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Article

A Persistent Myth: Comparing Geocentrism to Anthropocentrism and how this Vain Illusion Was Shattered by Heliocentrism — Demonstrating the Importance of Scientific Historiography by Way of a Discussion between a Student and one of His Professors

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Abstract:

According to the Copernican myth, geocentrism was a form of anthropocentrism because it showcased humankind as being both the centre and the purpose of the Cosmos, whereas heliocentrism, in dethroning humankind from this privileged position, luckily provided a means to quash this point of view, which was illusory and vain, and that even went against scientific progress. According to the anthropocentric myth, which is a part of it, geocentrism is a form of anthropocentrism, while heliocentrism is really an anti-anthropocentrism and not simply a non-anthropocentrism. This article, in the form of a dialogue, questions these two myths, looking in particular for the causes of their appearance, among which is a guilty anachronism.

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Keywords: Anachronism; Anthropocentrism; Geocentrism; Heliocentrism; Worldview

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To Lucas Trappeniers

A Request

LUCAS. — Excuse me, Professor, but as part of our research methodology coursework, we are required to complete a project demonstrating the importance of paying attention to the

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historiography of science, which means — if I've understood correctly — the way in which the history of science was previously written and how we ourselves write it today.

PROFESSOR. — Well, that seems rather interesting... on my behalf, please congratulate the teacher who assigned you this project!

LUCAS. — Will do! Although, we have to do it based on an interview with a teacher who has already dealt with this issue either directly or indirectly during the course of their research. We also have to read and use the article that they published as a result of that research. So, I immediately thought of you... because, as you mentioned before, I know that you are very attuned to the issues of methodology due to your thorough reading of Alexandre Koyré's works. Do you have a publication on this subject, and would you accept my asking you a few questions after having read it?

PROFESSOR. — No, not really, but the research I'm currently doing involves exposing a historiographical myth, while making sure to avoid merely substituting it with another one that is simply its opposite! I'm also looking to understand how this myth came about and why it persisted...

LUCAS. — Great! I think that fits our assignment. But do you already have the article?

PROFESSOR. — No, not yet. I've only just chosen the title: *Centralities of the Earth and centralities of humankind: towards a nuanced expression of the relationship between geocentrism, heliocentrism and anthropocentrism*. I think there's a solution to this, though: you could simply help me to write it, by playing the role of the innocent. So, at the end of the day, you will not only have asked me loads of questions, but you will also be in possession of the article you need! What do you think of that?

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LUCAS. — That's fine by me because I need a text! According to your title, it seems that your research is about the history of cosmology?

PROFESSOR. — Yes, it concerns the idea that geocentrism was a form of anthropocentrism because it showcased humankind as being both the centre and the purpose of the Cosmos, whereas heliocentrism, in dethroning humankind from this privileged position, luckily provided a means to quash this point of view, which was illusory and vain, and that even went against scientific progress.

LUCAS. — With all due respect, everyone knows that! It's the first of the three humiliations: Copernicus, Darwin and Freud! I'd really like to get a good mark. Do you think that with a subject like this...

PROFESSOR. — I do... because this idea is still to be found everywhere: you just proved that to me yourself! It is, however, largely incorrect. A fact that was established nearly a century ago already in various incontestable texts!

LUCAS. — Sorry, but that's surely because this myth, as you say, isn't entirely incorrect. Con artists, I'm told, know only too well that they have to blend a little truth in with their lies, at least if they hope to avoid being found out too easily!

PROFESSOR. — Exactly, Lucas! That is indeed the case! And even twice over. Firstly, because this myth makes a fundamentally true statement, although less in relation to those who lived through this cosmological upheaval than to those who, a little later on, would create and



even sustain it. As I'd like to demonstrate in my article, it also contains a second piece of truth, since there is actually a form of anthropocentrism within geocentrism, but it isn't as a direct result of this so-called vain centrality of the Earth!

LUCAS. — I got it right with my con artist story then. So, can I be your Candide?

PROFESSOR. — Of course! Here's some reading material for you so you can immerse yourself in the subject. We'll start working on this next Wednesday.

Day One

LUCAS. — Good morning, sir. I imagine we should start by better defining our subject. So, what exactly is this historiographical myth that the historians so hotly contested, that we still seem to find everywhere despite it all, and for which the two true parts were underestimated?

PROFESSOR. — Here's a very brief summary. The Earth, after having been placed at the centre of the world by human vanity, was debased because it lost this noble and prestigious position and took up an ordinary seat among the many meandering heavenly bodies; because in doing so, it became just a mere planet like all the others; and, lastly, because it was seen to be an incredibly small body compared to the vastness of the universe. As for humans, their self-esteem had taken a blow because they were no longer the centre of a world made purely for them; because they no longer occupied this central position that was a sign of their unique nature as sons and daughters of God; and because the possibility of there being other living species on other inhabited worlds had even deprived them of their uniqueness.

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For the sake of brevity, let's call this historiographical schema "the Copernican myth", whereas others have named it "the great Copernican cliché" (Danielson 2001, 1029 & 2014, 159; Keas 2015, 25), and even "the modern historical interpretation" (Špelda 2014, 76). By the same token, let's call the works of those who challenge this myth "the Copernican revision".

Have you been able to identify, from the description I just gave you, the part that we'll need to focus on more specifically?

LUCAS. — Yes, that would be the double comparison whereby geocentrism is a form of anthropocentrism, while heliocentrism is really an *anti-anthropocentrism* and not simply a *non-anthropocentrism*. And, naturally, you'll call that...

PROFESSOR. — ...the *anthropocentric myth* and the *anthropocentric revision*! In this way, we'll be able to distinguish between the overall interpretive schema and the more specific part that we'll be examining. The latter is intrinsically linked to the notion of centrality, as implied at first glance by the term "anthropocentrism".

LUCAS. — Well, that's perfectly clear! But I'm still not entirely convinced that I'll get a good mark! When I came to see you, you told me that the Copernican myth has already been challenged for nearly a century, but to no avail, it seems. So, why do you think that our article would succeed in changing anything? And also, who is going to want to read it, since even I admit to having my doubts about the relevance of your research?

PROFESSOR. — Your concerns are entirely justified, so I think I'll toy with you a bit first and begin by reinforcing them... and then you're going to tell me how we're going to take that into account!

