

Johannes Kepler and the Star of Bethlehem

A work in progress

It is an occasional danger embedded in scholarly practice that new research, by quoting older work presumed reliable, can perpetuate false information. We will show here that one of these episodes unfortunately revolves around the astronomer Johannes Kepler (1571-1630 CE), who is misinterpreted by astronomers using his work on the *Star of Bethlehem* without being able to check their source in its original language.

From 1606 CE, when Kepler published *De Stella nova*¹, until 1998 and 2006 when French and German translations respectively became available, this book existed only in Latin. Contrary to certain corrupted sources, the translations support Kepler's German articles and confirm that he regarded the planetary massing and *supernova* in 1604 as unrelated events. He attributed astronomical phenomena to "natural laws" and rejected astrology as a "human disease" and meaningless superstition. Cautiously, he also linked the *Star of Bethlehem* to the ancient *phoenix myth*, which expands the symbolism of the Star but reduces its meaning as a Christian miracle. Because "heretics" were still burned at the stake in that day and age, Kepler would have risked his life if he had openly revealed such a controversial opinion.

1. Why Kepler investigated the Star of Bethlehem

Every year, articles about this legendary star are published at Christmas time, which are often book promotions. But as we prepare for the popular theory of Michael R. Molnar to be recycled again, because of his following among astronomers, a courageous journalist who wanted to investigate further could make some surprising discoveries! To name names: the astronomers M. W. Burke-Gaffney S. J.,² K. Ferrari d'Occhieppo³ and David Hughes⁴ began the misinterpretation of Kepler's ground breaking researches, mistakes that were perpetuated by other astronomers, including Mark Kidger⁵ and Molnar⁶ – and it is no surprise, therefore, that none of them identified an actual "star" (aster) that the Biblical astrologers could have predicted.

Kepler was at the cutting edge of his field: he not only promoted the Copernican system a decade before the older Galileo, but he also calculated the orbits of the planets around the Sun and used this to establish his three astronomical laws. However, when a *supernova* appeared in 1604 it was widely compared to the *Star of Bethlehem* and the astrological predictions caused some political instability. Kepler was therefore ordered by his patron in Prague, Emperor Rudolf II, to interrupt his researches and publish an official position. He responded with *De Stella nova* for the educated and a simplified German summary for the general public to debunk the "nonsense" that circulated.⁷ When he realized that the *Star of Bethlehem* had appeared a few years earlier than assumed, in 6 BCE, he had to convince his critics, including hostile theologians,⁸ that the Vatican had made an error in calculating the birth of Christ!

In these religiously-themed works, Kepler had to address many popular interpretations, even the most superstitious concepts, in a conciliatory tone so as to not offend their prominent authors. He achieved this by using ambiguities and religious phrases, which is a rhetoric that is difficult for modern astronomers to see through without being able to check the original texts, and having thus to rely on erroneous interpretations.

2. Two "New Stars": how Kepler fooled his critics

In *De Stella nova*, Kepler featured the "great conjunctions" of Saturn, Jupiter and Mars, which is a subtle reference to the astrology of the supposed Magi, as we shall see below. A few years later, he added in *De vero anno* a description of the *Star of Bethlehem*, which supported the above and confused everyone, because it is in gross violation of the astronomical laws he had established:

"This star was not of the ordinary run of comets or new stars, but by a special miracle moved in the lower layer of the atmosphere... The Magi were of Chaldea, where astrology was born, of which this is a dictum: Great conjunctions of planets in cardinal points, especially in the equinoctial points of Aries and Libra, signify a universal change of affairs; and a cometary star appearing at the same time tells of the rise of a king..."⁹

