

What Star is This, With Beams so Bright?

Who doesn't feel awe upon gazing upwards on a starry night? Which of us isn't curious to discover what Pluto looks like or what it's like on the surface of a comet? Who hasn't marveled at a beautiful meteor streaking across the sky? Is there anyone who doesn't feel a thrill when glaring at a gloriously bright and large supermoon? Maybe you've downloaded a star app to your cell phone to work out which stars and constellations are present in the dome of sky above and around you. Many of us love to watch Louie Giglio's inspirational introductions to the indescribably magnificent sights of the universe, TV documentaries on the wonders of the cosmos, and YouTube videos from the International Space Station about the oddity of watching Earth from a 'tin can' in space. Astronomy is the 'wow' science.

As fascinating as the latest missions by NASA and the European Space Agency are, to the average person nothing in astronomy is more captivating than the Star of Bethlehem. Quite simply, the whole world is engrossed by the Star. It is central to cherished Christmas traditions from Bethlehem on the West Bank to Bethlehem, Pennsylvania, from Mexico to the Ukraine, and from Poland to the Philippines. Millions flock to planetariums for special presentations in the weeks before Christmas to reflect on the Star, the greatest astronomical mystery of all. The Star features prominently in our Christmas celebrations—we sing carols to and about it; we perch it atop our Christmas trees; and we send Christmas cards embossed with it.

However, when it comes our perceptions of the Star, it is as though we view it through a deep and dark mist. Our thinking, heavily shaped by movie representations, television documentaries, planetarium presentations, Christmas decorations, and Yuletide carols, is inconsistent and confused. Have a look at recent Nativity movies or religiously themed Christmas cards in your local card shop and you'll appreciate the truth of what I'm saying.

One factor that vies to influence our thoughts about the Star is the beloved Christmas carols that we sing so gustily. But can we trust what they say? Was the Star a new celestial body, 'a stranger midst the orbs of light?', that prompted the Magi to ask 'What star is this?' Is it true that the Star shone in the eastern sky with 'beams so bright' and 'to the earth...gave great light'? Were 'all the stars above...paling, all their luster slowly fading' because of the Star's 'royal beauty bright'? Did its 'light' guide the Magi 'from country far, ...to follow the star wherever it went', even as it was 'westward leading, still proceeding'? And when the travellers arrived in Bethlehem, did the Star 'both stop and stay right over the place where Jesus lay'?

The sources

Our most important source about the Star of Bethlehem is Matthew's Gospel. There, in his Nativity account, we discover that the Star was first observed by the Magi over a year before Herod's slaughter of Bethlehem's infants. Many months after this first appearance, the Star had a 'rising' in the eastern sky that deeply impacted the Magi, revealing to them that someone special had been born, a king, indeed the Jewish Messiah, and commissioning them to travel

hundreds of miles to honour him and present him with extravagant gifts. Then, within a couple of months of the Star's rising (the duration of the Magi's journey), the Star was in southern sky to usher the eastern astrologers to Bethlehem before standing over one particular house there, pinpointing it as the place where the Messiah was.

The early church father Ignatius, writing a few decades after Matthew, probably citing a first-century hymn, describes the Star: 'A star shone in heaven with a brightness beyond all the stars; its light was indescribable, and its newness caused astonishment. And all the rest of the stars, together with the Sun and the Moon, formed a chorus to the star, yet its light far exceeded them all. And there was perplexity regarding from where this new entity came, so unlike anything else [in the heavens] was it.'

The quest for the historical Star

Wouldn't it be amazing to know what the Star was? If we could identify the Star and discover what the Magi saw, it would enable us to get into their sandals, to feel their awe, and to think their thoughts after them. The discovery would surely fill us with joy, reinvigorate our worship, and transform our celebration of Christmas. Matthew would be vindicated against his critics. Jesus would be seen to have been authenticated as Messiah by God. The Bible's claim that God created the heavens and is Lord over them would be even more compelling. It would have the potential to be an astonishing boost to Christian witness in this increasingly hostile, atheistic world. Can you imagine what moviemakers would be able to do with the revelation of the mystery of the Star of Bethlehem!? So exhilarating is this vision that you might have thought that Christian benefactors would be pouring their money into sponsorship of cutting-edge research to identify the Star decisively once and for all.