I think we can separate our future readers into three groups: the more or less conscious supporters of the Copernican myth; the relatively few proponents of the Copernican revision; and, lastly, all those who, devoid of any preconceived ideas, are curious enough to make the effort to read our work. Leaving the last group aside, let's try to guess what the two others will make of it.

The supporters of the myth will say that the ties between geocentrism, heliocentrism and anthropocentrism were already firmly established in the second half of the 17th century (Danielson 2001, 1033): geocentrism is a form of anthropocentrism; anthropocentrism is a form of geocentrism; and it's thanks to the eternal glory of Nicolaus Copernicus, who inaugurated our modernity, that we were delivered, through heliocentrism, from these equally unified and puerile illusions. For them, our work will be seen as useless... since it's superfluous!

The proponents of the revision, on the other hand, will perhaps enjoy arguing with the former by pointing out that their attempt to set the Polish astronomer up as the flagbearer for the triumphant rejection of all anthropocentrism is, to say the least, paradoxical: on the contrary, the latter viewed the world as having been created *for man* (Copernic 2015, vol. 2, 8; Blumenberg 2000, xii-xiii, 38, 172). But having the distinct impression that their protests have thus far gone unheard, I imagine that they'll above all be thinking: "What's the point in yet another article?". For them, our work will be considered equally useless... since it's destined to fail!

LUCAS. — Well done on the pep talk, sir! So, how do you expect me to convince these people to read our work anyway?

PROFESSOR. — Think about your assignment...

LUCAS. — My assignment is about historiography...

PROFESSOR. — So...

LUCAS. — So, it needs to examine how we wrote scientific history... in this case, how the authors of the Copernican revision wrote theirs?

PROFESSOR. — Yes, in order to...

LUCAS. — ... to see how we could go about things a little differently so as to increase our chances of success a bit?

PROFESSOR. — Precisely!

LUCAS. — But I guess that this exercise will teach us many other things...

PROFESSOR. — Absolutely! It will be up to you to make sure this comes across in your work.

So, this is my take on the contemporary history of the Copernican revision. To my mind, it began around ten years after the Copernican myth had acquired, between 1835 and 1925, its

particular set of features chiefly influenced by positivism, Darwinism and Freudianism (Stoffel 2012). I'd suggest dividing it into three periods.

As a starting point, seeing that it's emblematic, I take the year 1936 because that's when Arthur O. Lovejoy's book, *The Great Chain of Being*, was published. This initial period was characterized by publications that either refuted the main idea of the myth or furnished a certain number of elements that went towards refuting it. Although in both cases, these publications did so in a partial, scattered and relatively discrete manner, with hardly any explanation or textual justification, simply because that wasn't their main objective.

I'd say the second one began in the early 1970s, with the debate between Cl. Savary (1969, 1970) and R. Montpetit (1970). It distinguished itself from the first in that its works provided a far more explicit and well-reasoned refutation.

Lastly, the third one, which began around the year 2000 and is essentially based on the English translation of the prominent article by R. Brague (1997), is that of dissemination and vulgarisation.

What have you gleaned from this quick presentation?

LUCAS. — That it seems to demonstrate a growing awareness of the Copernican myth's basic inaccuracy. We see this not only from the increasing number of publications but also from the rise of popularisers.

PROFESSOR. — Right! So, this is the first point in favour of remaining hopeful when it comes to your legitimate concerns about our chances of success.

LUCAS. — There's a second one? Let me figure it out... I feel that it must be linked to either the humiliation or to the truthful part that we already talked about, but I don't really get the connection.

PROFESSOR. — It's linked to both!

Let's address the truthful part first. The resistance that the authors of the revision kept coming up against was a sign that the myth possessed a certain power that must have been, in one way or another, as a result of its truthful part. Consequently, it isn't enough to merely explain the reasons for its falsehood, one must also, and perhaps above all, identify those that contributed to its success. Since once we've managed to identify what this success is the "symptom" of (Savary 1970, 399), it will be easier for us, even if we don't manage to entirely cure our historical myopia, at least to become aware of why we remain so attached to this historiographical schema in spite of everything.

LUCAS. — Then it'll be easier for us to free ourselves from it. That's the second point in favour of us remaining hopeful!

PROFESSOR. — Exactly! In order to identify the reason behind this attachment, let's now turn to the aspect of humiliation. You surely agree that it's paradoxical, to say the least, to cling to a myth that we know to be quite far from the truth, and one that is also regarded as rather degrading for the human race!

LUCAS. — Agreed! Although, to my mind, this myth seems fairly straightforward to explain, simple to understand and easy to remember. Also, the fact that it doesn't entirely fit with

historical truth is quite secondary at the end of the day... Of course, we still have the humiliation!

PROFESSOR. — ... humiliation for which the myth provides us with different interpretations. As far as I can make out, there are three that we can show as having succeeded one another over time: the first one is optimistic as it's liberating; the second is nostalgic since it's destructive (Koyré 1957, 281; Stoffel 2018^a, 426-427); and, lastly, the third is quite simply resigned.

Now, according to the optimistic version — which is, above all, typical of the rational mind — this demotion, albeit real, was not only necessary but even deeply gratifying.

Necessary, because the sudden awareness of these individuals having been ousted from their cosmic centrality allowed humankind to free itself of two prejudices responsible for geocentrism and opposed to scientific progress: the authority granted to senses and the incessant use of finalistic reasoning.

Gratifying, because this awareness served to reveal not only a rare strength of character but also the importance of the intellectual effort required in order to see through deceptive appearances.

LUCAS. — So the humiliation of no longer being the centre and the end of the world was presented, by those who wrote this history, as having been largely offset by the triumphant revelation of the eminently human values of courage, power of reason and the ability to thenceforth ensure the progress of the sciences?

PROFESSOR. — Exactly. Incidentally, I really like the way you worded that sentence because you said: "... by those who wrote this history...". Therefore, it's...?

LUCAS. — Historiography!

PROFESSOR. — Yes, in the sense that you are attempting to figure out the true motivation behind such a story, in this case, the desire to get people to accept their loss of privilege by immediately replacing it with another one that is presented as being far superior!

I'd like to take this opportunity to assure you that I'm in no way losing sight of the subject of your assignment. But that I'll be trying to imitate Koyré, who never wrote a manual, or even a single article, on how to write scientific history. Instead, he peppered his publications with numerous methodological musings, because for him it wasn't about mastering them theoretically but rather applying them day by day — as it were — article by article! This is why I'll hardly ever mention historiography to you during our discussions. I would, however, like you to experience for yourself how different our little research project would have been had we not constantly remained mindful of the way in which history was written by our predecessors and the way in which we intend to write it ourselves.

