Episode Twenty-Three - The Motion Of The Atoms Continues Without Resting Place, and At Great Speed

Post by “Cassius” of June 12, 2020 at 4:18 PM

Welcome to Episode Twenty-Three of Lucretius Today.

I am your host Cassius, and together with my panelists from the EpicureanFriends.com forum, we'll walk you through the six books of Lucretius' poem, and discuss how Epicurean philosophy can apply to you today. Be aware that none of us are professional philosophers, and everyone here is a self-taught Epicurean. We encourage you to study Epicurus for yourself, and we suggest the best place to start is the book, "Epicurus and His Philosophy" by Canadian professor Norman DeWitt.

Before we start, here are three ground rules.

First: Our aim is to bring you an accurate presentation of classical Epicurean philosophy as the ancient Epicureans understood it, which may or may not agree with what you here about Epicurus at other places today.

Second: We aren't talking about Lucretius with the goal of promoting any modern political perspective. Epicurus must be understood on his own, and not in terms of competitive schools which may seem similar to Epicurus, but are fundamentally different and incompatible, such as Stoicism, Humanism, Buddhism, Taoism, Atheism, and Marxism.

Third: The essential base of Epicurean philosophy is a fundamental view of the nature of the universe. When you read the words of Lucretius you will find that Epicurus did not teach the pursuit of virtue or of luxury or of simple living as ends in themselves, but rather the pursuit of pleasure. From this perspective it is **feeling** which is the guide to life, and not supernatural gods, idealism, or virtue ethics. And as important as anything else, Epicurus taught that there is no life after death, and that any happiness we will ever have must come in THIS life, which is why it is so important not to waste time in confusion.

Now for today in this Episode 23, we continue in Book Two to discuss the atoms, this time how

Now let's join the discussion with today's text, the opening of Book Two, read by Martin

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Note: In previous episodes we have discussed:

- (1) **Venus / Pleasure As Guide of Life**: That Pleasure, using the allegory of Venus, is the driving force of all life; That the way to rid ourselves of pain is to replace pain with pleasure, using the allegory of Venus entertaining Mars, the god of war;
- (2) **The Achievement of Epicurus:** That Epicurus was the great philosophic leader who stood up to supernatural religion, opened the gates to a proper understanding of nature, and thereby showed us how we too can emulate the life of gods;
- (3-4) **So Great Is The Power of Religion To Inspire Evil Deeds!** That it is not Epicurean philosophy, but supernatural religion, which is truly unholy and prompts men to commit evil deeds;
- (5) **On Resisting The Threats of Priests And Poets:** That false priests and philosophers will try to scare you away from Epicurean philosophy with threats of punishment after death, which is why you must understand that those threats cannot be true; That the key to freeing yourself from false religion and false philosophy is found in the study of nature;
- (6-7) **Step One: Nothing Comes From Nothing.** The first major observation which underlies all the rest of Epicurean philosophy is that we observe that **nothing is ever generated from nothing.**
- (8) **Step Two: Nothing Goes To Nothing.** The second major observation is that **nothing is ever destroyed completely to nothing.**
- (9) **The Evidence That Atoms Exist, Even Though They Are Unseen.** The next observation is that we know elemental particles exist, even though we cannot see them just like we know that wind and other things exist by observing their effects.
- (10-11) **The Void And Its Nature**. We also know that the void exists, because things must have space in which to move, as we see they do move.
- (12) **Everything We Experience Is Composed Of A Combination of Matter And Void.** Everything around us that we experience is a natural combination of atoms and void.
- (13) **The Things We Experience Are Properties and Qualities Of Atoms And Void And Cease To Exist When Their Atoms Disperse**. All things we experience around us are either (1) the **properties** (essential conjuncts; essential and unchanging) or **qualities** (events; inessential and changing depending on context) of bodies. All these arise from the nature, movement, and combinations of the atoms, and cease to exist when the atoms which compose the bodies disperse. Therefore it is incorrect to think that ideas or stories such as that of the Trojan war have any permanent existence.
- (14-15) **Atoms Are Solid And Indestructible, And Therefore Eternal**. The argument that atoms are solid and indestructible and therefore eternal.
- (16) **The Atoms Are Never Destroyed**, they Provide Continuity To All Nature, and there is a strict limit on Divisibility of All Things.
- (17) **All things are not made of a single element, such as fire, as some philosophers assert** - such as Heraclitus, who asserted all things are made of fire.
- (18) **All things are not simply formed from the four classical elements (earth, air, fire, and water) -** here there reference is to Empedocles who was a great man, but greatly fallen.

