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THE STAR OF BETHLEHEM FASCINATES. For millennia, believers, scoffers and the curious have wondered at the Biblical account of the Star. The Bible recounts unusual, or even impossible astronomical events at Christ's birth. For many doubters, the account of the Star is easily dismissed as myth. For many believers, it's a mystery accepted on faith. But what happens if we combine current historical scholarship, astronomical fact and an open mind? Judge for yourself...

Why are we hearing this now?

If the Star was a real historical event, why are we learning of the evidence only now? Why isn't it common knowledge? A few minutes considering these things will intensify your experience and understanding of what you will learn on this site. We'll look at three of the most important factors leading to modern rediscovery of the Star: Johannes Kepler's discovery of how the solar system works, improvements in our knowledge of first century history and the spread of computers.

Kepler's discovery. Johannes Kepler (1571-1630) was one of the great mathematical minds of human history. As Arthur Koestler wrote in *The Sleepwalkers*, "Kepler and Galileo were the two giants on whose shoulders Newton stood." A German by birth, Kepler began his professional career in Graz, Austria teaching mathematics. His views in the Protestant/Catholic contest then raging got him banished from Graz after only a few years, but this actually worked for his good.

The reason is that about the time of his ouster, the earnest, middle-class, 28 year-old Kepler had attracted the attention of one Tycho Brahe (1546-1601). Apart from their advanced math skills, the two men had little in common. Brahe was a wealthy, eccentric, aristocratic, overbearing, hard-partying Danish nobleman who served in Prague as Imperial Mathematician. He was also the acknowledged "prince of astronomers" due to the unprecedented accuracy of his vast collection of astronomical observations. And he could be a wildman. When Brahe lost his nose in a college-years duel, he did better than our modern fashion of piercing noses. He had a complete replacement nose molded of gold with silver. This he wore the rest of his life.

Brahe invited the expelled Kepler to Prague to collaborate in study of the solar system, which at the time was still poorly understood. Many still thought of planets as "wandering stars." Both men were brilliant and keen to unravel the mystery of planetary motion, but their temperaments were so different that they mixed about like cats and dogs. The professional relationship was decorated with verbal warfare and walk outs. The personality conflict was heightened by Brahe's intent to remain the top dog astronomer—he would not allow Kepler full access to his library of observations. Instead, he dribbled out the data to maintain personal control. But when Brahe died suddenly of a urinary tract problem in 1601, Kepler found himself promoted to his master's position. Kepler himself became Imperial Mathematician with full access to Brahe's library. That changed everything.

Kepler set out to prove that the planets travel in perfect circular solar orbits. This presented a kind of mathematical beauty which particularly attracted him. But try as he might, he could not force the mathematics of circular orbits to align with what he saw in the sky each night. And Brahe's meticulous records proved inconsistent with the theory of circles. In an inspirational flash, Kepler saw that the planets might travel in elliptical orbits and finally found the perfect mathematical fit. In 1609, he published the First and Second Laws of Planetary Motion and ten years later, the Third Law. These are still used by astronomers, NASA, the European Space Agency and everyone else studying the stars today. These laws do not change.

With his brand new mathematical tools, Kepler held keys to the heavens and time. He could do things no astronomer had ever done. With enough pens, ink and time he could calculate sky maps showing the exact positions of all of the stars and planets in the night sky. Not just for that evening's observations, but for any day in history, as viewed from any place on the surface of the Earth. Being a religious man, Kepler soon set his equations grinding on the mystery of the Star of Bethlehem. It's almost tragic that he didn't find the phenomena discussed on this web site, because he pushed very hard in his search for the Star and even published on the topic. He would have been delighted to see what you will see. But Kepler was working from a flawed understanding of first century history, and that threw him off the track.

So the first piece of the Star puzzle is that, thanks to Kepler, we now have the ability to locate celestial objects with great precision at any point in history and from any viewing point. For example, we can calculate what the sky looked like over Jerusalem 2000 years ago. But that raises the question of *dates*. For what years should we be scanning the sky?

