

# Episode Twenty - The Universe Is Infinite In Size

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Welcome to Episode Twenty 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 with today's episode let me remind you of our three ground rules.

First: Our aim is to go back to the original text to bring you an accurate presentation of [classical Epicurean philosophy](#) as the ancient Epicureans understood it, not simply repeat for you what passes for conventional wisdom about Epicurus today.

Second: We won't be talking about Epicurus from the point of view of modern political perspectives. 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: We will be approaching Lucretius exactly as he intended, with the goal of understanding the fundamental nature of the universe as the essential base of Epicurean philosophy. From this perspective you will see that Epicurus taught neither the pursuit of luxury nor the pursuit of simple living, as ends in themselves, but the pursuit of pleasure, using feeling as the guide to life, and not supernatural gods, idealism, or virtue ethics. 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.

Remember that our podcast home page is [LucretiusToday.com](http://LucretiusToday.com), where you can download a free copy of the versions of the poem we are reading, and our home for discussion of Lucretius and all other aspects of Epicurean philosophy is [EpicureanFriends.com](http://EpicureanFriends.com)

Now for today in this Episode 20, we will discuss how the universe is infinite in size.

Now let's join our discussion with Elayne and Charles reading today's text from Book One.

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Note: In previous episodes we have discussed:

<https://www.epicureanfriends.com/thread/1572-episode-twenty-the-universe-is-infinite-in-size/?postID=7747#post7747>

- (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.

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Here is the text that will be covered in Episode Twenty. The Latin version of Book One has this as beginning at approximately line 829 of the [Daniel Brown Edition](#) and of the [Munro Latin Edition here](#).

There are a total of about 1115 lines in book one, so we approximately halfway through.

**[Daniel Brown 1743 Edition:](#)**

[950] But since I taught the principles of matter are solid, are eternal, evermoving, nor are destroyed; now, come, let us inquire whether they have an end, or are by nature infinite: and since we have found a void or place, or space in which all things are moved, let us now see whether the universe, made up of void and body, be circumscribed, or does to a profound immensity extend.

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

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

[983] Besides, were this All's extended space shut up by certain bounds in every side, and was by nature finite, then this mass of matter, pressed by its solid weight, had long ere now sunk to the lowest place, and therefore nothing under the vault of heaven could have a being, nor could there be heavens at all, or the sun's light. For then the seeds of things that had been sinking

from all eternity would in confusion lie on heaps; by now the principles of bodies having no rest at all, are ever moving, because there's no such thing as lowest place, to which they may descend, no fixed abode where they should rest; but things are ever carried by motion never-ending, through every part of this vast All, from whence the active seeds of things arise, and are eternally supplied.

[997] Further, we see one thing bounds another; the air bounds in the hills, the hills the air, the earth shuts up the sea, and then again the sea surrounds the earth; but this great All nothing exterior to itself can bind. For the nature of this place, this empty space, is such, that rivers of the swiftest stream, were they to run for ages infinite, with a perpetual current, could not run through it, or ever by their running prove that they had less of their course to run; so vastly wide this mighty space of things extended lies on all sides, every way, without all bounds.

[1006] Besides, the laws of nature do provide, that this universe of things will not admit of limits to itself, because body is bound to void, and void bound to body; and by this mutual termination it is, that this great All becomes immense; for were not each a bound until the other, were body not a limit set to void, the void would be infinite, and all finite bodies would be dissolved, and so nor sea, nor earth, nor the bright heavens, nor mortal race of men, nor sacred bodies of gods could be one moment of an hour; for the seeds of bodies being disunited in themselves, would fly, and quite dissolved, be carried through the void; or rather, being never joined, had formed no being; for once scattered through this space, they could not be compelled to join again.

[1020] For certainly the principles of things could never range themselves in form or order, by counsel, or by wisdom of the mind, nor any compact make how each should move; but being changed in various forms, and struck with many blows, they are driven through this void for many ages, and having tried all kinds of motion, and of union, they at length by chance are so disposed to frame those bodies of which this Universe of things consists. And these seeds once thrown into convenient motions, and keeping in the same for many ages, is the true cause that rivers, with a large supply of waters from their streams, fill up the greedy sea, and the earth, supported by the sun's heat, renews the fruits, and the race of living creatures flourish, and the rolling stars of heaven are kept alive; all which could never be, if from this infinite mass a supply of seeds flowed not, from whence decaying things might rise, and live, and be from age to age repaired.

