Episode Ninety-One - More on Magnetism, and Introduction To Disease And Plagues

Post by “Cassius” of September 29, 2021 at 8:59 PM

Welcome to Episode Ninety-One 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. 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.

For anyone who is not familiar with our podcast, please visit EpicureanFriends.com where you will find our goals and our ground rules. If you have any questions about those, please be sure to contact us at the forum for more information.

In this Episode 91 we will read approximately Latin lines 1002 through 1125 and we will discuss the details of how magnets work, and then shift to preliminary comments on disease and plagues.

And we're happy to say that we have Joshua back with us this week, and Don has returned, so our panel is once again back to full strength. Now let's join Don reading today's text.

Munro Notes:

998-1041: and now we can easily explain the magnet's attraction : particles streaming from it cause a void between it and the iron ; these particles in a united mass fill the void, and as the particles of iron are very closely packed, the whole ring must follow, when a certain number have thus advanced : this takes place on all sides, as particles stream from the magnet all round, if not by their own motion, yet by impact : as there is a void too on one side of the iron, the air on the other side helps to push it on as well as the air in motion within the ring.

1042-1064: but if brass come between the magnet and the iron, then the iron is repelled, not attracted, because the stream of particles from the brass first fills the pores of the iron ; those from the magnet follow, and finding the iron already occupied, beat on it and repel it : other things are not thus repelled like iron for various reasons; gold is too heavy, wood too porous, iron is the due mean.

1065-1089 : the fact that only iron is attracted by the loadstone need not excite wonder : many things can be joined together only by some one substance, stones and woods and various

metals ; then some liquids will mix, others will not: in all cases of mixture and adhesion the cavities of one substance must mutually come in contact with and fit the solid parts of the other; sometimes too the union is like that of hooks and eyes, as indeed seems to be the case with this stone and iron.

1090-1137: now to explain the cause of diseases: many particles, both salutary and noxious, are ever flying about; sometimes the latter are able to corrupt the air; then comes pestilence, either in clouds and vapors, or out of the corrupted earth: it is seen what effects change of climate has on men, and how much climates differ, and how particular diseases infest particular countries; thus a strange atmosphere can come to us in mists and vapors and corrupt our air, and fall on the water we drink or the food we and other creatures eat, or make us inhale infection : thus it comes to the same thing whether the bad atmosphere travels to us or we travel to it.

Browne 1743

[1002] And first, many seeds or effluvia are continually flying off from the stone, and by their blows disperse and drive away the air that liest between the magnet and the iron. This space being empty, and void made between, the corpuscles of the iron rush out suddenly in a train, all linked together, into this vacuum, so that the whole body of the iron ring, to which they are joined, immediately follows, for nothing is made up of seeds more entangled and connected together than the cold and tough substance of iron. And therefore (as we said before) it is the less to be wondered if the seeds cannot fly off from the iron into the void but those before must draw on those behind, and the whole ring follows at last; which it does, and continues to move, till it comes close to the stone and, fixed by secret bonds, sticks to it. And these effluvia of the iron that lie nearest the stone rush into the void every way, upwards or across, wherever the space is empty, for they are driven by the force of other seeds, nor have they any power to move upwards by their own natural motion.

[1022] You may add another reason to account for this experiment, which is that the iron is driven forward, and assisted in its motion from without, for the air before the steel being more rare, and the space between more empty and void than it was, hence it is that the air that is behind strikes upon the back of the ring, and drives and forces it on; for the air that surrounds all bodies beats upon them with continual blows; but then only it drives on the iron when the space is empty on that side, and fit to retrieve it. The air therefore, which I observe, entering into the many pores of the iron, and subtly conveying itself into the little passages, thrusts and forces it on, as a ship is driven by wind and sails. And then all things must contain within some parts of air, for all bodies are rare, and full of pores, and air surrounds and pierces through everything. This air therefore that lies concealed in the body of the iron is always tossed with violent motion, and beats upon the ring, and agitates it within, and so the iron is carried on toward the void to which it was moving, and whither all its force was first directed.