Dating Christ's birth. The great majority of ancient chronographers held that Christ was born in 3 or 2BC, and none held that Jesus was born before 4BC. The ancients were correct, as we shall see, but by Kepler's day that earlier and better understanding had been laid aside. Kepler and his contemporaries concluded (as have many present day historians) that Christ was born before 4BC. The reasons for that misunderstanding are complex and fascinating, but a major factor was their interpretation of the writings of the ancient Jewish historian, Flavius Josephus (37AD-95AD).

Josephus' life was a wild ride worth a little detour here. (Don't worry, we're getting where we're going). Josephus was born just a few years after Christ's execution. A member of the Jewish Pharisee sect, he rose to political prominence in Judea by the time he was in his late twenties. In 66AD the Romans, who occupied Judea at that time, were thrown into a war rage by what they saw as growing Jewish arrogance and treachery. Josephus marshaled Jewish forces to defend against an enemy that soon grew to the proportions of a tidal wave. Roman troops, horses and siege engines poured into the region in simply overwhelming numbers.

Resistance proved futile. Josephus and a fighting unit of 40 men were cornered by Roman forces and retreated to a cave where they made a suicide pact to avoid capture. 38 men died in that cave, but Josephus and one other had second thoughts and were taken prisoners. That's a twist, but here's a tighter one: Josephus wound up winning the favor of Vespasian (9AD-79AD), who was then commander of the Roman expedition in Judea. He was drafted into the Roman war effort against his own Jewish people, and ultimately served as the interpreter for Vespasian's son, Titus (39AD-81AD). Titus had orders to besiege Jerusalem and destroy the Jewish temple. This he did in 70AD, in apparent fulfillment of a 500 year-old vision recorded by the Jewish prophet Daniel.

After the war, Josephus could not remain in Judea. He would have been assassinated on sight. So he was taken to live in Rome. There, his attentions appear to have turned to regaining the acceptance of his Jewish countrymen. Perhaps to achieve this reinstatement, he wrote extensive histories of the Jewish people and ancient times. These histories offer important clues in the search for the Star. In one of his works, *Antiquities*, Josephus mentions Jesus, John the Baptist and other New Testament characters, including the murderous King Herod of the *Gospel of Matthew*, Chapter 2.

The Bible recounts that Herod learned of the Messiah's birth from astronomers who had seen the Star of Bethlehem. He tried to kill the child, so, obviously, the Bible records that Herod was alive at Jesus' birth. Remember that this mattered to Kepler, because historians of his time apparently inferred from Josephus' history that Herod died in 4BC. Necessarily, Kepler assumed Christ was born before that date, perhaps 5BC or earlier. So, those are the years for which he scanned the skies for the Star. Even with the power of his newly discovered laws of planetary motion, he didn't find the phenomena we will examine here. He searched the skies of the wrong years.

But modern scholarship has deepened our understanding of Josephus' manuscripts. A recent study was made of the earliest manuscripts of Josephus' writings held by the British Library in London, and the American Library of Congress. It revealed a surprise that allows us to target our mathematical telescopes better than could Kepler. It turns out that a copying error was a primary cause of the confusion about the date of Herod's death. A printer typesetting the manuscript of Josephus' *Antiquities* messed up in the year 1544. *Every single Josephus manuscript* in these libraries dating from before 1544 supports the inference that Herod passed in 1BC. Excellent scholarship confirms that date. Knowing this, and since Herod died shortly after Christ's birth, our investigation turns to the skies of 3 and 2BC.

So, we have the second factor allowing us to "find" the Star today. We newly know for which years we should examine the skies.

Computers. One more factor accounts for your hearing about the Star now instead of long ago: computers. When Kepler calculated a sky map, it was laborious. Plenty of pens and ink. And when the calculations were complete, he had a picture of the sky at a single moment of time. If he had selected the wrong day to search for the Star, he might find nothing. More pens and ink. But Kepler's Laws of Planetary Motion are playthings for a computer. The equations are solved almost instantaneously by modern astronomy software available to anyone for about \$50.

