Appendix 16

The Tychos – Our Geoaxial Binary System

16 April 2019, 9:20 pm[1]

The Moon's orbital dance in the Tychosium

I've been "walking on the moon" for the last few weeks and, step by step, my lunar dwellings have turned into a "fantabulous moondance"...

The Tychosium interactive simulator has already proved to be of enormous help to visualize the actual orbital motions in our solar system. This time, I must say that the Tychosium has surpassed itself in terms of illustrative/explanatory power; our Moon has notoriously exhibited the most complex, thus misunderstood, "orbital behavior" of them all. To be sure, even Sir Isaac gave up trying to wrap his head around our Moon's observed precessional motions. Its truly daunting complexity, for any earthly observer, has haunted the astronomers of this world for many centuries:

> *"The problem of the Moon's motion is dauntingly complex, and Newton never published an accurate gravitational model of the Moon's apsidal precession."*[2]

Therefore, I hope no one will blame me for not explaining exactly why the Moon moves the way it does. As I have often stated in previous writings, the Tychos model doesn't pretend to be a "theory of everything". However, at this point, I will confidently say that the Tychos model has already proved to be decidedly superior to the so-called Copernican model, insofar as its geometrical configuration is demonstrably far more consistent with empirical observation than the heliocentric theory defended by Copernicus, Kepler, Newton, Einstein et al. Quite frankly, I didn't expect the Tychos model to go as far as demonstrating and graphically depicting the actual motions of our Moon, yet this is what the Tychosium 3D simulator (patiently built by Patrik and yours truly) is able to do today.

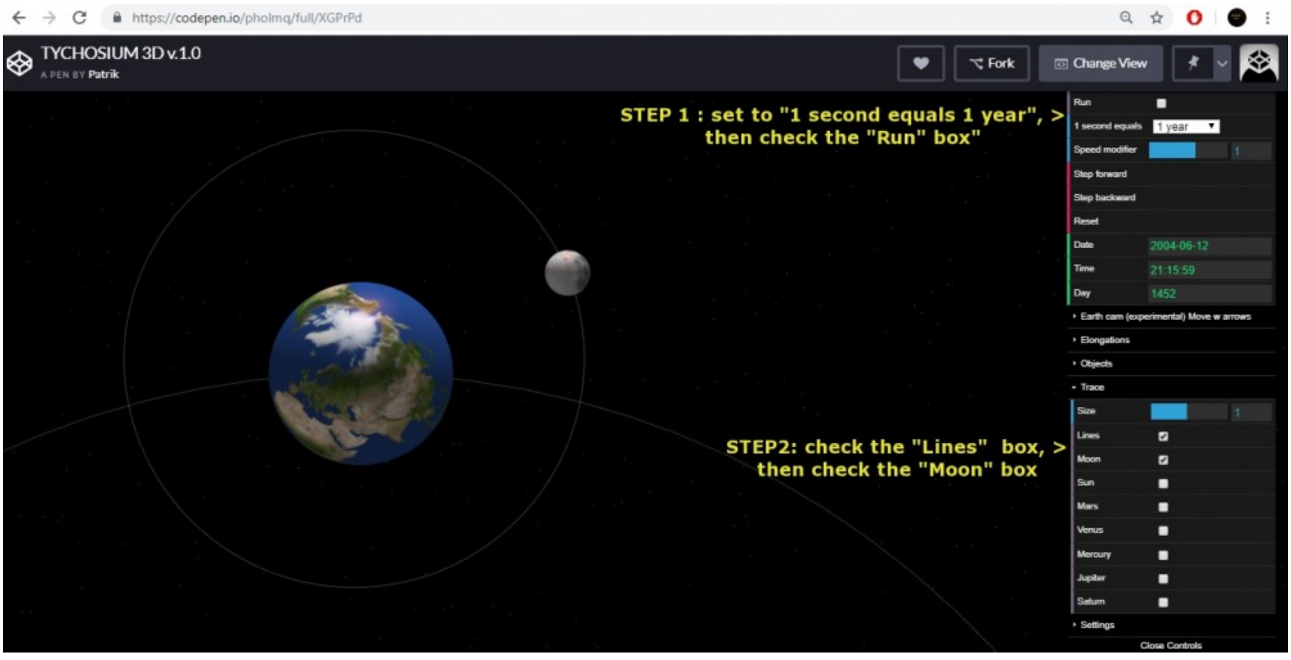
To watch the aforementioned "fantabulous moondance" in action, all you have to do is follow the steps below. You won't regret spending a little time doing this, I can assure you. What you will witness with your own eyes is, in Patrik's words, "a simple beauty of nature".