[1042] But sometimes the substance of the iron will fly from the magnet; it will withdraw sometimes as well as press towards it. For I have seen little Samothracian rings of iron, and filings of steel, put into a brazen pot; and the stone being applied to the bottom of the vessel, the iron will leap and dance upwards, so eager is it to be gone and avoid the stone. And this great aversion arises from the interposition of the brass, for when the particles of the brass have entered and filled up the open pores of the iron, then come the effluvia of the loadstone; and finding the passages of the iron full, and no more open for them to pierce through as before, they beat upon the bits of iron and drive them forward with all their force. And thus the particles of the stone, passing through the brass, throws the iron from it, which otherwise it would take to its embrace.

[1056] Do not be surprised to find that the effluvia of the stone do not drive away other bodies from it in the same manner, for some remain unmoved upon the account of their weight; gold is of this sort. Others because they are rare, and their pores are wide, so that the particles that fly off from the stone pass through without touching, and therefore can have no power to move them, of this kind is the texture of wood. The nature of iron is placed between these two, and when its pores are full of those brazen particles, then it is that the effluvia of the magnet beat upon it and drive it off. Nor is the friendship between the loadstone and the steel so singular a case.

[1065] I can produce instances of many things whose natures are peculiarly fit and suited to each other. And first, your observe that stones are cemented together only by lime, and boards are so joined together by glue made of the ears and genitals of bulls, that the solid wood of a table will sooner split than the strong joints of glue will start or fall asunder. Wine will mingle with spring water, when heavy pitch and smooth oil will not. The purple color of the Murex incorporates so into the body of wool that it can never be taken out; no, not if you strive to recover it to its native whiteness by all the waves of the sea, not if you wash it in all the water of the ocean. There is but one mineral that will solder gold and silver together, and brass is joined only by white lead. How many things of this nature might be produced? To what purpose? I would by no means lead you so far out of the way, nor give myself so much trouble in such inquiries. I have many things yet to explain, but I shall be as short as possible. Those things whose textures so mutually answer to one another that the cavities of this thing agree with the plenitudes of that, and the cavities of that with the plenitudes of this, may be conjoined most easily and in the strictest manner. And some things may be so joined to others as if they were fastened together by hooks and rings, and in this manner it is that the loadstone seems to be connected to the steel.

[1090] Now I shall teach from whence diseases spring, and whence arise the pestilential blasts that spread their deadly poison and destroy both man and beast. And first (as I have said) the seeds of many things are ever flying through the air; some are sound and vital to mankind, and others bring on disease and death: these when they arise and taint the sky, and air becomes infected. Now the morbid force of all diseases, every pestilence, comes either from without, as

clouds and mists fall from the heavens above, or rises from the earth itself when, drenched by fierce and unseasonable showers, and pierced by the sun's scorching beams, it sends unwholesome vapors through the air.

[1103] Have you not seen that those who search out foreign lands, and leave their country and their native homes, contract new pains from the strange water, and the air they breathe? The mighty difference of the air occasions this, for don't you think the air of Britain is widely different from the air of Egypt, where he North Pole is never seen? Or that the air of Pontus differs from that of Gades and AEthiopia, where the black race of men are thoroughly sodden with the sun's heat? The four quarters of the air, we may suppose, are different in their temper and their quality, because they are opposed to the four quarters of the earth, where men, we find, in every region widely disagree in face and complexion, and are tormented with diseases peculiar to the countries where they live. The leprosy was known first in Egypt, near the river Nile, and no where else. The Athenians are tortured with the gout, the Acheaens with sore eyes. So every country is an enemy to one part and member of the body or other, and this must be imputed to the air.