With software which incorporates Kepler's equations, we can create a computer model of the universe. In minutes we can produce thousands of the sky maps which were a great labor before computers. We can animate the universe in real time at any speed we choose, make months pass in moments or wind back the clock. We can view the sky precisely as it moved over Jerusalem 2000 years ago. And when we look up, examining the correct years, we find remarkable things.

The Stars and the Bible

Even if you are not of a traditional Christian or Jewish faith, you might feel a bit uneasy searching for signs in the stars. Many people have concluded that there isn't anything to astrology — or if there is something to it, it's a "something" they want no part of. So, are we doing astrology here?

A reasonable question with a short answer. No. That's not what we're doing here. Astrology holds that stars exert forces on men. Astrology is a:

"...form of divination based on the theory that the movement of the celestial bodies—the stars, the planets, the sun and the moon—influence human affairs and determine the course of events."

By contrast, the Bible refers to the celestial objects as carrying *signs* from the Almighty. But it prohibits worship of what we see above or even holding such things in too high regard. For example, we read in the *Book of Job*, Chapter 31:

26 if I have regarded the sun in its radiance or the moon moving in splendour, 27 so that my heart was secretly enticed and my hand offered them a kiss of homage, 28 then these also would be sins to be judged, for I would have been unfaithful to God on high.

The Old Testament even decrees the death penalty for star worship.

Still, the Bible does make a surprising number of references to *signs* in the heavens. Both Old and New Testaments assume that what happens up there matters. If we are interested in following the counsel of the Bible, we must hold a distinction in mind. Astrology assumes that stars are *causes of* earthly events. The Bible assumes that they can be *messages about* earthly events. It may be useful to think of this as a thermometer distinction. A thermometer can **tell** you if it's hot or cold, but it can't **make** you hot or cold. There is a big difference between a sign and an active agent. This is the difference between "astrology" and what the Bible holds forth.

Scholars believe that the *Book of Job* is the oldest Biblical text, likely originating before the time of Abraham and the founding of the Jewish nation. It's interesting, then, to find that this oldest book speaks of the stars and the constellations with respect. It states that God set them in place. And it references the same constellations we know today. Even considering ancient literature other than the Bible, it appears that the configurations of the constellations and what they represent may be older than the oldest surviving texts of any language.

In the *Book of Job*, Chapter 9, Job credits God with creation of the stars and constellations:

9 He is the Maker of the Bear [Ursa Major] and Orion, the Pleiades and the constellations of the south.

And in *Job* Chapter 38, God makes much the same point. He, not man, is sovereign over the creation, particularly the constellations:

**31 "Can you bind the beautiful Pleiades? Can you loose the cords of Orion?
32 Can you bring forth the constellations in their seasons..."**

Many other Biblical writers in many other passages state that God arranged the stars. For example, says the *Book of Isaiah* in Chapter 40:

26 Lift your eyes and look to the heavens: Who created all these? He who brings out the starry host one by one, and calls them each by name. Because of his great power and mighty strength, not one of them is missing.

Several striking passages on this issue were written by David, son of Jesse. David is a towering Biblical figure. A fierce warrior, a revered king who was himself deeply reverent. Highly intelligent and wonderfully poetic, he wrote much of the *Book of Psalms* and some of the most beautiful passages of scripture. Among these is Psalm 19, where David extols God's handiwork in the stars. But he doesn't only extol, he tells us that the stars bear a *message*. Watch his choice of verbs [emphasis added]:

- 1 ...The heavens *declare* the glory of God; the skies *proclaim* the work of his hands.
- 2 Day after day they *pour forth speech*, night after night they *display knowledge*.
- 3 There is no speech or language where their voice is not heard. 4 Their *voice goes out* into all the earth, their words to the ends of the world...

David chose verb after verb which says that the stars *communicate*. An intriguing passage. But isn't it just poetry? Isn't David just speaking with a poet's elegant symbolism? The apostle Paul didn't think so.

In The *Book of Romans*, Chapter 10, Paul is addressing the question: had the Jews of Christ's day heard that Messiah had come? He answers the question by saying that *of course* they had heard. He then quotes David to make his point!