This quote demonstrates that Kepler identified two very different types of "New Stars", one astronomical and the other astrological, because he had localized the *supernova* among the fixed stars, whereas he argues here that the *Star of Bethlehem* was a "cometary star" (*stellam cometam*) that moved in the lower atmosphere. This seemingly absurd claim has been a stretch of the imagination too far for modern astronomers. Because Galileo still held at the time that comets were atmospheric condensations from Earth, Hughes assumed that Kepler believed that the planetary conjunctions had ignited the *supernovae* in 1604 and 5 BCE.¹⁰ Molnar, who followed Hughes and also consulted the Jesuit Burke-Gaffney, discredited Kepler accordingly: "...it was natural for him to suspect that the conjunction had caused the bright star to burst forth".¹¹ But if any of these experts had been able to read *De Stella nova* or its German preview, they would have known that Kepler there dismissed this claim as "childish"¹² and joked in Latin that this would have been like "a mosquito giving birth to an elephant".¹³

Mark Kidger¹⁴ dealt with the "cometary star" by suggesting that the *supernova* in 5 BCE could have been confused with a comet because the Chinese (*hui-hsing*) and Korean (*po-hsing*) records are open to interpretation. Molnar, meanwhile, eloquently writes that Kepler's "mysticism led him to believe instead that the Star of Bethlehem had been a miracle, not a comet or new star. He believed that it had been a special star, one that the Magi could never have foreseen"¹⁵. By reducing Kepler to a misguided mystic, Molnar was able to make his hypothesis seem all the more rigorous, and his book received the endorsements of the prominent scholars Bradley Schaefer and Owen Gingerich. Unfortunately, none of these authors had read that Kepler pointed out in the German preview of *De Stella nova* that both his *supernova* and Tycho Brahe's in 1572 were not to be confused with the miraculous "cometary star". In fact, he spelled it out perfectly clearly, as follows:

"We must... declare to avoid many great absurdities, that both ignited in the highest heaven and firmament, among other fixed stars, and not like comets lower among the planets, and much less below the moon or in the element of the air..."

(Translated from the [German](#), 394: 22-27).

3. Attention to Kepler's concept

Another obstacle for modern astronomers is the astrological superstitions that prevailed in Kepler's era, which make his thinking hard to replicate for the modern secular scientist, and which turn the concept of a "cometary star" into a serious, interdisciplinary challenge. It might surprise such readers that this esoteric concept was fully accepted by a Jesuit theologian as late as 1916. Quoting from Kepler, the Reverend Mr A. J. Maas agreed that the Gospel "requires an additional miraculous appearance of a star in the lower region of the atmosphere."¹⁶ This curious view seems to have survived in Christian circles for centuries, because it is natural to suppose that a "falling star" or meteor could not have stood still as is reported of the *Star of Bethlehem*. This is why modern authors have explained this alleged halting using the retrograde motion of the planets, an optical illusion caused by the Earth's passage around our sun. Kepler's choice of veiled remarks may thus have saved his life, as his work seems to have met with Church acceptance and secured the star as a "divine miracle" well into the 20th century.

The *quietus* ended in December, 1936, when Washington's *Science News* acknowledged the Christmas season by reporting that modern astronomers had discovered a "miraculously bright triangle" that would have been visible in the sky at the time of Christ's birth, which had become a popular Christmas show in American planetariums.¹⁷ After the triple conjunction of Saturn and Jupiter during 7 BCE, Mars had joined the two planets to top this triangle in February of 6 BCE. We show in what follows that it formed exactly nine months after the first of the three conjunctions in 7 BCE, and that it is the key to Kepler's "cometary star"; this may be why the article was attacked by another Jesuit.

In 1937, at a Jesuit seminary in Toronto, the above-named M.W. Burke-Gaffney S. J. identified Kepler as the discoverer of the triangle¹⁸ and revealed how he described its astrological significance:

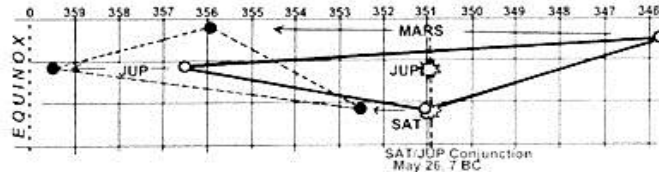
"A conjunction in the Fiery Trigon presaged great things;
a fiery triangle there was surpassed, as an omen, only by a comet."