[1119] And when the morbid pestilential air of a country, remote from us, moves from its first abode, and the fatal vapor begins to advance, it creeps first by degrees like a cloud or mist, and disturbs and changes every thing as it goes. And when it comes to the climate where we live, it corrupts every thing, and makes it like itself, and therefore is deadly and destructive to us.

[1125] This wasting plague, these sad infectious blasts, fall either in the water or fix upon the fruits or other food of men, or on the provender of cattle, or they may hang suspended in the air above, that when we draw our breath we needs must suck this poison, mingled with it, into our bodies. In the same manner the pestilence seizes on the cattle, and the contagion infects the sheep. And the danger is the same whether we change our climate and travel into a country where the air is pernicious to us or whether Nature of her own accord brings the cruel infection from abroad, or introduces a disease we are not used to, which upon its first approach may prove hurtful to us.

Munro 1886

[1002] First of all there must stream from this stone very many seeds or a current if you will which dispels with blows all the air which lies between the stone andiron. When this space is emptied and much room left void between, forthwith the first-beginnings of iron fall headlong forward into the void in one mass, and in consequence the ring itself follows and then goes on with its whole body. And nothing has its primal elements more intricately entangled or coheres in closer connection than the nature of stubborn iron and its coldness that makes you shiver. Therefore what I say is the less strange, that from among such elements as these bodies cannot gather in large numbers out of the iron and be carried into the void without the whole ring following. This it does do, and follows on until it has quite reached the stone and fastened

on it with unseen bonds of connection. The same thing takes place in all directions: on whatever side a void is formed, whether athwart or from above the first bodies next it are at once carried on into the void; for they are set in motion by blows from another source and cannot by their own free act rise up into the air.

[1022] Moreover (to render it more feasible, this thing also is helped on by external aid and motion) as soon as the air in front of the ring has been made rarer and the space more empty and void, it follows at once that all the air which lies behind, carries and pushes it on as it were at its back. For the air which lies around them always beats on things; but at such a time as this it is able to push on the iron, because on one side a space is void and receives the iron into it. This air of which I am speaking to you makes its way with much subtlety through the frequent pores of the iron to its minute parts and then thrusts and pushes it on, as the wind a ship and its sails. Again all things must have air in their body, since they are of a rare body and air surrounds and is in contact with all things. This air therefore which is in the inmost recesses of the iron, is ever stirred in restless motion and therefore beats the ring without a doubt and stirs it within, you know: the ring is carried in the direction in which it has once plunged forward, and into the void part towards which it has made its start.

[1042] Sometimes too it happens that the nature of iron is repelled from this stone, being in the habit of flying from and following it in turns. I have seen Samothracian iron rings even jump up, and at the same time filings of iron rave within brass basins, when this Magnet stone had been placed under: such a strong desire the iron seems to have to fly from the stone. So great a disturbance is raised by the interposition of the brass, because sure enough when the current of the brass has first seized on and taken possession of the open passages of the iron, the current of the stone comes after and finds all things full in the iron and has no opening to swim through as before. It is forced therefore to dash against and beat with its wave the iron texture; by which means it repels from it and sets in motion through the brass that which without the brass it often draws to itself.

[1056] And forbear herein to wonder that the current from this stone is not able to set in motion other things as well as iron: some of these stand still by the power of their own weight; for instance gold; and others, because they are of so rare a body that the current flies through them uninterrupted, cannot in any case be set in motion; to which class wood is found to belong. When therefore the nature of iron lying between the two has received into it certain first bodies of brass, then do the Magnet stones set it in motion with their stream.

