

Key Citations - The Universe As Infinite In Space - Many Worlds With Life

Post by “Cassius” of October 4, 2023 at 4:45 PM

1. *Velleius, in Cicero's On The Nature of The Gods, XIX* - Moreover, there is the supremely potent principle of infinity, which claims the closest and most careful study....
2. *Epicurus to Herodotus 45* - These brief sayings, if all these points are borne in mind, afford a sufficient outline for our understanding of the nature of existing things. Furthermore, there are infinite worlds both like and unlike this world of ours. For the atoms being infinite in number, as was proved already, are borne on far out into space. For those atoms, which are of such nature that a world could be created out of them or made by them, have not been used up either on one world or on a limited number of worlds, nor again on all the worlds which are alike, or on those which are different from these. So that there nowhere exists an obstacle to the infinite number of the worlds. [46] Moreover, there are images like in shape to the solid bodies, far surpassing perceptible things in their subtlety of texture. For it is not impossible that such emanations should be formed in that which surrounds the objects, nor that there should be opportunities for the formation of such hollow and thin frames, nor that there should be effluences which preserve the respective position and order which they had before in the solid bodies: these images we call idols.
3. *Epicurus to Pythocles 117* - All these things, Pythocles, you must bear in mind; for thus you will escape in most things from superstition and will be enabled to understand what is akin to them. And most of all give yourself up to the study of the beginnings and of infinity and of the things akin to them, and also of the criteria of truth and of the feelings, and of the purpose for which we reason out these things. For these points when they are thoroughly studied will most easily enable you to understand the causes of the details. But those who have not thoroughly taken these things to heart could not rightly study them in themselves, nor have they made their own the reason for observing them.
4. *Epicurus to Menoecus* - [135] ... Meditate therefore on these things and things akin to them night and day by yourself; and with a companion like to yourself, and never shall you be disturbed waking or asleep, but you shall live like a god among men. For a man who lives among immortal blessings is not like unto a mortal being.
5. *Lucretius Book 2, Bailey: [522]* And since I have taught this much, I will hasten to link on a truth which holds to it and wins belief from it, that the first-beginnings of things, which are formed with a shape like to one another, are in number infinite. For since the difference of forms is limited, it must needs be that those which are alike are unlimited, or else that the sum of matter is created limited, which I have proved not to be, showing in my verses that the tiny bodies of matter from everlasting always keep up the sum of

things, as the team of blows is harnessed on unbroken on every side. [532] For in that you see that certain animals are more rare, and perceive that nature is less fruitful in them, yet in another quarter and spot, in some distant lands, there may be many in that kind, and so the tale is made up; even as in the race of four-footed beasts we see that elephants with their snaky hands come first of all, by whose many thousands India is embattled with a bulwark of ivory, so that no way can be found into its inner parts: so great is the multitude of those beasts, whereof we see but a very few samples. [541] But still, let me grant this too, let there be, if you will, some one thing unique, alone in the body of its birth, to which there is not a fellow in the whole wide world; yet unless there is an unlimited stock of matter, from which it might be conceived and brought to birth, it will not be able to be created, nor, after that, to grow on and be nourished.

6. Lucretius [2:1048] First of all, we find that in every direction everywhere, and on either side, above and below, through all the universe, there is no limit, as I have shown, and indeed the truth cries out for itself and the nature of the deep shines clear. Now in no way must we think it likely, since towards every side is infinite empty space, and seeds in unnumbered numbers in the deep universe fly about in many ways driven on in everlasting motion, that this one world and sky was brought to birth, but that beyond it all those bodies of matter do naught; above all, since this world was so made by nature, as the seeds of things themselves of their own accord, jostling from time to time, were driven together in many ways, rashly, idly, and in vain, and at last those united, which, suddenly cast together, might become ever and anon the beginnings of great things, of earth and sea and sky, and the race of living things. Wherefore, again and again, you must needs confess that there are here and there other gatherings of matter, such as is this, which the ether holds in its greedy grip.
7. Lucretius [2:1067] Moreover, when there is much matter ready to hand, when space is there, and no thing, no cause delays, things must, we may be sure, be carried on and completed. As it is, if there is so great a store of seeds as the whole life of living things could not number, and if the same force and nature abides which could throw together the seeds of things, each into their place in like manner as they are thrown together here, it must needs be that you confess that there are other worlds in other regions, and diverse races of men and tribes of wild beasts.
8. *Lucretius Book 2: 1077 - Bailey:* [1077] This there is too that in the universe there is nothing single, nothing born unique and growing unique and alone, but it is always of some tribe, and there are many things in the same race. First of all turn your mind to living creatures; you will find that in this wise is begotten the race of wild beasts that haunts the mountains, in this wise the stock of men, in this wise again the dumb herds of scaly fishes, and all the bodies of flying fowls. Wherefore you must confess in the same way that sky and earth and sun, moon, sea, and all else that exists, are not unique, but rather of number numberless; inasmuch as the deep-fixed boundary-stone of life awaits these as surely, and they are just as much of a body that has birth, as every race which is here on earth, abounding in things after its kind.

9. *Lucretius Book 3 Bailey - [843]* And even if the nature of mind and the power of soul has feeling, after it has been rent asunder from our body, yet it is naught to us, who are made one by the mating and marriage of body and soul. Nor, if time should gather together our substance after our decease and bring it back again as it is now placed, if once more the light of life should be vouchsafed to us, yet, even were that done, it would not concern us at all, when once the remembrance of our former selves were snapped in twain. And even now we care not at all for the selves that we once were, not at all are we touched by any torturing pain for them. For when you look back over all the lapse of immeasurable time that now is gone, and think how manifold are the motions of matter, you could easily believe this too, that these same seeds, whereof we now are made, have often been placed in the same order as they are now; and yet we cannot recall that in our mind's memory; for in between lies a break in life, and all the motions have wandered everywhere far astray from sense.
10. Diogenes of Oinoanda Letter to Antipater - Fr. 63 So, as I was saying, having had my appetite most keenly whetted by all the advantage of the voyage, I shall try to meet you as soon as winter had ended, sailing first either to Athens or to Chalcis and Boeotia. But, since this is uncertain, both on account of the changeability and inconstancy of our fortunes and on account of my old age besides, I am sending you, in accordance with your request, the arguments concerning an infinite number of worlds. And you have enjoyed good fortune in the matter; for, before your letter arrived, Theodoridas of Lindus, a member of our school not unknown to you, who is still a novice in philosophy, was dealing with the same doctrine. And this doctrine came to be better articulated as a result of being turned over between the two of us face to face; for our agreements and disagreements with one another, and also our questionings, rendered the inquiry into the object of our search more precise. I am therefore sending you that dialogue, Antipater, so that you may be in the same position as if you yourself were present, like Theodoridas, agreeing about some matters and making further inquires in cases where you had doubts. The dialogue began something like this: «Diogenes,» said Theodoridas, «that the [doctrine laid down] by Epicurus on an infinite number of worlds is true [I am confident], as [if] Epicurus

Post by “Cassius” of July 15, 2024 at 7:54 AM

I am going through and upgrading the "Infinity" forum to emphasize its importance. For the moment it is renamed "[The Universe Is Boundless - Infinity And Its Implications](#)," however we need to greatly expand it in the direction of exploring general implications of infinity, of which "life on other worlds" is just one major subtopic. The implications for "how many things there will be of a kind, given the limited shapes of the atoms" are wide and deep. I feel sure there are

many good discussions of this, both in nonfiction and in science fiction literature, that ought to be added in for consideration.

Future visitors here will want to check out [Lucretius Today Podcast Episode 237](#) for our strongest focus on Principles of Infinity to date. Feel free to open new discussions in this forum, because we need to flesh out in full the implications of infinity as explored by Epicurus and others of similar mindset.

