Episode One Hundred Twenty-Nine - Letter to Pythocles 03 - The Implications Of the Epicurean Position On The Size of the Sun

Post by “Cassius” of July 1, 2022 at 8:11 PM

Lucretius Book Five, Starting Line 564 (Bailey):

[564] Nor can the sun’s blazing wheel be much greater or less, than it is seen to be by our senses. For from whatsoever distances fires can throw us their light and breathe their warm heat upon our limbs, they lose nothing of the body of their flames because of the interspaces, their fire is no whit shrunken to the sight. Even so, since the heat of the sun and the light he sheds, arrive at our senses and cheer the spots on which they fall, the form and bulk of the sun as well must needs be seen truly from earth, so that you could alter it almost nothing to greater or less.

[575] The moon, too, whether she illumines places with a borrowed light as she moves along, or throws out her own rays from her own body, however that may be, moves on with a shape no whit greater than seems that shape, with which we perceive her with our eyes. For all things which we behold far sundered from us through much air, are seen to grow confused in shape, ere their outline is lessened. Wherefore it must needs be that the moon, inasmuch as she shows a clear-marked shape and an outline well defined, is seen by us from earth in the heights, just as she is, clear-cut all along her outer edges, and just the size she is.

[585] Lastly, all the fires of heaven that you see from earth; inasmuch as all fires that we see on earth, so long as their twinkling light is clear, so long as their blaze is perceived, are seen to change their size only in some very small degree from time to time to greater or less, the further they are away: so we may know that the heavenly fires can only be a very minute degree smaller or larger by a little tiny piece.

[592] This, too, is not wonderful, how the sun, small as it is, can send out so great light, to fill seas and all lands and sky with its flood, and to bathe all things in its warm heat. For it may be that from this spot the one well of light for the whole world is opened up and teems with bounteous stream, and shoots out its rays, because the particles of heat from all the world gather together on every side, and their meeting mass flows together in such wise, that here from a single fountain-head their blazing light streams forth. Do you not see too how widely a tiny spring of water sometimes moistens the fields, and floods out over the plains?

[604] Or again, it may be that from the sun’s fire, though it be not great, blazing light seizes on the air with its burning heat, if by chance there is air ready to hand and rightly suited to be kindled when smitten by tiny rays of heat; even as sometimes we see crops or straw caught in

widespread fire from one single spark.

[610] Perhaps, too, the sun, shining on high with its rosy torch, has at his command much fire with hidden heat all around him, fire which is never marked by any radiance, so that it is only laden with heat and increases the stroke of the sun’s rays.

[614] Nor is there any single and straightforward account of the sun, to show how from the summer regions he draws near the winter turning-point of Capricorn, and how turning back thence, he betakes himself to the solstice-goal of Cancer; and how the moon is seen in single months to traverse that course, on which the sun spends the period of a year as he runs. There is not, I say, any single cause assigned for these things.

[621] For, first and foremost, it is clear that it may come to pass, as the judgement of the holy man, Democritus, sets before us, that the nearer the several stars are to earth, the less can they be borne on with the whirl of heaven. For its swift keen strength passes away and is lessened beneath, and so little by little the sun is left behind with the hindmost signs, because it is much lower than the burning signs. And even more the moon: the lower her course, the further it is from the sky and nearer to earth, the less can she strain on her course level with the signs. Moreover the weaker the whirl with which she is borne along, being lower than the sun, the more do all the signs catch her up all around and pass her. Therefore, it comes to pass that she seems to turn back more speedily to each several sign, because the signs come back to her.

[637] It may be too that from quarters of the world athwart his path two airs may stream alternately, each at a fixed season, one such as to push the sun away from the summer signs right to the winter turning-places and their icy frost, and the other to hurl him back from the icy shades of cold right to the heat-laden quarters and the burning signs. And in like manner must we think that the moon and those stars which roll through the great years in great orbits, can be moved by airs from the opposite quarters in turn. Do you not see how by contrary winds the lower clouds too are moved in directions contrary to those above? Why should those stars be less able to be borne on by currents contrary one to the other through the great orbits in the heaven?

[650] But night shrouds the earth in thick darkness, either when after his long journey the sun has trodden the farthest parts of heaven, and fainting has breathed out his fires shaken by the journey and made weak by much air, or because the same force, which carried on his orb above the earth, constrains him to turn his course back beneath the earth.

[656] Likewise at a fixed time Matuta sends abroad the rosy dawn through the coasts of heaven, and spreads the light, either because the same sun, returning again beneath the earth, seizes the sky in advance with his rays, fain to kindle it, or because the fires come together and many seeds of heat are wont to stream together at a fixed time, which each day cause the light of a new sun to come to birth. Even so story tells that from the high mountains of Ida scattered fires are seen as the light rises, and then they gather as if into a single ball, and make up the orb.

