numberless, there are numberless living things on other worlds elsewhere in the universe.

2.2.11. Nature Has No Supernatural Gods Over Her

- [2:1090] If you learn things things and hold to them firmly you will see that nature has no rulers over her, and she works of her own accord alone, and not controlled by any gods. For how could holy gods living in peace and calm control the whole sum of the universe, even shooting thunderbolts that destroy their own temples and kill innocent men?
- [2:1105] From the time this world was born the atoms of the universe have moved according to Nature to the point where they are today, where Nature herself has found its own limit with bodies formed of atoms being born, growing, decreasing, and passing away.
- [2:1144] Even this world itself will one day fall into decay and ruin, as it has now stopped growing and bringing new forms of life into being. For life was not let down from a golden rope, but brought forth by the earth, along with the plants and animals. Even in our own time people grumble that the earth is not as fruitful as it once was, because they are ignorant of the way that Nature works, and that all things that come into being must eventually also by Nature waste away and die.

2.3. Book III - The Human Mind And Soul Die With the Body

2.3.1. Epicurus Was A Pioneer Whom We Emulate

- [3:01] In writing this poem I follow Epicurus, discoverer of truth, who first raised this light, and I plant my footsteps in his, not as a rival, but in emulation. Through this philosophy I see the peaceful abodes of the gods, and that there is no Hell, nor is the earth a barrier to wisdom, and I feel a godlike pleasure from the experience.
- [3:31] Now we will address the nature of the mind and soul, so we can drive away the fear of Hell that causes such much fear and allows no pleasure to be pure and unalloyed. For men say that they fear disgrace more than death, and that they know the nature of the soul, but when they are in trouble they fall back on superstition and sacrifice to the gods, and you know what they really think when they are facing adversity.
- [3:59] Fear of death provokes so many troubles in life, such as greed and craving for offices and murder, as they think poverty is painful, and leads to death.
- [3:74] In the same way envy and compete with each other for fame, and sometimes they even kill themselves, forgetting that it was fear of death in the first place which was the source of their trouble.

These terrors cannot be scattered by the light of day, but by an understanding of the workings of Nature.

2.3.2. The "Harmony" Theory of The Soul Is Incorrect

- [3:94] The mind is no less a part of a human than his hands, eyes, or feet, yet some argue that the mind does not exist in any particular part of the body, but in a "harmony" of the whole. This is wrong, and we know that the mind can feel pleasure while the foot feels pain, and that not every part of the body has an equal part to play in sustaining life.
- [3:130] Let the Greek musicians keep their Harmony, because the mind and soul are a part of man.
- [3:136] The mind and soul are of a single nature, and are seated in the breast, and the rest of the soul is spread throughout the body and obeys the understanding. The mind sometimes feels pain or pleasure on its own, when the rest of the body is not roused by any fresh feeling, but the mind can affect the rest of the body.

2.3.3. The Mind And Soul Are Material In Nature

- [3:161] The nature of the mind and soul is bodily, which we know by how it is affected by things that touch us, such as the blows of weapons.
- [3:177] The mind is very fine and composed of tiny particles that move quickly.
- [3:208] The mind is also thin and might be contained in a very small place if it could be gathered together, but when one dies nothing leaves the body that sight or weight could test.
- [3:231] The mind is thin and light but it is not simple. It has much of air in it, as well as heat and breath, but these alone are not sufficient to bring sensation or thought. The mind has a further nature that gives rise to its motions.
- [3:258] The heat and air and breath mingle together to create one nature, from which motion and sensation first arises in the body.
- [3:288] The temperature of the air in the mind is related to how one thinks, and those living things with more heat have a more fiery heart and passionate mind, such as lions. Other living beings such as deer have more of cold wind, while oxen have more calm air.
- [3:307] Men are similar to the animals just described. Much training can lead men to a similar culture, but it cannot eliminate the original nature of the mind. Some men are more prone to anger, some more prone to fear, some more passive than is right. These traces cannot be eliminated, but reason has the power to dispel so much of the original nature that nothing hinders us from living a life worthy of the gods.

2.3.4. The Mind and Soul and Body Are Born and Grow and Die Together

- [3:323] The Soul both protects and is protected by the body, and they cannot be separated without their destruction.
- [3:337] The body is never born by itself, nor does it grow alone, and nor does it linger on after death, as it cannot survive separation of the soul. The body and soul are linked from the womb, and they cannot survive being separated.
- [3:350] The soul has no sensation of its own, and when the soul dies, the body is utterly deprived of sensation.
- [3:359] The mind does not see on its own, but must use the eyes, and the eyes are not merely openings as are doors.
- [3:370] We must reject the teaching of Democritus that the atoms of the soul and body alternate with each other, because the particles of the soul are far fewer in number than the particles of the rest of the body. We do not immediately feel dust, or mist, or spider webs, or insects on our skin, because many atoms of the body must be stirred before the mind becomes aware of such things.
- [3:396] The mind is more the keeper of life than is the soul, and so long as the mind is intact the body can survive loss of many of its parts and the parts of his soul that are in those lost parts. This is similar to how the eye can be harmed in many places but can still see so long as the pupil is intact, but with loss of the pupil comes loss of sight.

- [3:417] So that we may see that mind and soul have birth and death, understand that mind and soul are as one, and compose a single thing.
- [3:425] The soul can be scattered more quickly than water or clouds or smoke, and since the body is the vessel of the soul, the soul is scattered when the body is shattered, as the soul can certainly not be restrained by the surrounding air.
- [3:445] It is natural that the mind is dissolved like smoke upon the death of the body, since the mind is born with it, grows with it, and becomes weary and worn with age with it.
- [3:459] This follows also from how we see that the mind suffers from diseases just like the body.
- [3:476] Another example of the linkage of mind and body is seen from how wine affects both.
- [3:487] Likewise both the mind and body can be seized by the violent convulsions of disease, and a sick person loses their mind, until the mind returns when the sickness is gone.
- [3:510] The mind can be cured with medicine just like the body, and this too shows us how they are linked, and this happens due to transfer of particles, which would not happen if the mind were immortal. Thus so surely is the truth seen to run counter to false reasoning, and to shut off the retreat of error, that it refutes the falsehood coming and going.
- [3:526] Sometimes men die little by little, with their toes and feet and legs first, as death moves step by step through the body. This slow death over time shows that the soul too is mortal, as the soul cannot contract itself into one part of the body.
- [3:548] Since the mind resides in one part of man, like the eye or the nose, the mind cannot survive separation from the body any more than can the eye or the nose.
- [3:558] Just as the eye cannot see anything if torn from the body, so the mind cannot give life separated from the body.
- [3:580] The body cannot endure loss of the soul without decaying, and in so decaying it can no longer contain the soul.
- [3:592] We see that men can be shocked and fall limp and seem to almost die, so that a little more shock would in fact bring death. If so, why doubt that the soul cannot survive outside the body for all time, or even for a moment?
- [3:607] If our mind were immortal it would leave the body as a snake leaves its skin, but instead as we die we feel the senses dissolving in their own place, not leaving.
- [3:615] The mind is never begotten in hands or feet, but is assigned to its normal place by nature, which it can never leave, just as a flame never resides in a stream or cold in fire.
- [3:624] If the soul is immortal and can feel outside the body, it must be endowed with five senses, and yet neither the eyes nor ears nor nose can exist apart from the body, and the soul cannot either.
- [3:634] We feel the sensation of life present in the whole body, and when the body is cut in half, beyond doubt the soul would be too, and what can be cut into pieces surely is not immortal.
- [3:642] Soldiers cut apart by chariots lose limbs instantly, and those limbs no longer feel, and we sometimes do not know they are gone.
- [3:657] Do we say that a snake when cut apart had a soul in each piece? If so, that would mean one body had many souls, but what can be cut into many parts is not immortal.
- [3:670] If the soul is immortal and enters the body at birth, why does it not remember being alive before? If it does not remember, then the soul is essentially new, and the old one is dead.
- [3:679] If the soul enters the body at birth, it would not be natural for the soul to be seen to grow with the body. We must therefore not think of souls as without a birth, or released from the law of death, or that they can unravel themselves from intertwining with the body.
- [3:698] Even if the soul were grafted within us from outside, that which is grafted in and permeates perishes and forms a new nature, so again we see that the soul neither without birth nor without death.
- [3:713] Are seeds of the soul left in a dead body? If so, they cannot be immortal, since some of the soul has left the body. And if the soul has left the body entirely, why is it that corpses teem with worms? There is no reason that souls should make homes for themselves in the body, because if they are outside the body they suffer no disease or hunger. Souls do not make bodies for themselves, nor are they grafted into ready-made bodies.
- [3:741] Why do lions act like lions and foxes like foxes and deer like deer? It is because the power of mind is determined by the body and grows with the body, but if the soul were immortal then a hawk might be afraid of a dove, or men be witless and the wild beasts be wise.