One question on my mind at the moment relates to question of whether "nature never makes a single thing of a kind" means that "single things can be and are duplicated exactly an infinite number of times, given the infinite universe" or "kinds will have infinite numbers of examples of their kind over the infinite universe, but the individual examples within the kind are not duplicated. In other words, do the principles of infinity imply that the universe has within it: (1) infinite earth-like plants, or (2) infinite beings which are essentially "human," or (3) infinite numbers of humans who look like Epicurus, or (4) infinite numbers of actual Epicurus clones?

What did Epicurus (and do we now, if different) observe here on earth? Are there in fact never two snowflakes exactly the same, even though within the class of snowflakes there are virtually boundless instances of snowflakes? Is there something in the formation of bodies (perhaps related to irrational numbers / fibonacci / fractal issues) that lead to vast numbers of similars but imply that no two natural objects are ever *exactly* duplicated?

I will also add to the above list of cites those we collected for Episode 237.

Post by “Godfrey” of July 15, 2024 at 4:12 PM

I vote for (1) and (2), although I don't think that even modern physicists agree on the answer to this! I'm curious as to what others have to say on the matter!

It seems to me that Epicurus would have noted that you don't see any naturally occurring exact duplications and factored that into his thinking. He would have been aware of identical twins, however, so that begs the question as to the depth of his knowledge of them. Even then, I think that he would have considered identical twins as a class, meaning that there would be infinite examples of identical twins and not of a specific twin or set of twins.

For an entertaining and sometimes amusing look at (3) in particular, and possibly (4), I recommend watching the last few Spider-Man films, both live action and animated. Also, Marvel's Doctor Strange movies. In fact, Marvel has been exploring the "multiverse" idea in several of their franchises.

Then there's Nietzsche's eternal recurrence. I'm not too familiar with it, but it seems to me that this was just a thought experiment and not a serious proposal of the way things are. But I could be wrong on that.

Post by “kochiekoch” of July 15, 2024 at 4:13 PM

My understanding of the possibilities of the infinite universe is that anything that isn't forbidden by the laws of physics WILL HAPPEN and HAPPEN AN INFINITE NUMBER OF TIMES.

[Totalitarian principle - Wikipedia](#)

But you might end up with infinite multiverses too, all with different laws of physics, so infinity is the limit! 😄

<https://mindthegraph.com/blog/multiverse-hypothesis/>

The bottom line is, all this stuff is hypothetical, and may not be real at all, but it's mind blowing to contemplate. 😊

Post by “Cassius” of July 15, 2024 at 4:34 PM

[Quote from Godfrey](#)

Then there's Nietzsche's eternal recurrence. I'm not too familiar with it, but it seems to me that this was just a thought experiment and not a serious proposal of the way things are. But I could be wrong on that.

Yes apparently there is a question as to whether he believed this himself or not. And some quick googling links "eternal recurrence" to the STOICS, of whom he generally disapproved, so that's another mark against it. It seems that the Stoic version may have been based on their ideas of fate/necessity, so they may have seen it as inevitable from that point of view, which Epicurus would reject. We need a lot more detail on both Nietzsche's version and the Stoic version.

[Quote from kochiekoch](#)

<https://www.epicureanfriends.com/thread/3387-key-citations-the-universe-as-infinite-in-space-many-worlds-with-life/>

But you might end up with infinite multiverses too, all with different laws of physics, so infinity is the limit!

Whenever I hear "multiverse" my blood runs cold, especially with references to "different laws of physics." Apparently "multiverse" needs closer definition too, and anyone who wants to explore that is welcome, but it's not likely to be me. I am firmly in the camp that "universe" should be taken to mean "all that exists" - and if that's what the word means then fine, but I see no reason to change the traditional meaning of "everything." But the "different laws of physics" is a showstopper too, from an Epicurean perspective, it seems to me. Sure different circumstances lead to different outcomes, but that's different circumstances, not different "laws of physics."

At the moment I am thinking that:

1 - "Infinity on the downside" (infinite divisibility) is a total dead end. That kind of thinking leads to the "it's impossible to walk across the room" which we observe to be nonsense.

At the opposite extreme, on the "up-side":

2 - Infinity meaning "different laws of physics" and "anything goes" and anything is possible" is also a non-starter. By definition this is postulating something that we have never seen, and for which we have no evidence, and you might as well start postulating pink elephants on the other side of the moon, and supernatural gods. All that is a total non-starter in Epicurean terms.

The most interesting questions to me seem to be along the lines stated above, including:

1. Whether infinity means that any combination of atoms which *is* possible does in fact happen,
2. Whether any combination which does happen, happens an infinite number of times.
3. Whether the swerve of the atom, or something like irrational numbers / fractals / fibonacci sequences, should make us expect that "classes" of "like" events will happen an infinite number of times, like snowflakes or grains of sand, but that recurrence in IDENTICAL ways should not be expected.

These are basic questions that would have occurred to Epicurus, and the texts maybe already indicate in fact *did* occur to Epicurus, and which we can use to shed light on how to reconstruct our interpretation of what Epicurus in fact taught.

Post by “Cassius” of July 15, 2024 at 4:39 PM

<https://www.epicureanfriends.com/thread/3387-key-citations-the-universe-as-infinite-in-space-many-worlds-with-life/>

[Quote from kochiekoch](#)

The bottom line is, all this stuff is hypothetical, and may not be real at all, but it's mind blowing to contemplate.

Difficult perhaps, but not for that reason something that we should not do. In fact the "recommendation" or "command" that we do spend our time considering it is probably one of the most clear "recommendations" that Epicurus gives. Lots of the other material ends up being "Choose what makes the most sense in terms of pleasure and pain in your own situation." In this case, he's giving a flat statement to students that this is something we should definitely do. I am on board that this is a much-neglected aspect of Epicurean philosophy that needs to be dramatically elevated in focus.

Post by “Cassius” of July 15, 2024 at 4:58 PM

In fact, I would say that the implication of what Epicurus has stated that we should do - MOST OF ALL -- is that we should study the principles of infinity and take them to be **correct**. We should not consider them to be "mind-blowing" at all, but they should be second nature and taken to be as obvious and easy to understand as anyone for the past 2000 years has taken the **incorrect** "In the beginning GOD created the heaven and the earth...":

Quote from Epicurus Letter to Pythocles

All these things, Pythocles, you must bear in mind; for thus you will escape in most things from superstition and will be enabled to understand what is akin to them. And most of all give yourself up to the study of the beginnings and of infinity and of the things akin to them, and also of the criteria of truth and of the feelings, and of the purpose for which we reason out these things. For these points when they are thoroughly studied will most easily enable you to understand the causes of the details. But those who have not thoroughly taken these things to heart could not rightly study them in themselves, nor have they made their own the reason for observing them.

Post by “TauPhi” of July 15, 2024 at 7:06 PM

[Quote from Cassius](#)

In fact, I would say that the implication of what Epicurus has stated that we should do - MOST OF ALL -- is that we should study the principles of infinity and take them to be correct. We should not consider them to be "mind-blowing" at all, but they should be second nature and taken to be as obvious and easy to understand as anyone for the past 2000 years has taken the incorrect "In the beginning GOD created the heaven and the earth..."

Epicurus was a dogmatist after all, so I guess the above claim is reasonably true.

Personally, as an Epicurean friend (not an Epicurean), I'm not convinced we should take anything to be correct on "believe me, dude" argument. Before we take something to be correct I find it more reasonable to focus on study and suspend definite judgements until we figure out a way to prove or disprove something (Pyrrho pays me to say this every Tuesday).

As of now, infinity of the universe (among other infinities) is neither obvious nor easy to understand (or prove) to humanity.

Post by "Cassius" of July 15, 2024 at 8:48 PM

[Quote from TauPhi](#)

As of now, infinity of the universe (among other infinities) is neither obvious nor easy to understand (or prove) to humanity.

