**Appendix 27**

# The Tychos – Our Geoaxial Binary System

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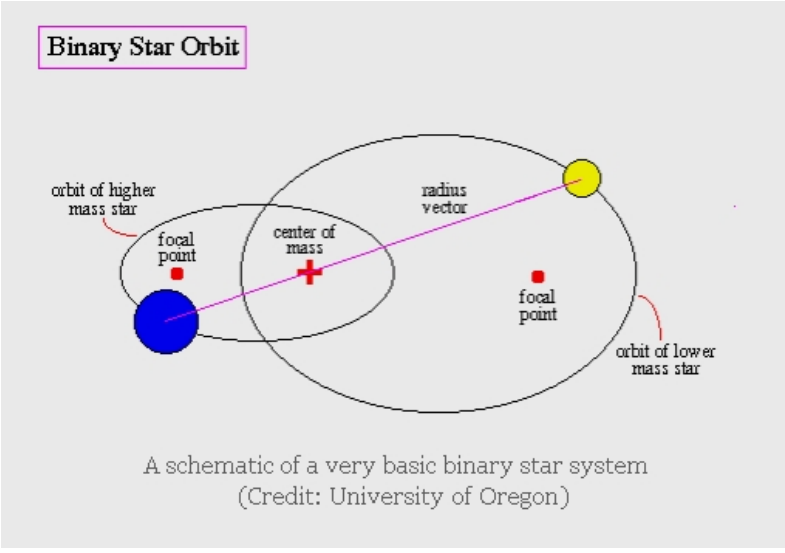
## Double trouble for Copernicus

Having delved in more depth into the literature on double/binary stars, I wish to share with you my thoughts and assessments regarding this crucial, yet rarely debated, cosmological subject matter and its underlying "world-shattering" implications. To clarify at once what I am referring to, allow me to cite a short passage from Chapter 1 of my book[2] on the Tychos model which succinctly outlines the "philosophical" issue at hand:

> *"Needless to say, if it eventually emerges that 100% of our visible stars are locked in binary systems, our 'lonely' single-star system, as envisaged by Copernicans, would increasingly stand out as a uniquely exceptional, one-of-a-kind cosmic anomaly. It therefore stands to reason, from a purely statistical perspective, that our own star [the Sun] is likely to be part of a binary system."*

To wit, if it should turn out that all the stars in our skies are double/binary systems, the current Copernican heliocentric theory, which holds that our Sun is a single/companionless star, would have to be definitively abandoned, beyond appeal. That is, unless we'd be willing to accept the truly astronomical odds of our nearest star being the one and only "bachelor" in the entire universe—a most irrational and exceptionalistic notion, if there ever was one! So without further philosophical ado, let me presently submit a brief history of double/binary stars.




A binary star system: two bodies revolving around a common barycenter.[3]

In Tycho Brahe's day (late 16th century), no double stars were known or had ever been determined. Only about 50 years after Brahe's death, the Italian tychonic astronomer Giovanni Battista Riccioli, using a telescope, discovered that Mizar was a double star. However, it wasn't until about a century later that William Herschel formally announced his discovery of what he described as "binary sidereal systems":

> *"In 1797, Herschel measured many of the systems again, and discovered changes in their relative positions that could not be attributed to the parallax caused by the Earth's orbit. He waited until 1802 to announce the hypothesis that the two stars might be "binary sidereal systems" orbiting under mutual gravitational attraction, a hypothesis he confirmed in 1803 in his Account of the Changes that have happened, during the last Twenty-five Years, in the relative Situation of Double-stars; with an Investigation of the Cause to which they are owing. In all, Herschel discovered over 800 confirmed double or multiple star systems, almost all of them physical rather than optical pairs. His theoretical and observational work provided the foundation for modern binary star astronomy."*[4]

At the start of the 20th century, astronomers were debating whether so-called "variable" stars (stars which change in brightness over regular time periods) were, quite simply, nothing but binary systems in which the companion star periodically transited in front of its brighter binary partner, thus temporarily reducing its brightness. Here are a couple of relevant extracts from the book "Astronomy of to-day", by Cecil G. Dolmage (1910):