- 17 Consequently, faith comes from hearing the message, and the message is heard through the word of Christ. 18 But I ask: Did they [the Jews] not hear? Of course they did: "Their voice has gone out into all the earth, their words to the ends of the world."

Note the structure of Paul's argument. Paul is taking the position that something has happened in the stars which indicated to the Jews of his time that the Messiah had come. As we shall see, the apostle Peter elsewhere forcefully makes the same argument. Of course, this argument has exactly *no* force unless something had happened in the stars. The fact that both men employed this line of reasoning shows they are making the same assumption. *They assumed that their listeners were aware of celestial phenomena associated with Christ*. It's our quest to determine what those phenomena were.

For those who revere the Bible, we've probably seen enough to set us at ease about looking for meaning in the stars. We're not doing something that the Bible condemns. Just the opposite. But there is one more authority who can put the most devout Christian at ease about looking up after dark. Jesus himself. In the *Book of Luke*, Chapter 21, Jesus tells us:

- 25 "There will be signs in the sun, moon and stars..."

So, it is Biblically legitimate to look for signs in the stars, but always remembering the thermometer distinction. The *Book of Deuteronomy* warns at Chapter 4:

- 19 ...when you look up to the sky and see the sun, the moon and the stars--all the heavenly array--do not be enticed into bowing down to them and worshipping things the LORD your God has apportioned to all the nations under heaven.

At numerous times in Biblical history, the Jewish nation ignored this warning. Rather than looking to the stars for signs, they slipped over the forbidden line into assuming the stars influenced human affairs. They began to worship created things instead of the Creator. In the *Second Book of Kings*, Chapter 23, we find King Josiah leading a revival of spirituality among the Jews and a return to worship of God alone. One of the things Josiah had to do was clear out astrological objects which had been brought in to the very temple itself:

- 4 [Josiah] ordered Hilkiah the high priest, the priests next in rank and the doorkeepers to remove from the temple of the LORD all the articles made for...all the starry hosts. He burned them outside Jerusalem...

The bottom line on the Bible and the stars: we may look to the stars for signs from God, but we are not to revere the stars themselves.

The Nine Points of Christ's Star

We're now ready to examine the qualifications for the Star. Working from the Biblical account in *Matthew*, unpacking it verse by verse, we can compile a list of nine qualities which must be present before any celestial phenomena could be considered to be the Biblical Star of Bethlehem. If any qualification is missing, then we will assume we haven't found our Star. All of the following verses come from the *Gospel of Matthew* Chapter 2.

1 After Jesus was born in Bethlehem in Judea, during the time of King Herod,

To begin, we see again how important the date of Herod's death is to the investigation. If Herod died in 4BC, then Christ had to be born before that year. But if Herod died in 1BC, as the best evidence indicates, then we should look at the years 2 and 3BC.

1 (cont'd) Magi from the east came to Jerusalem

Who are these magi? The word, 'magi,' which is sometimes translated 'wise men,' is the root from which we get our word 'magic.' This doesn't make them all magicians, in the present sense of the word. Some of them were learned men in general, who studied the physical world and were knowledgeable about many things, including the stars. Magi were often court astronomers who were consulted by the rulers of the day for guidance in affairs of state. This was also true in much earlier times. For example, during the Babylonian captivity of the Jews, some 500 years earlier, King Nebuchadnezzar kept a stable of court magi. Nebuchadnezzar made the Jewish prophet Daniel Chief Magus of his court when Daniel was able to interpret a dream the other magi could not.

There were magi of various schools, and some were more respected than others. We know something of a particularly prestigious school of magi from the writings of Philo. Philo was a Jewish philosopher and contemporary of Jesus who lived in the large Jewish community of Alexandria, Egypt. Philo wrote in praise of an Eastern school of magi and their great learning and understanding of the natural world. This school may have descended from the Babylonian magi of Daniel's day. Matthew does report that the Wise Men were from the East, and Babylon is east of Judea. It was at one time part of the Persian Empire, which ties in with Philo. So it is possible the Wise Men were of this prestigious Eastern school. This would account for Herod giving them an audience, and for his strong reaction to the news they brought.