Probably they were neither obvious or easy in the ancient world either, and that was a large part of the undertaking of studying and applying Epicurean philosophy. I don't recall Epicurus or Lucretius or Diogenes of Oinoanda implying that the philosophy was easy -- the closest I recall in the texts to calling it easy or simply was Cicero making a similar comment, and that's in his own words in a statement I'm happy to consider to be one to take with a grain of salt.

But it makes sense to me that Epicurus would start out personally motivated with an interest in where the universe came from and then continue to the end of his life seeing the importance of that conveying that very same issue to others. If you're going to wrestle people out of the jail of supernatural religion you're going to need to replace "god" with something, and "atoms" is only a part of the picture. The rest of the picture as a whole requires "infinity" to be plausible and persuasive to people of normal intelligence - and people of normal intelligence shouldn't be asked to accept "trust the scientists" or "trust the mathematicians" any more than they accept

"trust the priests" as an explanation.

Post by “Godfrey” of July 15, 2024 at 8:53 PM

It's said that young Epicurus wrestled with the problem of Chaos. This would naturally have lead him to the study of infinity and beginnings, and perhaps limits.

Post by “TauPhi” of July 15, 2024 at 9:32 PM

[Quote from Cassius](#)

If you're going to wrestle people out of the jail of supernatural religion you're going to need to replace "god" with something, and "atoms" is only a part of the picture. The rest of the picture as a whole requires "infinity" to be plausible and persuasive to people of normal intelligence - and people of normal intelligence shouldn't be asked to accept "trust the scientists" or "trust the mathematicians" any more than they accept "trust the priests" as an explanation.

I don't think it's fair to make such generalizations about people. I got myself out of the jail of supernatural religion as a teenager and I don't recall I've ever felt a need to replace "god" with anything particular. I seem to live my life, try to understand what's it about but I don't have irresistible need to fill myself with any absolutes. I'm ok with the realisation that I probably will never know what's it all about and I still find joy in trying to know. I don't think I'm noticeably less or more intelligent than a normal person and yet I don't want to be persuaded into anything by anyone. I want to grasp what I call reality the best I can based on my learning and understanding and not on trust or persuasion.

Post by “Cassius” of July 15, 2024 at 10:00 PM

All of the perspectives you've expressed in the last several messages Tau Phi, are fine if they work for you, but as you say and know - they are not Epicurean perspectives. Would that the

world were filled with people like you, but it's not. It's filled with "lost" people who are in the grip of supernatural religion, and unable to think their own way out of it, just like they were in the time of Lucretius and the time of Diogenes of Oinoanda, not to mention the time of Epicurus.

Epicurean philosophy was then, and can be today, an organized method of bringing answers to such people. If there are individuals like you who don't need its help, and can do it on your own, then that's all to the better for you, but it does nothing for the large numbers of the "hearts in darkness" that Lucretius was talking about in his poem.

Not everyone has to participate in the kind of organized activity that the ancient Epicureans were engaged in, but at the same time, if some don't, then the same patterns of deception and manipulation will go on and on and on and never be challenged. Maybe you see it differently, but to me it is in the nature of things that lone individuals, especially lone individuals who focus on retreating into their own gardens, can do little or nothing to change that situation. And of course I'm not at all referring to you as retreating into your own garden, but referring to the allusion often applied to the ancient Epicureans, which I will never admit to be true. The ancient Epicureans were part of an organized campaign, not lone rangers.

That's the value Epicurus saw in putting together a team and a community, and the same thing holds true today. People have to work together to accomplish anything, and to accomplish things they have to be aware of the situation around them. Again, I would wish that the world were full of Tau Phi's, but there are far too few of them. The great majority fit the description of the people Diogenes of Oinoanda referenced on his wall. They won't and can't think through a system of philosophy for themselves, and they will forever be at the mercy of the organized manipulators if those who know better don't step up to help them.

i guess we'll just have to agree to disagree on our assessment of the general situation and how to deal with it. No one is ever going to force you to accept any position of Epicurus with which you don't agree, but just like in the ancient world the teachings of Epicurus formed the basis of the "movement," and that's where this forum and our organized activities needs to remain focused.

Post by “Kalosyni” of July 16, 2024 at 10:44 AM

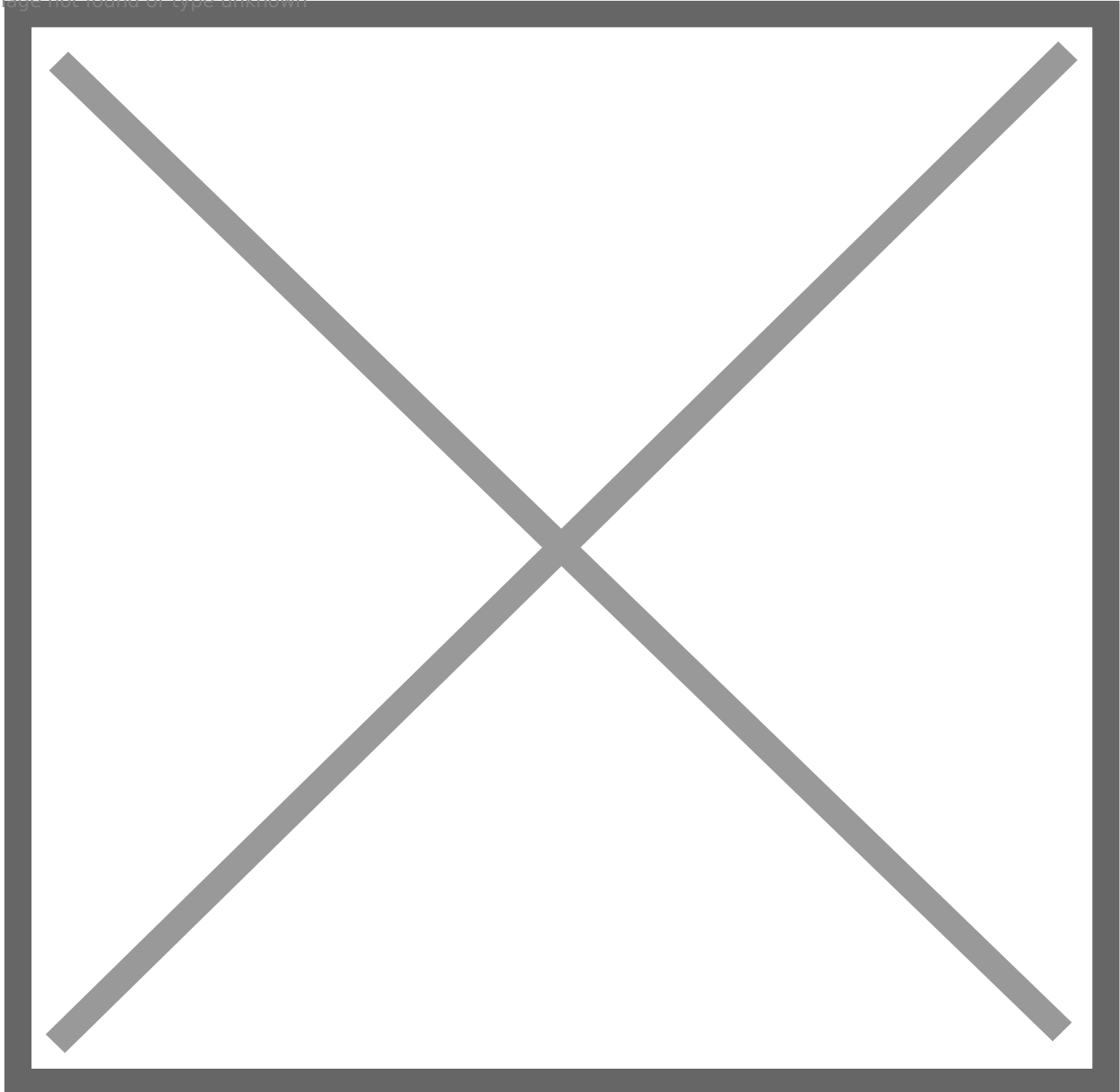
This article seems relevant...from the introduction:

Quote

<https://www.epicureanfriends.com/thread/3387-key-citations-the-universe-as-infinite-in-space-many-worlds-with-life/>

- Thoughts of the infinite have mesmerized and confounded human beings through the millennia.
- The concept of infinity remains a controversial and paradoxical topic today, galvanizing international conferences and heated scholarly disputes.
- In his book *Probable Impossibilities: Musings on Beginnings and Endings*, Alan Lightman explores the history of the concept of infinity and how it's been contemplated by thinkers across various disciplines.