LUCAS. — Yes, we tend to believe more strongly in what we've experienced ourselves! But you know, I've read a little Koyré. I presume that the methodological principles you've just alluded to represent our need to set aside what we know, the dangers of searching for predecessors, and even the challenge of thinking like those we're studying thought...

PROFESSOR. — Quite so, but you are forgetting the most important one: the dangers of anachronism! That should remain etched in your mind!



LUCAS. — Done! I promise to watch out for any signs of the subdued yet fundamental application of these principles that should govern our way of writing history.

But to come back to the values of courage, intelligence and scientific progress, are they really enough to make one forget such a major loss and humiliation? Because after all, being the centre and the end of the world was quite a big deal!

PROFESSOR. — For the most part, yes! Since, other than this humiliating consequence of the new astronomy, it revealed another consequence which was seen to be even greater and which was presented as a major breakthrough for the human intellect. Allow me to sum up the reasoning behind it for you. With geocentrism, the Ancients were happy to derive their dignity from the special position they'd been assigned in the Cosmos. With heliocentrism, the Moderns certainly suffered humiliation, although this allowed them to realise that their true dignity resided in the very courage they'd displayed and in the intellectual effort they'd managed to make. This was a vital step forward since this *passively received* dignity, which was purely *positional* in nature and provided by an Other, was replaced by an *actively acquired* dignity that was *intellectual* in nature. Due to this substitution, the criteria establishing the nobility of the human race were greatly improved: no longer passive, but active; no longer dependant, but self-sufficient; no longer occupying a prime position in space, but endowed with the power of intelligence! That was more than enough, according to this interpretation, to help them forget the humiliation tied to a naïve and now outdated concept of the world and of humankind!

LUCAS. — I fully understand that, and yet this feeling of humiliation, which should have been resolved along with the growing awareness of the substitution, still remains! One just needs to read the titles of many current publications...

PROFESSOR. — Of course, but don't forget that where there's an optimistic interpretation, there's also a nostalgic one. What's more, as you'll come to understand shortly, the optimistic interpretation might also benefit from highlighting this humiliation. In any case, now you're able to better understand why the battle being led by the revision authors is bound to be difficult despite the reasons that we've found for remaining hopeful: no matter the amount and pertinence of the arguments that these authors continue to produce, it's never going to be easy for them to obtain a renunciation of this founding narrative of our modernity, which continues, under the guise of humiliation, to flatter the human pride to such a large degree!

LUCAS. — So, hiding behind the humiliation lies a pride that's at least as inflated as the one the Moderns criticised the Ancients for due to their central position in the Cosmos? In the end, is this not then just a case of one pride attempting to drive out another?

PROFESSOR. — If we stick to this interpretation of the myth, then there are indeed those who argue in favour of that perspective (Polanyi 1962, 4), even pointing out that the latter is certainly not the lesser of the two (Gilson 1948, 246-247; Barth 1949, 21-22)! Because, don't forget, that the revision consists precisely in denying the fact that the cosmic centrality of their dwelling might have been a favourable setting for the Ancients to get this impression. So, this would be a more accurate way of putting it: while harshly condemning the pride that supposedly belonged solely to the Ancients, the Moderns displayed a pride that was very real, albeit somewhat concealed behind their feelings of humiliation. Obviously, as I'm sure you realise, the truth of the matter is far more complex than this quick and provocative statement would suggest.

LUCAS. — I must admit that I still need time to digest this series of paradoxes... But at least I can tell my methodology teacher that my project, despite the issues you've just pointed out, is neither superfluous nor destined to fail — which is a pretty good thing!

PROFESSOR. — You could even add to that: tell him it's original! Think about it. What's our position in the history of the Copernican revision?

LUCAS. — We're part of the third phase!

PROFESSOR. — I'm not so sure! I think we could reasonably argue that we are inaugurating a fourth phase, or rather a new sub-phase within the third one. Think back to what I said to you when you were talking about con artists...

LUCAS. — That I was right twice over because there wasn't just one, but two truthful parts to the myth. We already discussed the first one: this feeling of humiliation that was present in both the optimistic and nostalgic interpretations. So, I presume you're referring to the second one: the presence of a certain anthropocentrism within geocentrism! That's why you told me that the revision, in its desire to correct the myth's simplicity, had to be careful not to fall prey to equally simplistic statements, because they'd merely be reversing them!

PROFESSOR. — Precisely! To my mind, it might even be necessary to go through two new sub-phases: the first being the one that you just mentioned relating to geocentrism, and the second being the transition period during which geocentrists and heliocentrists coexisted! Let's take a look at the first one now. Remind me to tell you about the second one when you hear the word "topography", okay?

LUCAS. — All right!

PROFESSOR. — The first should then be characterised by paying closer attention to this anthropocentric dimension, but without giving the impression of regressing, since it's a question of trying to refine the revision rather than going back to the myth!

LUCAS. — So, if we succeed, I'll be able to tell my teacher that our work is original since the movement it's trying to establish isn't cyclical but rather helical!

PROFESSOR. — I'm impressed! But we still have to prove it. Let's examine this revision history a little more closely. Aside from a few rare exceptions (Del Prete 1998), it consisted in implementing one of two strategies.

The first and least frequently encountered in the field of scientific history, refutes the idea that within essentially Christian geocentrism the importance afforded to humankind was in any way linked to its position in space, or as is the case here, to its cosmic centrality (Vincelette 2021, 148-149). This thus cuts all ties between geocentrism and anthropocentrism.

The second, and most predominant, involves consistently contradicting all those claims put forward by the anthropocentric myth. Where the latter describes geocentrism as a form of anthropocentrism, the revision instead presents it as a form of diabolocentrism (Lovejoy 1936, 102; Nowicki 1973, 100), an infernocentrism (Slagle 2003, 291) or a theocentrism, which seems more relevant to me. Although, the revision immediately adds the fact that, from a human standpoint, it can also undoubtedly be seen as an anthropoperipherism (Lewis 1964,

58). So, it's not about deleting but rather inverting the link between geocentrism and anthropocentrism: instead of being seen as central, the position of humankind's dwelling is qualified as peripheral, commonplace and insignificant...