[1065] And yet these cases are not so much at variance with other things, that I have only a scanty store of similar instances to relate of things mutually fitted one for the other and for nothing else: stones for instance you see are cemented by mortar alone; wood is united with wood so firmly by bulls’ glue only, that the veins of boards often gape in cracks before the binding power of the glue can be brought to loosen its hold. Vine-born juices venture to mix with streams of water, though heavy pitch and light oil cannot. Again the purple dye of the shellfish so unites with the body of wool alone, that it cannot in any case be severed, not were

you to take pains to undo what is done with Neptune’s wave, not if the whole sea were willed to wash it out with all its waters. Then too is there not one thing only that fastens gold to gold, and is not brass soldered to brass by tin? And how many other cases of the kind might one find! What then? You have no need whatever of such long circuitous roads, nor is it worth my while to spend so much pains on this, but it is better briefly to comprise many things in few words: things whose textures have such a mutual correspondence, that cavities fit solids, the cavities of the first the solids of the second, the cavities of the second the solids of the first, form the closest union. Again some things may be fastened together and held in union with hooks and eyes as it were; and this seems rather to be the case with this stone and iron.

[1090] And now I will explain what the law of diseases is and from what causes the force of disease may suddenly gather itself up and bring death-dealing destruction on the race of man and the troops of brute beasts. And first I have shown above that there are seeds of many things helpful to our life; and on the other hand many must fly about conducing to disease and death. When these by chance have happened to gather together and have disordered the atmosphere, the air becomes distempered. And all that force of disease and that pestilence come either from without down through the atmosphere in the shape of clouds and mists, or else do gather themselves up and rise out of the earth, when soaked with wet it has contracted a taint, being beaten upon by unseasonable rains and suns.

[1103] See you not too that all who come to a place far away from country and home are affected by the strangeness of climate and water, because there are wide differences in such things? For what a difference may we suppose between the climate of the Briton and that of Egypt where the pole of heaven slants askew, and again between that in Pontus and that of Gades and so on to the races of men black with sun-baked complexion? Now as we see these four climates under the four opposite winds and quarters of heaven all differing from each other, so also the complexions and faces of the men are seen to differ widely and diseases varying in kind are found to seize upon the different races. There is the elephant disease which is generated beside the streams of Nile in the midst of Egypt and nowhere else. In Attica the feet are attacked and the eyes in Achaean lands. And so different places are hurtful to different parts and members: the variations of air occasion that.

[1119] Therefore when an atmosphere which happens to put itself in motion unsuited to us and a hurtful air beg into advance, they creep slowly on in the shape of mist and cloud and disorder everything in their line of advance and compel all to change; and when they have at length reached our atmosphere, they corrupt it too and make it like to themselves and unsuited to us.

[1125] This new destroying power and pestilence therefore all at once either fall upon the waters or else sink deep into the corn-crops or other food of man and provender of beast; or else their force remains suspended within the atmosphere, and when we inhale from it mixed airs, we must absorb at the same time into our body those things as well. In like manner pestilence often falls on kine also and a distemper too on the silly sheep. And it makes no difference whether we travel to places unfavorable to us and change the atmosphere which

wraps us round, or whether nature without our choice brings to us a tainted atmosphere or something to the use of which we have not been accustomed, and which is able to attack us on its first arrival.

Bailey 1921

[1002] First of all it must needs be that there stream off this stone very many seeds or an effluence, which, with its blows, parts asunder all the air which has its place between the stone and the iron. When this space is emptied and much room in the middle becomes void, straightway first-beginnings of the iron start forward and fall into the void, all joined together; it comes to pass that the ring itself follows and advances in this way, with its whole body. Nor is anything so closely interlaced in its first particles, all clinging linked together, as the nature of strong iron and its cold roughness. Therefore it is the less strange, since it is led on by its particles, that it is impossible for many bodies, springing together from the iron, to pass into the void, but that the ring itself follows; and this it does, and follows on, until it has now reached the very stone and clung to it with hidden fastenings. This same thing takes place in every direction; on whichever side room becomes void, whether athwart or above, the neighbouring bodies are carried at once into the void. For indeed they are set in motion by blows from the other side, nor can they themselves of their own accord rise upwards into the air.