Image not found or type unknown



[Why the paradoxes of infinity still puzzle us today](#)

<https://www.epicureanfriends.com/thread/3387-key-citations-the-universe-as-infinite-in-space-many-worlds-with-life/>

In his "Probable Impossibilities", Alan Lightman explores the history of infinity and how it's been contemplated by various thinkers.

bigthink.com

Excerpt from the article:

Quote

For astronomers, the question is whether outer space goes on and on and on and on ad infinitum. And if it does, as cosmologists now believe, unsettling consequences abound. For one, there should be an infinite number of copies of each of us somewhere out there in the cosmos. Because even a situation of minuscule probability—like the creation of a particular individual's exact arrangement of atoms—when multiplied by an infinite number of trials, repeats itself an infinite number of times. Infinity multiplied by any number (except 0) equals infinity.

Post by "Don" of July 16, 2024 at 12:07 PM

I'm going to wade into this fray with a possibly tangential, possibly relevant topic. Y'all be the judge.

I am convinced that the "infinite worlds" that the ancient Epicureans - from the founder to the Romans to the Oenoandans - were envisioning were not of the same structure that we think of in modern cosmology. The cosmos the ancients were envisioning was (let's call it) a "bubble" of Order (literal meaning of "cosmos") surrounded by the primordial Chaos.

Now, the Epicureans did not accept Chaos as an idea or substance, but I do think they substituted (in a manner of speaking) the "infinity" of atoms falling in the void.

However, the cosmos they lived in was composed of the earth they stood on (plate or globe) surmounted by a vault/dome or, alternatively, surrounded by a sphere, that contained the fixed stars, wandering stars (planets), etc. That world-system was a coherent, ordered pocket floating (for lack of a better word) in the *infinite* void. Epicurus posited other pockets of order - other "gatherings of matter" - out there in the vast infinity that would have no contact with his world-system but would nonetheless exist with their own "diverse races of men and tribes of wild beasts." The All - To Pan TO ΠAN - contained this infinity of cosmoi.

When we talk of "strange new worlds", we're talking about other planets orbiting distant stars in our galaxy or other galaxies. Maybe we're talking in other universes, but usually we're thinking in our observable universe. This structure, by and large, would have been incoherent to the ancients. Were there some who thought the stars were other Suns with their own Earths? Maybe. But I don't think that was a common view, and I don't think that was Epicurus's view from what I've read.

<https://www.epicureanfriends.com/thread/3387-key-citations-the-universe-as-infinite-in-space-many-worlds-with-life/>

For me, the big takeaway from Epicurus's teachings on "infinity" and "gods" for my "modern Epicurean" perspective is:

The universe - however it's defined - is physical - either bounded or unbounded, jury is still out - and exists without the aid, support, or creation of any beings - natural or supernatural.

Whether the universe (observable) came into existence out of a larger infinite universe through quantum fluctuations or other physical processes is up for debate, but that doesn't shake my conclusion that all that did exist, exists, or will exist is governed by natural, eventually understandable processes.

Post by "Cassius" of July 16, 2024 at 12:14 PM

I am not sure you can square that with the "javelin" example in Lucretius, Don. Can you?

Post by "Cassius" of July 16, 2024 at 12:23 PM

I need to know exactly what Aristotle said, but I could see Epicurus agreeing that the 'concept of infinity' is a mental construct only, while at the same time holding that the number of atoms actually existing is uncountable and extends without limit or boundary out into space "forever."

I see the javelin example as highly useful - it illustrates that the limit is in US, not in the reality of space or atoms, because "if we could live forever" we could go on throwing the javelin outward, and counting atoms, forever and ever.

Post by "Cassius" of July 16, 2024 at 1:30 PM

These would be the key sections from Lucretius (Bailey Edition) supporting the conventional view that Epicurus held that the universe is limitless in size in all directions.

[951] 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.

[958] 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.

[968] 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.

[984] 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.

Loeb here has [998] Lastly, one thing is seen before our eyes to be the limit of another; air separates hills and mountains air, earth bounds sea and contrariwise the sea is the boundary of all lands; the universe, however, has nothing outside to be its limit.

Post by “Don” of July 16, 2024 at 2:13 PM

[Quote from Cassius](#)

I am not sure you can square that with the "javelin" example in Lucretius, Don. Can you?

Sure. The javelin leaves our world and keeps going out into the infinite void, which is what Lucretius seems to be saying. I'd have to look closely at what words are being translated "world", "universe" etc.

For reference:

[Lucretius, De Rerum Natura, BOOK I, line 951](#)

For my purposes, a more illustrative example is:

Therefore the living force of his soul gained the day: on *he passed far beyond the flaming walls of the world* and traversed throughout in mind and spirit the *immeasurable universe*; whence he returns a conqueror to tell us what can, what cannot come into being; in short on what principle each thing has its powers defined, its deep-set boundary mark.

"flammanitia moenia mundi" mundi (mundus) is just Latin for Greek cosmos. The flaming ramparts, the fiery sphere/dome of the stars and sun of our world-system, our cosmos.

"omne immensum" immeasurable All, ie, the totality of everything , the whole universe, The All, TO ΠΑΝ

Post by "Cassius" of July 16, 2024 at 2:54 PM

OK maybe I misinterpreted your post above -- I was thinking you meant that the Epicureans did not think that there was no limit to the amount of distance you could travel in any direction.

Post by "kochiekoch" of July 16, 2024 at 3:18 PM

[Quote from Cassius](#)

<https://www.epicureanfriends.com/thread/3387-key-citations-the-universe-as-infinite-in-space-many-worlds-with-life/>

Whenever I hear "multiverse" my blood runs cold, especially with references to "different laws of physics." Apparently "multiverse" needs closer definition too, and anyone who wants to explore that is welcome, but it's not likely to be me. I am firmly in the camp that "universe" should be taken to mean "all that exists" - and if that's what the word means then fine, but I see no reason to change the traditional meaning of "everything." But the "different laws of physics" is a showstopper too, from an Epicurean perspective, it seems to me. Sure different circumstances lead to different outcomes, but that's different circumstances, not different "laws of physics."

LOL!!! You aren't the first person I've discussed this with that's uncomfortable with the term "multiverse". And I get it. If you had any number of "multiverses", the whole landscape, as it's called would still equal a unified whole. A "universe". The term "multiverse" is just what is used to describe, hypothetically, an infinite universe.

Each one of the "multiverses", as they freeze out in their beginnings, MIGHT have different laws of physics. Again, we are talking hypotheticals.

[Quote from Cassius](#)

The most interesting questions to me seem to be along the lines stated above, including:

Whether infinity means that any combination of atoms which *is* possible does in fact happen,

Whether any combination which does happen, happens and infinite number of times.

Whether the swerve of the atom, or something like irrational numbers / fractals / fibonacci sequences, should make us expect that "classes" of "like" events will happen an infinite number of times, like snowflakes or grains of sand, but that recurrence in IDENTICAL ways should not be expected.

The thing is, given an infinite space and an infinite amount of time, things will reoccur infinitely, as there is only so many ways the atoms can be arranged. It's tough to wrap your mind around.

