

Episode Twenty-Eight - The Number of Shapes of Atoms Is Not Infinite, But Innumerable

Post by "Cassius" of July 16, 2020 at 10:27 AM

Welcome to Episode Twenty-Eight 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.

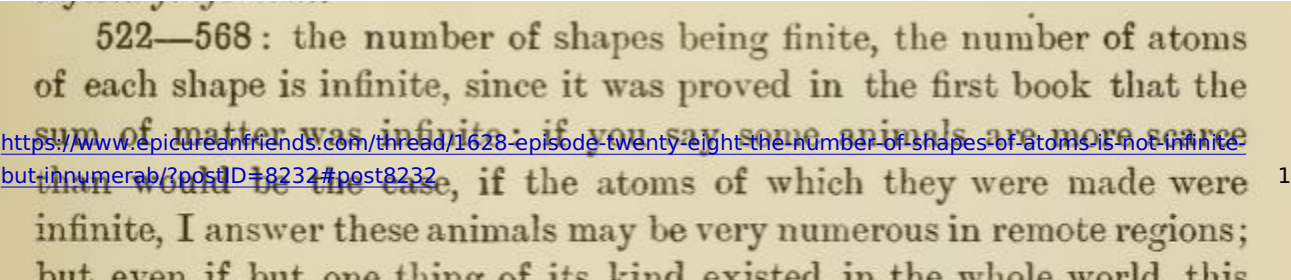
Third: The essential base of Epicurean philosophy is a fundamental view of the nature of the universe. When you read the words of Lucretius you will find that Epicurus did not teach the pursuit of virtue or of luxury or of simple living. or science, as ends in themselves, but rather the pursuit of pleasure. 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 let's join the discussion with today's text:

Latin text location: Approximately [lines 522-580](#)

Parallel section of the Letter to Herodotus as to infinite numbers of atoms ([Bailey Extant Remains page 23](#)) and as to limits in size ([Bailey Extant Remains, page 33](#))

Munro Summary: [Notes on the text](#)



522—568 : the number of shapes being finite, the number of atoms of each shape is infinite, since it was proved in the first book that the sum of matter was infinite: if you say some animals are more scarce than would be the case, if the atoms of which they were made were infinite, I answer these animals may be very numerous in remote regions; but even if but one thing of its kind existed in the whole world, this

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569—580: thus production and destruction alternately prevail, their elements ever waging equal war: no day passes without some dying, some being born. 569 *itaque*: for its place in the sentence see n. to I 419

[\(For an Outline of where we have been so far in past discussions, click here.\)](#)

[Daniel Browne:](#)

This being proved, I shall here join another observation, which justly derives its credit from what is explained before: This is that the seeds of things that are alike, and perfectly of the same figure, are in number infinite, for though the variety of their figures be only finite, yet the seeds themselves that are alike in nature must indeed be infinite, otherwise the whole of matter must be finite, which I have fully proved is not. Thus having cleared the way I shall now show, in short but sweetest numbers, that the seeds of matter are infinite, and hold together the whole of things, by constant force of blows on every side.

For though you observe some species of animals are less common, and nature seems less fruitful in their production, yet in other countries, in other places, and in lands more remote, you meet with many creatures of that kind, and more, in number. For you observe the elephant, chief of beasts, wreathing his lithe proboscis like a snake. How many thousands of them India breeds, which fortify her with a wall of ivory impenetrable, not to be forced, but we see but few at Rome. But grant, if you please, there was only one single create of a particular kind in Nature, whose like was not to be found throughout the world, yet unless the seeds of which it was formed were in number infinite, it could never come into being, or, when once made, could it increase or be supported.

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

Nor do those motions that are fatal and destructive to beings always prevail, and cause a dissolution never to be recovered. Nor, on the contrary, do those motions by which beings are formed and increased always preserve things when they are produced, but a perpetual war has been forever carried on, with equal success, between the principles of things; one while the vital seeds prevail, and now again they are routed, and beaten out of the field. The cries of infant beings, which they send out as soon as they see the light, are mingled with the funeral of others that are departed; nor is there a night that follows the day, nor a morning which succeeds the night, that does not hear the groans, the attendants of death, and sad obsequies, mingled with the tender laments of new-born babes rising into being.