The scholarly quest for the historical Star has been ongoing for centuries. As the December planetarium presentations make clear, a wide variety of astronomical theories have been proposed to explain the Star—for example, was it an ordinary star, a shooting star, a planet (or two), an exploding star (supernova), or a comet?

Unfortunately, the rabbit-like proliferation of theories about the Star has been enough to cause many cautious-minded onlookers to become cynical about the whole quest. However, the existence of many proposed solutions hardly rules out the possibility that the definitive solution to the mystery is about to rise over the horizon. Archaeological discoveries, advances in astronomy, and the development of sophisticated astronomical software are powerful reasons to be hopeful of a decisive breakthrough.

In recent decades, however, many scholars have taken to television and newspapers to express, sometimes disdainfully, their conviction that the Biblical Star is nothing more than myth, with no historical basis in fact. They claim that no celestial entity behaves like Matthew's Star and that the writer of the Gospel has simply exercised poetic license or invented the Star to advance his agenda. But, as Craig Keener and others have demonstrated, Matthew, and the other Gospels, are biographies committed to historical accuracy. That is, Matthew believed that his account of the Star was historically true and expected his readers to embrace this. We must therefore avoid cop-outs like claiming Matthew was exercising poetic license or that he invented the Star to strengthen his case that Jesus was the Messiah. We must treat Matthew respectfully, embracing the historicity of the Star. There really was a Star that appeared, remained visible for over a year, had a spectacular and meaningful 'rising' over the eastern sky, and led the Magi right to the house where the Messiah was being cared for by his mother.

But what if the Star was a purely supernatural phenomenon only visible to the Magi—perhaps an angel or a ball of light that moved around within our atmosphere rather than in outer space? If so, any foray into the field of astronomy to resolve this ancient mystery would be in vain. To those who are worried that the Biblical account can't be reconciled with astronomy, this is a very attractive theory—by its very nature this view seems to be beyond refuting. Alas, however, it does not hold up to close scrutiny. Clearly, it doesn't fit with Ignatius' claim that the Star was an astronomical body that was extremely bright and observed by many people, who were perplexed about it. More importantly, Matthew's, and the Magi's, choice of term 'star' indicates that an astronomical body is in mind, as any good Greek lexicon will tell you. And the fact that the Star had a 'rising' confirms this, since this word was a technical astronomical word for the re-emergence of a celestial body, such as a planet, star, or comet, in the eastern sky after being obscured by the Sun. Only a celestial object in outer space could have been regarded as having a 'rising.' We might also wonder why a 'supernatural' Star would have appeared at least a year before the Magi's arrival in Bethlehem—after all, their journey wouldn't have taken more than a couple of months. This 'miraculous' view leaves us with all kinds of other questions too: What did the Star do? How did it reveal to pagans that a birth had just occurred or that the newborn was a king, indeed the Jewish Messiah? Why would Herod and the population of Jerusalem have been so disturbed by the Magi's report if the Star hadn't been visible to the people of Judea?

As for the idea that the Star was really an angel, why would Matthew have been so coy about mentioning an angel here when he doesn't hesitate to mention them elsewhere in the Nativity account?

Let's be honest—these 'miraculous' proposals are unconvincing positions of last resort at best. Any purely local phenomenon would fall far short of the momentous celestial sign announcing the Messiah's birth that was predicted in the Old Testament.

We can be confident therefore that the Star of Bethlehem was a real historical and astronomical phenomenon. An astronomical quest to identify the Star is not only warranted; to anyone who gives the Gospels due respect as historical accounts of the life of Jesus, it is absolutely essential.