- (19) All things are not made of tiny pieces of the same thing, or of tiny pieces of all things, as Anaxagoras suggested.
- (20) The universe is infinite in size and has no limits to its size.
- (21) The earth is not the center of the universe.
- (22) Opening of Book Two - Epicurean Philosophy As The Only Way To Defeat Fear of Death And Other Errors As To The Goal of Life

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Daniel Brown 1743 Edition:

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

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

But if you think the seeds of things can be at rest, and, being themselves unmoved, can give motion to bodies, you wander wildly from the way of true reason. For since all the seeds of things are rambling through the void, they must necessarily be born along either by their own natural gravity, or by the outward stroke of something else; for then these seeds tending downward meet with others, they must all fly off, and rebound a different way, and no wonder, since they are hard bodies and of solid weight; nor is there any thing behind to stop the motion. But, that you may perceive more plainly how all the seeds of matter are tossed about, you must recollect that there is no such thing in the universe as the lowest place, where the first seeds may remain fixed, because I have shown fully, and proved by certain reason, that space is without end, without bounds immense, and lies extended every way.

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

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

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

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

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

Munro:

Now mark and I will explain by what motion the begetting bodies of matter do beget different things and after they are begotten again break them up, and by what force they are compelled so to do and what velocity is given to them for traveling through the great void: do you mind to give heed to my words.

For verily matter does not cohere inseparably massed together, since we see that everything wanes and perceive that all things ebb as it were by length of time and that age withdraws them from our sight, though yet the sum is seen to remain unimpaired by reason that the bodies which quit each thing, lessen the things from which they go, gift with increase those to which they have come, compel the former to grow old, the latter to come to their prime, and yet abide not with these.

Thus the sum of things is ever renewed and mortals live by a reciprocal dependency.

Some nations wax, others wane, and in a brief space the races of living things are changed and like runners hand over the lamp of life.

If you think that first-beginnings of things can lag and by lagging give birth to new motions of things, you wander far astray from the path of true reason: since they travel about through void, the first beginnings of things must all move on either by their weight or haply by stroke of another.

For when during motion they have, as often happens, met and clashed, the result is a sudden rebounding in an opposite direction; and no wonder, since they are most hard and of weight proportioned to their solidity and nothing behind gets in their way.

And that you may more clearly see that all bodies of matter are in restless movement, remember that there is no lowest point in the sum of the universe, and that first bodies have not where to take their stand, since space is without end and limit and extends immeasurably in all directions round, as I have shown in many words and as has been proved by sure reason.

Since this then is a certain truth, sure enough no rest is given to first bodies throughout the unfathomable void, but driven on rather in ceaseless and varied motion they partly, after they have pressed together, rebound leaving great spaces between, while in part they are so dashed away after: the stroke as to leave but small spaces between.

And all that form a denser aggregation when brought together and rebound leaving trifling spaces between, held fast by their own close-tangled shapes, these form enduring bases of stone and unyielding bodies of iron and the rest of their class; few in number, which travel onward along the great void.

All the others spring far off and rebound far leaving great spaces between: these furnish us with thin air and bright sunlight.

And many more travel along the great void, which have been thrown off from the unions of things or though admitted have yet in no case been able likewise to assimilate their motions.

Of this truth, which I am telling, we have a representation and picture always going on before our eyes and present to us: observe whenever the rays are let in and pour the sunlight through the dark chambers of houses: you will see many minute bodies in many ways through the apparent void mingle in the midst of the light of the rays, and as in never-ending conflict skirmish and give battle combating in troops and never halting, driven about in frequent meetings and partings; so that you may guess from this, what it is for first-beginnings of things to be ever tossing about in the great void.

So far as it goes, a small thing may give an illustration of great things and put you on the track of knowledge.

And for this reason too it is meet that you should give greater heed to these bodies which are seen to tumble about in the sun’s rays, because such tumblings imply that motions also of matter latent and unseen are at the bottom.

For you will observe many things there impelled by unseen blows to change their course and driven back return the way they came now this way, now that way in all directions round.

All, you are to know, derive this restlessness from the first-beginnings.

For the first-beginnings of things move first of themselves; (next those bodies which form a small aggregate and come nearest, so to say to the powers of the first beginnings, are impelled and set in movement by the unseen strokes of those first bodies, and they next in turn stir up bodies which are a little larger.

Thus motion mounts up from the first-beginnings and step by step issues forth to our senses, so that those bodies also move, which we can discern in the sunlight, though it is not clearly seen by what blows they so act.

Now what velocity is given to bodies of matter, you may apprehend, Memmius in few words from this: when morning first sprinkles the earth with fresh light and the different birds flitting about the pathless woods through the buxom air fill all places with their clear notes, we see it to be plain and evident to all how suddenly the sun after rising is wont at such a time to overspread all things and clothe them with his light.

But that heat which the sun emits and that bright light pass not through empty void; and therefore they are forced to travel more slowly, until they cleave through the waves so to speak, of air.

Nor do the several minute bodies of heat pass on one by one, but closely entangled and massed together; whereby at one and the same time they are pulled back by one another and are impeded from without; so that they are forced to travel more slowly.