2 and asked, "Where is the one who has been born king of the Jews?"

The Magis' question gives us three points for our list of qualifications for the Star. Whatever happened in the sky indicated 1) birth, 2) kingship and 3) Jews. It also gives us a clue about the Magi. They were interested in things Jewish.

2 (cont'd) We saw his star in the east and have come to worship him."

When the wise men said "we saw his star in the east," they didn't mean "we saw his star while we were in the East." The Greek text here says the Star was "en anatole," meaning they saw his star rising in the east. That's what all but polar stars do, because of the rotation of the Earth. Stars rise in the east, but not all celestial objects do that. So, that's another qualification for the Star: 4) it must rise in the east like most other stars.

The motive of the Magi in coming to Jerusalem tells us a great deal more about them. They wanted to worship a Jewish king. It can't be proven from the text, but it is quite possible that some of the Magi were of Jewish descent, perhaps a Jewish remnant from Daniel's day. This would help explain why a Jewish philosopher, Philo, would admire them, why they were watching the sky for things Jewish, why they wanted to worship a Jewish king, and why they were taken so seriously by Herod and Jewish chief priests. If they were not Jews, then they must have been most impressive magi indeed, as Jews of the time were deeply disdainful of pagans and their beliefs.

3 When King Herod heard this he was disturbed, and all Jerusalem with him.

You must know more to understand just how very troubled Herod and Jerusalem became at the Magis' news. Historians tell us that respect for the stars and guidance derived from them was at a peak. Both ancient historians and the Bible make it clear that the Jews of this period expected a new Jewish ruler to arise, based upon Jewish prophecy. And it was accepted that the stars could announce such an arrival.

For example, about 60 years earlier, in 63BC, magi made a presentation to the Roman Senate. They described celestial portents indicating that a new ruler had been born. Evidently regretting that news, the Senate responded by ordering the death of baby boys in the candidate age range. Sound familiar? It turns out that when Herod ordered the slaughter of children in Bethlehem he may have been following a sort of Roman precedent. That precedent may be one reason Jerusalem was troubled at the news the Wise Men brought. Perhaps they realized the Romans might shed blood in response.

4 When he had called together all the people's chief priests and teachers of the law, he asked them where the Christ was to be born. 5 "In Bethlehem in Judea," they replied, "for this is what the prophet has written: 6 "'But you, Bethlehem, in the land of Judah, are by no means least among the rulers of Judah; for out of you will come a ruler who will be the shepherd of my people Israel.'"

Herod took the Magis' message as factual, and consulted the Jewish experts about the location of the birth. The fateful verse in *the Book of Micah* which is quoted to Herod by the Jewish experts soon resulted in the death of many little boys in Bethlehem.

7 Then Herod called the Magi secretly and found out from them the exact time the star had appeared.

Another qualification for the Star: 5) It appeared at an exact time. And yet another qualification: 6) Herod didn't know when it appeared. He had to ask.

8 He sent them to Bethlehem and said, "Go and make a careful search for the child. As soon as you find him, report to me, so that I too may go and worship him." 9 After they had heard the king, they went on their way, and the star they had seen in the east went ahead of them until it stopped over the place where the child was.

And now we have the last three qualifications for the Star: 7) it endured over a considerable period of time. The Magi saw it, perhaps from Babylon, traveled to Judea and saw it still. 8) It went ahead of them as they traveled from Jerusalem to Bethlehem. You might not realize that this doesn't mean the Star was needed to guide the travelers to Bethlehem. Bethlehem was (and is) just five miles south of Jerusalem on the main road. They couldn't miss it. No, the Star appears ahead of them as they trek south not so much as a guide as a further confirmation of the signs they had seen. Lastly, 9) the Star stopped! Can a star do that? Yes, it can, as we shall see.

What was the Star?

We now know much about the Star.

1. It signified birth.
2. It signified kingship.
3. It had a connection with the Jewish nation.
4. It rose in the east, like other stars.
5. It appeared at a precise time.
6. Herod didn't know when it appeared.
7. It endured over time.
8. It was ahead of the Magi as they went south from Jerusalem to Bethlehem.
9. It stopped over Bethlehem.

