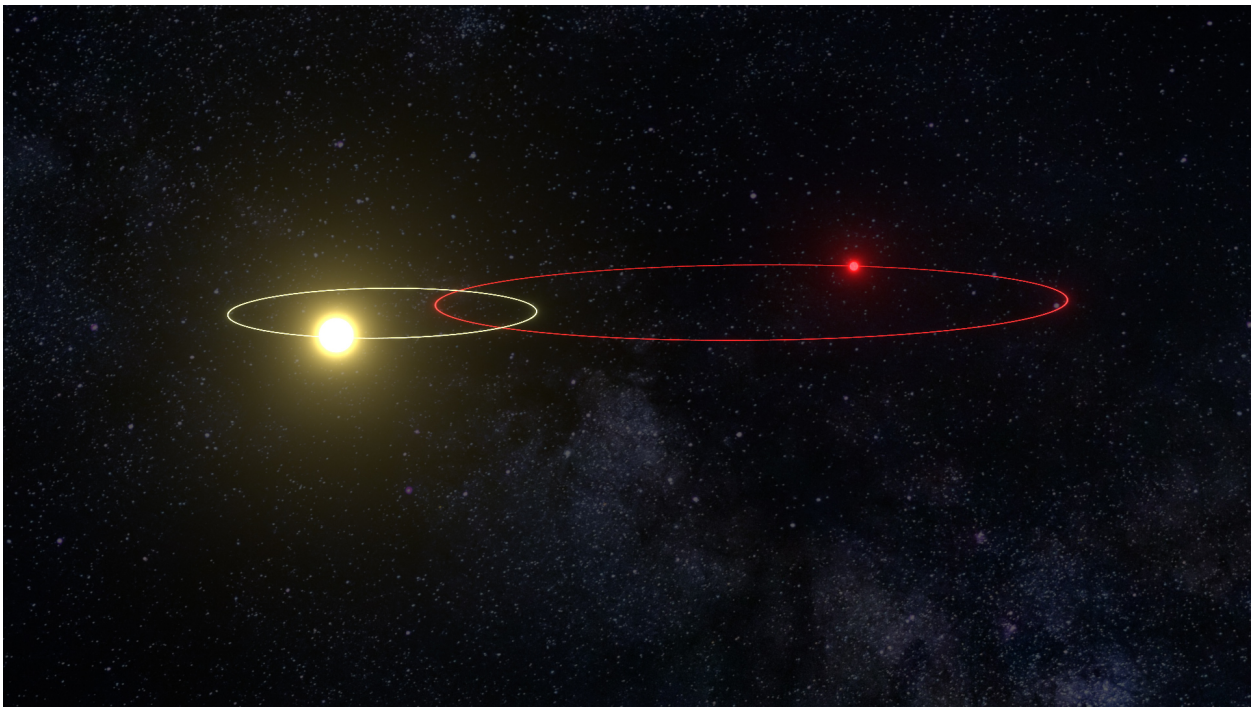
Lost Star… Found!



Evidence Suggests Sun in Binary Relationship with Barnard's Star

Findings

For over twenty years we have been searching for a companion star to our sun, as only another great mass could properly explain why our solar system curves through space at about 50 arc seconds per year. In 2005 I wrote about this in my book, *Lost Star of Myth and Time*, and subsequently laid out the arguments and mathematics in numerous articles on our Binary Research Institute (BRI) website. At first, we were alone in the search until the team at Caltech announced in 2016 they too needed something big to explain the strange motion of all the dwarf planets they were finding. But they have focused on a hypothetical Ninth Planet rather than a star. To make a long story short new evidence has emerged to show our sun's companion to be none other than nearby Barnard's Star, a red dwarf, often called the "runaway star" for its exceptional speed. In fact, its proper motion, faster than any other known star, and its location on the celestial equator, the same path the sun travels, are key indicators of a gravitational relationship!

Barnard's has a mass of about 48,000 earths or approximately 15% of the sun's mass. It is currently the sun's second closest stellar object, after the three star Alpha Centauri system, which is not on plane and couldn't drive the sun on the path we see. But it

won't be second for long! Barnard's is moving so fast it is expected to be our closest star in about 10,000 years. This is quite important as no astronomer believes we could be in a binary star system unless that star is, or soon will be, very close. Nice to see that box finally checked!