- [3:754] What is changed is dissolved and passes away, and soul that changes bodies likewise is changed and the old passes away.
- [3:760] If souls are immortal and pass to new bodies, why are children not born wise, and why does a foal not have the strength of a horse? Again, a soul that changes loses its former self.
- [3:769] If the soul were immortal why would it desire to be release from aged limbs? Why would it fear to be shut up in a decaying body? An immortal thing knows no such dangers.
- [3:776] It is laughable to think that souls stand in line waiting for mortals to be born so they can inhabit them, or that they jostle in line for better position, or that they make agreements on which body to inhabit.
- [3:784] Trees cannot exist in the sky, nor clouds in water, nor the mind without a body.
- [3:800] What is more foolish than to think that the mortal should be linked in union with the immortal?
- [3:806] If things are everlasting they must be able to survive assaults, such as can the atoms, or be exempt from blows, as is the void, or else because there is no space around it into which it can be broken up, or from which an outside force can enter in, as is the case with the universe as a whole.
- [3:819] But we see that disease and cares wear out the soul, so it cannot be everlasting like the atoms or the void or the universe as a whole.

2.3.5. Death is Nothing To Us

- [3:830] Death then is nothing to us, nor does it concern us, as the mind is mortal, and just as we felt no pain before we were born, even in the Punic Wars, we will feel nothing after we are dead.
- [3:843] Even if the mind and soul have feeling after death, still that is nothing to us, for we are formed by the combination of body and soul, and even if our bodies were gathered together again by time, even that would not concern us, because we would have no memory of our former selves. When we think about the endless ages past, we can well imagine that perhaps our same atoms were often placed in the same positions in the distant past and yet we cannot remember any such thing.
- [3:862] If we are to feel grief and pain we must be there to experience it, and since we are not, we cannot be wretched, any more than if we had never been born, once we are dead.
- [3:870] A man who fears what happens to him after death presumes that he is still there to experience those things, and thus he regrets that he was born, because he does not realize that he will not be there to experience his loss, and that he should not care no matter how well or ill his body might be treated after death.
- [3:894] People think about the pleasures they will no longer experience, but they don't consider that after death they will no longer want those things. If people saw this clearly, they would free themselves from great anguish and fear or mind.
- [3:904] And if they saw that the soul dies with the body they would also not experience unending grief at the loss of a loved one, because we would know that the loved one had been released from every pain and sorrow, and that this is no cause for endless lamentation.
- [3:912] Men often also lament that the time of food and drink and enjoyment will soon be over, never to be called back, but they do not realize that when they are dead they will no longer want these things, and they will be in what we can consider to be an endless sleep, and the experience of death does not even include the shock we experience when we awaken startled from sleep.

2.3.6. Nature Would Rebuke Us For Complaining That Life Must End

- [3:931] Imagine that Nature speaks to us and says that if our life has been so pleasant that we fear losing it, why not look at death as when we leave a party having been filled with the banquet of life, and then embrace a rest that knows no care? And if your life has been terrible, why wish for more of it? Especially since things will be in the future as they were in the past, and nature has nothing new to offer.
- [3:952] Nature can justly rebuke an old man who laments leaving life, because such a man has enjoyed all life has to give, yet continues to want what he does not have, and forgets the gifts at hand, and uncompleted and unenjoyed his life has slipped from his hands. Such a man should give up these things so ill-fitted for his years and yield them to youth, as one must.

- [3:972] The old always must give way to the new, as it must: life is granted to none for freehold, to all on lease. Look back at the ages before we were born and see how they are nothing to us; such is the time after death; it is a rest more calm than any sleep.
- [3:978] The horrors we are told about in stories, such as the rock over Tantalus or the birds eating Tityos or the fear of the gods or the Sisyphus always seeking office these are things we actually suffer in life.
- [3:1003] The enjoyment of each season that comes around never fills us, and we are like the maidens who cannot fill their leaky vessels.
- [3:1011] Monsters like Cerberus and Tartarus do not exist, but fear of punishment for the misdeeds of life torture us even worse. Here on earth the life of fools becomes a hell.
- [3:1024] Remember too that the great men of the past Ancus, the Scipios, Democritus, and even Epicurus himself -all of them died too, and if they died you who waste your time in sleep and dreams and fears and wandering can face death too.
- [3:1053] If men would learn what causes the fears that oppress them, they would not ceaseless want new things or wish to change places, as if those could ease their fears. They would not run from place to place, as if to a house afire, and seek to escape themselves. If he saw things clearly everyone would leave what they are doing and put first the study of the nature of things, since it is our state for all eternity, and not just for an hour, that is in issue.
- [3:1076] Death is inevitable, and spending our time amidst the same things does not bring new pleasures, and we constantly seek new things, and we cannot shorten the length of death. Live as long as we might, death still awaits us, and our deaths will be just as long as those who perished many months or years before.

2.4. Book IV - The Flow of Atoms And The Senses Are the Basis of Human Knowledge

2.4.1. Epicurean Philosophy Frees The Mind from The Bondage of Religion And Brings Health

- [4:01] These paths we walk have not been traveled before, and I work to free the mind from the bondage of religion, teaching about great things, dispensing medicine as to children, rimming the cup with honey, charming them but not harming them, but bringing them to health, and for this reason I am writing in the form of poetry.
- [4:26] Since we have already discussed the atoms and their movements, and how things are created from them, and the nature of the mind and how it is mortal, now we will discuss something that is very important to our theme: that there are things called idols or images which are emitted from each thing, and which we can perceive with our minds, even in sleep, and which we sometimes mistakenly think have caused us to see the dead.