Consequently, the Jesuit was able to dismiss the fiery triangle as "typically Keplerian, born of erudition wedded to astrology by a misguided genius". He went on to cite two scholars, *Ludwig Ideler* (Berlin) and *Charles Pritchard* (Oxford) and exploited their prestige for his rhetorical concept. He localized Kepler's triangle with well-chosen quotes from their works as "too close to the setting sun to be seen by naked eye" and concluded that the short article in the *Science News* was "misleading, inasmuch as the triangle could not be seen." Soon thereafter, his peers had to discontinue their planetarium shows; after all, the *Magi* were supposed to be *wise men*, not fools.

But seventy-five years later, Burke-Gaffney's agenda is easily exposed. Most astronomers would agree today that the German astronomer was not "wedded to astrology by a misguided genius" as the Jesuit had claimed. Albert Einstein, a contemporary of Burke-Gaffney, characterized Kepler as "a finely sensitive person, passionately dedicated to his research for a deeper insight into the essence of natural events, who, despite internal and external difficulties, reached his loftily placed goal".¹⁹ But most importantly, the American astronomers *John Mosley* and *Robert Victor* studied the planetary positions near the Sun on February 20, 1966 CE, and were able to establish that the triangle in 6 BCE would have been "clearly visible".²⁰

4. Brief preview of Kepler's "cometary star"

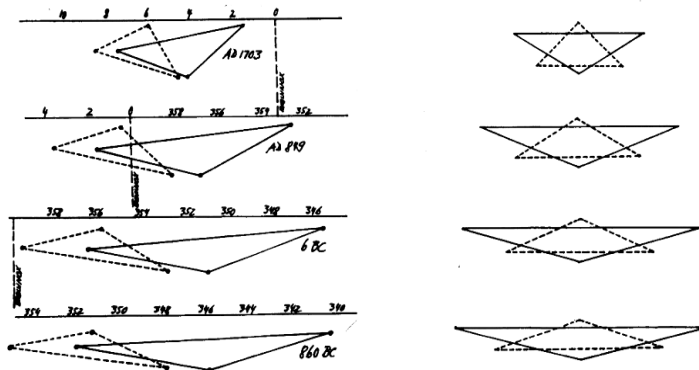
If we look at the ephemerides (Tuckerman/JPL) for February of 6 BCE, we discover that Kepler did not reveal that two triangles had actually formed. The metamorphosis from the "watery" to a "fiery" triangle occurred within two weeks above the western horizon, right after sunset. The location is known, according to *Isidore of Seville*, as one of the two *Gates of Heaven* (Etymologies, 3, XXXIX).



The importance of this planetary massing is that the two triangles may thus be read together, as a "fusion" into a hexagram, the ancient symbol of magic. Thus, also, they formed a "miraculous star" that *stood still over the child* with the *Magi* on February 28, 6 BCE, in Bethlehem, the "House of David" (Micah 5:1-6). This is also confirmed by Kepler's symbolism: the star "moved by a special miracle in the lower layer of the atmosphere" where the *Magi* were located, because it formed in their minds.



It takes little imagination to interpret this "star" at the horizon, which is later consumed by the Sun, also as a bird with a beak and tail, two feet, and its wings spread wide. According to *Herodotus*²¹, the colors of the *phoenix* are red and golden, exactly like the three planets. It flies from the East to the West, which is the course of the planets as seen from Earth, and it allegedly returns "about every 500 years", which is a somewhat astronomical number. This is persuasive evidence that the *Magi* followed the flight of the *phoenix*, although the planetary hexagrams returned in intervals of 854 years. They are depicted below in 860 and 6 BCE, 849 and 1703 CE, as confirmed by astronomical data (NASA/JPL).