LUCAS. — And so, as opposed to deleting or inverting, we'll be adding! But, in my role as Candide, I still have two more questions! Firstly, are you sure that we are the first to attempt reintroducing, as it were, a “dose” of anthropocentrism back into the Christian geocentric world? Just to see how high my mark could actually go...

PROFESSOR. — Your question gives me the opportunity to better explain, and so to better define, our originality.

As you've gathered, challenging the anthropocentric myth is denying the idea that humankind's dignity could have resulted from its cosmic centrality, since this was deemed contemptible rather than glorious. But the fact remains that on the scale of beings typical of medieval thinking, the human race was positioned, to put it briefly, above the stars and only slightly below spiritual beings. Within the revision as we know it, we're thus faced with a paradox: how are we to understand that humankind, even though positioned in the armpit of the Cosmos, could have been considered nobler than all other corporeal creatures, be they terrestrial or celestial? Aware of this issue, some authors (Slagle 2003, 297) made use of certain elements belonging to Christian doctrine — the *Imago Dei*, the Incarnation, the Redemption — in order to counterbalance the baseness of this dwelling place...

LUCAS. — ...and thereby explain how humankind, despite it all, managed to find itself so high up on the ladder!

PROFESSOR. — Exactly! And without denying the significance of these elements, our goal is nevertheless different: we aim to point out that which, within the very heart of the *geocentric worldview* and not within Christian doctrine, could have constituted proof of a certain anthropocentrism. Therein lies the relative originality of our approach.

LUCAS. — Got it! Second question: why are you less partial to “diabolocentrism” and “infernocentrism”, while favouring “theocentrism”?

PROFESSOR. — I won't be able to answer that for you until I've explained why, in geocentrism, the centre of the world was considered to be the most contemptible one.

LUCAS. — Okay, well I'm really looking forward to hearing that explanation because I honestly don't see the logic in it. I think that being in the centre is a rather good thing! I mean when you're teaching a class, you're the one in the middle of the lecture theatre and not some other halfwit...

PROFESSOR. — You're entirely correct, so much so that I'll make that next Wednesday's topic... right after you give me a brief summary of what we discussed today. In the meanwhile, keep reading!

Day Two

PROFESSOR. — Good morning, Lucas. Would you mind refreshing my memory as discussed, please?



LUCAS. — Of course, I've prepared a summary. Let me read it to you.

Endavouring to better explain geocentrism, heliocentrism and anthropocentrism may seem somewhat superfluous to the proponents of the myth, and even futile to those supporting the revision. However, we shouldn't allow the latter's feelings of impotency to undermine our efforts because, on the one hand, we're witnessing an increasingly widespread dissemination of the revision and, on the other hand, we plan to reveal not only the reasons for the myth's falsehood but also those that have contributed to its success. The latter, albeit multifaceted, is largely due to the fact that the myth, under the guise of humiliation, flatters human pride by appealing not to the position of our dwelling, but rather to the power of our intelligence. By substituting this intellectual criterion for a spatial one, it's perfectly in keeping with modern thinking which is partly founded on this narrative. This is why we remain so attached to it. Its endurance can also be explained by the truthful part that it contains. Whereas the revision either severed any ties between geocentrism and anthropocentrism or reversed the link that traditionally united them, it seems essential to recognise the fact that there's indeed an element of anthropocentrism within the geocentric worldview. It's for this reason that our efforts will be neither superfluous nor destined to fail, and even quite original!

PROFESSOR. — Not bad! As I remember, you're eager to understand why the cosmic centrality of the Earth was considered humiliating as opposed to glorious, as claimed by the myth. Here's the explanation for you (Stoffel 2018^b, 414-420).

As such, the study of the different cosmological systems only pertains to the history of astronomy, or, depending on one's point of view, to that of cosmology, providing one adopts the current meaning of the term. However, when one also takes into account the particular topography that comes with each of these systems, they go towards defining a certain worldview. Studying them thus pertains either to the history of natural philosophy or to the history of cosmology, this time used in a broader sense. By "topography", I mean that set of characteristics — of a scientific, philosophical, religious and symbolic nature — which, whether spatial or temporal (or at least reputedly so), mean that these cosmological systems serve not only to scientifically order and arrange these celestial bodies but also to determine a certain worldview, or a *Weltanschauung*, as Koyré would've put it.

LUCAS. — You mentioned "topography", which is when I was to remind you that...

PROFESSOR. — Yes, I remember. But please wait a little longer!

Our topic concerns the value that's ascribed to humankind according to the centrality attributed, or not, to its dwelling. This thus involves two worldviews and not just two cosmological systems. Consequently, we need to take these topographies into account. We can identify two main ones, without it being necessary, for our purposes, to go into any further detail.

The first one, which is essentially vertical, is obtained imaginatively by omitting the southern hemisphere, both terrestrial and cosmic, and by the perfect, albeit purely fictive, alignment of the "planets" along an axis perpendicular to the horizon while defining a range of values (fig. n°1). Seeing that in this worldview, all movement and efficiency — the source of which is generally to be found beyond the sensory world — are communicated to the rest of the cosmos from the sphere of fixed stars, this axis is traversed in a downward direction: from the sphere of fixed stars (seen as the top) down to the Earth (seen as the bottom),



passing through the star of the day (seen as the middle). Once this axis is extended in either direction beyond the sphere of fixed stars, it can also make room for the placement of entities, possible deemed supranatural, such as the Prime Mover, God, the Empyrean, or at its other extremity, Satan and the underworld.