**Munro:**

[950] But since I have taught that most solid bodies of matter fly about for ever unvanquished through all time, mark now, let us unfold whether there is or is not any limit to their sum; likewise let us clearly see whether that which has been found to be void, or room and space, in which things severally go on, is all of it altogether finite or stretches without limits and to an unfathomable depth.

[957] Well then, the existing universe is bounded in none of its dimensions; for then it must have had an outside. Again it is seen that there can be an outside of nothing, unless there be something beyond to bound it, so that that is seen, farther than which the nature of this our sense does not follow the thing. Now since we must admit that there is nothing outside the sum, it has no outside, and therefore is without end and limit. And it matters not in which of its regions you take your stand; so invariably, whatever position any one has taken up, he leaves the universe just as infinite as before in all directions.

[966] Again if for the moment all existing space be held to be bounded, supposing a man runs forward to its outside borders, and stands on the utmost verge and then throws a winged javelin, do you choose that when hurled with vigorous force it shall advance to the point to which it has been sent and fly to a distance, or do you decide that something can get in its way and stop it? For you must admit and adopt one of the two suppositions; either of which shuts you out from all escape and compels you to grant that the universe stretches without end. For whether there is something to get in its way and prevent its coming whither it was sent and placing itself in the point intended, or whether it is carried forward, in either case it has not started from the end. In this way I will go on and, wherever you have placed the outside borders, I will ask what then becomes of the javelin. The result will be that an end can nowhere be fixed, and that the room given for flight will still prolong the power of flight.

[983] Lastly one thing is seen by the eyes to end another thing; air bounds off hills, and mountains air, earth limits sea and sea again all lands; the universe however there is nothing outside to end. Again if all the space of the whole sum were enclosed within fixed borders and were bounded, in that case the store of matter by its solid weights would have streamed together from all sides to the lowest point nor could anything have gone on under the canopy of heaven, no nor would there have been a heaven nor sunlight at all, inasmuch as all matter, settling down through infinite time past, would lie together in a heap.

But as it is, sure enough no rest is given to the bodies of the first-beginnings, because there is no lowest point at all, to which they might stream together as it were, and where they might take up their positions.

All things are ever going on in ceaseless motion on all sides and bodies of matter stirred to action are supplied from beneath out of infinite space.

Therefore the nature of room and the space of the unfathomable void are such as bright thunderbolts cannot race through in their course though gliding on through endless tract of time, no nor lessen one jot the journey that remains to go by all their travel: so huge a room is spread out on all sides for things without any bounds in all directions round.

[1006] Again nature keeps the sum of things from setting any limit to itself, since she compels body to be ended by void and void in turn by body, so that either she thus renders the universe infinite by this alternation of the two, or else the one of the two, in case the other does not bound it, with its single nature stretches nevertheless immeasurably.

[But void I have already proved to be infinite; therefor matter must be infinite: for if void were infinite, and matter finite] neither sea nor earth nor the glittering quarters of heaven nor mortal kind nor the holy bodies of the gods could hold their ground one brief passing hour; since forced asunder from its union the store of matter would be dissolved and borne along the mighty void, or rather I should say would never have combined to produce any thing, since scattered abroad it could never have been brought together.

[1020] For verily not by design did the first beginnings of things station themselves each in its right place guided by keen intelligence, nor did they bargain sooth to say what motions each should assume, but because many in number and shifting about in many ways throughout the universe they are driven and tormented by blows during infinite time past, after trying motions and unions of every kind at length they fall into arrangements such as those out of which this our sum of things has been formed, and by which too, it is preserved through many great years when once it has been thrown into the appropriate motions, and causes the streams to replenish the greedy sea with copious river waters and the earth, fostered by the heat of the sun, to renew its produce, and the race of living things to come up and flourish, and the gliding fires of ether to live: all which these several things could in nowise bring to pass, unless a store of matter could rise up from infinite space, out of which store they are wont to make up in due season whatever has been lost.