> *"It was at one time considered that a variable star was in all probability a body, a portion of whose surface had been relatively darkened in some manner akin to that in which sun spots mar the face of the sun; and that when its axial rotation brought the less illuminated portions in turn towards us, we witnessed a consequent diminution in the star's general brightness. [...] The scale on which it varies in brightness is very great, for it changes from the second to the ninth magnitude. For the other leading type of variable star, Algol, of which mention has already been made, is the best instance. The shortness of the period in which the changes of brightness in such stars go their round, is the chief characteristic of this latter class. The period of Algol is a little under three days. This star when at its brightest is of about the second magnitude, and when least bright is reduced to below the third magnitude; from which it follows that its light, when at the minimum, is only about one-third of what it is when at the maximum. It seems definitely proved by means of the spectroscope that variables of this kind are merely binary stars, too close to be separated by the telescope, which, as a consequence of their orbits chancing to be edgewise towards us, eclipse each other in turn time after time."*
>
> *[...]*
>
> *"Since the companion of Algol is often spoken of as a dark body, it were well here to point out that we have no evidence at all that it is entirely devoid of light. We have already found, in dealing with spectroscopic binaries, that when one of the component stars is below a certain magnitude its spectrum will not be seen; so one is left in the glorious uncertainty as to whether*

[1] https://cluesforum.info/viewtopic.php?p=2412841#p2412841
[2] https://www.tychos.info/the-tychos/
[3] For those interested, here's a link to a most thorough and comprehensive website concerned with double star astronomy: https://www.handprint.com/ASTRO/bineye5.html
[4] https://en.wikipedia.org/wiki/William_Herschel

*the body in question is absolutely dark, or darkish, or faint, or indeed only just out of range of the spectroscope."*[5]

As it is, a little-known fact among lay people is that many so-called "stars" do not shine with their own light. For instance, red dwarfs (by far the most common type of "star" in our universe) can be so faint, dim and darkish as to be invisible/undetectable by even our largest modern telescopes. In the Tychos model, of course, this would be the case of Mars (the Sun's binary companion) which in fact exhibits the characteristic orange hue associated with red dwarfs. It bears reminding the reader here that Mars is only about 0.5% the size of the Sun, and that Sirius B, the small companion of the brightest star in the skies, is also about 0.5% the size of its far larger partner, Sirius A. In fact, Alvan Clark's discovery in 1862 of the tiny Sirius B caused a stir among the science community of the day, since it was totally unexpected under Newton's gravitational theories that such a small body (Sirius B is reckoned to be slightly smaller than Earth) could possibly be gravitationally bound to such a large body as Sirius A. Incredibly enough, this major riddle was eventually "resolved" by our world's top astrophysicists who, in what must be one of the crudest instances of *ad hoc* argumentation in science history, simply decided, in spite of the lack of any conceivable experimental verification, that the mass and/or density of Sirius B must be quite exceptional: about "400,000 times larger than the mass of Earth"! But let us return to the history of double/binary stars:

In the 1980s, one of the world's top experts in double/binary stars, Wulff Heintz, announced at the end of his illustrious career that at least 85% of all the stars in our skies must be double/binary stars, leaving us to wonder whether the remaining 15% would be "bachelor" stars, like our Sun is believed to be. Now, this announcement was made almost 40 years ago; since then, thanks to technological advancements such as Adaptive Optics, there has been a continuous flow of new reports of binary companions revolving around larger host stars formerly believed to be single stars. In fact, in later years we have all heard in the news media about new so-called "exoplanets" being discovered, almost on a weekly basis. Rarely though, if at all, do such announcements mention that some of those so-called "exoplanets" might be formerly unseen binary companions of larger stars. The reason for this may—in my humble yet fairly informed opinion—be that the growing realization that perhaps all stars, without exception, are "locked" in double/binary systems is kept under wraps. Obviously, there could be no more horrifying prospect for Copernican/mainstream astronomers than having to admit that all the stars in our skies are, in fact, double stars revolving around their common center of mass, i.e. in most cases around nothing (in the Tychos model, Earth has been captured in the middle of that "nothing"; after all, planet Earth does have something special to it, does it not?). Critics of my work might argue that I am blinded by confirmation bias when I propose that all stars are double/binary systems, but the very same can be said of mainstream astronomers who, unconsciously or not, keep classifying stars into diverse categories, distracting our attention from the "scary" notion that all stars are double/binary, as this would spell the end of the heliocentric theory.