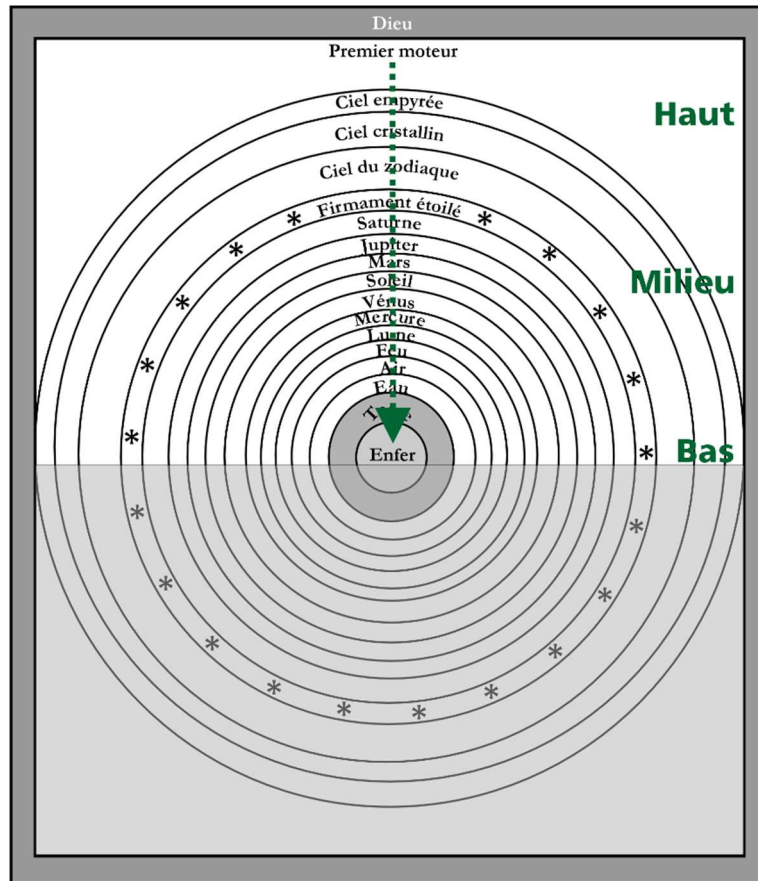


Figure 1.
The vertical topography of geocentrism

LUCAS. — From what I can make out in your diagram, I'm guessing it's because the Earth is seen, according to this topography, as being at the very bottom rather than in the centre that the revision contests the idea, as you've been saying all along, that its position is prideful?

PROFESSOR. — Precisely, because as I'm sure you can see, it's fairly easy to get from the bottom, as a position, to baseness, as a value judgement!

LUCAS. — Do the texts prove this?

PROFESSOR. — Yes, they certainly do! That being said, I'll grant you that it's a little absurd for the Ancients to have completely ignored this fact and mistaken the bottom for the centre... But anyway, that's just the way it is! As long as you're aware of that...

LUCAS. — I am, but my methodology teacher always says that our predecessors weren't dumber than we are. Therefore, he adds, that when we get the impression they were — as is the case here — we should rather think it's us who have missed the point! But then again, he doesn't know as much as you do...

PROFESSOR. — Well actually, your teacher is absolutely right! I was just trying to catch you out to see if you'd spot the error, horrid as I am. And you saw straight through it, quite cleverly I might add! Well done! Look, this assimilation of the centre and the middle is hardly as ridiculous as it seems. Allow me to give you just one example among many.

Since time immemorial, the celestial sphere was considered to be the top and the opposing terrestrial world to be the bottom. This assimilation was established within rudimentary cosmologies that placed the sky, according to our basic experience of reality, above the plane surface that is our Earth. Far from cancelling out these associations, as we might presume, the transition from a flat cosmology — as in the Bible, for example — to a spherical cosmology — as in geocentrism, in this case — served, on the contrary, to reinforce them.

Logically, since in a spherical world the celestial sphere is still seen as the top, one must, as before, designate a bottom. So, in a sphere, the only place that is the farthest from every point of it, and the only position that can claim to be its extreme opposite, is of course the centre. Only the centre can thus constitute the bottom of the sphere, and the traditional top/bottom opposition is thereby preserved. It is even strengthened from a geometric and symbolic point of view. In fact, considering that it seems rather natural in a plane world to place the sky at the top and the Earth at the bottom, the awkward question immediately arises as to what is underneath this base. It would then appear that this base is only relative, since there must be something else below it. However, in a spherical world, there really can't be anything underneath this base, since attempting to go below it means losing it by going above it! Similarly, from a symbolic point of view, the terrestrial world was conceived as being below due to its difference in nature when compared to the world above, which is eternal, immutable and animated only by a circular motion. But the fact remains that, beyond this qualitative difference, there was, from a quantitative point of view, a certain proportionality between above and below, since the expanse of one merely covered the expanse of the other. In a spherical world, this qualitative difference is also marked by a quantitative perspective: the relationship that exists between the terrestrial world and the celestial world is no longer one which is established between two expanses, but one which is determined from the notion of a whole sphere surrounding a mere point.

LUCAS. — I must say, that's quite clever!

PROFESSOR. — Now that you've passed this little test, let's get back to the topographies!

Unlike the first one, the second, which is decidedly *spherical*, is obtained imaginatively without having to omit one of the hemispheres or assume that the "planets" are perfectly aligned along a particular axis (fig. n°2). Based on the principle that the essence of the universe, and even the source of all movement and/or all efficiency, is to be found at its centre, it's from here that the various effects radiate outwards, their power being considered to decrease in proportion to their distance from the centre.

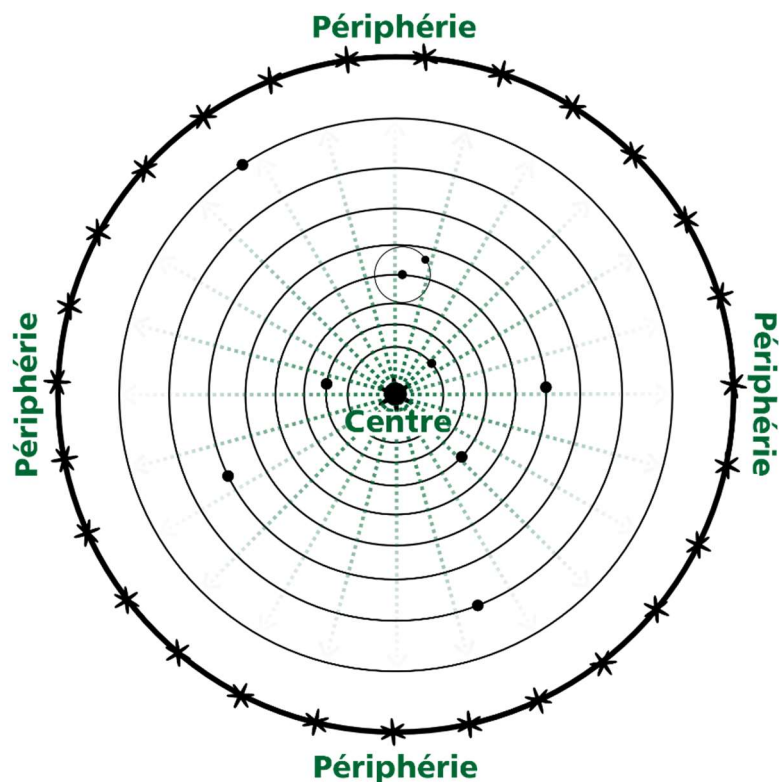


Figure 2
The spherical topography of heliocentrism

LUCAS. — And so now we're dealing with a centre that's really a centre and no longer a bottom?