2.4.2. Images Constantly Flow From All Things

- [4:54] All bodies give off images which resemble in shape the body that emits them, in way similar to how the sun shining through awnings gives off light which colors the things below.
- [4:90] Some objects give off other things as well, like smell and smoke and heat, but those are scattered loosely. Images from the surfaces of things, however, more nearly maintain their shape.
- [4:98] Another illustration of this effect are the images that we see in mirrors.
- [4:110] Images are very thin and individually cannot be seen by the eyes.
- [4:116] We are familiar with things so small that we can hardly see them, well imagine something only a third their size -they would not be visible.
- [4:123] Scents are also like this they spread through the air but cannot be seen.
- [4:129] Some images do not originate from the surface of real things, but form spontaneously in the air, even as we see clouds forming images of things in the sky.
- [4:143] Images can pass through some things but not others, however they stream instantly in many ways and in all directions and from every side.
- [4:168] We see the sky change appearance from clear to stormy, and the shapes change, but it is not possible to say what part of this phenomena comes from images.

- [4:176] We can discuss images in a few words rather than many, just as the brief song of a swan is better than the clamor of cranes.
- [4:183] Images travel almost instantly, like sunlight.
- [4:199] Images from the surface of bodies are not hindered in their discharge.
- [4:209] Consider how scents stream off of things, and cold streams from rivers, and heat from the sun, and spray from the waves of sea, and voices travel through the air images travel similarly.
- [4:230] The cause of seeing lies in the images, nor without them can anything be seen.
- [4:239] The images are borne everywhere and to all sides, but we only see those which strike the eyes, and from this striking we tell how far a thing is away.
- [4:244] We see at the same time what a thing is and how far it is away.
- [4:256] We don't feel the images individually, but together, just like we feel the wind as a unit, and not separate particles of wind.
- [4:269] Things we see through a mirror are affected by the airs between us and the object, and can be compared to seeing through a doorway. {?}}
- [4:292] Mirrors reverse the images as they travel to our eyes.
- [4:302] Mirrors also make one image into several.
- [4:311] Curved mirrors send back right-handed images.
- [4:318] Mirrors make images seem to imitate our gaits because the images are sent back at equal angles.
- [4:324] Bright images can burn the eyes.
- [4:332] The eyes of people with jaundice make things appear yellow due to the way the images work.
- [4:337] The working of images explains how we see things differently in the dark as against the light.

2.4.3. Illusions Have Natural Explanations

- [4:353] Square towers at a distance look round because the distance causes the edges of the images to be blunted.
- [4:364] Shadows also are explained by the workings of images.
- [4:379] The eyes are not deceived by the workings of shadows and images, because it is the reasoning of the mind, that determines what we think we see, as the eyes do not know the nature of things, so do not fasten the fault of mistaken judgment on the eyes.
- [4:387] When we are on ships we seem to be standing still while the land moves by.
- [4:391] The stars and the sun and the moon seem to us to be still, but they are in endless motion.
- [4:397] Mountains seen at a distance over the ocean seem to be a single island, even though there is in fact a large area of water between them through which we can sail.
- [4:400] Children who twirl around and then stop think the things around them are moving, even though they are not.
- [4:404] When we see the sun strike the tops of distant mountains they seem close at hand, even though in fact there is a great distance and many things between us and them.
- [4:414] A pool of water, when we look into it, seems to extend down very far, but this is just a reflection of the sky.
- [4:420] When our horse stands fast in the middle of a rushing stream, we look down at the water around us, the water seems to be carrying us, even though we are not moving.
- [4:426] When we look at a colonnade the columns seem to contract like the head of an arrow, joining roof with floor, until everything comes together like the point of a cone.
- [4:432] To sailors at sea it appears that the sun arises from, and sets into, the water.
- [4:436] The oars of a ship seem to be bent where they enter the water so they almost float on the surface.
- [4:443] When winds carry clouds at night across the sky, the stars seem to glide atop the stormclouds and seem to move in a direction far different from their true course.
- [4:447] If we press our faces beneath our eyes we can make things look double.
- [4:453] When we are asleep and at rest we seem to ourselves to be awake and moving and we think we see all sorts of things which are not within our room.

2.4.4. The Mind, Not the Senses, Bring About False Judgments

- [4:462] Many other illusions of this sort might cause us to doubt our senses, and fail to trust the senses, but such doubt is in vain, because for the most part it is the opinions of our minds which deceive us, so that we think we see what we actually do not see, and nothing is harder than to distinguish those things which seem clear to us because they are added by the mind from those things which are uncertain.

2.4.5. It Is Nonsense To Say That Nothing Is Knowable

- [4:469] If anyone says that nothing is known, he does not know whether that statement is true, because he admits that he knows nothing. It is best to avoid engaging with such a person who upside down plants his head in the place of his feet. That person should be asked "If you have never seen any truth in things, how do you know what it is to know something, and to not know something? How do you know the difference between the true and the false, and the doubtful from the certain?"

2.4.6. The Senses Must Be Relied On To Determine Truth

- [4:478] The concept of the true comes first from the senses, and the senses cannot be second-guessed, for in order to second-guess them you must have something more reliable than the senses to which to refer, and what is of greater certainty than sense? Can reason second-guess the senses, if the evidence of reason comes itself from the senses? Unless the evidence of the senses is true, all reasoning becomes false. Further, the ears cannot pass judgment on the eyes, or the sense of touch on the ears, or the tongue the sense of touch. Each sense has its own faculty of power and one perceives what is soft or hot or cold, while another perceives color and another perceives tastes, and another smells, and another sounds. One sense can therefore not prove another sense to be false, nor can they pass judgment on themselves since we must place equal trust in them at all times. Whatever we perceive on each occasion must be deemed to be true.

2.4.7. Reasoning Depends on The Senses

- [4:500] And though your reasoning may be unable to unravel for you why why the same tower at a distance looks round, but up close looks square, it is better for you to be wrong about the reason than it is to lose confidence in your senses, and thereby lose the foundations of confidence and on which all of life relies. For if you lose confidence in the senses not only do you lose reason, you would shortly lose life itself, if you stop trusting the senses and fail to avoid cliffs and other dangers which must be shunned, and to pursue safety instead. Be assured then that all the arguments arrayed against confidence in the senses are empty words.
- [4:513] When you are erecting a building, if your straight edge is not straight, and your level is not true, the whole structure will end up crooked and faulty and in danger of collapse, all betrayed by the first wrong measurements. In the same way, all your reasoning about things will be false if your senses are not true.

2.4.8. Sound Results From The Flow of Atoms

- [4:522] Now it is time to explain how the senses perceive their objects, which is by no means too difficult.
- [4:524] Sounds are composed of bodily elements, and sounds that are too loud can hurt.
- [4:535] Likewise, talking too much can weaken one's strength, especially if you are shouting, and therefore we know it is bodily, and roughness of speech is associated with rough particles.
- [4:549] Each utterance preserves its shape and sound, but if it has to travel to far a distance, the words will become disordered and hard to understand.
- [4:563] Voices can travel directly to listeners, or they can bounce off solid objects, and cause an echo.
- [4:572] Some areas can produce six or seven reverberations.
- [4:580] Some places echo so much that people become superstitious, and think that satyrs and nymphs are the cause, and people are fond of such prattling tales.

- [4:595] Voices and sounds can pass through doors and other solid objects through which images cannot pass.
- [4:603] Voices and sounds can bounce in all directions, so even hidden places are full of sounds, but images travel in a direct line, and they are blocked by walls.