Open the Tychosium 3D simulator.[3]

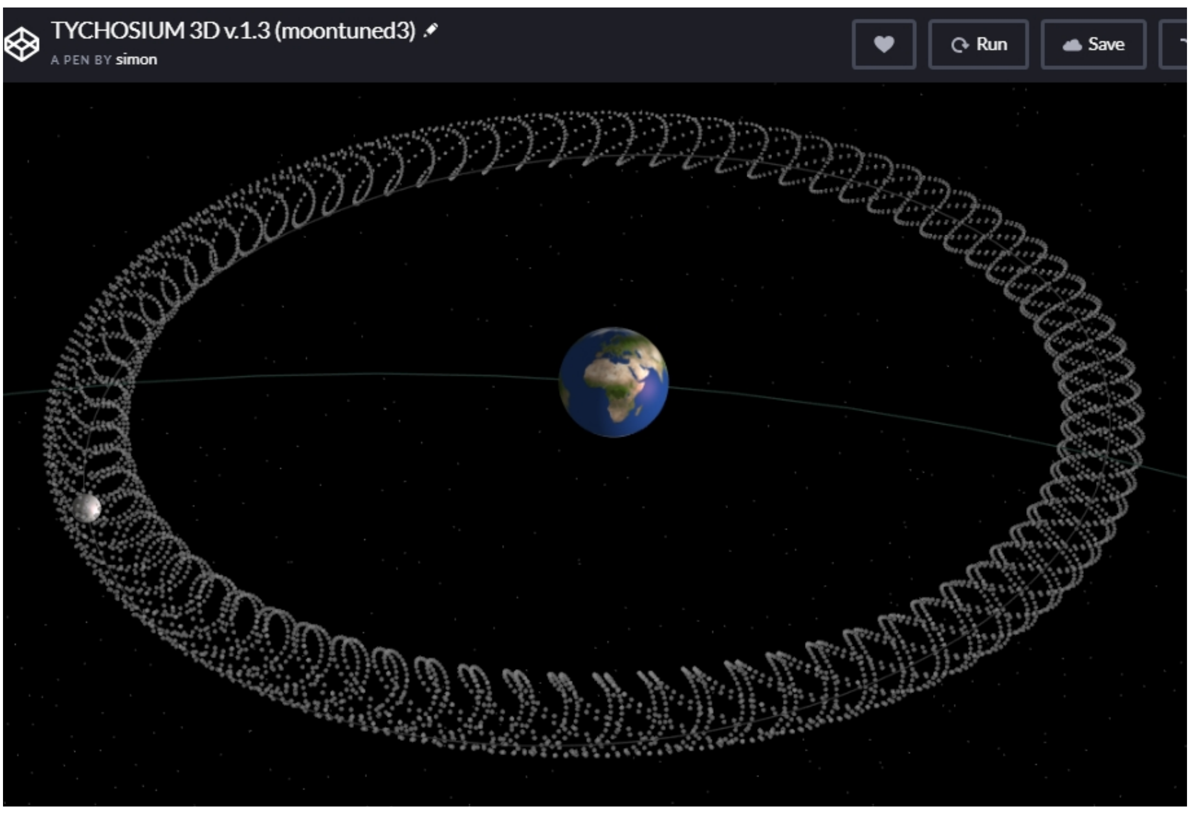
Use the wheel of your mouse to enlarge the Earth-Moon system (to a size similar to that shown in the below screenshot).

Step 1: Set the speed of the simulator to "1 second = 1 year" (as shown below) and start the Tychosium by checking the "Run" box. You will now see our Moon's orbit performing its lovely precessional moondance as it alternatively drifts from perigee to apogee (i.e. closer or further from Earth).

Step 2: Check the "Lines" box, then check the "Moon" box (as shown below). You will now see a most beautiful "spirographic" pattern getting traced and gradually forming a neat, symmetrical "donut"—or, more technically-speaking, a toroid.