[1022] To this there is added, that it may the more be able to come to pass, this further thing as an aid, yea, the motion is helped, because, as soon as the air in front of the ring is made rarer, and the place becomes more empty and void, it straightway comes to pass that all the air which has its place behind, drives, as it were, and pushes the ring forward. For the air which is set all around is for ever buffeting things; but it comes to pass that at times like this it pushes the iron forward, because on one side there is empty space, which receives the ring into itself. This air, of which I am telling you, finds its way in subtly through the countless pores of the iron right to its tiny parts, and thrusts and drives it on, as wind drives ship and sails. Again, all things must have air in their body seeing that they are of rare body, and the air is placed round and set close against all things. This air then, which is hidden away deep within the iron, is ever tossed about with restless motion, and therefore without doubt it buffets the ring and stirs it within; the ring, we may be sure, is carried towards the same side to which it has once moved headlong, struggling hard towards the empty spot.

[1042] It comes to pass, too, that the nature of iron retreats from this stone at times, and is wont to flee and follow turn by turn. Further, I have seen Samothracian iron rings even leap up, and at the same time iron filings move in a frenzy inside brass bowls, when this Magnesian stone was placed beneath: so eagerly is the iron seen to desire to flee from the stone. When the brass is placed between, so great a disturbance is brought about because, we may be sure, when the effluence of the brass has seized beforehand and occupied the open passages in the iron, afterwards comes the effluence of the stone, and finds all full in the iron, nor has it a path by which it may stream through as before. And so it is constrained to dash against it and beat

with its wave upon the iron texture; and in this way it repels it from itself, and through the brass drives away that which without it it often sucks in.

[1056] Herein refrain from wondering that the effluence from this stone has not the power to drive other things in the same way. For in part they stand still by the force of their own weight, as for instance, gold; and partly, because they are of such rare body, that the effluence flies through untouched, they cannot be driven anywhere; among this kind is seen to be the substance of wood. The nature of iron then has its place between the two, and when it has taken in certain tiny bodies of brass, then it comes to pass that the Magnesian stones drive it on with their stream.

[1065] And yet these powers are not so alien to other things that I have only a scanty store of things of this kind, of which I can tell—things fitted just for each other and for naught besides. First you see that stones are stuck together only by mortar. Wood is united only by bulls' glue, so that the veins of boards more often gape than the bindings of the glue will loosen their hold. The juice born of the grape is willing to mingle with streams of water, though heavy pitch and light olive-oil refuse. And the purple tint of the shellfish is united only with the body of wool, yet so that it cannot be separated at all, no, not if you were to be at pains to restore it with Neptune's wave, no, nor if the whole sea should strive to wash it out with all its waves. Again, is not there one thing only that binds gold to gold? is it not true that brass is joined to brass only by white lead? How many other cases might we find! What then? You have no need at all of long rambling roads, nor is it fitting that I should spend so much pains on this, but 'tis best shortly in a few words to include many cases. Those things, whose textures fall so aptly one upon the other that hollows fit solids, each in the one and the other, make the best joining. Sometimes, too, they may be held linked with one another, as it were, fastened by rings and hooks; as is seen to be more the case with this stone and the iron.

[1090] Now what is the law of plagues, and from what cause on a sudden the force of disease can arise and gather deadly destruction for the race of men and the herds of cattle, I will unfold. First I have shown before that there are seeds of many things which are helpful to our life, and on the other hand it must needs be that many fly about which cause disease and death. And when by chance they have happened to gather and distemper the sky, then the air becomes full of disease. And all that force of disease and pestilence either comes from without the world through the sky above, as do clouds and mists, or else often it gathers and rises up from the earth itself, when, full of moisture, it has contracted foulness, smitten by unseasonable rains or suns.