Knowing these qualifications, we are in a position to disqualify most astronomical phenomena as being the Star. Remember that if any of the nine Biblical features of the Star is absent, then the phenomenon we are examining may be interesting, but isn't likely the Biblical Star.

A meteor? A meteor is a small fragment of material or even celestial dust which enters Earth's atmosphere at great speed glowing brightly as its outer layers vaporize. While often a physically small thing, a "shooting star" can be beautiful viewed from Earth and could be a dramatic means of making an announcement in the heavens. But such a sign would fail most of the nine tests. Most obvious is the fact that shooting stars don't rise in the east like other stars, they do "shoot" across the sky. Because they display suddenly, only once and for mere moments as they burn up in the Earth's atmosphere, it is not obvious how the Magi could form associations with kingship, birth, the Jews, the Messiah's birthplace and all. And meteors don't endure long enough to satisfy the Biblical criteria. The Star was very likely not a meteor.

Perhaps a comet? A comet is an object which has a very large orbit about the Sun, an orbit of many years duration. You may be familiar with Halley's Comet. Halley's, like many comets, is a block of ice, in Halley's case a few miles across. It orbits the Sun in a 75.5 year circuit, and like all comets, it is easily tracked using Kepler's equations. Comets do rise in the east and endure over time. But there are several problems with the comet hypothesis.

The first problem is sociological. At this time in history (and all the way into the middle ages), comets were regarded as omens of doom and destruction, the very opposite of good tidings. This was in part because of comet behavior. They were perceived in ancient times to break into the sky ignoring the highly ordered and repetitive clockwork movement of the heavens. The Almighty could have chosen to use an ominous sign for the birth of Christ. Presumably, He can do whatever He likes. But if the purpose of the Star was to *communicate something joyful* to man, a comet seems an unlikely choice. A bigger problem is that there do not appear to have been any comets in 3 or 2BC. Several civilizations maintained records of such phenomena, notably the Chinese. These records have been preserved to the present day, and no comets are recorded for these years. Finally, comets are obvious things. Anyone could and would have seen a comet. Herod would not have needed to ask the Magi when such a thing appeared. The Biblical Star was very likely not a comet.

What about a nova? A nova is an exploding star. A nova appears suddenly at a point in time, endures over time, rises in the east like other stars and can be spectacular. However, none appears in the ancient records for this time period. And like comets, a nova is an obvious thing. Many of us have been to locations, such as high mountains or the desert, far from modern artificial light (which astronomers call "light pollution"). We marvel at how clearly the heavens can be seen under such conditions. Unless weather interfered, Jerusalem was like that every night, and common people were far more familiar than are we with the appearance of the night sky. If a nova suddenly appeared, almost everyone would know about it. Herod would not have had to ask the Magi when it appeared. If the Star was a real astronomical event, it was very likely not a nova.

What's left? If the Star wasn't one of the spectacular astronomical objects we've examined, what's left? Biblical qualification 6—that Herod had to ask when the Star appeared is a powerful clue. Anyone can glance up and see planets and stars. That is the nature of things in the sky. But, apparently, one could look up at the Star without realizing it. Herod didn't know of it. It took magi to explain it. But once the Star was pointed out, all Jerusalem went abuzz, and Herod jumped into murderous action. A reasonable hypothesis is that *the Star must have been something in the normal night sky which was striking when explained.*

Did anything interesting happen in the ordinary night skies over the Middle East in 3 or 2BC?
Yes, indeed.

SOMETHING IN THE "NORMAL" NIGHT SKY which was startling when explained. That is the hypothesis for the Star we developed in *Setting the Stage*. Our process of elimination has knocked out meteors, comets and novae as candidates. That leaves *planets*.

A Coronation

JUPITER. The name of the greatest god of Roman mythology. And the name of the largest planet of our solar system. Jupiter has been known from ages-old to the present as the King Planet. This greatest of planets is a "gas giant," approximately eleven times the size of Earth and over 300 times more massive. It circles the Sun far beyond Earth, in an orbit of about twelve years duration. In ancient times, planets like Jupiter were considered "wandering stars." Since humans have assigned kingly qualities to this giant wanderer for dozens of centuries, might it have something to do with our Star announcing the birth of a king? That will be our working theory.