If you now uncheck the "Lines" box and reduce the Trace size to "0.1", here's how the Tychosium will plot the Moon's toroidal orbit:

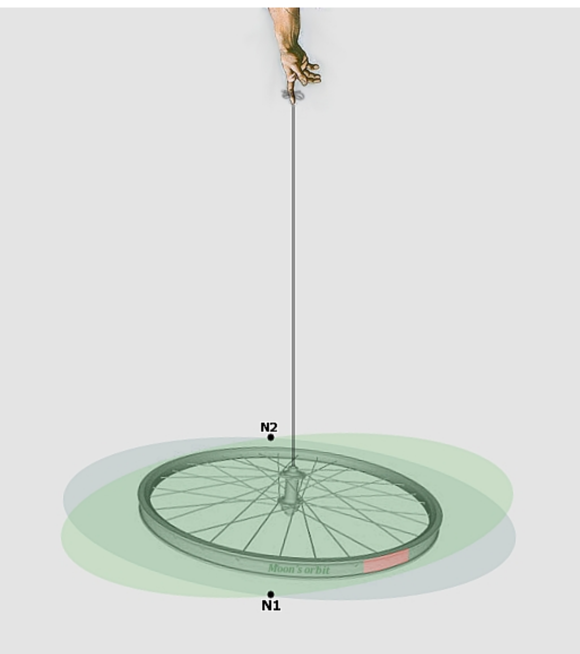


[1] https://cluesforum.info/viewtopic.php?p=2412338#p2412338
[2] https://en.wikipedia.org/wiki/Newton%27s_theorem_of_revolving_orbits
[3] https://codepen.io/pholmq/full/XGPrPd

A most astounding aspect of all this is that the observed value of the oscillation of the Moon’s perigee (closest to the furthest perigee) is 14,044 km.[4] Well, this just happens to be almost precisely the annual distance covered by Earth (14,036 km), as stipulated in the Tychos model. Moreover, the observed value of the mean/total oscillation of the Moon from perigee to apogee is 42,108 km, which is exactly 3 times 14,036 km.

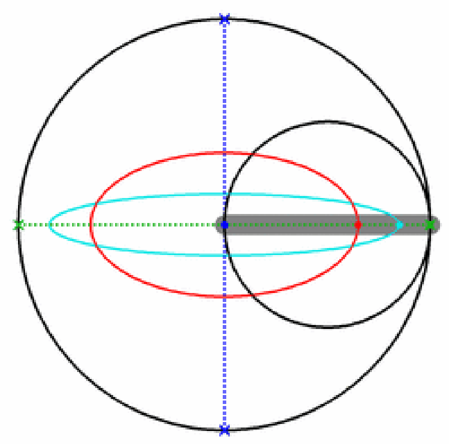
In my Tychos book, released more than a year ago, I submitted this bold yet cautious question: was Kepler perhaps wrong when he stated that all orbits are elliptical and that all the celestial bodies (planets and moons) of our solar system “accelerate or decelerate” as they find themselves closer or further from the Sun? Well, I have already fully disproved this latter Keplerian theory by pointing out that Earth clearly appears to accelerate in relation to the Sun between June and July, that is, at a time when Earth is furthest from the Sun.[5] Kepler’s claims are therefore definitively falsified.

As for Kepler’s idea of elliptical orbits, here’s a quite conceptual and slightly humorous graphic of mine showing that our Moon’s orbit needs not to be elliptical at all. You will have to imagine that bicycle wheel to be the Moon’s orbit, while “God” wiggles his forefinger and makes the tilted bicycle wheel spin around. The pink section on the bicycle wheel represents a “heavier” part of the lunar globe which might cause the Moon’s orbit to bob up and down by about 5° (just as we observe the Moon’s orbit to be tilted in relation to the ecliptic. Of course, you’ll also have to imagine Earth being located around the axis of the bicycle wheel. In any event, this doesn’t mean that the shape of the bicycle wheel (i.e. the Moon’s orbit) is elliptical. In the Tychosium, of course, the Moon’s orbit is perfectly circular.



The “N1” and “N2” dots are the famed nodes of the Moon’s orbit which, of course, determine when a solar eclipse will occur. In these last weeks, in fact, I have with some success worked at making these nodes coincide with the actual solar eclipses recorded over the centuries.

Below is a gif animation I found on Wikipedia.[6] I find it quite useful to show how we earthly observers may erroneously interpret any given circular orbit (as viewed from Earth) as being elliptical. Imagine yourself standing at the Earth’s equator, circling by 360° once a day (you are that green dot moving horizontally back and forth, from left to right). The blue and red dots (“planets”) will appear to revolve around elliptical orbits, although these orbits may well be perfectly circular.