[1103] Do you not see, too, that those who journey far from their home and country are assailed by the strangeness of the climate and the water, just because things are far different? For what a difference may we suppose there is between the climate the Britons know and that which is in Egypt, where the axis of the world slants crippled; what difference between the climate in Pontus and at Gades, and so right on to the black races of men with their sunburnt colour? And as we see these four climates at the four winds and quarters of the sky thus

diverse one from the other, so the colour and face of the men are seen to vary greatly, and diseases too to attack the diverse races each after their kind. There is the elephant disease, which arises along the streams of the Nile in mid Egypt, and in no other place. In Attica the feet are assailed, and the eyes in the Achaean country. And so each place is harmful to different parts and limbs: the varying air is the cause.

[1119] Wherefore, when an atmosphere, which chances to be noxious to us, sets itself in motion, and harmful air begins to creep forward, just as cloud and mist crawls on little by little and distempers all, wherever it advances, and brings about change, it comes to pass also, that when at last it comes to our sky, it corrupts it and makes it like itself, and noxious to us.

[1125] And so this strange destruction and pestilence suddenly falls upon the waters or settles even on the crops or on other food of men or fodder of the flocks; or else this force remains poised in the air itself, and, when we draw in these mingled airs as we breathe, it must needs be that we suck in these plagues with them into our body. In like manner the pestilence falls too often on the cattle, and sickness also on the lazy bleating sheep. Nor does it matter whether we pass into spots hostile to us and change the vesture of the sky, or whether nature attacking us brings a corrupt sky upon us, or something which we are not accustomed to feel, which can assail us by its first coming.

Post by “Cassius” of October 3, 2021 at 10:20 PM

Episode Ninety-One of Lucretius Today is now available.

https://www.spreaker.com/episode/46807895

Post by “Don” of October 4, 2021 at 6:39 AM

I'll beat Joshua to the punch and post:

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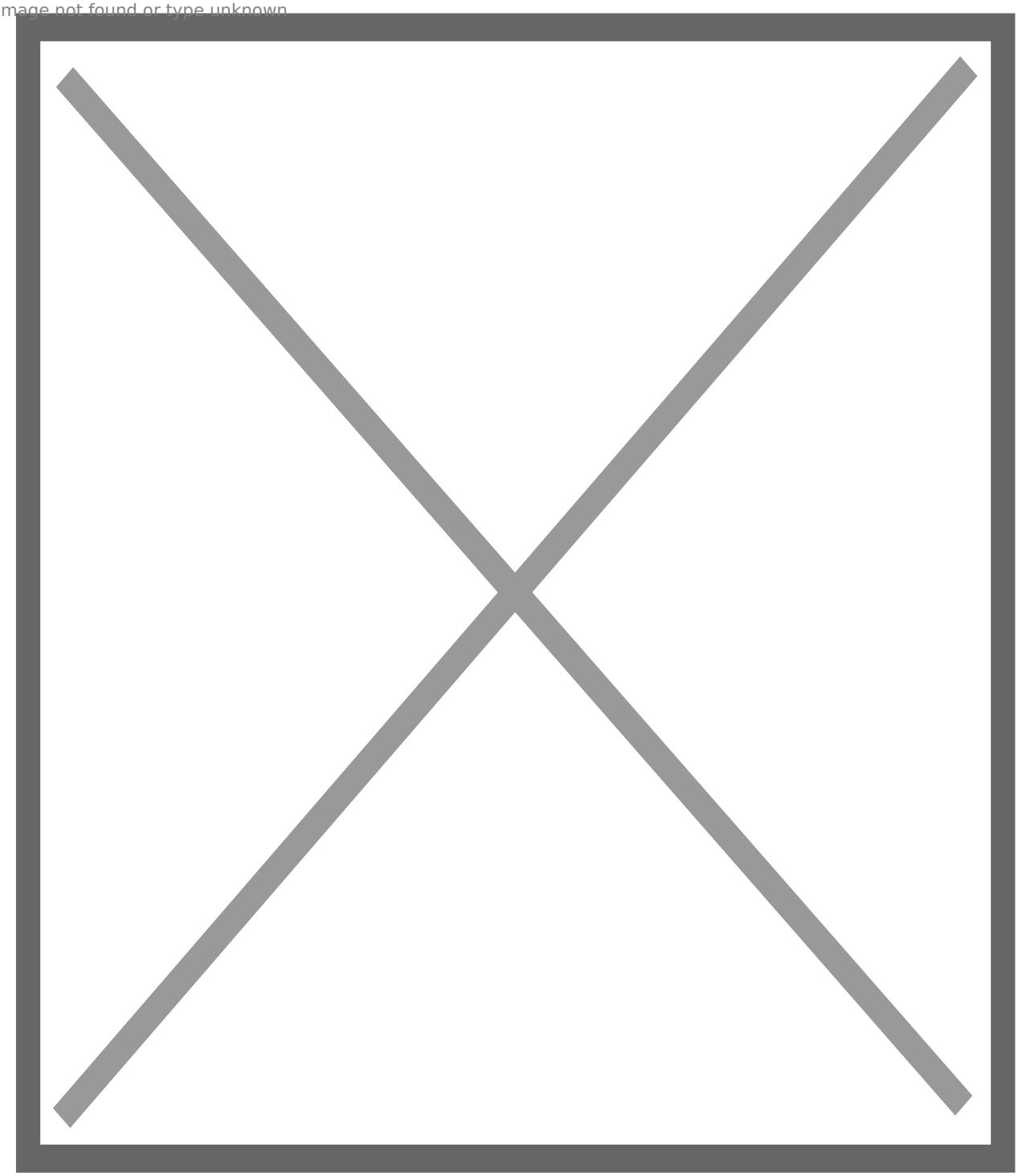