It's not enough to have a kingly name and reputation, of course. To be Matthew's Star, Jupiter as viewed from Earth would have to do peculiar things. More precisely, as considered by a magus viewing from the Middle East during the years 3 and 2BC, Jupiter's movements would have to satisfy all nine identifying characteristics of the Star. In September of 3BC at the time of the Jewish New Year, Rosh ha-Shanah, Jupiter began to do just that.

A magus watching Jupiter that September saw two objects moving so close that they appeared to touch. This close approach of celestial bodies is sometimes called a 'conjunction.' Our Middle Eastern viewer saw Jupiter coming into a close conjunction with the star, Regulus. Regulus takes its name from the word root which yields our word 'regal.'

The Babylonians called Regulus *Sharu*, which means 'king.' The Romans called Regulus *Rex*, which means 'king.' So to start things, at the beginning of the new Jewish year, the Planet of Kings met the Star of Kings. This conjunction may have indicated kingship in a forceful way to a Babylonian magus (satisfying one qualification for the Star), but would it have startled him?

Probably not. Jupiter glides slowly past Regulus about every 12 years. Let's assume our magus enjoyed a 50-year career, say from age 20 to age 70. We don't know how old the Magi were, but if our man was in the second half of his career, he might have seen such a pass two or three times before. Jupiter's orbit wobbles relative to Regulus, so not every conjunction is as close as the one he saw in 3BC. Perhaps our magus recorded this event with some interest, but it is hard to imagine great excitement. Not from this alone. But, of course, there is more.

The planets move against the field of fixed stars. From Earth, they appear to be "active." For example, were you to watch Jupiter each night for several weeks, you would see that it moves eastward through the starry field. Each night Jupiter rises in the east (satisfying a second Star qualification). Each night it appears to be slightly farther east in the field of fixed stars. All of the planets move like this.

But the wandering stars exhibit another, stranger motion. Periodically, they appear to reverse course and move *backward* through the other stars. This may seem odd, but the reason is simple enough: we watch the planets from a moving platform—Earth—hurtling around the Sun in its own orbit. When you pass a car on the freeway, it *appears* to go backward as it drops behind. For similar reasons, when the Earth in its orbit swings past another planet, that planet appears to move backward against the starry field. Astronomers call this optical effect retrograde motion.

In 3/2BC, Jupiter's retrograde wandering would have called for our magus' full attention. After Jupiter and Regulus had their kingly encounter, Jupiter continued on its path through the star field. *But then it entered retrograde.* It "changed its mind" and headed back to Regulus for a second conjunction. After this second pass it reversed course again for yet a *third* rendezvous with Regulus, a *triple* conjunction. A triple pass like this is more rare. Over a period of months, our watching magus would have seen the Planet of Kings dance out a halo above the Star of Kings. A coronation.

The Birth of a King

Jupiter's interesting behavior may explain the kingly aspect of the Star. But there are *nine* qualifications of the Star of Bethlehem. Many are still missing. How did Jupiter's movement relate to the Jewish nation? Is its association with the Jewish New Year enough? Where is an indication of a birth? Some might say that the triple conjunction by itself would indicate to a magus that a new king was on the scene. Maybe. But there is more.

The Jewish nation is composed of twelve ancient tribes. Jewish prophecy states that a particular tribe will bring forth the Messiah: the tribe of Judah. The symbol of Judah's tribe is the lion. You can see these connections in an ancient prediction of Messiah's coming found in the first book of the Bible, the *Book of Genesis*, Chapter 49:

9 You are a lion's cub, O Judah; you return from the prey, my son. Like a lion he crouches and lies down, like a lioness-- who dares to rouse him? 10 The sceptre will not depart from Judah, nor the ruler's staff from between his feet, until he comes to whom it belongs and the obedience of the nations is his.