2.4.9. Taste Results From The Interaction of Atoms

- [4:615] The tongue and taste need no longer than sound to explain.
- [4:617] When the things we taste are smooth, they taste pleasant; when they are rough, they are unpleasant.
- [4:627] Pleasure comes through the tongue, but once the food passes down the throat there is no pleasure as it travels further through the body. It does not matter what food you eat, so long as that food keeps the stomach moist and your body digests it and replenishes itself.
- [4:633] Some food is good for us and some is poisonous, but to others the reverse can be the case, just as a type of snake, when we spit upon it, kills itself by gnawing its own body. To us hellebore is poison, but it makes goat and quail grow fat.
- [4:642] Substances are food or poisonous, or taste pleasant or unpleasant, based on the arrangements of the atoms that make up the food and the person or animal that is eating it.
- [4:663] When a man is sick or has fever, that sickness can disorder his body, and what was before pleasant can now be unpleasant.

2.4.10. Smell Results From Flows Of Atoms

- [4:673] As to smell, some scents are better suited to some animals than to others on account of the shapes and arrangements of their atoms. Geese, for example the holy geese of Rome, have a much keener sense of smell than humans.
- [4:687] Smells, because of their frail nature, do not carry as far as sound or sight, and are more easily scattered.
- [4:706] Some images and colors of things are likewise not suited to some animals, such as the lion is driven away by the clapping wings and the shrill cry of the cock, and this is due to the atoms of the cock which stab into the eyes of the lion, yet such things do not bother us.

2.4.11. Images Also Strike The Mind Directly

- [4:722] Now let us discuss what things stir the mind and come into the understanding.
- [4:724] Some images of things are far more fine in texture than those images which fill the eyes and arouse sight, and these more fine images penetrate directly into the mind.
- [4:732] Such fine images going directly to the mind is how we perceive Centaurs and the images of the dead, since images are everywhere, some which come from real objects, and some which are created spontaneously in air. Images of Centaurs, for example, do not come from living things, but from chance combinations of images of men and horses.
- [4:749] What we see with the eyes, and what we see with the eyes, are created in like manner, and are perceived in like manner, except that mind sees images that are finer in texture than do the eyes.
- [4:757] When we are asleep, and the understanding of the mind is no longer active, these idols can present us with images of people who are dead, and the memory and our other senses do not argue against this image, since they are not active.
- [4:768] Do not be surprised that images should seem to move their arms or legs, because this results from the flow of new images in different positions, and our minds put them together in succession.
- [4:777] We may ask why, when we have a whim to think of something, that the image seems to come to mind. Does nature create images for us as we will it, even though those around us are receiving images of things that are much different?
- [4:788] Are the images trained to move their limbs as if dancing?
- [4:794] The answer that is likely most near the truth is that there are many images available at any time, because the images are fine, the mind cannot discern them sharply. When the mind makes itself ready to see certain things, it will come to pass that it sees what it is looking for, and only what it is

looking for, and this involves us in errors when we base wide opinions on slender signs, and we deceive ourselves.

- [4:818] We should not think it strange either that what we see as a man changes into a woman, or one face into another, but we do not generally worry about this because we forget what our minds receive when we are asleep.

2.4.12. The Faculties Of The Body Were Not Created For Our Use But Were Born First Before Their Use Was Known

- [4:823] Here is an error you must eagerly shun: do not believe that eyes were created in order that we should see, or that our legs can bend so that we can walk, or the like. Such errors reverse the cause and effect, since nothing was born with the intent that we use it, but we use what was born creates its own use. Sight did not exist before the eyes were born, nor speaking before the tongue was born, nor hearing before the ears were born no limb can grow for the purpose of using it; we put to use that which grows.
- [4:843] On the other hand, the art of fighting was born before we developed javelins and shields, and we slept before we developed beds, and drank before we developed cups. These were developed because we wanted to use them, but the senses and the limbs grew of their own, and only afterwards were put to use.

2.4.13. The Mind Directs The Body

- [4:858] The nature of every body is to seek its own food. As we act our bodies use up their stores of food, and eventually we feel the pain of hunger and thirst, and so we eat and drink to restore strength.
- [4:877] We are able to walk because images of walking strike our minds, and then the will follows, for no one does anything unless the mind has seen beforehand what it wishes to do. The mind then strikes the soul which travels through the body and summons it to action, and the body stirs into action like a ship borne on sails by the wind.
- [4:898] The mind can stir and steer the body like a captain can steer a large ship.

2.4.14. Dreams Occur Due The Mind Receiving Images While Asleep

- [4:907] Now we will discuss sleep, in brief words like the song of the swan, and be attentive lest you deny what I see and remain in an error that you cannot discern.
- [4:916] Sleep occurs when the soul retreats within the body and the limbs loosen.
- [4:929] Be careful that I do not scatter my words to the winds.
- [4:932] The body grows feeble and towards sleep when the soul retreats within.
- [4:954] Sleep follows too after food.
- [4:962] What we do when we are awake is what engages the mind when we sleep. Lawyers plead their cases, generals fight battles, sailors fight the wind, and we write poetry in our native tongue.
- [4:973] If we observe the games for many days in succession, we end up reliving the experience in our sleep.
- [4:984] So important is the pleasure that we pursue is that even animals in sleep relive those actions: racehorses pant and strain in their sleep, hunting dogs toss their legs and sniff the air, and the like.
- [4:1011] In their sleep kings storm towns, and men fight, and politicians give speeches, thirsty men drink from streams, and some relieve themselves in their beds, and young men will ejaculate upon dreams of their loved ones.

2.4.15. Sexual Romance Can Be Intoxicating And Dangerous But Its Hazards Can Be Avoided

- [4:1037] Men fall towards blows that strike them, and it is the same with love, and the seed rises in the direction of the one with whom the young man is smitten.
- [4:1058] The pleasure of sex comes from Venus. The madness of love can grow stronger day by day, and it is best to take steps to avoid such madness.

- [4:1073] He who shuns the madness of love need not be without the pleasures of Venus, but he can pursue those pleasures in way that brings no pain, without engaging in the madness.
- [4:1084] The desire for sex cannot be satisfied in the same way as meat and drink, which are taken into the limbs and satisfy the body. The madness of love can be satisfied briefly, but soon returns, and those madly in love waste away when they are unable to conquer their disease.
- [4:1121] The madness of love leads to great waste and dissipation of assets, and to great pain when we are jealous.
- [4:1141] Ills such as these are found even in loves that work out well, but when love is crossed and hopeless there are much worse ill, so it is better to avoid such madness in the first place, and to be clear-eyed about our lovers rather than to romanticize them as having attractions that they in fact do not have.
- [4:1171] Lovers pine away for their beloveds, and make fools of themselves, but this can be avoided by thinking about the truth of what is happening.
- [4:1192] And women are not always deceptive, and often showers love from the heart, and the lovers engage and are bound in common pleasure.
- [4:1209] The children born of a union will look like the mother, or the father, depending on the way the seeds come together, and sometimes the children look like their grandparents or other ancestors, because such things are transmitted by the first seeds.
- [4:1233] Some can successfully have children with some partners but not with others, and this again depends upon the makeup of the seeds.
- [4:1263] The way the act of love is performed is also relevant to what kind of children come from the union, and humans conceive best when they mate as do beasts.
- [4:1278] Beauty is not a requirement for love, and women may bring about love by being unselfish and neat and easy with which to live. Such love can grow over time like drops of water falling upon rocks can wear away the surface over time.