[Quote from Cassius](#)

Difficult perhaps, but not for that reason something that we should not do. In fact the "recommendation" or "command" that we do spend our time considering it is probably one of the most clear "recommendations" that Epicurus gives. Lots of the other material ends up being "Choose what makes the most sense in terms of pleasure and pain in your own situation." In this

case, he's giving a flat statement to students that this is something we should definitely do. I am on board that this is a much-neglected aspect of Epicurean philosophy that needs to be dramatically elevated in focus.

LOL!!! It certainly helps to be down to earth, 😄, and focus on the practical! Epicurus does suggest we study nature to aid us in our quest for pleasure. Couldn't agree more.

Display More

Post by “kochiekoch” of July 17, 2024 at 9:57 PM

Hi there! 😊

Here, as promised on the chat, is the link I mentioned with Stephen Hawking's views, before he died, on the infinite universe. Enjoy! 😊

[Prof Stephen Hawking's multiverse finale \(bbc.com\)](https://www.bbc.com/news/science-environment-60484444)

Post by “Don” of July 17, 2024 at 11:11 PM

Okay, as promised, here's a start to Epicurus's mention of "infinity, infinite" specifically using the term *απειρον* / *απειρος*. Below are only the mentions in the *Letter to Herodotus* with both Greek and English for comparison. One idiosyncrasy I noticed is that the translator likes to use "ad infinitum" where Epicurus uses *εἰς ἄπειρον* "to infinity". Granted, the Latin means the same as the Greek but it obscures Epicurus's use of the word he says we need to study:

Epicurus, Letter to Herodotus

37

Πρῶτον μὲν οὖν τὰ ὑποτεταγμένα τοῖς φθόγγοις, ὧ Ἡρόδοτε, δεῖ εἰληφέναι, ὅπως ἂν τὰ δοξαζόμενα ἢ ζητούμενα ἢ ἀπορούμενα ἔχωμεν εἰς ταῦτα ἀνάγοντες ἐπικρίνειν, καὶ μὴ ἄκριτα πάντα ἡμῖν <ἴη>42 εἰς ἄπειρον ἀποδεικνύουσιν ἢ κενοὺς φθόγγους ἔχωμεν.

"In the first place, Herodotus, you must understand what it is that words denote, in order that by reference to this we may be in a position to test opinions, inquiries, or problems, so that our proofs may not run on untested ad infinitum, nor the terms we use be empty of meaning.

<https://www.epicureanfriends.com/thread/3387-key-citations-the-universe-as-infinite-in-space-many-worlds-with-life/>

41-43

"Ἄλλὰ μὴν καὶ τὸ πᾶν ἄπειρόν ἐστι. τὸ γὰρ πεπερασμένον ἄκρον ἔχει: τὸ δὲ ἄκρον παρ' ἕτερόν τι θεωρεῖται: <τὸ δὲ πᾶν οὐ παρ' ἕτερόν τι θεωρεῖται:>51 ὥστε οὐκ ἔχον ἄκρον πέρασ οὐκ ἔχει: πέρασ δὲ οὐκ ἔχον ἄπειρον ἂν εἶη καὶ οὐ πεπερασμένον.

"Καὶ μὴν καὶ τῷ πλήθει τῶν σωμάτων ἄπειρόν ἐστι τὸ πᾶν καὶ τῷ μεγέθει τοῦ κενοῦ. [42] εἴ τε γὰρ ἦν τὸ κενὸν ἄπειρον, τὰ δὲ σώματα ὠρισμένα, οὐθαμοῦ ἂν ἔμνε τὰ σώματα, ἀλλ' ἐφέρετο κατὰ τὸ ἄπειρον κενὸν διεσπαρμένα, οὐκ ἔχοντα τὰ ὑπερίδοντα καὶ στέλλοντα κατὰ τὰς ἀνακοπὰς: εἴ τε τὸ κενὸν ἦν ὠρισμένον, οὐκ ἂν εἶχε τὰ ἄπειρα σώματα ὅπου ἐνέστη.

"Πρὸς τε τούτοις τὰ ἄτομα τῶν σωμάτων καὶ μεστά, ἐξ ὧν καὶ αἱ συγκρίσεις γίνονται καὶ εἰς ἃ διαλύονται, ἀπερίληπτά ἐστι ταῖς διαφοραῖς τῶν σχημάτων: οὐ γὰρ δυνατὸν γενέσθαι τὰς τοσαύτας διαφορὰς ἐκ τῶν αὐτῶν σχημάτων περιελημμένων. καὶ καθ' ἐκάστην δὲ σχημάτιον ἀπλῶς ἄπειροὶ εἰσιν αἱ ὅμοιαι, ταῖς δὲ διαφοραῖς οὐχ ἀπλῶς 53 [43] ἄπειροὶ ἀλλὰ μόνον ἀπερίληπτοι, [οὐδὲ γὰρ φησιν ἐνδοτέρω εἰς ἄπειρον τὴν τομὴν τυγχάνειν. λέγει δέ, ἐπειδὴ αἱ ποιότητες μεταβάλλονται, εἰ μέλλει τις μὴ καὶ τοῖς μεγέθεσιν ἀπλῶς εἰς ἄπειρον αὐτὰς ἐκβάλλειν].

"Again, the sum of things (The All, τὸ πᾶν) is infinite (ἄπειρόν). For what is finite has an extremity, and the extremity of anything is discerned only by comparison with something else. (Now the sum of things is not discerned by comparison with anything else :64) hence, since it has no extremity, it has no limit ; and, since it has no limit, it must be unlimited or infinite (ἄπειρον).

"Moreover, the sum of things (The All, τὸ πᾶν) is unlimited (ἄπειρόν) both by reason of the multitude of the atoms and the extent of the void. [42] For if the void were infinite (ἄπειρον) and bodies finite, the bodies would not have stayed anywhere but would have been dispersed in their course through the infinite (ἄπειρον) void, not having any supports or counter- checks to send them back on their upward rebound. Again, if the void were finite, the infinity (ἄπειρα) of bodies would not have anywhere to be.

"Furthermore, the atoms, which have no void in them--out of which composite bodies arise and into which they are dissolved--vary indefinitely in their shapes ; for so many varieties of things as we see could never have arisen out of a recurrence of a definite number of the same shapes. The like atoms of each shape are absolutely infinite (ἄπειροί); but the variety of shapes, though indefinitely large, is not absolutely infinite. [43] [For neither does the divisibility go on "ad infinitum," he says below; but he adds, since the qualities change, unless one is prepared to keep enlarging their magnitudes also simply "ad infinitum." (ἄπειρον)]

45

"Ἄλλὰ μὴν καὶ κόσμοι ἄπειροὶ εἰσιν, οἳ θ' ὅμοιοι τούτῳ καὶ ἀνόμοιοι. αἳ τε γὰρ ἄτομοι ἄπειροὶ οὔσαι, ὡς ἄρτι ἀπεδείχθη, φέρονται καὶ πορρωτάτω. οὐ γὰρ κατανήλωνται αἱ τοιαῦται ἄτομοι, ἐξ ὧν ἂν γένοιτο κόσμος ἢ ὑφ' ὧν ἂν ποιηθείη, οὔτ' εἰς ἕνα οὔτ' εἰς πεπερασμένους, οὔθ' ὅσοι τοιοῦτοι οὔθ' ὅσοι διάφοροι τούτοις. ὥστε οὐδὲν τὸ ἐμποδοστατήσόν ἐστι πρὸς τὴν ἀπειρίαν

τῶν κόσμων.

"Moreover, there is an infinite number of worlds (κόσμοι ἄπειροί kosmoi apeiroi), some like this world, others unlike it. For the atoms being infinite (ἄτομοι ἄπειροι) in number, as has just been proved, are borne ever further in their course. For the atoms out of which a world might arise, or by which a world might be formed, have not all been expended on one world or a finite number of worlds, whether like or unlike this one. Hence there will be nothing to hinder an infinity of worlds (τὴν ἀπειρίαν τῶν κόσμων).