An interesting historical note is that the Indian astronomer, Swami Sri Yukteswar (the inspiration for our work at BRI) wrote in his book, The Holy Science, published in 1894 (long before Barnard's was officially discovered by E.E. Barnard in 1915), that our sun was part of a "dual star" system with a 24,000 year orbit period. He told us that the last aphelion (when the companion was farthest from the sun) was in about 500 AD, and calculated the next perihelion (closest approach) at approximately 12,500AD. This number is remarkably close to the modern calculation, which predicts Barnard's will be closest to our sun in the year 11,800AD.

It is worth noting that Barnard's last perihelion was in 11,500BC. A close approach by any object this size would cause increased solar system perturbations, possibly disturbing the Oort Cloud. While not the purpose of this paper the date is eerily close to the time that something set off the disastrous Younger Dryas events on earth

Background

It has long been thought that the sun's year over year motion is only "apparent" and that it hardly moves at all. This belief arose because the wobble theory of precession, first espoused by Copernicus, effectively constrained the sun's motion to zero! Copernicus had to do this, fix the sun at the "center of the Universe", in order to peg his heliocentric system to something immoveable. In his mind, this allowed the earth to 1. rotate on its axis, and 2. revolve around the sun. Having explained why everything moves around us through simple motions of the earth (rotation and revolution) he needed a third motion to eliminate the sun's retrograde movement seen from equinox to equinox. He explained that the earth must have a third motion, libration or wobble, which made it only "appear" that the sun was moving because the wobbling axis would change the position of the equinox, causing us to see slightly different stars on the equinox. Thus, in one stroke he cancelled all motion of the sun along the celestial equator, stating it was nothing more than an artifact of a moving equinox. It was an elegant solution but time has proved it to be too simplistic. The sun does move, and hence the amount of precession due to a wobbling axis has been greatly overestimated.

A century later Newton tackled the reason "why" the axis wobbled but left the underlying Copernican assumption unchallenged. He knew the moon and sun caused the tides and assumed these same forces, tugging on an oblate earth, were the reason for changes in earth orientation, producing the full 50 arc seconds of apparent motion that we see. Thus he too constrained the sun to zero motion. But over time his equations were found to be seriously flawed as they didn't predict the precessional motion, especially acceleration. The idea of constraining the sun's motion to zero was perpetuated by all those that tried to fix Newton's equations. Great scientists from

Jean la Rond d'Alembert, Urbain Le Verrier and Simon Newcombe worked on the problem but all started with the assumption the solar system didn't move. They added plenty of variables (over 3000 now - which never fixed the problem), while ignoring the the question: Could the sun actually move?

Today all astronomers recognize the sun has some motion, at least around the galactic center, but that geometric effect is very small, less than .005 arc seconds per year. The local motion, is ten thousand times bigger, but assumed to be nil because precession theory, doesn't allow it. So life goes on while no one questions the amount of axial wobble, assuming it is the sole cause of the sun's yearly motion.

What seems to have been forgotten is that wobble theory requires the earth to revolve around the sun 50 arc seconds short of a complete orbit in an equinoctial year. But that is exactly how the Copernican model works. The axis is presumed to wobble 50" and therefore the equinox occurs 50" earlier each year. That is the explanation for the shift in the background stars equinox to equinox. BRI's research into the motions of the moon[1], as the earth orbits the sun, prove the earth does indeed travel 360 degrees along its orbit path each year (relative to the sun), give or take just a few arc seconds - and this happens in the period of time known as an equinoctial year! Hence, most of the 50 arc seconds that the sun moves, are due to actual solar system motion, with only a few arc seconds attributable to axial wobble. In fact, the sun is on quite the gallop around our local stellar neighborhood - completing a circuit in 25,770 years at the current rate. Note that this is slower then the Yukteswar predicted 24,000 year orbit period, as expected under Kepler's Laws when two stars are still far apart.

One telltale sign that the precession rate is actually the signature of our sun accelerating in its binary orbit is the fact that the precession rate is speeding up year after year with no good explanation offered by the precession dynamists, whereas this is just par for the course in a binary star system.

Distance, Speed, Orbit Period Calculations

Barnard's Star is currently about 5.95 light years from the Sun - and independent sources expect it to come as close as 3.75 light years over the next 10,000 years. So let's use 4.07 as its average distance, during its binary orbit period.