2.5. Book V - The World - The Earth, Sky, Sun, and Stars - Are Not Divine But Mortal, and Will One Day Pass Away

2.5.1. Epicurus's Wisdom Made Him Godlike

- [5:01] What can compare with the majesty of Epicurus' discoveries, and who can compare with him? No one, because Epicurus was virtually a god, and by his skill he saves our lives from high seas and thick darkness and brings us safely to calm waters and bright light.
- [5:13] Compare these achievements to others such as Ceres or Liber, and you will see that life could go on without grain or wine, but a good life cannot be lived without a clean heart, and even now his message spreads far and wide among great nations.
- [5:22] The deeds of Hercules do not exceed those of Epicurus.
- [5:43] Unless we have clean hearts we are constantly battling all sorts of troubles pride, filthiness, wantonness, luxury, sloth. Epicurus has driven these problems away not by force or arms but by his message, and does not such an accomplishment entitle him to be ranked among the gods, especially since his godlike words revealed to us the nature of the gods and the rest of things?

2.5.2. The World Is Mortal and Will One Day Pass Away

- [5:55] It is in his path that we follow, and we show how nature works, and how all things including our minds are created, and eventually die, and how we think we sometimes see those who are long dead. As we proceed we will see that all of the world is itself made of mortal body, and how living things sprang from earth, and how men began to speak, and how they came to fear the gods, and how nature steers the course of all things without the forethought of any gods. For those who are confused about how nature operates fall back into the superstition of thinking that the gods control nature, and they become as slaves to stern masters, not knowing how all things have their powers limited by Nature.
- [5:91] The seas, the lands, and the skies are vast, but one single day will hurl them all, with the rest of the world, to ruin. This cannot be placed before your eyes and ears and hand, which is the best way to

prove something that is previously unknown, but I will speak and show you what can be shown.

- [5:110] I will also show you that the the earth and sun and moon and stars which will be destroyed are not gods, as you might think if you are misled by religion, and that their destruction is not the fault of anyone who deserves punishment.
- [5:126] For just as trees cannot grow in the sky or clouds in the sea, mind cannot exist without a body of a living creature, and mind could sooner exist in a shoulder or a heel than mind could exist in the earth or sun or moon or stars, which are not divine.
- [5:146] No gods can abide in this world, because their nature is so fine that they cannot be touched, and so the abode of the gods much be unlike our own world.

2.5.3. The World Was Not Made For Men By The Gods

- [5:156] It is foolish to imagine that the world was established for men by the divine gods, and that the destruction of the world would be a sin against the gods, for why would the gods do anything for our sakes? What new thing could have enticed them to change their former lives? What ill would have come to us if we had never been made? Were we wallowing in grief until the gods made creation? Whosoever has been born must wish to abide in life so long as pleasure hold him, but for him who has never tasted life, what harm to have never been made?
- [5:181] How was their first implanted in the gods a pattern for the creation of things, or of men, so that they might see in their minds what they wished to do, or how to do it, if nature herself did not provide the model for creation?
- [5:195] Even if we did not understand the atoms, we would conclude that the earth was not made for humans, so great are the flaws within it.
- [5:200] Most of the earth is covered with rocks, or the sea, or is too hot or too cold for us.
- [5:218] Why does the world have so many dangerous beasts, and dangerous seasons, and death stalking us before our time?
- [5:222] Children are not equipped to survive at birth like animals are equipped by nature.
- [5:235] Everything that composes the world is of a type that must be born and eventually pass away, and so the whole world itself was at one time born and at some future time must pass away.
- [5:247] We can see how the earth constantly gives off dust, and clouds, and liquid, and those return to her, just like living things nourish and increase and then die.
- [5:261] The cycle of water from the seas to the land and back again is an illustration of this process.
- [5:273] The air goes through a cycle of loss and replenishment similar to water.
- [5:281] The sun and moon and stars also have ways of replenishing the light that they send out.
- [5:306] Even the stone monuments of men and the stone of mountains are seen to eventually wear away and perish, and they would not do so if they were eternal.
- [5:318] The sky also gives of itself, and is lessened and then replenished.

2.5.4. The World Is Young And Not Immortal

- [5:324] If the earth had no beginning, why do we find our history to be so short, and that nothing is known of what occurred before the Theban War and the Trojan War? The reason is that the world is relatively young.
- [5:338] If you think that our history is short because there have been previous disasters which wiped away all civilizations, then that too is proof that the entire world will eventually perish, as it would have already if those earlier disasters had been stronger.
- [5:351] As we discussed before, nothing is immortal unless it is solid like the atoms, or exempt from blows like the void, or because there is no room around it into which it can be broken up, or because there is nothing outside it which might come in to break it up. None of these things are true about the world, and so we can conclude that the world was in the past born and in the future will die.
- [5:380] The mighty members of the world like the sun and the waters and the winds and fires fight against each other constantly, and at times the water and at time fire has gained the upper hand.
- [5:396] Fire at one time burnt up many things on earth, though not through the false story of Phaethon told by the Greek poets.
- [5:411] Likewise the waters at one time began to flood the earth but eventually subsided.

2.5.5. The World Was Formed Through The Coming Together of Atoms

- [5:416] Not by design or agreement did the atoms come together to form the earth and sky and sun and moon and ocean, but because the atoms moved on their own in many ways over the ages to get to the positions where they are now.
- [5:432] At first there was no sun or stars nor seas nor skies nor earth nor air, but a sort of storm and bodies gathered together which had not yet come into a harmonious union until like separated to like and the things we see today were formed.
- [5:449] Eventually the earth and sea and sky and separated into their respective areas.
- [5:471] Next the sun and moon were formed.
- [5:480] Over time on earth the lands separated from the seas.
- [5:495] Due to its lightness the air separated from the sea.
- [5:509] It may be that the stars move due to currents of air which can be compared to water turning a waterwheel.
- [5:517] There may be other reasons as well, such that the stars move as they seek and consume fuel.
- [5:526] There are diverse possible reasons why the stars appear to move, but it is not the job of one who seeks knowledge step by step to affirm which of them is true.
- [5:534] The earth is able to stay at the middle of our world in the same way that for a man the weight of his head and limbs is no burden, and the earth came into being in the same relationship with the rest of our world just like our limbs are seen to be connected to a man.
- [5:550] The shaking of the earth by thunder shows how the earth and sky are connected.
- [5:556] Just as our souls are fine but drive our body, the air is linked with and can drive the earth.

2.5.6. The Sun And Moon And Stars Are the Sizes They Appear To Be

- [5:564] The sun must be the size it appears to be because of the way we perceive fire and heat over distances.
- [5:575] The moon also must be about the size it appears, regardless of whether her light is self-generated or reflected, especially given how sharp it appears.
- [5:585] All the fires of heaven must be about the size they appear to be because they hardly change their size over time,
- [5:592] It is not surprising that the sun can light the world because in the same way a tiny spring can moisten large fields.
- [5:604] Or it may be that the air catches fire from the sun like crops can catch fire from a single spark.
- [5:610] Or it may be that there is fire around the sun that we do not see but only contains heat which feeds the sun.