47

[47] "Οὐ μὴν οὐδ' ἅμα κατὰ τοὺς διὰ λόγου θεωρητοὺς χρόνους αὐτὸ τὸ φερόμενον σῶμα ἐπὶ τοὺς πλείους τόπους ἀφικνεῖται -- ἀδιανόητον γάρ,-- καὶ τοῦτο συναφικνούμενον ἐν αἰσθητῶ χρόνῳ ὅθεν δῆποθεν τοῦ ἀπείρου οὐκ ἐξ οὗ ἂν περιλάβωμεν τὴν φορὰν τόπου ἔσται ἀφιστάμενον: ἀντικοπῆ γὰρ ὅμοιον ἔσται, κἂν μέχρι τοσούτου τὸ τάχος τῆς φορᾶς μὴ ἀντικόπτον καταλίπωμεν. χρήσιμον δὲ καὶ τοῦτο κατασχεῖν τὸ στοιχεῖον. εἴθ' ὅτι τὰ εἶδωλα ταῖς λεπτότησιν ἀνυπερβλήτοις κέχρηται, οὐθὲν ἀντιμαρτυρεῖ τῶν φαινομένων: ὅθεν καὶ τάχη ἀνυπέβλητα ἔχει, πάντα πόρον σύμμετρον ἔχοντα πρὸς τῷ <τῷ>⁶¹ ἀπείρῳ αὐτῶν μὴθὲν ἀντικόπτειν ἢ ὀλίγα ἀντικόπτειν, πολλαῖς δὲ καὶ ἀπείροις εὐθὺς ἀντικόπτειν τι.

[47] "Not that, if we consider the minute times perceptible by reason alone,⁶⁹ the moving body itself arrives at more than one place simultaneously (for this too is inconceivable), although in time perceptible to sense it does arrive simultaneously, however different the point of departure from that conceived by us (...from the infinite). For if it changed its direction, that would be equivalent to its meeting with resistance, even if up to that point we allow nothing to impede the rate of its flight. This is an elementary fact which in itself is well worth bearing in mind. In the next place the exceeding thinness of the images is contradicted by none of the facts under our observation. Hence also their velocities are enormous, since they always find a void passage to fit them. Besides, their incessant (ἀπείρῳ) effluence meets with no resistance, or very little, although many atoms, not to say an unlimited number (ἀπείροις) , do at once encounter resistance.

56-57

"Πρὸς δὲ τούτοις οὐ δεῖ νομίζειν ἐν τῷ ὠρισμένῳ σώματι ἀπείρους ὄγκους εἶναι οὐδ' ὀπηλίκοις οὖν. ὥστε οὐ μόνον τὴν εἰς ἄπειρον τομὴν ἐπὶ τοῦλαττον ἀναιρετέον, ἵνα μὴ πάντα ἀσθενῆ ποιῶμεν κἂν ταῖς περιλήψεσι τῶν ἀθρόων εἰς τὸ μὴ ὄν ἀναγκαζόμεθα τὰ ὄντα θλίβοντες καταναλίσκειν, ἀλλὰ καὶ τὴν μετάβασιν μὴ νομιστέον γίνεσθαι ἐν τοῖς ὠρισμένοις εἰς ἄπειρον μὴδ' ἐπὶ τοῦλαττον.

[57] "Οὔτε γὰρ ὅπως, ἐπειδὴν ἅπαξ τις εἶπη ὅτι ἄπειροι ὄγκοι ἐν τινι ὑπάρχουσιν ἢ ὀπηλικοί οὖν, ἔστι νοῆσαι ὅπως⁷⁸ ἂν ἔτι τοῦτο πεπερασμένον εἴη τὸ μέγεθος. πηλικοί γὰρ τινες δῆλον ὡς οἱ ἄπειροί εἰσιν ὄγκοι: καὶ οὗτοι ὀπηλικοί ἂν ποτε ᾤσιν, ἄπειρον ἂν ἦν καὶ τὸ μέγεθος. ἄκρον τε ἔχοντος τοῦ πεπερασμένου διαληπτόν, εἰ μὴ καὶ καθ' ἑαυτὸ θεωρητόν, οὐκ ἔστι μὴ οὐ

καὶ τὸ ἐξῆς τούτου τοιοῦτον νοεῖν καὶ οὕτω κατὰ τὸ ἐξῆς εἰς τοῦμπροσθεν βαδίζοντα εἰς τὸ ἄπειρον ὑπάρχειν καὶ τὸ τοιοῦτον ἀφικνεῖσθαι τῇ ἐννοίᾳ.

"Besides, you must not suppose that there are parts unlimited (ἀπείρους) in number, be they ever so small, in any finite body. Hence not only must we reject as impossible subdivision ad infinitum (εἰς ἄπειρον) into smaller and smaller parts, lest we make all things too weak and, in our conceptions of the aggregates, be driven to pulverize the things that exist, i.e. the atoms, and annihilate⁸⁷ them ; but in dealing with finite things we must also reject as impossible the progression ad infinitum (εἰς ἄπειρον) by less and less increments.

[57] "For when once we have said that an infinite (ἄπειροι) number of particles, however small, are contained in anything, it is not possible to conceive how it could any longer be limited or finite in size. For clearly our infinite (οἱ ἄπειροί) number of particles must have some size ; and then, of whatever size they were, the aggregate they made would be infinite (ἄπειρον). And, in the next place, since what is finite has an extremity which is distinguishable, even if it is not by itself observable, it is not possible to avoid thinking of another such extremity next to this. Nor can we help thinking that in this way, by proceeding forward from one to the next in order, it is possible by such a progression to arrive in thought at infinity (εἰς τὸ ἄπειρον).

60

[60] "Καὶ⁸⁴ μὴν καὶ τοῦ ἀπείρου ὡς μὲν ἀνωτάτω καὶ κατώτατω οὐ δεῖ κατηγορεῖν τὸ ἄνω ἢ κάτω. ἴσμεν μέντοι τὸ ὑπὲρ κεφαλῆς, ὅθεν ἂν στῶμεν, εἰς ἄπειρον ἄγειν ὄν, μηδέποτε φανεῖσθαι τοῦτο ἡμῖν, ἢ τὸ ὑποκάτω τοῦ νοηθέντος εἰς ἄπειρον, ἅμα ἄνω τε εἶναι καὶ κάτω πρὸς τὸ αὐτό: τοῦτο γὰρ ἀδύνατον διανοηθῆναι. ὥστε ἔστι μίαν λαβεῖν φοράν τὴν ἄνω νοουμένην εἰς ἄπειρον καὶ μίαν τὴν κάτω, ἂν καὶ μυριάκις πρὸς τοὺς πόδας τῶν ἐπάνω τὸ παρ' ἡμῶν φερόμενον εἰς τοὺς ὑπὲρ κεφαλῆς ἡμῶν τόπους ἀφικνῆται ἢ ἐπὶ τὴν κεφαλὴν τῶν ὑποκάτω τὸ παρ' ἡμῶν κάτω φερόμενον: ἢ γὰρ ὅλη φορά οὐθὲν ἦττον ἑκατέρα ἑκατέρα ἀντικειμένη ἐπ' ἄπειρον νοεῖται.

[60] "Further, we must not assert 'up' or 'down' of that which is unlimited (ἀπείρου), as if there were a zenith or nadir. As to the space overhead, however, if it be possible to draw a line to infinity (εἰς ἄπειρον) from the point where we stand, we know that never will this space --or, for that matter, the space below the supposed standpoint if produced to infinity (εἰς ἄπειρον) -- appear to us to be at the same time 'up' and 'down' with reference to the same point ; for this is inconceivable. Hence it is possible to assume one direction of motion, which we conceive as extending upwards ad infinitum (εἰς ἄπειρον), and another downwards, even if it should happen ten thousand times that what moves from us to the spaces above our heads reaches the feet of those above us, or that which moves downwards from us the heads of those below us. None the less is it true that the whole of the motion in the respective cases is conceived as extending in opposite directions ad infinitum (εἰς ἄπειρον).

