

# What Did the Ancient Epicureans Think Were The Upper And Lower Limits of Atomic Size?

Post by "Cassius" of September 6, 2024 at 11:03 AM

As to largest possible size, there is this from Book 2 of Lucretius. This seems to be the upper limit related to the idea that if an atom were of unlimited size then it would be "of unbounded bulk" which I presume means it would crowd everything else out. So this is one way of looking at the limit, but I thought I remembered somewhere a statement to the effect that we could not conceive of an atom being so large as to be detectable to our senses. If that was said somewhere, I am not sure what the reasoning would be. At any rate, the point I think is worth emphasizing is that this isn't reasoning that we identify so much as hypertechnical "science," but mostly mental logic based on common sense directly referring to what our senses tell us without any mathematics or instrumentation of any kind.

## Quote

[478] And since I have taught this much, I will hasten to link on a truth which holds to this and wins belief from it, that the first-beginnings of things are limited in the tale of their varying shapes. If it were not to be so, then once again certain seeds must needs be of unbounded bulk of body. For, within the same tiny frame of any one single seed, the shapes of the body cannot be very diverse. For suppose the first-bodies to be of three least parts, or if you will, make them larger by a few more; in truth when you have tried all those parts of one body in every way, shifting top and bottom, changing right with left, to see what outline of form in that whole body each arrangement gives, beyond that, if by chance you wish to make the shapes different, you must needs add other parts; thence it will follow that in like manner the arrangement will ask for other parts, if by chance you still wish to make the shapes different: and so greater bulk in the body follows on newness of forms. Wherefore it is not possible that you can believe that there are seeds with unbounded difference of forms, lest you constrain certain of them to be of huge vastness, which I have taught above cannot be approved.

[500] At once you would see barbaric robes and gleaming Meliboean purple, dyed with the colour of Thessalian shells, and the golden tribes of peacocks, steeped in smiling beauty, lie neglected and surpassed by the new colours in things; and the smell of myrrh and the taste of honey would be despised, and the swan's song and the many-toned melodies on Phoebus's strings would in like manner be smothered and mute: for something more excellent than all else would ever be arising. Likewise, all things would sink back on the worse side, just as we have told that they would rise towards the better. For, on the other hand, something would be more loathly too than all else to

nostrils and ears and eyes, and the taste of the mouth. And since these things are not so, but a fixed limit to things marks the extreme on either side, you must needs confess that the first-matter too has a limited difference in shapes.

[515] Again from fire right on to the icy frost of winter is but a limited way, and in like manner is the way measured back again. For all heat and cold and tepid warmths in the middle lie between the two, filling up the sum in due order. And so they are brought to being differing with limited degrees, since they are marked off at either end by the twin points, beset on this side by flames, on that by stiffening frosts.

[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.