Now, allow me to quote a short section of my book on the Tychos model:

> *In the Tychos model, the orbital speed of Mars is shown to be uniform and constant since it always returns at (near-)equidistant[7] points of its “opposition ring”. Hence, those “elliptical orbits” and “accelerating/decelerating orbital speeds” (as promulgated by Kepler’s “Laws of planetary motion”) could well be illusory and may have to be revised, or possibly discarded altogether. Before Kepler’s laws came along, astronomers all over the world had been relentlessly pursuing the ideal concept of uniform circular motion. In fact, so had Kepler himself, before he started stretching and squeezing those recalcitrant Martian motions (observed by Tycho Brahe) in order to make them obey his ever-more-complex equations.*

> "The testimony of the ages confirms that the motions of the planets are orbicular. It is an immediate presumption of reason, reflected in experience, that their gyrations are perfect circles. For among figures it is circles, and among bodies the heavens, that are considered the most perfect. However, when experience is seen to teach something different to those who pay careful attention, namely, that the planets deviate from a simple circular path, it gives rise to a powerful sense of wonder, which at length drives men to look into causes."
>
> Johannes Kepler, Chapter 1 of the *Astronomia Nova*
> (Donahue translation, p. 115)

So Kepler actually preferred the quite natural notion that all orbits are perfectly circular! But what about Kepler’s ultimate claim that “all orbits are elliptical”? Well, under the Tychos model, it is easily

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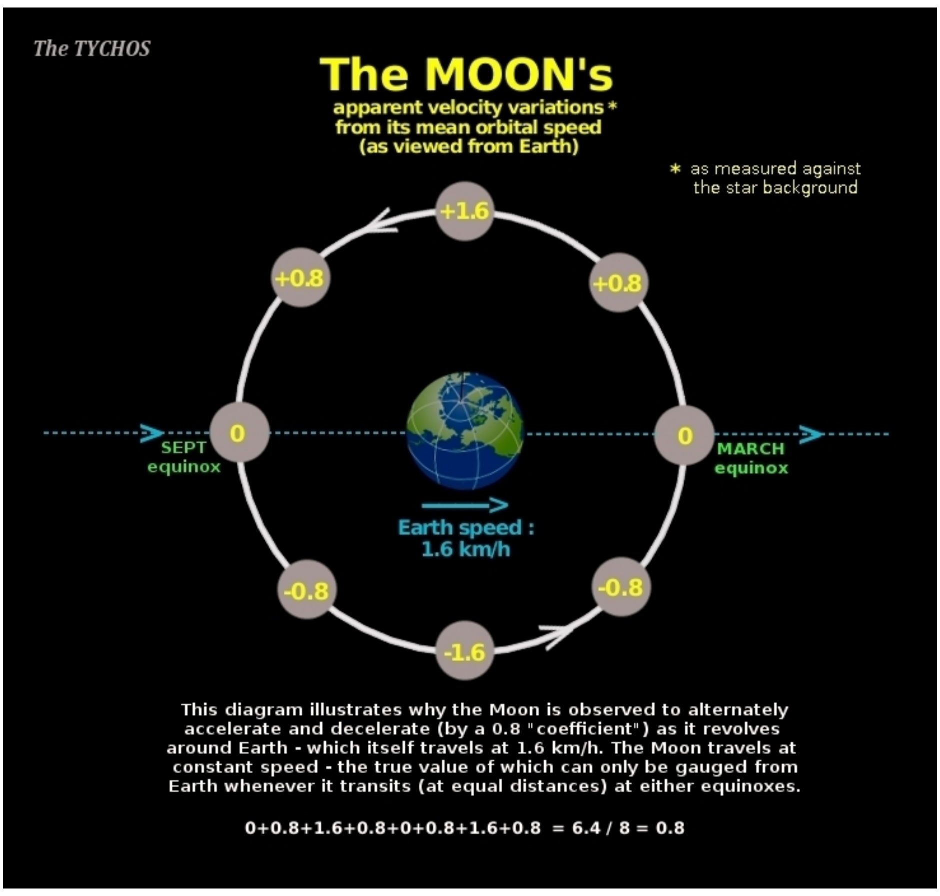
[4] As more thoroughly expounded at https://cluesforum.info/viewtopic.php?p=2409064#p2409064
[5] This fact is empirically proven by the analemma, i.e. the 8-shaped pattern that the Sun traces yearly in our skies.
[6] https://en.wikipedia.org/wiki/Ellipse
[7] By “(near-)equidistant” I refer to how Mars returns to opposition in the Tychos at similar longitudinal separations, although of course always at different distances from Earth, as illustrated in the “Mars opposition ring” diagram in my book.