73

"Ἐπὶ τε τοῖς προειρημένοις τοὺς κόσμους δεῖ καὶ πᾶσαν σύγκρισιν πεπερασμένην τὸ ὁμοειδῆς

τοῖς θεωρουμένοις πυκνῶς ἔχουσαν νομίζειν γεγονέναι ἀπὸ τοῦ ἀπείρου,

"After the foregoing we have next to consider that the worlds and every finite aggregate which bears a strong resemblance to things we commonly see have arisen out of the infinite (ἀπὸ τοῦ ἀπείρου).

74 in a scholia

[ἀλλὰ καὶ διαφόρους αὐτοὺς ἐν τῇ ιβ' Περὶ φύσεως αὐτός φησιν: οὐς μὲν γὰρ σφαιροειδεῖς, καὶ ῥοειδεῖς ἄλλους, καὶ ἀλλοιοσχήμονας ἑτέρους: οὐ μέντοι πᾶν σχῆμα ἔχειν. οὐδὲ ζῶα εἶναι ἀποκριθέντα ἀπὸ τοῦ ἀπείρου.]

[On the contrary, in the twelfth book "On Nature" he himself says that the shapes of the worlds differ, some being spherical, some oval, others again of shapes different from these. They do not, however, admit of every shape. Nor are they living beings which have been separated from the infinite (ἀπὸ τοῦ ἀπείρου).]

Post by "Don" of July 18, 2024 at 11:12 PM

Mentions of ἄπειρόν (infinity) in [Principal Doctrines](#): These are a little more hidden by translations that the *Herodotus* references. The etymology of the word is important to point out: From ἀ- (a-, "not") + πεῖραρ (peîrar), πέρασ (péras, "end, limit").

[χιι.] Οὐθὲν ὄφελος ἦν τὴν κατ' ἀνθρώπους ἀσφάλειαν κατασκευάζεσθαι τῶν ἄνωθεν ὑπόπτων καθεστώτων καὶ τῶν ὑπὸ γῆς καὶ ἀπλῶς τῶν *ἐν τῷ ἀπείρῳ.*

13. It is useless to be safe from other people while retaining suspicions about what is above and below the earth and in general *about the infinite unknown*. (Saint-Andre)

13. There would be no advantage in providing security against our fellow-men, so long as we were alarmed by occurrences over our heads or beneath the earth or in general by whatever happens *in the boundless universe* (ἐν τῷ ἀπείρῳ). (Hicks)

[χψ.] Ὁ τῆς φύσεως πλοῦτος καὶ ὥρισται καὶ εὐπόριστός ἐστιν: ὁ δὲ τῶν κενῶν δοξῶν *εἰς ἄπειρον* ἐκπίπτει.

15. Natural wealth is both limited and easy to acquire, but the riches incited by groundless opinion *have no end.* (Saint-Andre)

15. Nature's wealth at once has its bounds and is easy to procure ; but the wealth of vain fancies recedes *to an infinite distance*. (Hicks)

[χιχ.] Ὁ ἄπειρος χρόνος ἴσην ἔχει τὴν ἡδονὴν καὶ ὁ πεπερασμένος, ἐάν τις αὐτῆς τὰ πέρατα καταμετρήσῃ τῷ λογισμῷ.

19. Finite time and infinite time (Ὁ ἄπειρος χρόνος) contain the same amount of joy, if its limits

are measured out through reasoning. (Saint-Andre)

19. Unlimited time (Ὁ ἄπειρος χρόνος) and limited time afford an equal amount of pleasure, if we measure the limits of that pleasure by reason. (Hicks)

[χχ.] Ἡ μὲν σὰρξ ἀπέλαβε τὰ πέρατα τῆς ἡδονῆς ἄπειρα, καὶ ἄπειρος αὐτὴν χρόνος παρεσκεύασεν. ἡ δὲ διάνοια τοῦ τῆς σαρκὸς τέλους καὶ πέρατος λαβοῦσα τὸν ἐπιλογισμὸν καὶ τοὺς ὑπὲρ τοῦ αἰῶνος φόβους ἐκλύσασα τὸν παντελεῖ βίον παρεσκεύασεν, καὶ οὐθὲν ἔτι τοῦ ἀπέιρου χρόνου προσεδεήθη: <οὐ> μὴν ἀλλ' οὔτε ἔφυγε τὴν ἡδονήν, οὐθ' ἠνίκα τὴν ἐξαγωγὴν ἐκ τοῦ ζῆν τὰ πράγματα παρεσκεύαζεν, ὡς ἐλλείπουσά τι τοῦ ἀρίστου βίου κατέστρεφεν.

20. The flesh assumes that the limits of joy are infinite (τῆς ἡδονῆς ἄπειρα), and that infinite joy can be produced only through infinite (ἄπειρος) time. But the mind, thinking through the goal and limits of the flesh and dissolving fears about eternity, produces a complete way of life and therefore has no need of infinite time (τοῦ ἀπέιρου χρόνου); yet the mind does not flee from joy, nor when events cause it to exit from life does it look back as if it has missed any aspect of the best life. (Saint-Andre)

20. The flesh receives as unlimited (ἄπειρα) the limits of pleasure ; and to provide it requires unlimited (ἄπειρος) time. But the mind, grasping in thought what the end and limit of the flesh is, and banishing the terrors of futurity, procures a complete and perfect life, and has no longer any need of unlimited time (τοῦ ἀπέιρου χρόνου). Nevertheless it does not shun pleasure, and even in the hour of death, when ushered out of existence by circumstances, the mind does not lack enjoyment of the best life. (Hicks)

Post by “Bryan” of August 1, 2024 at 2:19 PM

[Quote from Cassius](#)

people of normal intelligence shouldn't be asked to accept "trust the scientists" or "trust the mathematicians" any more than they accept "trust the priests" as an explanation.

Yes, as we know, authorities and what they say may or may not be helpful, but they are certainly not our measure of truth. Sensation is our measure of truth.

[Quote from Don](#)

infinite number of worlds (κόσμοι ἄπειροί kosmoi apeiroi)

I agree we should not "update" or add ideas when translating -- but do we have any good arguments or objections to using "galaxies" for "kosmoi"? (We all know the difficulty with the English "world," which now means only one planet).

Post by “Don” of August 1, 2024 at 3:11 PM

[Quote from Bryan](#)

I agree we should not "update" or add ideas when translating -- but do we have any good arguments or objections to using "galaxies" for "kosmoi"? (We all know the difficulty with the English "world," which now means only one planet).

I agree "world" is problematic, but using "galaxy" obscures the ancient Greek understanding of what a kosmos was. I prefer "world-system" or something like that. Kosmos is not directly translated into a modern idiom.

Post by “Bryan” of August 1, 2024 at 4:04 PM

[Quote from Don](#)

Using "galaxy" obscures the ancient Greek understanding of what a kosmos was.

This is certainly true and I do agree. But then of course Epicurus would have a different view of the meaning of the word compared to his predecessors. LSJ often accommodates Epicurus' variance, but it does so unevenly, as you know. I see that galaxy is too much, and that "world-system" is correct, but I do wish for a more elegant solution. I only want one unnamed thing (that 4th part) and this feels like adding to that list. Perhaps, just kosmos.

Post by “Don” of August 1, 2024 at 4:21 PM

[Quote from Bryan](#)

" is correct, but I do wish for a more elegant solution.

LOL Completely agree, although to quote the philosopher Mick Jagger "You can't always get what you want..."