The question that we must address is straightforward: what astronomical body matches the description of the Star provided by Matthew—first appearing, then remaining observable for over a year, having a meaningful and dramatic 'rising' in the eastern sky the bulk of a year later, and then, within a couple of months of that, appearing in the southern sky to guide the Magi to Bethlehem, and then standing over one particular house there to reveal to them the precise location of the Jewish Messiah?

Among the many theories, one that has attracted a lot of attention over the last decade is the one espoused by U.S. attorney Rick Larsen in his bestselling DVD documentary on the Star. He claims that the planet Jupiter played the part of the Star of Bethlehem—the Magi, he maintains, were enthralled by the planet's regular movements in the sky in 3-2 BC and, because of them, eventually traveled to Judea, arriving in Bethlehem on 25th December, 2 BC. According to Larsen, Jupiter's apparent motion in the sky stopped then, when the Magi were at Bethlehem.

Unfortunately, the theory is deeply flawed on many levels. Jupiter, as a planet, is a regular and predictable feature of the sky and doesn't ever suddenly appear, as the Star of Bethlehem did. And, although the highlight of the Star's time in the sky was its 'rising,' Jupiter didn't have a rising in 3-2 BC. Moreover, without an iPad or the like, ancient astronomers couldn't have known when precisely Jupiter 'stopped' (on December 27/28, by the way) and certainly wouldn't have based their itinerary on this event. Regardless, because Jupiter was at that time nowhere near the roof

of the sky, it could not have been regarded as 'over' Bethlehem, never mind as having guided them to one particular house. I should also point out that Larsen offers a completely implausible chronology, with an absurdly long journey time (were their camels dodgy?) and a month-long stay of the Magi in Jerusalem. And it is worth pointing out that Larsen is highly inconsistent—while he claims Jupiter is the Messiah's Star, it is a star in Leo called Regulus that plays the role of the Messiah in his scenario. He maintains that Jupiter, by its movement in the sky, 'crowned' Regulus, something that, incidentally, it did not do. Finally, Larsen's theory would have the Magi arriving in Bethlehem in 2 BC, which is a major problem, since, according to virtually every serious historian, Herod died two years earlier, in 4 BC, and hence Jesus was born in advance of that. The upshot is that the Magi would have got there some four years too late!

Others have suggested that Jupiter's adventures in 7 BC, specifically its three close encounters (conjunctions) with Saturn, explain the Star of Bethlehem. However, Matthew makes it clear that there was one Star, and Jupiter never came close enough to Saturn to appear one with it.

So, then, what was the Star? An ordinary star couldn't have suddenly appeared, communicated so much information at its 'rising,' or 'stood over' a particular house. A super-bright exploding 'star' (supernova) can be ruled out because there are no remnants (nebulae) of one from 2,000 years ago. Besides, no ordinary star or supernova could pull off what the Star did—move so rapidly across the sky (from east to south within a couple of months).

The Great Christ Comet

Only one astronomical body matches Matthew's description of the Star perfectly—a comet. When I ventured into the field of comet astronomy and started engaging with some of the foremost comet experts in the world, I discovered that many of them were already firmly convinced that the Star must have been a comet. Origen, in the third century, similarly identified the Star as a comet and made a detailed case for this interpretation. In fact, no other astronomical view is as at home in the earliest centuries as the comet view. Ignatius' description of the Star ('a brightness beyond all the stars'; 'its newness caused astonishment'; 'unlike anything else [in the heavens]') is very consistent with a bright comet. What the apocryphal Gospel of James (mid-second century) records concerning the Star ('an immense star shining among these stars and causing them to become dim') is also compatible with a comet.