PROFESSOR. — That's badly worded but entirely correct. And as you might have guessed, due to the fact that it's organised around the concepts of top, middle and bottom, and is characterised by the notion of *hierarchy*, vertical topography is particularly well represented in Christian geocentrism. Governed by the concepts of a centre and its perimeter, and directed by the idea of *diffusion*, spherical topography is chiefly characteristic of Copernican and, to an even greater extent, Keplerian heliocentrism.

LUCAS. — Yes, I understood that. But has this topography business been proven because I don't think I've ever come across it before?

PROFESSOR. — Well, that's entirely understandable since it's a personal historiographical model that governs my way of understanding and thus of tracing the history of worldviews. To answer your question, its relevance should be judged according to how it measures up against the literature, and its ability to provide a better understanding of the history of worldviews. So, it's up to you to decide!

Now that you're familiar with the topographies that are actually associated with geocentrism and heliocentrism, you'll be able to discover for yourself wherein the grave error that constitutes the origin of the Copernican and anthropocentric myths lies.

LUCAS. — You think that I'll be able to figure out for myself why so many people have been so wrong for so long? Are you making fun of me right now?

PROFESSOR. — Not at all! You now have all the information you need. Firstly, consider the period in which the myth was created, then the cosmological system and topography that applied at the time, and lastly the value attributed to the centre of the world. From there, you'll be able to find what caused the humiliation, as well as the comparison of geocentrism to anthropocentrism, and then finally what brought about this error...

LUCAS. — The second half of the 17th century... heliocentrism... spherical topography... and a highly esteemed centre! So, they obviously felt humiliated because the Earth had been driven out of the centre...

PROFESSOR. — And who are “they”?

LUCAS. — Those who thought that this centre was a glorious position according to spherical topography.

PROFESSOR. — Why is it necessary to specify that?

LUCAS. — I don't know...

PROFESSOR. — Because during this transition period, there were also those geocentrists who examined the same cosmological upheavals, except by applying...

LUCAS. — ...vertical topography!

PROFESSOR. — Yes, and they weren't the only ones. The Tychonians also did this, as did the Copernicans who, scientifically speaking, had already adopted the new world system, although, symbolically speaking, they hadn't yet embraced its spherical topography! So, the same upheavals — namely, the loss of the central position, or rather the distancing from it — should also be examined by systematically adopting each of these two points of view! And depending on which one we choose to adopt, the resulting assessment will be entirely different! Now go ahead and prove this to me!

LUCAS. — Those who adopted spherical topography — as we've understood for a while now — mourned the idea that the Earth was no longer at the centre, but presumably derived comfort from the fact that the Sun now occupied this noble position. Those who looked at it in terms of vertical topography probably didn't understand why our humble Earth, having been removed from such a low position, had been worthy of such a big promotion...

PROFESSOR. — ...nor why the star of the day, which until then had occupied a medial position (fig. n°1), had suddenly been punished by being placed at this centre that for them was at the bottom!

I insist on this point because it strikes me that the revision didn't adequately address these different perspectives. In fact, it primarily strove to overturn the established similarities between geocentrism and anthropocentrism, and to briefly show how heliocentrism, despite it all, could lend itself to an anthropocentric interpretation. It thus rightly challenged the myth's pre-Copernican version and sought to evaluate its post-Copernican one. However, it didn't manage to capture the complexity of the Copernican period itself, since it overlooked the

coexistence of the different perspectives. The fact that this in-between period hasn't yet been studied with the attention it deserves is one of the convictions driving my research.

But let's move on. You were attempting to pinpoint the mistake made by the myth when you discovered that the humiliation, as described therein, was a direct result of applying a spherical topography.

LUCAS. — That's correct! And I suppose that the myth authors behaved in a similar way to the revision authors that you were just talking about?

PROFESSOR. — I'm not sure what you mean by that.

LUCAS. — That the myth authors, in neglecting to account for these different perspectives, also didn't pay enough attention to the fact that geocentrism had a topography of its own. Consequently, they believed that the centre had always been held in great esteem as it was for them. And when one believes that, then geocentrism does indeed become a form of anthropocentrism!

PROFESSOR. — Well done! And the error they made... which is incidentally one of the most serious that a historian could ever make?

LUCAS. — They projected their topography onto an era in which it didn't yet apply. So, it's an anachronism! See, I did burn it into my brain!

PROFESSOR. — Bravo!

LUCAS. — So... that's all it is then? I mean, both these myths that we just can't seem to shake off are simply the result of... a vulgar anachronism?

PROFESSOR. — Now look who's judging our ancestors a little harshly! Rather try to understand them, or as is the case here, understand their mistake. I'll start by giving you an initial explanation.

The fundamentals of a worldview, which includes topography, are rarely fully understood by those who share it. So, you can well imagine what it's like for those who don't share it, simply because they're living within another worldview. Let's take Galileo, for example (Galilei 1968, 62; Stoffel 1998, 27-28). His natural topography was spherical, yet he was very familiar with the old topography which was vertical. Also, knowing full well that the centre of the world had been an infamous place in geocentrism before becoming a glorified position in heliocentrism, he naturally took full advantage of this fact. Briefly, he accomplished this by presenting geocentrism in an unfavourable light, and heliocentrism in a favourable light! But not everyone was like Galileo, and knowledge of the old topography was gradually lost, even by those who remained proponents of geocentrism. Under the circumstances, one is able to understand why it seemed quite natural for the myth authors to believe that their spherical topography had always been the order of the day!

LUCAS. — It was slowly forgotten over time then, which is even more understandable considering that topographies weren't as clearly defined as cosmological systems were, if I've understood correctly. I suppose this is why you are keen to further the knowledge surrounding their existence and content via your model!

PROFESSOR. — I couldn't have said it better myself...



LUCAS. — So, now it's my turn to find an explanation! They must have undoubtedly been less inclined to make an effort to understand the true geocentric worldview since their own version, albeit erroneous, afforded them the benefit of a privileged position: geocentrists got the vile anthropocentrism, while heliocentrists got the glory of getting rid of it!

PROFESSOR. — Exactly! In short, they forgot the fact that appealing truths need to be proven twice over!