To find the common center of mass between the two stars (the point that both stars must orbit) and using Barnard's mass estimated at .144 solar masses (rounded to .15), we can determine the average center of mass between the two stars will be .7311 light years from our sun (the larger mass). Assuming an orbit with low to zero eccentricity, we can then determine the distance our sun would need to travel, and then the speed.

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[1] On the Precession of the Equinox, Robert Augusto Riva, University of Chicago, and https://binaryresearchinstitute.org/bri/evidence/the-lunar-cycle/

The estimated distance is a rather straightforward: 2*Pi*.7311 light years or (2x3.141594x.7311) = 4.5936 light years. Since we already know the orbit period, we can assume the circumference of the orbit to be in the range of 4.5 light years.

Using a distance of 4.5LY and a time of 24,000 years (an average of 54"py), we can then determine a speed by dividing 4.5 LY by 24,000. The result is the sun must travel at an average speed of .0001875 LY, or about 125,548 mph. Again, according to Kepler's Laws, that speed is now lower as the two stars are near apoapsis, and the sun is now only traversing about 50.3 seconds of arc per year, as seen from earth.

In 2009 we built a model based on this data (presented at the AGU in San Francisco) and found it amazingly accurate[2]. Had the dynamists used this simple method to predict the changing rate of precession over the last 200 years, their calculations would have been 43 times more accurate! Surely the more predictive model should be favored over the less predictive model. But we understand it would have been hard to believe in the binary model, and use the better system of calculation before and until an actual companion star was identified. Hopefully, that hurdle is now surmounted.

To put our estimate of speed in perspective, the earth currently moves at about 66,600 mph in its orbit around the Sun, while Barnard's Star speed is estimated at about 215,000 mph in its current trajectory towards our Sun (stellar speeds are harder to determine). So an average speed of 125,000 mph for our Sun (less at apoapsis and more at periapsis) seems well within the window of reason. We do this calculation just to dispel the notion that most astronomers still believe it near impossible our sun might be in orbit around the barycenter of another nearby star. It is hardly a stretch!

Perspective

Once again, we believe that Barnard's Star is the sun's companion, and likely responsible for many of the solar system effects now attributed to a hypothesized Planet Nine[3]. It would also explain the sun's apparent lack of angular momentum relative to the planets[4] (because that angular momentum is now in its binary motion), and a few other well known solar system anomalies.

All can see that the sun moves across the sky at about 50" py but we have been hypnotized to believe it does not move at all because the lunisolar precession theory "constrains" the sun's obvious motion to zero! But there is no question the King is walking in his underwear - and we have a witness. Like an innocent child, the moonwatches the earth very carefully, and does not care if it wobbles or performs back flips. It has told us beyond a shadow of a doubt (no pun intended), that the earth wobbles very little, less than a few arc seconds per year. This can be easily proved by

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[2] Predicting Changes in Earth Orientation, BRI

[3] Mike Brown, Kim Batygin, Caltech

[4] https://binaryresearchinstitute.org/bri/evidence/angular-momentum/

observing the delta between the number of lunar orbits versus the number of full moons we see in an equinoctial year. The delta of “one” only occurs in the period of time known as an equinoctial year, thereby leaving almost 50 seconds of arc per year of actual solar system motion that desperately needs an explanation!

The Caltech guys have done a wonderful job in helping all to understand that solar system anomalies are real and we need a big object ”out there” to explain them. It is a shame they have been hobbled by an archaic theory of precession that gives them so little wiggle room in looking for that object.

The fun thing about realizing that the solar system moves in this intermediate reference frame is that we can now begin to understand how fast it moves, and how far it moves, and better calculate everything in our local stellar neighborhood.

A further calibration to how the sun moves in relation to its companion, Barnard’s Star, should come over time by observing the increase in the rate of the Sun’s motion along its binary orbit path (a.k.a. the annual increase in the observed rate of precession), as compared to the annual increase in the rate of speed at which Barnard’s star moves. Both are accelerating and I expect the correlation to be high!

Another interesting point is that if we see the sun moving in a certain pattern along the celestial equator, and we realize that motion is driven by the sun’s motion around its common center of mass with another star, then we know that other star must lie roughly in the same plane with the sun’s motion, or along the celestial equator. This is where Barnard’s lies at about 4 degrees of declination versus Alpha Centauri’s negative 60 degrees.