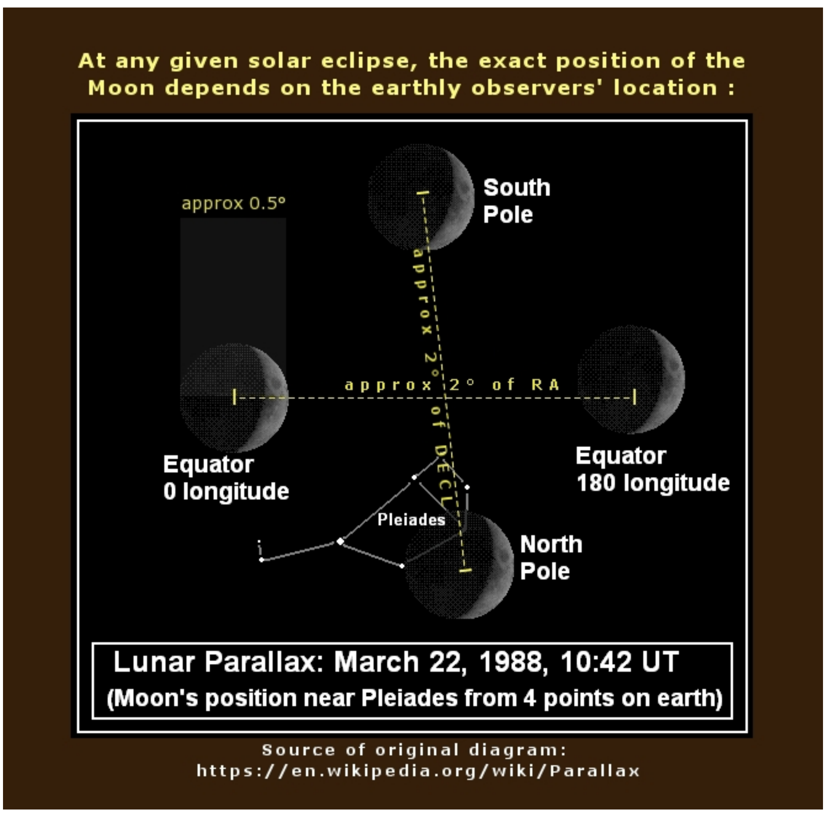
understood just why all planetary orbits surrounding us will appear to be elliptical: since Earth moves very slowly (at about 1.6 km/h) around its PVP orbit, all our surrounding planets (and moons) will seem to move slightly faster or slower against the "fixed" stars, depending on the direction of their motions in relation to Earth. Simple as that!

Below is another diagram I made a while ago. It shows why the Moon will appear (as viewed from Earth) to "slightly speed up or slow down" (i.e., to move at fluctuating speeds), depending on whether it moves in the same or opposite direction of Earth's 1.6-km/h motion around the PVP orbit.



In any case, the Tychosium is slowly but surely becoming the most accurate digital simulator of our solar system. I have verified the solar eclipses from the 16th century and all the way to those predicted for the 30th century (i.e., over a 1,400-year timespan). So far, they are remarkably precise: within about 1° or so (see below). You may actually verify this by yourselves by using the "Elongation" function in the Tychosium. More work is needed, for sure, to achieve the ideal level of accuracy, but consider this: if my working postulation that Earth travels at 1.6 km/h were totally wrong, these solar eclipses would be off by many degrees since Earth would in those 1,400 years move by about 20 million km in the opposite direction of the Sun.

Note that for the Tychosium to show the solar eclipses within a 1° error margin (vis-à-vis the existing solar eclipse tables which list UTC timestamps for all eclipses) may well be accceptable since the latitude and longitude of any given eclipse can differ by +/- 2°, depending on the observer's earthly location:



All in all, I am more than happy (in fact, happier than ever) with the Tychos model's consistency with empirically verifiable reality.
