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

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The *Epistle to Herodotus* 55-59 discusses the range of sizes of an atom:

"However, one must not believe that every kind of magnitude exists in atoms, lest we find ourselves contradicted by phenomena. But we must admit that there are atoms of different magnitude, because, as that is the case, it is then more easy to explain the impressions and sensations; [56]at all events, I repeat, it is not necessary for the purpose of explaining the differences of the qualities, to attribute to atoms every kind of magnitude.

We must not suppose either, that an atom can become visible to us; for, first of all, one does not see that that is the case, and besides, one cannot even conceive, how an atom is to become visible; besides, we must not believe, that in a finite body there are particles of every sort, infinite in number; consequently, one must not only reject the doctrine of infinite divisibility in parcels smaller and smaller, lest we should be reducing everything to nothing, and find ourselves forced to admit, that in a mass composed of a crowd of elements, existence can reduce itself to non-existence. But one cannot even suppose that a finite can be susceptible of transformation ad infinitum, or even of transformation into smaller objects that itself; [57]for when once one has said that there are in an object particles of every kind, infinite in number, there is absolutely no means whatever of imagining that this object can have only a finite magnitude; in fact, it is evident that these particles, infinite in number, have some kind of dimension or other, and whatever this dimension may be in other respects, the objects which are composed of it will have an infinite magnitude; in presenting forms which are determined, and limits which are perceived by the senses, one conceives, easily, without it being necessary to study this last question directly, that this would be the consequence of the contrary supposition, and that consequently, one must come to look at every object as infinite.

58 One must also admit that the most minute particle perceptible to the sense, is neither absolutely like the objects which are susceptible of transformation, nor absolutely different from them. It has some characteristic in common with the object which admit of transformation, but it also differs from them, inasmuch as it does not allow any distinct parts to be discerned in it. When then, in virtue of these common characteristics, and of this resemblance, we wish to form an idea of the smallest particle perceptible by the senses, in taking the objects which change, for our terms of comparison, it is necessary that we should seize on some characteristic common to these different objects. In this way, we examine them successively, from the first to the last, not by themselves, more as composed of parts in juxtaposition, but only in their extent; in other words, we consider, the magnitudes by themselves, and in an abstract manner, inasmuch as they measure, the greater a greater extent, and the smaller a

smaller extent. This analogy applies to the atom, as far as we consider it as having the smallest dimensions possible. [59]Evidently by its minuteness, it differs from all sensible objects, but still this analogy is applicable to it; in a word, we establish by this comparison, that the atom really has some extent, but we exclude all considerable dimensions, for the sake of only investing it with the smallest proportions.

We must also admit, in taking for our guide the reasoning which discloses to us things which are invisible to the senses, that the most minute magnitudes, those which are not compound magnitudes, and which from the limit of sensible extent, are the first measure of the other magnitudes which are only called greater or less in their relation to the others. For these relations which they maintain with these particles, which are not subject to transformation, suffice to give them this characteristic of first measure. But they cannot, like atoms, combine themselves, and form compound bodies in virtue of any motion belonging to themselves." (trans. Yonge)