2.5.7. The Sun and Moon Move And Shine Naturally

- [5:614] No single cause can be assigned to explain the path of the sun and moon.
- [5:621] It is possible that Democritus was right in saying that the path of objects in the sky is determined by how high they are above the earth.
- [5:637] Or it may be that the sky contains great streams of air which explain their movements.
- [5:650] There are multiple possibilities as to the cause of night.
- [5:656] And there are multiple possibilities as to the cause of day.
- [5:666] The fixed periods of time for night and day are analogous to the fixed times for the seasons and the growth of trees and the aging of humans.
- [5:680] There are multiple possibilities to explain the changing length of days and nights over the seasons.
- [5:696] The air may be thicker in some seasons more than others.
- [5:701] It may be that a new sun is born every day.
- [5:705] The moon may shine with the reflected light of the sun.
- [5:715] The moon may shine with its own light and yet the changing shape may be explainable, even though the Babylonians and Chaldaeans fight about this and say that only their possibility is true.
- [5:731] A new moon may also be born every day.

- [5:751] And there are several possibilities to explain eclipses.
- [5:772] Now that we have given possible explanations for what we see in the sky we will turn to the formation of the earth.

2.5.8. The Earth Is Mother of Living Things

- [5:783] The earth gave birth first to plants and then to animals, because living animals did not fall from the sky nor issue from salt pools.
- [5:795] The earth gave birth to mortal things like a woman gives birth to a child.
- [5:821] Thus the earth is entitled to the name mother.
- [5:826] Eventually the earth stopped giving birth, just as does a woman who ages.
- [5:837] The earth also created monstrosities which could not survive and reproduce.
- [5:855] Many types of things perished because they could not propagate, for all living things that we see are able to reproduce.
- [5:862] Animals are protected either by their nature, or they seek protection from humans which we give due to their usefulness.
- [5:871] Animals which could not protect themselves or seek protection from us perished.

2.5.9. There Are Limitations On What Can Be Born

- [5:875] But neither Centaurs nor animals of double nature ever existed because alien natures cannot combine.
- [5:883] That alien natures cannot combine is shown by how horses and humans age differently, and how goats can eat hemlock which is poisonous to humans.
- [5:901] Fire burns the bodies of any animal, so it cannot be combined with any as is alleged with the dragon-like Chimeara.
- [5:907] There is a fixed law of nature which determines how things are born and grow and die, and we cannot use the youth of the earth to speculate that back then streams of gold flowed across the land or trees blossomed with jewels or men were giants, because the laws of nature remain the same.
- [5:925] But things do change over time as they grow, and long ago men were hardier than they are now, and ate acorns, and were able to live off other produce of the earth.

2.5.10. Early Humans Arose And Progressed Naturally

- [5:945] And early men lived in the forests and drank from streams.
- [5:953] Early men lived without clothes and in caves or bushes to protect themselves from the weather.
- [5:958] Early men did not know to make use of customs or laws and each lived at his own will for himself alone.
- [5:962] Men and women mated according to lust, or mutual passion, or for the price of acorns, berries, or pears, and they would hunt the animals with stones or clubs.
- [5:970] Early men slept on the ground and learned that day follows night, so they were not afraid of night lasting forever, but they were afraid of wild animals.
- [5:988] Early men would cry out from being eaten by animals and the pain of wounds, but thousands of them did not die at once as in wars today, nor did they subject themselves to shipwrecks. They sometimes died of famine but not of gluttony, as do we, and they sometimes died from eating poison but they did not poison each other intentionally as we do.
- [5:1011] Humans learned to form families and were softened by children, and humans learned to form agreements not to hurt or be hurt, and to have pity on the weak. Not all would keep their agreements, but most did, or the human race would have been destroyed.

2.5.11. Language Was Developed Naturally

- [5:1028] It was use that shaped the names we gave to things, just as children gesture and point, and young animals learn to use their horns and teeth and claws and wings.

- [5:1041] It is foolish to think that any one person parceled out names to things and taught everyone else, for everyone has the ability to form names, and no one received that ability first, and no one can force others to use his words, especially when they are deaf to what they have never heard before.
- [5:1056] There is nothing so marvelous about language, because other animals make sounds as well.
- [5:1063] Dogs snarl in anger, or whine in fear, or make fond noises to their cubs. Horses snort and sometimes whinny.
- [5:1078] Birds make differing sounds according to what they are doing. If animals which are dumb can make such sounds, it is easy to see how humans could mark off more sounds for more uses.
- [5:1091] Man's use of fire comes from seeing fire from lightning or from tree branches rubbing together in the wind, and cooking comes from seeing the sun soften things by its heat.

2.5.12. Humans Gradually Learned the Benefits Of Society

- [5:1105] Those who were strongest in understanding learned new ways to live, with kings building cities and citadels and organizing their peoples, first on the basis of beauty or strength and then later based on property and gold. However strong or beautiful someone is born, they generally follow the lead of richer men.
- [5:1117] A man of true reasoning sees that it is a great richness to live thriftily with calm mind, and that struggling for riches leads to the envy of others and to great dangers, so it is better to obey in peace than to seek to rule kingdoms. The notion to seek such power comes from hearsay, and is of no more use now than it was in old times.
- [5:1136] Kings were eventually put to death and trampled, and anarchy followed, each man seeking for power, and then some learned to establish laws after they grew weary of a life of violence.
- [5:1151] Fear of punishment taints the prizes of life, and he who gives violence suffers violence, and one who breaks the law can no longer live confident that he will not be punished.

2.5.13. Religion Arose Due to Fear of the Unexplained And the Misinterpretation of Images

- [5:1161] Next we discuss why religion spread among men and causes them dread.
- [5:1169] The notion of gods arose because of images seen both awake and in dreams, and the false conclusions that men drew from seeing those images move and appear strong and happy and free from fear of death and accomplish marvels without working.
- [5:1183] And men also looked at the sky and could not explain what they saw, so they attributed the causes to the gods.
- [5:1194] What unhappiness and sorrow men took upon themselves when they adopted religion. It is not piety to erect altars and make sacrifices, but to be able to contemplate nature calmly.
- [5:1204] Lack of reasoning causes doubt when we look up at the sky, and we wonder about its causes and whether the world was created and how long it will last, and whether the gods can grant immortality.
- [5:1218] Even kings and shrink in terror of the gods from fear that lightning means punishment for a crime.
- [5:1226] Likewise naval commanders fear the winds and try to bargain with the gods for safety; so much does fear of the gods make sport of even military commanders.
- [5:1236] Given the power of earthquakes what wonder is it that men forsake themselves and believe in the power of gods to guide all things?

2.5.14. Over Time Humans Advanced In Technology And Human Progress

- [5:1241] Metals were discovered when humans observed the aftermath of fires, and saw that copper and gold were melted by the heat. At first men valued copper more than gold because it kept its edge, but then over time gold became more valued. This is a repeated pattern what was of value becomes of no worth, and then another thing rises up afterwards.
- [5:1281] Men first used their hands and nails and teeth to cut things, and then discovered bronze and then iron, which became used for war.