In following their line of thinking, we are even able to find a third, more subtle reason. To achieve this, think back to the difficulty you initially had in understanding how a central position could be seen as a sign of humiliation! To illustrate this, you even used me as an example!

LUCAS. — I used you as an example? Oh yes, the lecture theatre!

PROFESSOR. — Precisely! With the teacher standing in the middle of it so that he could be clearly seen and heard by everyone — this served as a reminder that, in our daily lives, the centre is generally highly valued. Allow me to expand upon your remark.

I'd like to begin by pointing out the ambiguity of the term "anthropocentrism" (Tinguely 2008), which stems from the fact that it contains the word "centre". In its literal sense, it refers to the point around which, in adhering to the equidistance principle, a circle or sphere is drawn. Or, inversely, one could say that the "centre" is the only point that can be obtained from a circle or a sphere by respecting this principle. Taken in a broader sense, in other words metaphorical as opposed to geometrical, this same word then designates a point, not necessarily a real one, but one that is considered to be privileged. Consequently, at first glance, one is able to understand the term "anthropocentrism" as affording humankind a centrality (in the figurative sense), which is possibly "supported" by the centrality (in the literal sense), that it enjoys due to an environment which remains to be determined. In your example, this environment is the lecture theatre; in our article, it's the Cosmos taken as a whole. Within the term "anthropocentrism" these two meanings can be employed simultaneously — a qualitative centrality based on the existence of a spatial centrality —, but it's equally possible for it to be taken only in its broader sense, so without considering the literal meaning — a qualitative centrality independent of any spatial centrality.

LUCAS. — The anthropocentric myth combines these two meanings.

PROFESSOR. — Yes it does, which means that it relies not only on the presupposition — which we now know to be false — that the centre is necessarily a valued position, but also on another one — which is by no means clear — whereby the qualitative value of a being, namely its importance, is determined by a qualitative element, in this case its spatial relations.

What we need to understand is why "anthropocentrism" tends to combine these two meanings of "centre" — which is the case, as you just pointed out, when it comes to the myth — even though it isn't necessary or even easy to do so. And this is where your example of the lecture theatre will come in handy. The fact that it's natural to go from the literal meaning to the figurative meaning is easily explained by looking at the human (and even animal) environment, where the centre is indeed considered to be a privileged position. We can thus understand how the myth is able to draw comparisons between geocentrism (embodying spatial centrality) and anthropocentrism (representing the inferred qualitative centrality) that are actually quite credible: this comparison is merely the result of applying, on a cosmological level, that which already prevails in our immediate, or terrestrial environment. The

mistake that was made here is thus to have assumed, through anthropomorphism, that what applies on Earth also applies in the heavens (Brague 2008, 371). More precisely, it concerned the idea that what is valid on Earth is *always* valid in the heavens or, by extension, for any cosmological system. Now, you know that this isn't the case when it comes to the vertical topography that goes along with geocentrism. Even though within the latter worldview, it's entirely possible to afford a qualitative centrality to humankind, this centrality can in no way be directly based on its spatial centrality. In short, comparing our earthly experience to the conditions in the heavens, which is valid in the case of heliocentrism, is simply unjustifiable when it comes to geocentrism.

LUCAS. — So, on top of the anachronism providing a direct explanation for the origin of the myth, there's the, at the very least paradoxical, application of a naïve anthropomorphism!

PROFESSOR. — Why paradoxical?

LUCAS. — Come on, sir! Because I learnt from my reading that the myth didn't only denounce anthropocentrism, but also the dangers of anthropomorphism. Whereas, in the end, it actually falls prey to both itself!

PROFESSOR. — You really are catching on fast! To conclude, I'd like to come back to one of your previous questions. Remember when you asked me why it is that I find "diabolocentrism" and "infernocentrism" to be quite inappropriate, while I see "theocentrism" as entirely acceptable?

Well in fact, while these labels aren't inaccurate, they may lead to confusion. Presenting the Aristotelian medieval world as *diabolocentric* or *infernocentric*, even if one specifies that it's only "in the spatial sense" (Lovejoy 1936, 102), means running the risk, by insisting on the notion of centrality, of suggesting that a spherical topography is relevant when addressing geocentrism. Whereas, in order to avoid making the same mistake that the myth made, the historian's main task should, on the contrary, involve constantly evoking the fact that vertical topography was the one that was actually applied within this worldview.

LUCAS. — I totally agree... except that to my mind, "theocentrism" suggests a spherical topography as much as "diabolocentrism" and "infernocentrism" do. So, if you reject the last two, then you should also...

PROFESSOR. — No, and this is where it gets complicated because you have to consider the fact that vertical topography is capable of being transformed, under one very specific condition, into... spherical topography! And in that case, the term "theocentrism" is entirely appropriate. Allow me to explain this. As you know, God is traditionally sitting "up on high", so whether we're talking about vertical or spherical topography, God is still to be "found" in the same place: "beyond" the sphere of fixed stars. This "place" is clearly described as peripheral by spherical topography, meaning a location of little importance. However, this same "place" in vertical topography is referred to as the top, which is already a great improvement. But now comes the aforementioned condition. Believing that the physical world was symbolically "upside down", since they placed humankind at the centre of the world and God at the periphery, geocentrists thought it a good idea to put it back "the right way up", so as to correct it symbolically, although not physically of course as this would mean that God would be at the centre and man at the periphery! In short, geocentrism has a vertical topography by default, but a spherical one when applying this inversion intended to put the world back "the right way up"! So according to vertical topography, the centre is the bottom and the periphery is the top, whereas according to spherical topography the top ceases to be the top to

turn into the centre, and the centre stops being the centre to only become the periphery! God is thus, without having changed “place”, either on the top or at the centre, depending on which topography one applies, but either way, God is no longer at the periphery!

LUCAS. — It’s so complicated! But perhaps we can leave that aside, because in the end it doesn’t seem to change much in terms of our study: in geocentrism, humankind is at the bottom by default and, with your inversion, at the periphery. Since neither is better than the other...

PROFESSOR. — Since neither is better than the other, we can stop there for today! We’ll continue this next week, which will be our last discussion!

LUCAS. — Already? It all went by so quickly!

Day Three

LUCAS. — Good morning, sir. To finish in style, I’ve prepared three questions! But I guess that I first need to present my summary of our second day to you?

PROFESSOR. — So kind of you to offer...