**Bailey:**

[950] But since I have taught that the most solid bodies of matter fly about for ever unvanquished through the ages, come now, let us unfold, whether there be a certain limit to their full sum or not; and likewise the void that we have discovered, or room or space, in which all things are carried on, let us see clearly whether it is all altogether bounded or spreads out limitless and immeasurably deep.

[957] The whole universe then is bounded in no direction of its ways; for then it would be bound to have an extreme point. Now it is seen that nothing can have an extreme point, unless there be something beyond to bound it, so that there is seen to be a spot further than which the nature of our sense cannot follow it. As it is, since we must admit that there is nothing outside the whole sum, it has not an extreme point, it lacks therefore bound and limit. Nor does it matter in which quarter of it you take your stand; so true is it that, whatever place every man takes up, he leaves the whole boundless just as much on every side.

[966] Moreover, suppose now that all space were created finite, if one were to run on to the end, to its furthest coasts, and throw a flying dart, would you have it that that dart, hurled with might and main, goes on whither it is sped and flies afar, or do you think that something can check and bar its way? For one or the other you must needs admit and choose. Yet both shut off your escape and constrain you to grant that the universe spreads out free from limit. For whether there is something to check it and bring it about that it arrives not whither it was sped, nor plants itself in the goal, or whether it fares forward, it set not forth from the end. In this way I will press on, and wherever you shall set the furthest coasts, I shall ask what then becomes of

the dart. It will come to pass that nowhere can a bound be set and room for flight ever prolongs the chance of flight. Lastly, before our eyes one thing is seen to bound another; air is as a wall between the hills, and mountains between tracts of air, land bounds the sea, and again sea bounds all lands; yet the universe in truth there is nothing to limit outside.

[983] Moreover, if all the space in the whole universe were shut in on all sides, and were created with borders determined, and had been bounded, then the store of matter would have flowed together with solid weight from all sides to the bottom, nor could anything be carried on beneath the canopy of the sky, nor would there be sky at all, nor the light of the sun, since in truth all matter would lie idle piled together by sinking down from limitless time. But as it is, no rest, we may be sure, has been granted to the bodies of the first-beginnings, because there is no bottom at all, whither they may, as it were, flow together, and make their resting-place. All things are for ever carried on in ceaseless movement from all sides, and bodies of matter, are even stirred up and supplied from beneath out of limitless space.

[997] The nature of room then and the space of the deep is such that neither could the bright thunderbolts course through it in their career, gliding on through the everlasting tract of time, nor bring it about that there remain a whit less to traverse as they travel; so far on every side spreads out huge room for things, free from limit in all directions everywhere.

[1006] Nay more, nature ordains that the sum of things may not have power to set a limit to itself, since she constrains body to be bounded by void, and all that is void to be bounded by body, so that thus she makes the universe infinite by their interchange, or else at least one of the two, if the other of them bound it not, yet spreads out immeasurable with nature unmixed. [But space I have taught above spreads out without limit. If then the sum of matter were bounded,] neither sea nor earth nor the gleaming quarters of heaven nor the race of mortal men, nor the hallowed bodies of the gods could exist for the short space of an hour. For driven apart from its unions the store of matter would be carried all dissolved through the great void, or rather in truth it could never have grown together and given birth to anything, since scattered abroad it could not have been brought to meet.

[1020] For in very truth, not by design did the first-beginnings of things place themselves each in their order with foreseeing mind, nor indeed did they make compact what movements each should start, but because many of them shifting in many ways throughout the world are harried and buffeted by blows from limitless time, by trying movements and unions of every kind, at last they fall into such dispositions as those, whereby our world of things is created and holds together. And it too, preserved from harm through many a mighty cycle of years, when once it has been cast into the movements suited to its being, brings it about that the rivers replenish the greedy sea with the bounteous waters of their streams, and the earth, fostered by the sun's heat, renews its increase, and the race of living things flourishes, sent up from her womb, and the gliding fires of heaven are alive; all this they would in no wise do, unless store of matter might rise up from limitless space, out of which they are used to renew all their losses in due season.