- [5:1297] First horses were used for war, then chariots of two and then four horses, and war technology increased.
- [5:1308] Men tried bulls in war too, and boars, and lions, but these often turned on their own masters.
- [5:1341] It is hard to believe that men did not anticipate that their war animals would turn on them, and easier to believe that this happened on some other world rather than here, but the goal was more to intimidate the enemy to give up than anything else.
- [5:1350] Clothes tied together came before full dressings, and men worked wool before women did, until they gave it up under the scorn of the outdoorsmen.
- [5:1361] Nature herself provided the first pattern for sowing seeds and grafting and farming.
- [5:1379] Music was made in imitating the singing of birds, and instruments were made in imitation of reeds.
- [5:1390] Men learned to play tunes and enjoy them after meals, and to dance, and joke, and laugh, and people today do the same with no more enjoyment than these early men.
- [5:1412] What is at hand pleases us most, unless we experienced better in the past, but more often the new changes our feeling for the old, even when it is not needed, and so men toil fruitlessly and waste their lives because it has not learned the lesson that there is a limit to how far pleasure can increase, and this dissatisfaction has fed the rising tides of war.
- [5:1436] But the sun and moon go round and round and teach us of the change in seasons and that all goes forward in nature with a certain order.
- [5:1440] Humanity progressed step by step over the years in art and technology, just as time raises all things to the borders of light within our vision, and humans saw one thing after another

2.6. Book VI - Storms And Other Mysterious Or Harmful Events Are Caused Not By Gods But Atoms

2.6.1. Epicurus' Diagnoses And Cures the Diseases Caused By False Ideas About the Nature of Things

- [6:01] Athens, famous for its discoveries, first gave sweet comfort to life when it raised up Epicurus, who spoke such wisdom that his glory, even after his death reaches to the sky.
- [6:09] When Epicurus saw that men were prosperous but still discontented, he saw that the problem was their view of life, and that it was both so leaky that it could never be filled, and it was also tainted so that it spoiled whatever was within it. So by his wisdom he purged these problems and set a limit to desire and to fear, and identified the highest good, and how to get there, and how to avoid those ills that are avoidable, and unnecessary fears that plague men like children who are afraid of the dark, which cannot be cured by light but by understanding of Nature.

2.6.2. Storms Are Not Caused By The Gods

- [6:43] Now that we have shown that all the earth and sky is mortal, we will discuss the storms that make men afraid and cause them to grovel before the priests. Even those who understand that the gods are free from cares, if they wonder what causes these storms, will fall back into religion, and will be borne along by blind mistaken reasoning.
- [6:68] Unless you rid yourself of all these false ideas and banish thoughts about the gods that are unworthy of them, you will suffer trouble, not caused by the gods, but because you will imagine that they are going to punish you, and you will not have the strength to understand the images of the gods that you receive.
- [6:80] In order to drive these false ideas far from us we must understand the reason for the storms we see, so that we are confident they are not caused by the gods.
- [6:92] Show me the path ahead, Calliope, muse of knowledge, so that with you as guide I may win the pleasure of praise.

2.6.3. Thunder and Lightning Are Not Caused By Gods

- [6:96] Thunder is caused by the clashing of winds and clouds.

- [6:108] The cracking of thunder arises in a similar way as awnings which are flapped back and forth by the wind, or as the clouds graze against each other as they move by.
- [6:121] Heavy thunder occurs when the pressure within clouds break forth, like small bladders of air make noise when they burst, or like when the wind blows through a forest.
- [6:137] Such sounds may also be caused when wind tears through a cloud from the front, like the wind picks up tall trees from their roots.
- [6:142] Also waves can move through clouds and break just like waves in the ocean.
- [6:145] Thunder may also come from forces similar to crackling fires, such as with the Delphic laural of Phoebus.
- [6:159] Thunder may also be caused in the same way that ice can crack or hail can fall.
- [6:160] Lightning can come as with sparks from fire or stones striking other stones or iron.
- [6:164] We see the lightning before the thunder because light moves faster than sound, just as we see the stroke of a distant forester before we hear the impact of his blow.
- [6:173] Lightning also occurs when the clouds stack high and collapse on one another.
- [6:204] Lightning gets its color both from the seeds of fire within it and from the light of the sun.
- [6:214] Lightning can also come from a sky that is lightened and with thin clouds.
- [6:219] Thunderbolts show their nature by the burned marks of fire and the smells of sulphur they leave behind.
- [6:225] The fire of lightning is the most subtle of fire, and can go through anything.
- [6:239] Now we discuss how the thunderbolts do their destructive work.
- [6:246] Thunderbolts never come from a clear sky, but from clouds of great mass and blackness.
- [6:256] The worst storms come from dark clouds piled up on each other that shut out the sun.
- [6:269] These massed dark clouds are full of wind and fire, and eddies and whirls within them sharpen the thunderbolt as if in a furnace, and the thunderbolts are followed by torrential rains.
- [6:295] Thunderbolts fall to the earth when the winds rend the cloud open.
- [6:300] Sometimes the winds can catch fire as well.
- [6:309] Sometimes the winds start out cold but catch fire due to impact, as when we strike a stone with iron.
- [6:323] Thunderbolts strike with great speed because they are shot out of clouds like missiles shot from engines of war.
- [6:330] Thunderbolts are made of small and smooth particles that can pierce anything.
- [6:335] Everything in nature presses downward, but thunderbolts are doubled in swiftness because they are shot out of the clouds and scatter all that impede them.
- [6:340] Thunderbolts are pushed by a long-lasting force, and they gather speed as they move.
- [6:348] Thunderbolts can pass through many things without harming them.
- [6:357] Thunderbolts happen mostly in the autumn and spring, when the air is not so hot or cold as in the summer or winter.

2.6.4. It Is Foolish To Believe That The Gods Hurl Thunderbolts

- [6:379] What we are doing is the proper way to understand thunderbolts, rather than blaming them on prophecies or hidden purposes of the gods or what direction it came from, or what acts of men preceded it, or what harm it does to the men who receive it.
- [6:387] If the gods caused thunderbolts, why do they not send them against those who have sinned in some way, rather than against the innocent?
- [6:396] Why do the gods send their thunderbolts to no place in particular and waste their time? Why do the gods not use them against their foes? Why do the gods not send thunderbolts in clear skies? Why do not the gods direct the thunderbolts themselves, rather than sending them uselessly into the sea and the fields?
- [6:406] If the gods want us to see the damage thunderbolts cause, why do they not let us see where it came from? Why gather darkness beforehand and give thunder as warning?
- [6:411] Why would the gods hurl their thunderbolts in so many directions, rather than to precise targets?
- [6:417] Why do the gods strike their own temples and statues with their thunderbolts?

2.6.5. Tempests Have Natural Causes

- [6:423] Next we can learn what causes the tempests that let down a column from the sky that destroys ships.
- [6:431] When the force of the wind cannot burst a cloud, it presses down the cloud into the ocean, and a whirling descends to the ocean.
- [6:443] These eddies of wind happen more frequently at sea than land, because the mountains bar it on land.
- [6:451] Tempests arise when clouds gather together and are intertwined and borne on by the winds.
- [6:459] The taller that a mountain is the more the winds carry clouds to the top.
- [6:470] Clouds being lifted to the top of mountains arises in a way similar to clothing hanging out on the shore takes in a clinging moisture.
- [6:476] Clouds and vapors rise from bodies of water and build up in the high clouds.
- [6:483] It is not strange, given the speed at which the atoms move, that in a short time storms and darkness can come up.
- [6:495] Seeds of water rise up to the clouds, which also take in moisture from the sea, just as clothing hanging near the sea takes in moisture, and when saturated the clouds discharge it.
- [6:517] Violent downpours are caused by the mass of the clouds or the wind.
- [6:524] Rainbows arise against the spray of the stormclouds.
- [6:527] The powers of the elements cause these and all other phenomena associated with the clouds.