But what are comets? They are not to be mistaken with shooting stars (meteors), which are fleeting, only visible for seconds. While meteors are simply the effects of little pebbles of dust crashing into and burning up in Earth's atmosphere, comets are millions of miles away in outer space. In essence, comets are dark, dusty, and icy dirtballs, with hills and craters and deep caverns, that travel around the Sun in highly oval orbits. As the dirtballs approach the Sun, their subsurface ices react, exploding off fountains of dust particles, which form a head around the dirtball and a tail that points away from the Sun. Some comets may become the longest and brightest bodies in the night sky; at their peak, when near the Sun, some may be brighter than the full Moon. Some readers may remember Comet Hale-Bopp in 1997 or Halley's Comet in 1986. Over the last couple of years we have been privileged to receive images and data about the comet 67P/Churyumov-Gerasimenko from the Rosetta spacecraft and its ill-fated little lander (Philae).

The ancients were absolutely fascinated by comets. Often comets were regarded as bad omens, but sometimes they were regarded as bearers of good news. Because comets, unlike the stars and even planets, were unpredictable in their movements, ancients developed a different scheme for interpreting the significance of comets. They considered what they looked like, their locations in the sky (particularly in regards to the planets, stars, and constellations), the timing

of their appearance, and the direction in which they seemed to point. The Babylonians, Chinese, and others kept records of comets, although, sadly, the vast majority of these haven't survived to the present.

The case for the Star of Bethlehem being a great comet is overwhelming.

First, the movement of the Star from the east to the south within a couple of months demands that it was a comet.

Second, the sudden appearance and exceptionally long visibility of the Star could only be explained if it was either a supernova or a large, bright comet like Hale-Bopp. Comet Hale-Bopp was visible for 18 months in 1996-97, the longest of any comet in the scientific period; the Star was visible for at least 12 months, possibly considerably longer.

Third, the fact that the Star did something surprising and extraordinary in connection with its 'rising' strongly favours the conclusion that it was a comet making a close pass by the Sun. While the 'risings' of other celestial bodies were predictable and unimpressive visually, those of comets were unpredictable and could be astonishing. This is because comets are at their most active when closest to the Sun.

Fourth, as for the Star's 'going before' the Magi and 'standing over' a particular location, comets are described in precisely these terms by ancient writers. Greek historian Diodorus Siculus relates how a comet 'went before and led' the Greek general Timoleon as he sailed westwards to the boot of Italy on his way to Sicily. Josephus tells of how a comet 'stood over' Jerusalem in the period prior to its destruction, its sword-like appearance heralding its impending doom. A comet setting with its tail streaming upwards is uniquely well equipped to play the role of the Star as it pinpointed where the baby Messiah was located.

Fifth, although comets were often regarded as bad omens, on quite a few occasions they were regarded as heralds of good news. A book on comets by Chaeremon (early first century AD) gave examples of such positive cometary omens. A great comet in 44 BC was widely regarded as a good omen, announcing Julius Caesar's reception among the gods, and was privately interpreted by Octavian (Caesar Augustus) as a wonderful omen for his reign. More significantly, comets could be regarded as signs attending the birth of important rulers. Strikingly, a comet in 135/134 BC was regarded as announcing the greatness of Mithridates VI Eupator on the occasion of his birth.

Sixth, remarkably, Balaam's oracle concerning the Messiah's appearance in Numbers 24:17 speaks of him in terms that are distinctly cometary—he will be a 'scepter' (REB: 'comet') and a 'star' that 'shall rise'—, strongly alluding to the celestial phenomenon that would announce his birth. Interestingly, the rabbis called comets 'scepter stars.' It is important to note that many Matthew scholars have rightly detected an allusion to Balaam's oracle in Matthew 2:2's 'we saw his star at its rising.' Early Christians such as Justin Martyr, Irenaeus, and Origen also regarded the Star as a fulfillment of Numbers 24:17. This speaks powerfully for a comet Star.

Seventh, it is clear that the Magi discerned a ton of information from the Star—that someone had just been born, that he was a king, indeed the king of the Jews, and that he was worthy of worship. Through their movements within and among the constellations comets were exceptionally capable of conveying significant and complex messages to suitably educated observers.