Consequently, the ancient *phoenix* was interpreted as a "miraculous star" in 6 BCE, which the *Magi* followed toward Cairo and *Heliopolis* (Greek: *λιούπολις*, "City of the Sun") until they arrived in Jerusalem. These are the kind of heretical ideas that led to *Giordano Bruno's* fiery death at the stake in Rome in 1600, which is the reason why Kepler had to be cautious. His researches were inspired by *Plutarch*²² who explained in a [riddle](#) how to calculate the lifespan of the *phoenix* as exactly 854 years. This solution took Kepler beyond the Christian veneration of the *Star of Bethlehem* and to the *phoenix* as a symbol of recurring events that various cultures interpreted differently,²³ from Balaam's "cometary star" to the *Holy Grail*. The details of this controversial hypothesis can be reviewed at this [website](#)!

Notes:

1. The full title is *De Stella Nova in Pede Serpentarii, et qui sub eius exortum de Novo iniiit, Trigono Igneo*. (About the New Star in the Foot of the Serpentholder and about the newly returned Fiery Trigon during its appearance.)
2. M.W. Burke-Gaffney, *Kepler and the Star of Bethlehem*, Journal of the Royal Astronomical Society of Canada (Toronto, 1937), pp. 416-425.
3. Konradin Ferrari d'Occhieppo, *Der Stern von Bethlehem in astronomischer Sicht, Legende oder Tatsache?* (Giessen, 1994), revised ed. of *Der Stern der Weisen* (Munich, 1969). Chmielewski corresponded with Ferrari in the 1980s, and learned that he expected that cuneiform tablets would be found to support his "star" as Jupiter on Nov. 12, 7 BCE, enhanced by some zodiacal light. His most important contribution to this project is: *Hypothese zu einer 854-jährigen Planetenperiode in der Babylonischen Astronomie*, (Vienna, 1969).
4. David Hughes, *The Star Of Bethlehem, An Astronomer's Confirmation*, Pocket Book (New York, 1980). He develops his theory from Kepler's triple-conjunction in 7 BCE and matches Saturn "as Yahweh, star of the Jews" with Jupiter as "associated with kings" and the Christian Messiah, to conclude that the "star" was the *acronychal rising* of the two planets in mid-September of 7 BCE.
5. Mark Kidger, *The Star of Bethlehem, An Astronomer's View*, (Princeton, 1999). He follows Hughes very closely, because he regards Kepler's planetary conjunctions in 7 BCE as a prelude for the "star", which he identified as a *supernova* in 5 BCE.
6. Michael R. Molnar, *The Star of Bethlehem, Legacy of the Magi*, (New Brunswick, 1999). He identifies Jupiter, like Ferrari, but in 6 BCE when it eclipsed twice with the moon in Aries.
7. Johannes Kepler, *Gründtlicher Bericht Von einem vngewöhnlichen [Newen Stern](#)*, 396:8-17, rough translation: "... there is nothing in the teachings of *astrology* and about the great *conjunction of Saturn, Jupiter and Mars* to connect it to the exploding star and its substance. It would please God if those who write in great numbers such nonsense about the origins of this star, and get it printed, were to first read *Tycho Brahe's Progymsms* about the earlier star in 1572, so they would keep their childish thoughts to themselves that the star could have been ignited by Jupiter and Mars, (because it is reddish and looks from the distance like rising flames or fire), and better stay at home."
8. Johannes Kepler, *Mysterium Cosmographicum, De Stella Nova*, Gesammelte Werke, vol. 1, ed. Max Caspar, (Munich, 1938), pp. 441-61. What seems to be the key to Kepler's esoteric concept is mentioned in a letter in 1610: "*Mit drei Argumenten wird offen operiert... Ein viertes, das den Menschen Mund und Augen verschliesst, steht dunkel im Hintergrund: die Autorität der heutigen Theologen bei allen Parteien. Diese ist so erdrückend, dass ich nicht umhin kann, dieses Zeitalter als unglücklich zu beklagen.*" ("We can use three arguments openly, but the fourth shuts our mouth and eyes, and looms dark in the background: the authority of today's theologians of all denominations. It is so oppressive that I can't refrain from lamenting this age as unfortunate.")
9. Johannes Kepler, *Opera omnia*, (Frankfurt, 1858), vol.4. pp.346-47). Also available [on line](#). The English translation is by Burke-Gaffney, (see above, n. 2).
10. Hughes, (see above, n. 4), p. 134: "It is possible that in Kepler's view the conjunction had caused the development of the nova and it is even possible that he had thought the conjunction at the time of Christ's