[666] Nor again ought this to be cause of wonder herein, that these seeds of fire can stream together at so fixed a time and renew the brightness of the sun. For we see many events, which come to pass at a fixed time in all things. Trees blossom at a fixed time, and at a fixed time lose their flower. Even so at a fixed time age bids the teeth fall, and the hairless youth grow hairy with soft down and let a soft beard flow alike from either cheek. Lastly, thunder, snow, rains, clouds, winds come to pass at seasons of the year more or less fixed. For since the first-beginnings of causes were ever thus and things have so fallen out from the first outset of the world, one after the other they come round even now in fixed order.

[680] And likewise it may be that days grow longer and nights wane, and again daylight grows less, when nights take increase; either because the same sun, as he fulfills his course in unequal arcs below the earth and above, parts the coasts of heaven, and divides his circuit into unequal portions; and whatever he has taken away from the one part, so much the more he replaces, as he goes round, in the part opposite it, until he arrives at that sign in the sky, where the node of the year makes the shades of night equal to the daylight. For in the mid-course of the blast of the north wind and of the south wind, the sky holds his turning-points apart at a distance then made equal, on account of the position of the whole starry orbit, in which the sun covers the space of a year in his winding course, as he lights earth and heaven with his slanting rays: as is shown by the plans of those who have marked out all the quarters of the sky, adorned with their signs in due order.

[696] Or else, because the air is thicker in certain regions, and therefore the trembling ray of his fire is delayed beneath the earth, nor can it easily pierce through and burst out to its rising. Therefore in winter time the long nights lag on, until the radiant ensign of day comes forth.

[701] Or else again, because in the same way in alternate parts of the year the fires, which cause the sun to rise from a fixed quarter, are wont to stream together now more slowly, now more quickly, therefore it is that those seem to speak the truth \[who say that a new sun is born every day\].

[705] The moon may shine when struck by the sun’s rays, and day by day turn that light more straightly to our sight, the more she retires from the sun’s orb, until opposite him she has glowed with quite full light and, as she rises, towering on high, has seen his setting; then little by little she must needs retire back again, and, as it were, hide her light, the nearer she glides now to the sun’s fire from the opposite quarter through the orbit of the signs; as those have it, who picture that the moon is like a ball, and keeps to the path of her course below the sun.

[715] There is also a way by which she can roll on with her own light, and yet show changing phases of brightness. For there may be another body, which is borne on and glides together with her, in every way obstructing and obscuring her; yet it cannot be seen, because it is borne on without light. Or she may turn round, just like, if it so chance, the sphere of a ball, tinged over half its surface with gleaming light, and so by turning round the sphere produces changing phases, until she turns to our sight and open eyes that side, whichever it be, that is endowed with fires; and then little by little she twists back again and carries away from us the light-

giving part of the round mass of the ball; as the Babylonian teaching of the Chaldaeans, denying the science of the astronomers, essays to prove in opposition; just as if what each of them fights for may not be the truth, or there were any cause why you should venture to adopt the one less than the other.

[731] Or again, why a fresh moon could not be created every day with fixed succession of phases and fixed shapes, so that each several day the moon created would pass away, and another be supplied in its room and place, it is difficult to teach by reasoning or prove by words, since so many things can be created in fixed order. Spring goes on her way and Venus, and before them treads Venus's winged harbinger; and following close on the steps of Zephyrus, mother Flora strews and fills all the way before them with glorious colours and scents. Next after follows parching heat, and as companion at her side dusty Ceres and the etesian blasts of the north winds. Then autumn advances, and step by step with her Euhius Euan. Then follow the other seasons and their winds, Volturnus, thundering on high, and the south wind, whose strength is the lightning. Last of all the year's end brings snow, and winter renews numbing frost; it is followed by cold, with chattering teeth. Wherefore it is less wonderful if the moon is born at a fixed time, and again at a fixed time is blotted out, since so many things can come to pass at fixed times.

[751] Likewise also the eclipses of the sun and the hidings of the moon, you must think may be brought about by several causes. For why should the moon be able to shut out the earth from the sun's light, and thrust her head high before him in the line of earth, throwing her dark orb before his glorious rays; and at the same time it should not be thought that another body could do this, which glides on ever without light. And besides, why should not the sun be able at a fixed time to faint and lose his fires, and again renew his light, when, in his journey through the air, he has passed by places hostile to his flames, which cause his fires to be put out and perish?

[762] And why should the earth be able in turn to rob the moon of light, and herself on high to keep the sun hidden beneath, while the moon in her monthly journey glides through the sharp-drawn shadows of the cone; and at the same time another body be unable to run beneath the moon or glide above the sun's orb, to break off his rays and streaming light? And indeed, if the moon shines with her own light, why should she not be able to grow faint in a certain region of the world, while she passes out through spots unfriendly to her own light?

[772] For the rest, since I have unfolded in what manner each thing could take place throughout the blue vault of the great world, so that we might learn what force and what cause started the diverse courses of the sun, and the journeyings of the moon, and in what way they might go hiding with their light obscured, and shroud the unexpecting earth in darkness, when, as it were, they wink and once again open their eye and look upon all places shining with their clear rays; now I return to the youth of the world, and the soft fields of earth, and what first with new power of creation they resolved to raise into the coasts of light and entrust to the gusty winds.