Eighth, we know from the surviving comet records from Babylon that two of the five key moments of a cometary apparition that were of special interest to Babylonian astronomers were the comet's first appearance and its 'rising.' Curiously, it is to these two occasions in the Star's career that Matthew makes explicit reference!

Ninth, the uniqueness of the Star (after all, the Magi weren't in the habit of traveling in search of newborn kings!) suggests that it was a comet. No two comets are identical, and no two appearances of the same comet produce an identical show for human observers. This is not only because comets are very individual (in size, chemical constituency, orbit, etc.), but also because they appear at different times of the year, when Earth is at different stages of its orbit.

So what comet was it? Some have proposed that the Star of Bethlehem was a known comet, such as Halley's in 12 BC or a comet in 5 BC mentioned by the Chinese. However, Halley's appearance was too early (12 BC) and too short (56 days) for it to qualify as the Star, and it didn't have a 'rising,' nor did it move to the southern sky. The 5 BC comet didn't have a 'rising' either, nor was it present for long enough (70 days). Remember that the Star of Bethlehem was present for over a year and had an astonishing 'rising.'

Academic studies show that records of the vast majority of comets from the relevant period are lost to history. In the century from 50 BC to AD 50 records of over two-thirds are missing. Of those that remain, half are in surviving Chinese records and half are mentioned in scattered references in Greco-Roman literature. The Chinese records that have survived were preserved because of their perceived astrological and/or ideological significance. The occasional Greco-Roman references to comets reveal that among the many comets absent from the surviving Chinese records are great comets. If Josephus hadn't perceived in the year-long comet that stood over Jerusalem an omen of Jerusalem's judgment, that comet would have been lost to history. Likewise, had the early Christians not regarded the Christ Comet as a divinely sent sign marking the Messiah's birth and auguring his future greatness, this magnificent comet too would have been lost to history. Regrettably we have no surviving Babylonian records of comets after 87 BC. But what we have in Matthew 2:1-18 should be regarded as indirect evidence of a Babylonian comet record.

What we have in Matthew and Ignatius, then, is a record of an otherwise unattested great comet in the mould of Hale-Bopp around the time of Jesus's birth.

In the Magi's sandals

Granted that the Star was a comet, the question remains: what could it have done to persuade the Magi to cross a long stretch of inhospitable desert in search of the Jewish Messiah? How could a comet have revealed so much detailed information to these pagan astrologers? Believe it or not, the answer is found within the pages of the New Testament. Based on that description of the sign that attended Jesus's birth, we are able to deduce a lot about the Bethlehem Star comet. Indeed, it may surprise you to know that the information contained there is sufficient to allow us to produce an orbit for the comet, to work out how bright it became, and to set out for the first time a definitive chronology of the Nativity. We can indeed walk in the Magi's sandals and feel their awe as they bowed down before baby Jesus and presented their gifts of gold, frankincense, and myrrh.

If you're curious, why don't you pick up a copy of my book, *The Great Christ Comet: Revealing the True Star of Bethlehem*? Becoming acquainted with the true Star of Bethlehem will not only excite you, but also transform and enrich your Christmas.

In the meantime I will tell you that the carols are largely vindicated in what they say about the Star—it was a celestial stranger and it did become extraordinarily bright in the eastern sky at the time of its 'rising.' The Star did guide the Magi all the way to Bethlehem, going before them in the west as they journeyed to Jerusalem, and then in the south as they traveled to Bethlehem. But it didn't 'stop'; rather, as it was setting that night, the long-tailed comet, from the perspective of the Magi, was 'standing over' one particular structure in Bethlehem.

This Christmas let's pause to celebrate the Star of Bethlehem. Let's marvel at God's magnificent plan of salvation and at his astounding greatness. Through the Star God demonstrates to us his complete mastery over his Creation and reminds us that his plan of salvation remains firmly on track. He will not fail to achieve the magnificent goal that he announced through the Prophets three thousand years ago and confirmed through the Star two thousand years ago, namely that of establishing his Kingdom on Earth as it is in Heaven.



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