Critics of the Tychos model often object to the model because it "violates Newton's and Kepler's and Einstein's laws". Well, Newton—who died many years before Herschel's formal identification of "binary sidereal systems"—never had a chance to study them. I ask my critics to at least acknowledge this simple fact and to give me a break about Newton and his laws. Having said that, I am sure that Sir Isaac was an exceptionally smart fellow, but none of his studies addressed the physics or celestial mechanics of binary star systems for the simple reason that, in his time, little or nothing was known about them. As for the "semi-divine" Einstein, here's what Tom Van Flandern had to say about his theories with regard to binary stars:

*"If the general relativity method is correct, it ought to apply everywhere, not just in the solar system. But Van Flandern points to a conflict outside it: binary stars with highly unequal masses. Their orbits behave in ways that the Einstein formula did not predict. 'Physicists know about it and shrug their shoulders,' Van Flandern says. They say there must be 'something peculiar about these stars, such as an oblateness, or tidal effects.' Another possibility is that Einstein saw to it that he got the result needed to 'explain' Mercury's orbit, but that it doesn't apply elsewhere."*[6]

Note that, in modern times, neither Newton's nor Kepler's theories have met confirmation in the "galactic" studies of our Milky Way. Here are a couple of quotes from Wikipedia's "Milky Way" page which succinctly substantiate my "shocking" assertions:

*"Toward the center of the Milky Way the orbit speeds are too low, whereas beyond 7 kpcs the speeds are too high to match what would be expected from the universal law of gravitation. [...] Stars and gases at a wide range of distances from the Galactic Center orbit at approximately 220 kilometers per second. The constant rotation speed contradicts the laws of Keplerian dynamics and suggests that much (about 90%) of the mass of the Milky Way is invisible to telescopes, neither emitting nor absorbing electromagnetic radiation. This conjectural mass has been termed 'dark matter'. The rotational period is about 240 million years at the radius of the Sun."*[7]

In other words, and once again: if their laws only apply to our Solar System, our Solar System would indeed be a bizarre exception to the "universal rules of nature". I don't know about you, but I would personally rather conclude that "something's rotten in the state of astronomy". The question of "dark

[5] https://www.gutenberg.org/files/28570/28570-h/28570-h.htm
[6] http://ldolphin.org/vanFlandern/
[7] https://en.wikipedia.org/wiki/Milky_Way

matter", mentioned in the above Wikipedia article, is interesting, though. I will soon devote a separate study to it, so stay tuned. For now, let us return to my brief history of double/binary stars.

In 2016—yes, only three years ago!—it was announced that a binary companion of our nearmost star, Proxima Centauri, had been discovered.[8] The newly detected body is now called "Proxima B". This very recent discovery effectively goes to show just how difficult it is, even for our most advanced 21st century instruments, to detect a binary companion to any given star.

Then, in 2018, it was announced that a companion of our second nearmost star, Barnard's star, had been discovered. Barnard's star is the fastest-moving star in our skies and, as explained in Appendix 8, it was the object of a bitter controversy between Peter Van de Kamp and Wulff Heintz back in the 1980s. Van de Kamp was convinced he had seen the now confirmed Barnard's star companion, but Wulff Heintz would have nothing of it. Vigorous efforts were spent to discredit Van de Kamp's discovery, claiming it was an artifact created by the improper cleaning of his telescope lenses. Yet, Van de Kamp's observational work has now finally been vindicated. In Appendix 8, I also mention how both ESA (2007) and NASA (2010) decided to discontinue their efforts to search for Barnard's companion due to "lack of funding". Yeah, right!