2.6.6. Earthquakes Have Natural Causes

- [6:535] Earthquakes arise from subterranean windy caverns and rivers, which would appear to exist because the earth should be in its parts like itself.
- [6:543] Just as houses tremble when a wagon of no great weight drives by, things above on earth tremble when caverns below the earth fall in over time.
- [6:552] Even a vessel sometimes cannot stand still until the liquid within has ceased to toss.
- [6:557] The surface of the earth can be disrupted also as the wind blows through the subterranean caverns. Then we see houses fall; and yet mean fear to believe that the world itself will one day be destroyed.
- [6:577] Earthquakes can also be caused by wind hurling itself into hollow places of the earth, and we see cities like Sidon and Aegium overthrown by the quaking of the earth.
- [6:591] The air can induce a quivering that leads to earthquakes, just like a cold that gets deep into our bodies causes us to tremble and to move.
- [6:601] Let men believe as they will that the earth is indestructible, still the earthquakes inspire fear that the whole world will be wrecked.

2.6.7. Floods and The Water Cycle Have Natural Causes

- [6:608] Men wonder why the sea does not get bigger from all the rain that falls, but compared to the sum of the sea this amount is small.
- [6:616] Moreover, the sun draws off much water from the sea by its heat, and the wind draws water also, as we see roads dried by the wind in a single night.
- [6:631] Water also passes down from the the sea into the earth, since the earth is porous, and is carried back to the fountainheads of rivers.

2.6.8. Volcanoes Have Natural Causes

- [6:639] Even neighboring nations turned to watch when Mount Etna's flames sometime breathe forth.
- [6:647] Look far and deep and wide in every direction and remember that the sum of things is unfathomable, and you will see how very small a single man is against the whole sum of things, and if you see this clearly you will cease to wonder at many things.
- [6:655] Are we surprised if we catch a sudden fever or disease or toothache? There are such seeds of many things from which measureless disease might spread forth, and from which the earth might be

shaken and moved, or a hurricane tear over the land, or Aetna erupt, or the heavens be aflame.

- [6:673] Do you think that the stormy blaze of a fire is gigantic? So too is a river if never seen before, or even a tree or another man may seem gigantic, and yet all of them together are nothing compare to the universal sum of all.
- [6:680] Mount Aetna is hollow, and in all its aves is wind and air, and the air becomes wind when it is set in motion. The eruption occurs when this wind becomes hot and heats the rocks and drives itself up and outward.
- [6:694] Water from the nearby see also gets under Mount Aetna and contributes to the eruption.
- [6:703] Just as with a man who you find to be dead, if you want to know his cause of death, you must consider all possible causes, so also must you consider all possible causes of Mount Aetna's eruptions.

2.6.9. The Reversing Flow of the Nile Has Natural Causes

- [6:712] The reversing flows of the Nile in Egypt are caused perhaps by the winds, perhaps by the heat and cold, perhaps by heaps of sand, or for other possible reasons.

2.6.10. Areas Of Deadly Fumes Have Natural Causes

- [6:738] The Avernian Lakes and such places are called that because birds who fly over them are killed. There is also a similar spot within the walls of Athens. In Syria too there is such a spot where animals will fall dead. Yet all these things are brought about by Nature, and not caused by the gods.
- [6:769] As we have discussed before, some types of bodies are food to some, poison to others. Some trees cast a shade that causes headache, or scent that can kill. A newly-extinguished light can put certain men to sleep. The scent of castor can put a woman to sleep, if she smells it at the right time. There are many other such examples.
- [6:818] The Avernian spots are deadly to birds because of the fumes.
- [6:830] It may also be the case that the Avernian spots dispel the air above them, so that there is an empty space through which the birds cannot fly.

2.6.11. Mysterious Fountains Have Natural Causes

- [6:840] Water in the earth can grow colder in the summer because as the earth exhausts heat in the summer, the cooler becomes the moisture in the earth.
- [6:848] There is a fountain near Ammon which is cold in the daytime and warm at night, and some think that this is because when the sun goes below the earth it warms the water at night. This is far from true reasoning if the sun during the day cannot heat the water, how could the sun heat it at night? The true reason is that the sun during the day makes the ground more porous, and the seeds of fire near the water spread out away from it during the day, but at night the ground squeezes the seeds of fire back toward the water.
- [6:879] There is also spring over which if tow be held, it catches fire. This is because the water contains seeds of fire.
- [6:890] There are also places of fresh water that appear among the salt water of the sea.

2.6.12. Magnetic Attraction And Repulsion Have Natural Causes

- [6:906] Magnets require a detailed explanation to which you must be attentive. The explanation involves the flow of atoms like that that we have discussed constantly stream off of objects and awake vision in our eyes, or which cause scents.
- [6:936] We must also remember that nothing can be accepted to exist except things made of atoms and void, in which water travels through stone, and hair grows from our head, and cold passes through bronze and silver, and voices carry through walls, etc.
- [6:959] Remember too that some things have one effect on some things but different effects on others, just as pigs shun marjorum while humans like it.

- [6:979] We must also remember that the pores and passages of things can be suitable to the travel through them of some things, but not others.
- [6:998] With this background we can explain how magnets attract iron.
- [6:1002] Part of the explanation is that when the particle travel between the magnet and iron, they part the air and leave a void, into which the magnet and iron are pulled together.
- [6:1022] Further, the air behind the magnet and the iron push the two piece together toward the void area.
- [6:1042] The repelling force of magnets works similarly. {?}
- [6:1056] Magnets cannot push or pull things other than iron in the same way, but this too is explainable from the nature of the objects.
- [6:1065] It is not surprising that magnets can work with only some object as and not others, because we frequently see other object combinations of this kind, such as stones stuck together by mortar, wood only by certain types of glue, grape juice mingling with water while olive oil does not.

2.6.13. Plagues Have Natural Causes

- [6:1090] Now we discuss the cause of plagues, which are also caused by the characteristics of seeds of things, in that some are healthy for us and some are harmful and cause disease. When these unhealthy seeds gather together in the air they can cause disease.
- [6:1103] Those who travel far from home are often affected by strangeness in the climate or the water, and many places have their own varying diseases.
- [6:1119] Noxious particles can spread through the air.
- [6:1125] When we breathe in noxious particles they do us harm.
- [6:1138] An example of a plague arising occurred in Cecrops, having arisen in Egypt.
- [6:1145] The plague caused many horrible effects on the body.
- [6:1163] The plague caused a burning sensation that could not be quenched with water.
- [6:1178] There was no respite from the suffering of this plague.
- [6:1182] The mind was affected by this plague as well, and caused pain and panic, all leading to death on the eighth or ninth day.
- [6:1199] The disease spread throughout the body in horrible ways and affected the mind so that people did not even know themselves.
- [6:1215] The plague affected the animals as well.
- [6:1225] Some medicines worked for some people but not for others.
- [6:1230] The plague spread among everyone and heaped death on death, some trying to help each other and some not.
- [6:1247] Not a man could be found who disease or death or mourning had not touched.
- [6:1252] Whole families perished.
- [6:1259] The plague spread from the country into the city and the dead would fill the houses and streets.
- [6:1272] Death filled the temples as well, and the religion of the gods was not counted for much, and the old rites of burial were discontinued, and people would fight to place their kin on the fires to burn them.