[Great Stink - Wikipedia]
en.wikipedia.org

One can also go down the Wikipedia rabbit hole and link to the miasma theory of disease, the Crossness Pumping Station, etc., from that link.

While I admit the foul odors themselves maybe didn't lead to disease (other than maybe chronic watery eyes, asthma, etc), the ancients did have the idea that there was airborne transmission of disease.

That being said, imagining what it had to be like to live in London during the Great Sink makes me shudder. Thanks for bringing this historical event to our attention, Joshua !

Post by “Don” of October 4, 2021 at 7:10 AM

Thread

Munro Translation of Lucretius

I was just singing the praises of Munro in another thread while going through Munro's Introduction to Lucretius (contained in volume two of his three volume set).

I think Munro is generally very sympathetic to Epicurus and Lucretius and therefore someone to be consulted in any translation issues, but here's a clip that I have to disagree with:

epicureanfriends.com/wcf/attachment/2220/

I am posting this mostly as a joke because I have been saying on the Lucretius podcast that I am looking forward…

Cassius
September 4, 2021 at 8:34 PM

This thread (start at Godfrey 's post near the top) talks about magnets possessing some life-force, anima, ψυχή, etc. Didn't remember to bring up during the podcast but an interesting thread nonetheless.

Post by “Cassius” of October 4, 2021 at 8:19 AM

And I also want to apologize to Martin for essentially repeating the same point he made only a few minutes earlier about silver and gold. I was so concerned about finding whether I had transcribed Brown wrong that I checked out for a moment and did not hear his comment, which I then repeated as if it were a brilliant insight on my part!

Post by “Alex” of October 9, 2021 at 8:10 PM

I'd like to add an observation in relation to the great stink, mentioned by Joshua in this episode regarding disease and plagues.

The importance of Edwin Chadwick and his role to resolve cholera in London at that time is missing in the equation (unless I missed it myself when listening, sorry Joshua if that's the case).

He was the main character to develop drainage and sewerage. The river Thames was not the only problem, my understanding is that people used to walk on excrement, so cholera killed thousands of Londoners.

Therefore, it was an urban solution applied to public health. I admire EC, and I thought he should be considered in this particular debate as well, that's all.

Thanks.

Post by “Joshua” of October 10, 2021 at 6:16 AM

Interesting reading, Alex, thank you!