In light of all this, wouldn't it be perfectly reasonable to assume that the remaining 15% of non-binary stars (as estimated by Wulff Heintz back in the 1980s when he concluded that 85% of our stars must be double/binary systems) are simply still-to-be-detected binary systems? That the reason for this remaining 15% is merely the difficulty of detecting these smaller and dimmer companions? And that, in due time and thanks to technological advances, we will eventually discover that all the stars in our skies, bar none, have a binary companion?

In any case, here is the situation we have today, ladies and gents: practically all of our nearmost or "neighborhood" stars have been shown to have a binary companion. However, astronomers are still classifying many stars—those not yet officially recognized as binary stars—as "variable stars" or "flare stars". So what exactly, you may ask, are variable stars and flare stars? Well, let's see what Wikipedia can tell us about them:

> *"<u>Variable stars</u>*
> *A variable star is a star whose brightness as seen from Earth (its apparent magnitude) fluctuates. This variation may be caused by a change in emitted light or by something partly blocking the light, so variable stars are classified as either:*
> *- Intrinsic variables, whose luminosity actually changes; for example, because the star periodically swells and shrinks.*
> *- Extrinsic variables, whose apparent changes in brightness are due to changes in the amount of their light that can reach Earth; for example, because the star has an orbiting companion that sometimes eclipses it.*
> *Many, possibly most, stars have at least some variation in luminosity."*[9]

I have to say that the first option (stars that periodically swell and shrink) sounds terribly outlandish to me!

> *"<u>Flare stars</u>*
> *A flare star is a variable star that becomes very much brighter unpredictably for a few minutes at a time. Most flare stars are dim red dwarfs, although less massive (lighter) brown dwarfs might also be able to flare. The more massive (heavier) RS Canum Venaticorum variables (RS CVn) are also known to flare, but scientists understand that a companion star in a binary system causes these flares."*[10]

Thus, in both cases (variable and flare stars) we see that the best, or least bizarre, explanation is that these stars are, quite simply, binary star systems whose brightness periodically dips due to one companion obscuring the other. There is no need to classify them as anything else but double/binary stars. And this is where we reach the underlying gist of my present dissertation: If all the stars in our skies have a binary companion that revolves around them, why would our Sun not have a binary companion?

Indeed, the vast majority of the stars in our skies are now known to have their own local orbits. The expression "local orbit" is a reference to the observed fact that they all revolve around each other (around their common barycenter) in relatively short orbital periods, ranging from a few hours, days or months up to a few dozen years. This means that if you gaze at any given star at night, you can be practically certain that it revolves around a smaller companion in a relatively short amount of time. For example, the binary partners of our current "North Star" (Polaris A and B) revolve around each other in 29.6 years. Dictated by plain logic, the core question becomes: why would our Sun not have such a local orbit, but is instead believed to only have a huge 240-million-year orbit?

And this brings us to what I consider the most fascinating statement ever made by any astronomer. Jacobus Kapteyn, perhaps the greatest expert in stellar statistics that this world has ever hosted, is on record stating that...

> *"If all stars were binaries there would be no need to invoke dark matter."*[11]

Could "dark matter" simply be what currently obscures our modern astronomers' minds due to their Copernican formation?

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[8] Do not confuse Proxima Centauri with Alpha Centauri [A & B], which is a long-known and much bigger binary system located slightly further away than the Proxima binary system.
[9] https://en.wikipedia.org/wiki/Variable_star
[10] https://simple.wikipedia.org/wiki/Flare_star
[11] For the full story behind Kapteyn's above conclusion, please go to:
https://www.researchgate.net/publication/263855992_lessons_from_the_milky_way_the_kapteyn_universe