But the first-beginnings which are of solid singleness, when they pass through empty void and nothing delays them from without and they themselves, single from the nature of their parts, are borne with headlong endeavor towards the one single spot to which their efforts tend, must sure enough surpass in velocity and be carried along much more swiftly than the light of the sun, and race through many times the extent of space in the same time in which the beams of the sun fill the heaven throughout. [* nor follow up the several first-beginnings to see by what law each thing goes on.]

Bailey:

Come now, I will unfold by what movement the creative bodies of matter beget diverse things, and break up those that are begotten, by what force they are constrained to do this, and what velocity is appointed them for moving through the mighty void: do you remember to give your mind to my words. For in very truth matter does not cleave close-packed to itself, since we see each thing grow less, and we perceive all things flow away, as it were, in the long lapse of time, as age withdraws them from our sight: and yet the universe is seen to remain undiminished, inasmuch as all bodies that depart from anything, lessen that from which they pass away, and bless with increase that to which they have come; they constrain the former to grow old and the latter again to flourish, and yet they abide not with it. Thus the sum of things is ever being replenished, and mortals live one and all by give and take. Some races wax and others wane, and in a short space the tribes of living things are changed, and like runners hand on the torch of life.

If you think that the first-beginnings of things can stay still, and by staying still beget new movements in things, you stray very far away from true reasoning. For since they wander through the void, it must needs be that all the first-beginnings of things move on either by their own weight or sometimes by the blow of another For when quickly, again and again, they have met and clashed together, it comes to pass that they leap asunder at once this way and that; for indeed it is not strange, since they are most hard with solid heavy bodies, and nothing bars them from behind. And the more you perceive all the bodies of matter tossing about, bring it to mind that there is no lowest point in the whole universe, nor have the first-bodies any place where they may come to rest, since I have shown in many words, and it has been proved by true reasoning, that space spreads out without bound or limit, immeasurable towards every quarter everywhere. And since that is certain, no rest, we may be sure, is allowed to the first-bodies moving through the deep void, but rather plied with unceasing, diverse motion, some when they have dashed together leap back at great space apart, others too are thrust but a short way from the blow.

And all those which are driven together in more close-packed union and leap back but a little space apart, entangled by their own close-locking shapes, these make the strong roots of rock and the brute bulk of iron and all other things of their kind. Of the rest which wander through the great void, a few leap far apart, and recoil afar with great spaces between; these supply for us thin air and the bright light of the sun. Many, moreover, wander on through the great void, which have been cast back from the unions of things, nor have they anywhere else availed to

be taken into them and link their movements. And of this truth, as I am telling it, a likeness and image is ever passing presently before our eyes. For look closely, whenever rays are let in and pour the sun's light through the dark places in houses: for you will see many tiny bodies mingle in many ways all through the empty space right in the light of the rays, and as though in some everlasting strife wage war and battle, struggling troop against troop, nor ever crying a halt, harried with constant meetings and partings; so that you may guess from this what it means that the first-beginnings of things are for ever tossing in the great void. So far as may be, a little thing can give a picture of great things and afford traces of a concept.

And for this reason it is the more right for you to give heed to these bodies, which you see jostling in the sun's rays, because such jostlings hint that there are movements of matter too beneath them, secret and unseen. For you will see many particles there stirred by unseen blows change their course and turn back, driven backwards on their path, now this way, now that, in every direction everywhere. You may know that this shifting movement comes to them all from the first-beginnings. For first the first-beginnings of things move of themselves; then those bodies which are formed of a tiny union, and are, as it were, nearest to the powers of the first-beginnings, are smitten and stirred by their unseen blows, and they in their turn, rouse up bodies a little larger. And so the movement passes upwards from the first-beginnings, and little by little comes forth to our senses, so that those bodies move too, which we can descry in the sun's light; yet it is not clearly seen by what blows they do it.

Next, what speed of movement is given to the first-bodies of matter, you may learn, Memmius, in a few words from this. First, when dawn strews the land with new light, and the diverse birds flitting through the distant woods across the soft air fill the place with their clear cries, we see that it is plain and evident for all to behold how suddenly the sun is wont at such a time to rise and clothe all things, bathing them in his light. And yet that heat which the sun sends out, and that calm light of his, is not passing through empty space; therefore, it is constrained to go more slowly, while it dashes asunder, as it were, the waves of air. Nor again do the several particles of heat move on one by one, but entangled one with another, and joined in a mass; therefore they are at once dragged back each by the other, and impeded from without, so that they are constrained to go more slowly. But the first-beginnings, which are of solid singleness, when they pass through the empty void, and nothing checks them without, and they themselves, single wholes with all their parts, are borne, as they press on, towards the one spot which they first began to seek, must needs, we may be sure, surpass in speed of motion, and be carried far more quickly than the light of the sun, and rush through many times the distance of space in the same time in which the flashing light of the sun crowds the sky.

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nor to follow up each of the first-beginnings severally, to see by what means each single thing is carried on.