Post by “Martin” of August 2, 2024 at 1:02 AM

Galaxy is too much for me, too. Solar system appears to be the modern term closest to what Epicurus called a cosmos.

Post by “Joshua” of August 2, 2024 at 1:27 AM

From the whole surface of the Earth there are less than 10,000 stars visible to the naked eye--out of something like 100 billion stars in our galaxy.

Post by “Don” of August 2, 2024 at 6:39 AM

I know I've brought this up ad nauseum at this point and in this thread already, but Lucretius' talk about Epicurus going beyond the "fiery ramparts" of the "mundus" ("world") tells me their concept of the structure of their "world-system" included a fiery "shell or dome" through which Epicurus was able to think beyond and to imagine other such world-systems throughout The All, the entirety of the whole universe. There really is no applicable analogy in modern cosmology unless, in my opinion, one wants to go down the "bubble universe" track. We can assert that "other worlds" is like *Star Trek's* "strange new worlds" in other solar systems, but I don't believe that was Epicurus's or Lucretius's image of a *κοσμος*/mundus. Now, could the ancient Epicureans be made to understand the modern concept of solar system, galaxy, etc.? Sure. Given enough evidence, they could probably accept or at least entertain the ideas that modern cosmology provides. But trying to map *κοσμος*/mundus onto modern concepts is going to be fraught with complications and requiring an ancient culture to adhere to our modern ideas. I think that does a disservice to them and us.

IF we want to think of "other kosmoi" as other planets in other solar systems, that's fine IF we're honest and acknowledge that's most likely not how Epicurus nor Lucretius nor Diogenes of Oenoanda nor the other ancient Epicureans conceived of it.

Post by “Bryan” of August 2, 2024 at 5:10 PM

[Quote from Don](#)

There really is no applicable analogy in modern cosmology

Yes, given our inability to translate it, I suppose we can take refuge in "cosmos" and "kosmoi."

I fully agree using terms from other schools confuses the issue and should probably be avoided... to the extent that cosmos means different things to different people, this will be ground that must be defended, and we will have to educate them about the correct meaning!

(As we know, Epicurus uses "atomos" and translating that as "atom" means we use the word that is not the same as modern science. But, I think you would agree, not using "atom" when translating him certainly gives up too much ground. We can use "atom" in our school, and use in its proper and true meaning.)

Post by “Don” of August 2, 2024 at 6:41 PM

[Quote from Bryan](#)

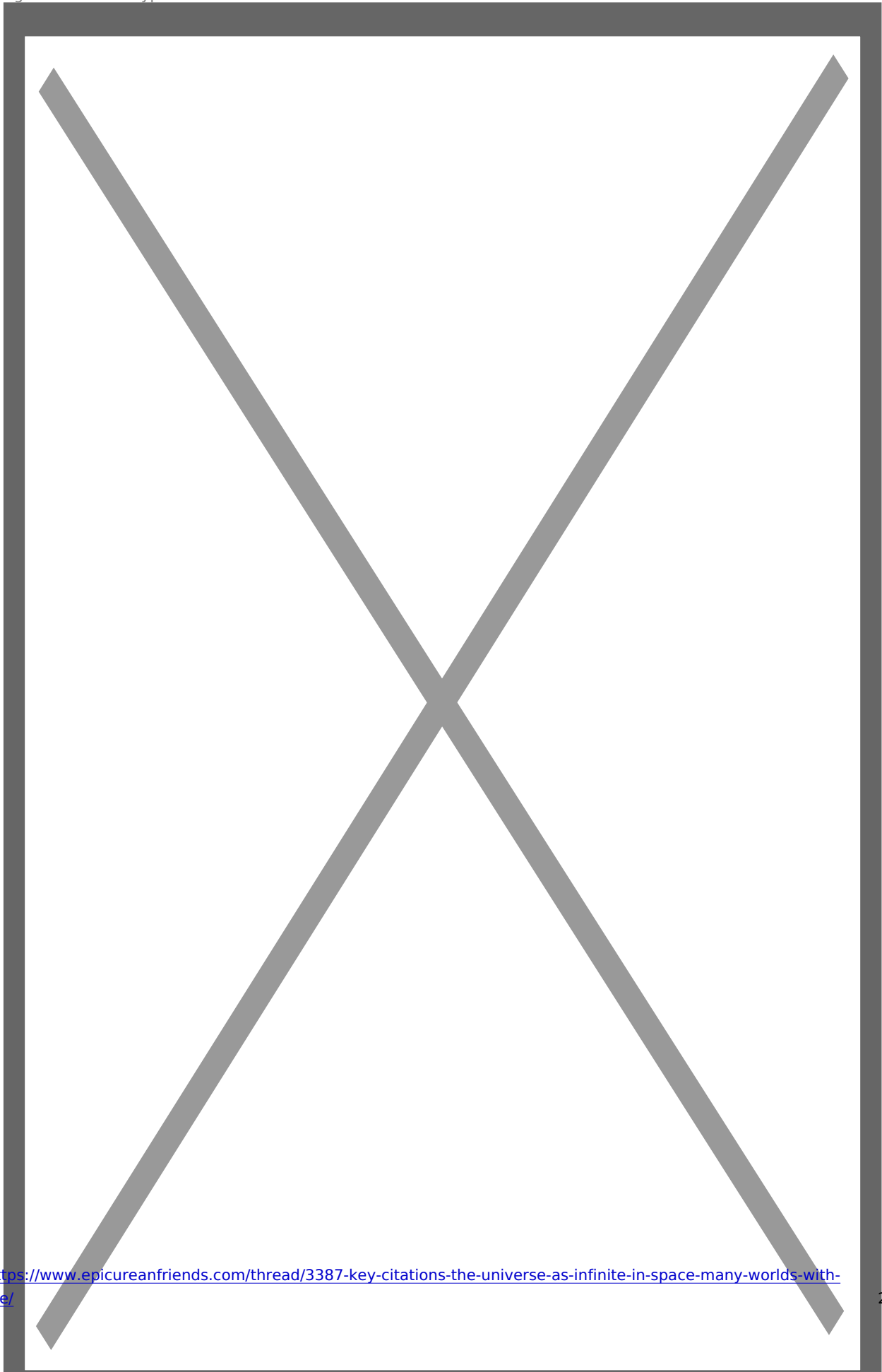
(As we know, Epicurus uses "atomos" and translating that as "atom" means we use the word that is not the same as modern science. But, I think you would agree, not using "atom" when translating him certainly gives up too much ground. We can use "atom" in our school, and use in its proper and true meaning.)

Oh, I fully agree with using "atom" to translate atomos is fine. Even though they aren't completely analogous from ancient to modern ideas, they are closer, in my opinion, than world and kosmos. Both atomos and atom get at minute particles of matter that make up compound bodies and, for us, molecules. Yeah, I'm not getting on a soapbox over those. (Is that a collective sigh of relief I hear?)

Post by “Don” of August 3, 2024 at 9:11 AM

Okay, so this is about as close as I could find of κόσμος = modern cosmology. There's even some "fiery ramparts"...

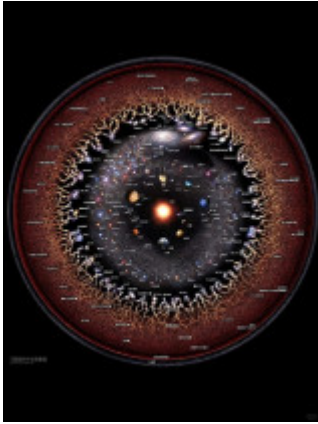
Image not found or type unknown



[CIRCULAR MAP OF THE UNIVERSE ALL VERSIONS - Pablo Carlos Budassi](#)

other languages / other versions

pablocarlosbudassi.com



See also: <https://bigthink.com/starts-with-a-...-view-universe/>