birth caused the nova of 5 BC." Hughes had somehow missed the parts of both *De Stella nova* and its German preview where Kepler debunks such "nonsense" emphatically.

11. Molnar, (see above, n. 6), p.23.
12. Kepler, (see above, n. 7), 396:14, rough translation: "...so they would keep their childish thoughts to themselves that the star could have been ignited by Jupiter and Mars."
13. Johannes Kepler, *Über den neuen Stern im Fuss des Schlangenträger*, German translation of *De Stella nova* by Otto & Eva Schönberger and Eberhard Knobloch (Würzburg, 2006), p. 159: "Oder hält es jemand für wahrscheinlich, dass eine Mücke einen Elefanten hervorbringt?"
14. Mark Kidger, (see above, n. 5), pp. 241-42.
15. Molnar, (see above, n. 6), p. 23. His characterization of Kepler is based on Burke-Gaffney, a Jesuit astronomer with a questionable agenda. According to Molnar, p. 147, note 14: "Burke-Gaffnet (sic)... is a fountain of information on Kepler's work involving the Magi's star."
16. A.J. Maas, S.J., *The Gospel according to Saint Matthew with an explanatory and critical commentary*, 2nd. ed., (St Louis, 1916), p. 20.
17. *Science News Letter*, December 19, (Washington, 1936), p. 393.
18. Burke-Gaffney (See above, n. 2)
19. Carola Baumgardt, *Johannes Kepler - Life and Letters*, (New York, 1951), p. 9.
20. John Mosley, *Common Errors in "Star of Bethlehem" Planetarium Shows*, the Planetarian, Third Quarter, (Los Angeles, 1981), also available [on-line. See 7.](#), last accessed December, 2011. Mosley was extremely supportive during our meeting in the 1980s, although he followed Burke-Gaffney and maintained that Kepler confused *the Star of Bethlehem* with the *supernova* in 5 BCE.
21. Herodotus, vol. 1, tr. Rev. William Beloe, (Philadelphia, 1814), pp. 366-68.
22. Plutarch, *de defectu oraculorum*, *Moralia*, Vol. XI, (Cambridge, 1927), pp. 381-387. Note: Kepler's references to Plutarch in *De Stella nova* (see above, n. 13) are exclusively from this work, which he identifies only as "Pythian Oracles [398 F]", p.155.
23. W. von Chmielewski, *Hexagrams in the Sky: from the Star of David to the Holy Grail*, paper given at the Annual Meeting May 2-3, 1986, of the Southern California Academy of Sciences at California State University San Bernadino. Abstract 60: "According to modern astronomical computations, the relative positions of Saturn, Jupiter, and Mars, as seen from Earth, changed within ten days from a watery to a fiery triangle in 6 BC and AD 849, at the vernal equinox, followed by a massing in Aries of all planets known to the ancients with the Sun. This transformation symbolizes the fusion of "wise men" into a hexagram, the most ancient symbol of magic. Evidence from the Bible, mythology, philosophy, and literature suggests that planetary hexagrams appeared in intervals of approximately 854 years, with different meanings in different civilizations, including Balaam's Star, David's Shield, Hesiod's Phoenix, Plato's X, Matthew's Christmas Star, the Philosopher's Stone, and even the Holy Grail."