LUCAS. — From a scientific point of view, a worldview is defined not only by a cosmological system, but also by its relevant topography. Whereas geocentrism applies a topography that is essentially vertical, heliocentrism employs one that is decidedly spherical. This is why, in geocentrism, the centre of the world is symbolically associated with baseness rather than centrality. Within this worldview, the position of humankind’s dwelling was hardly going to induce a sense of pride. On the other hand, in heliocentrism, this is also why the centre of the universe is indeed symbolically considered to be a privileged position. Having lost sight of the particular topography that went hand in hand with geocentrism, the myth authors projected their own topography onto this cosmological system, which explains how they came to liken geocentrism to a form of anthropocentrism. Although inexcusable, the anachronism they thus generated can be explained by various factors: not only the satisfaction that this way of comprehending geocentrism brought them, not only the credibility that their topography enjoyed due to its relevance both on Earth and in the heavens, but also more generally owing to the overall implicit nature of these different topographies. The mistake made by the myth authors was, incidentally, reproduced to a certain extent by those of the revision: during the transition from geocentrism to heliocentrism, they didn’t pay enough attention to the coexistence of these two topographies and thus the need to consistently evaluate these upheavals from both points of view.

PROFESSOR. — Very good! Now I’m interested in hearing your questions, although I’m not surprised you have some considering that we’re very far from having covered all the relevant issues, as I’m sure you are aware. I do, however, think that what we’ve already managed to accomplish is sufficient in terms of your project... and my article! I’m listening.

LUCAS. — Here’s the first one. While going over my notes, I realised that the title of your paper is in the plural: *Centralities of the Earth and centralities of humankind*. Although, until now we’ve only discussed one centrality, namely that of the Earth within geocentrism, and I don’t see how there could be any others!

PROFESSOR. — And yet there are indeed two others, although admittedly of lesser importance, to be found — brace yourself — in heliocentrism!

The first one is exactly the same as that attributed to the Sun in geocentrism: in the same way that the star of the day then occupied a medial position in the succession of the planets inasmuch as it was preceded and followed by precisely three of them (fig. n°1), the Earth enjoys the same privilege today. However, in order for it to be placed in the middle of two triads (the Sun, Mercury and Venus on one side, Mars, Jupiter and Saturn on the other), one had to include the stationary celestial body positioned at the centre of the world in this list, namely the star of the day. You will of course remember that geocentrism didn't need to resort to such measures. At any rate, this medial position of the Earth is likely to have been seen as a privilege granted to the human race: from this mobile observatory that was conveniently positioned in the middle of the planets, humankind could be seen as sitting pretty when it came to better grasping the overall structure of the world!

The second centrality is that bestowed upon a planet by its possession of one or more satellites. The Earth was the only one, initially, to benefit from this privilege by being the centre for the Moon's revolution, although the symbolic value of this centrality naturally evolved over time with the discovery of various satellites orbiting around other planets.

An exhaustive study of the relationship between Earth's centralities and humankind's centralities will thus necessarily require us to take all three of these centralities into account, instead of merely focusing on the obvious centrality of the Earth in geocentrism and in geoheliocentrism.

LUCAS. — In short, one must always study a question from every angle!

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Here's my second question. Could you explain why it's still necessary to refine the revision by acknowledging the anthropocentric component existing within geocentrism?

PROFESSOR. — Let me start by saying that "necessary" ... is an understatement!

Firstly, you will have noticed that while the positional aspect is indicated as being either incapable of sustaining any form of anthropocentrism or as entirely irrelevant in this matter, the kinetic aspect — namely the fact that the stars revolve around the Earth which is partially or totally stationary — is completely overlooked by both the proponents of the myth and the actors of its revision. Yet it's the very immobility of the Earth that makes its cosmic centrality — which is neither glorious as purported by the myth, nor humiliating as alleged by the revision — quite ambivalent: unique, yet contemptible as being likened to baseness, the centrality of the earth is, due to the motionlessness it affords, highly valued. After all, even though our dwelling is in a state of lack, it finds itself in an enviable state of rest, from where, paradoxically, all its desires are fulfilled by the already blessed and blissful heavenly bodies revolving around it. It's in this lesser inconvenience that many geocentrists perceived a greater convenience, confirming that humankind is indeed at the centre and the end of the cosmos (Stoffel 2018^c).

LUCAS. — Yes, it's true that we haven't come across rest or movement anywhere...

PROFESSOR. — And yet this is a serious mistake, since it's only by taking both positional and kinetic aspects into account that we're able to discern a certain anthropocentrism within geocentrism, such as Koyré (2016, 120) briefly outlined in a little-known text. Indeed, the cosmological criterion that was primarily considered by geocentrists and heliocentrists alike for



determining the value of humankind wasn't the centrality of the Earth as such, but rather its stationary state. The former issue would only attract attention further down the line, at a time when this centrality had already been sharply contested, and even largely lost...

LUCAS. — So tell me, even though you indicated that an anthropocentric aspect might have existed within heliocentrism, would it be fair to say that the latter finally put an end to any such attempts?

PROFESSOR. — No, they simply used different criteria, such as time or complexity: what is known as the “anthropic principle”, for example, could be described as anthropocentric — or, more accurately, “anthropofinalist” — even though it was conceived within a worldview that portrayed the Earth as being lost somewhere in space!

LUCAS. — Okay, let me try again: ... finally put an end to any such anthropocentric attempts based on a particular location in space?

PROFESSOR. — Nope, that's no better! Since they could no longer invoke terrestrial centrality, some alleged that the solar system itself occupied the central position in our galaxy, and when this argument was no longer viable, others claimed that our galaxy was at the centre of our universe...

LUCAS. — Woah! So not being at the spatial centre of the world, in one way or another, is seen as a serious issue?

PROFESSOR. — Certainly not as far as I'm concerned, unless one decides to make it a problem! But that whole issue could be the subject of another publication...

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LUCAS. — Oh, that's really kind of you but I'm okay for the moment, thanks! I'm not sure whether my methodology teacher will be pleased with my work, but I certainly am. When one only has access to the article one generally only gets to see the results, whereas working with you I was able to see how the research is actually carried out. I might even have contributed a little to it. Above all, I was able to experience how important paying attention to historiography...

PROFESSOR. — Yes, of course, Lucas, but off you go now and write all that down for your methodology teacher while I set about finalising this article of ours!

LUCAS. — I'm counting on it... because as you well know, *I really need that article!* Thanks again, sir!

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