In the literature we find two possible reasons why Barnard’s Star moves so fast: 1. Its motion is magnified because it is relatively close, and or 2. It must have come close to another star sometime in the relatively recent past (10,000 years), causing it to accelerate. The first is largely true. Closer objects do appear to move faster, however, the stars of the Alpha Centauri system are now even closer but show far less motion. So mere proximity cannot be the full answer. The second reason, is just basic physics. If Barnard’s came close to another star in the recent past it would accelerate its motion. But Barnard’s mystery accelerant has not yet been identified. It should still be relatively close. Barnard’s is presumed to be moving away from that recent close encounter so should now be decelerating (even if it is still the fastest star in the sky). But that’s not what the literature shows.[5] Logically, the accelerant star is our very own sun. It is still relatively close, and Barnard’s is accelerating as it moves towards us, indicative of a gravitational relationship.

All of this is hard to get your head around if you still believe in the Copernican model of precession - that it must be due to a wobbling axis because the sun cannot move. But the reality is the Sun does move, and its motion of about 50 seconds of arc per year is

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[5] https://ui.adsabs.harvard.edu/abs/2009AAS...21340613B/abstract

there for everyone to see and measure, and watch as it accelerates, year by year (at least in the years 500AD to 12,500AD) as the two stars move closer together.

Broad Implications

I began this work not so much to tackle an astronomy problem but rather to better understand why ancient cultures around the world tied the motion of the heavens (a.k.a precession) to a grand cycle of time with alternating dark and golden ages. I just wanted to know if it was true.

It is now accepted that the heliocentric system was known by several Greeks, and apparently taught by Aristarchus of Samos in roughly 400BC. But it was then lost for almost 2000 years before being resurrected by Copernicus. It seemed to me that many things we thought were developed by modern man (like the battery, geared devices, optics, advanced engineering skills) were known long before the Dark Ages, then lost, only to be rediscovered post renaissance (the French word for rebirth).

The myth and folklore of dozens of ancient cultures tie the motion of the heavens (a.k.a precession) to a grand cycle of time, which indirectly produces different conditions here on earth. They told us that just as the cycle of day and night, and the cycle of the seasons are caused by the first two celestial motions, so did the grand motion of the heavens cause a “cycle of the ages”. To the Greeks, this was known as Plato’s Great Year, which they broke into the Iron, Bronze, Silver and Golden ages. To the Indians, one precession cycle was one complete “Yuga” with similar phases or ages they called Kali (the darkest age), Dwapara, Treta, and Satya (their Golden Age). Their “Manu” even gave us the same 24,000 year orbit period.

The best book on this topic is Hamlet’s Mill, by Giorgio de Santillana, the former professor of the History of Science at MIT, and his equally brilliant co-writer, Hertha von Dechend of Frankfurt University. They were looking for the “origins of science” when they found multiple ancient cultures had a deep knowledge of astronomy, including the precessional “motion of the heavens”, long before Hipparchus. The “Mill” (which grinds out the different ages) is the precession cycle as seen from an ancient perspective.

If the Ancients were right, that this large binary motion indirectly has effects similar to the earth’s first and second motions (which affect consciousness and behavior on a grand scale), then it is fair to assume that some of their myth and folklore may have a basis in fact. These are the findings of the researchers that regularly present at the Conference on Precession and Ancient Knowledge. As I write this we are preparing for our next event to be held at the Rancho Las Palmas Resort in the Palm Springs area this October 20-22.

A final interesting fact is that the Ancients, who gave us the geodetic system we still use today for both terrestrial and celestial reference frames, apparently embedded a knowledge of the larger cycle in our daily system of time: our clocks and watches contain a microcosm of the 24,000 year cycle. Of course, the sun’s motion is measured

in years: 12,000 years moving towards its companion (more light), and 12,000 years moving away (less light), whereas our daily system of time is measured in hours, 12 of AM (increasing light), and 12 of PM (decreasing light), within a 24 hour day. I believe the ancient skywatchers understood the connection between the motions of the heavens and life on earth even more than we do today. Back when astronomy was truly the "royal science" they were watching the sun's motion very carefully and telling us it means something important!

The End

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