Munro:

And now that I have shown this, I will go on to link to it a truth which depends on this and from this draws its proof: the first-beginnings of things which have a like shape one with the other are infinite in number. For since the difference of forms is finite, those which are like must be infinite or the sum of matter will be finite, which I proved not to be the case, when I showed in my verses that the minute bodies of matter from everlasting continually uphold the sum of things through an uninterrupted succession of blows on all sides.

For though you see that some animals are rarer than others and discern a less fruitful nature in them, yet in another quarter and spot and in distant lands there may be many of that kind and the full tale may be made up; just as we see that in the class of four-footed beasts snake-handed elephants are elsewhere especially numerous; for India is so fenced about with an ivory rampart made out of many thousands of these, that its inner parts cannot be reached, so great is the quantity of brutes, of which we see but very few samples. But yet though I should grant this point too: be there even as you will some one thing sole in its kind existing alone with a body that had birth, and let no other thing resemble it in the whole world; yet unless there shall be an infinite supply of matter out of which it may be conceived and brought into being, it cannot be produced, and, more than this, it cannot have growth and food.

For though I should assume this point also that birth-giving bodies of some one thing are tossed about in finite quantity throughout the universe, whence, where, by what force and in what way shall they meet together and combine in so vast a sea, such an alien medley of matter? They have methinks no way of uniting; but even as when great and numerous shipwrecks have occurred, the great sea is wont to tumble about banks, rudders, yards, prow, masts and swimming oars, so that poop-fittings are seen floating about along every shore and utter to mortals a warning to try to shun the snares and violence and guile of the faithless sea, and never at any time to trust to it, when the winning face of calm ocean laughs treacherously; thus too if you shall once decide that certain first-beginnings are finite, different currents of matter must scatter and tumble them about through all time, so that they can never be brought into union and combine, nor abide in any union nor grow up and increase. But plain matter of fact shows that each of these results manifestly does take place, that things can be brought into

being and when begotten advance in growth. It is clear, then, that in any class you like, the first-beginnings of things are infinite, out of which all supplies are furnished.

Thus neither can death-dealing motions keep the mastery always nor entomb existence for evermore, nor on the other hand can the birth and increase giving motions of things preserve them always after they are born. Thus the war of first beginnings waged from eternity is carried on with dubious issue: now here, now there, the life-bringing elements of things get the mastery and are overmastered in turn: with the funeral wail blends the cry which babies raise when they enter the borders of light; and no night ever followed day nor morning night that heard not mingling with the sickly infant's cries wailings the attendants on death and black funeral.

Bailey

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.

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. 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.

Nay, in very truth, if I were to suppose this too, that the bodies creative of one single thing were limited as they tossed about the universe, whence, where, by what force, in what manner will they meet and come together in that vast ocean, that alien turmoil of matter? They have not, I trow, a plan for union, but as, when many a great shipwreck has come to pass, the great sea is wont to cast hither and thither benches, ribs, yards, prow, masts and swimming oars, so that along all the coasts of the lands floating stern-pieces are seen, giving warning to mortals, to resolve to shun the snares of the sea and its might and guile, nor trust it at any time, when the wiles of the windless waves smile treacherous; even so, if you once suppose that the first-beginnings of a certain kind are limited, then scattered through all time they must needs be tossed hither and thither by the tides of matter, setting towards every side, so that never can they be driven together and come together in union, nor stay fixed in union, nor take increase

and grow; yet that each of these things openly comes to pass, fact proves for all to see, that things can be brought to birth and being born can grow. It is manifest then that there are, in any kind of things you will, infinite first-beginnings, by which all things are supplied.

And so, neither can the motions of destruction prevail for ever, and bury life in an eternal tomb, nor yet can the motions of creation and increase for ever bring things to birth and preserve them. So war waged from time everlasting is carried on by the balanced strife of the first-beginnings. Now here, now there, the vital forces of things conquer and are conquered alike. With the funeral mingles the wailing which babies raise as they come to look upon the coasts of light; nor has night ever followed on day, or dawn on night, but that it has heard mingled with the baby's sickly wailings, the lament that escorts death and the black funeral.