This association of Messiah with the tribe of Judah and with the lion is a productive clue. It clarifies the connection between Jupiter's behavior and the Jewish nation, because the starry coronation—the triple conjunction—occurred within the constellation of Leo, The Lion. Ancient stargazers, particularly if they were interested in things Jewish, may well have concluded they were seeing signs of a Jewish king. But there is more.

The last book of the New Testament is, in part, a prophetic enigma. But a portion of the *Book of Revelation* provides clear and compelling guidance for our astronomical investigation. The apostle John wrote the book as an old man while in exile on the island of Patmos. Perhaps the austerity of this exile or a lack of companionship left him time to ponder the night sky. Whatever the reason, *Revelation* is full of star imagery. In Chapter 12, John describes a life and death drama played out in the sky: the birth of a king.

1 A great and wondrous sign appeared in heaven: a woman clothed with the sun, with the moon under her feet and a crown of twelve stars on her head. 2 She was pregnant and cried out in pain as she was about to give birth. 3 Then another sign appeared in heaven: an enormous red dragon with seven heads and ten horns and seven crowns on his heads. 4 His tail swept a third of the stars out of the sky and flung them to the earth. The dragon stood in front of the woman who was about to give birth, so that he might devour her child the moment it was born. 5 She gave birth to a son, a male child, who will rule all the nations with an iron sceptre...

A woman in labor, a dragon bent on infanticide and a ruler of the nations. We have already seen this ruler in the *Book of Genesis*, above. This would be the Messiah, in his role as King of Kings. If that interpretation is correct, then according to the gospel story the woman would be Mary, the mother of Jesus. The dragon which waits to kill the child at birth would be Herod, who did that very thing. John says the woman he saw was clothed in the Sun. She had the moon at her feet. What can he be describing? When we continue our study of the sky of September of 3BC, the mystery of John's vision is unlocked: he is describing more of the starry dance which began with the Jewish New Year.

As Jupiter was beginning the coronation of Regulus, another startling symbol rose in the sky. The constellation which rises in the east behind Leo is Virgo, The Virgin. When Jupiter and Regulus were first meeting, she rose clothed in the Sun. And as John said, the moon was at her feet. It was a new moon, symbolically birthed at the feet of The Virgin.

The sheer concentration of symbolism in the stars at this moment is remarkable. These things could certainly lead our magus to conclude that a Jewish king had been born. But even this is not the whole story. These symbols could indicate a birth, but if they were interpreted to indicate the time of conception, the beginning of a human life, might there be something interesting in the sky nine months later? Indeed. In June of 2BC, Jupiter continued the pageantry.

Westward Leading

By the following June, Jupiter had finished crowning Regulus. The Planet of Kings traveled on through the star field toward another spectacular rendezvous, this time with Venus, the Mother Planet. This conjunction was so close and so bright that it is today displayed in hundreds of planetaria around the world by scientists who may know nothing of Messiah. They do it because what Jupiter did makes such a great planetarium show. Jupiter appeared to *join* Venus. The planets could not be distinguished with the naked eye. If our magus had had a telescope, he could have seen that the planets sat one atop the other, like a figure eight. Each contributed its full brightness to what became the most brilliant star our man had ever seen. Jupiter completed this step of the starry dance as it was setting in the west. That evening, our Babylonian magus would have seen the spectacle of his career while facing toward Judea.

No one alive had ever seen such a conjunction. If the Magi only began their travel plans in September, when they saw this sight nine months later, someone may have shouted "What are we waiting for? Mount up!" At the end of their travel, which may have taken weeks or months, these experts arrived in Jerusalem. They told their tale, and "all Jerusalem was disturbed." Herod wanted to know two things: when the Star had appeared, and where this baby was. The Magi presumably described the timing of events starting in September of 3BC and continuing through June of 2BC. Herod sent them to Bethlehem in search of the child with orders that they return to tell where he was.

To qualify as the Star, Jupiter would have to have been ahead of the Magi as they trekked South from Jerusalem to Bethlehem. Sure enough, in December of 2BC if the Magi looked south in the wee hours, there hung the Planet of Kings over the city of Messiah's birth.

All but one of the nine Biblical qualifications for the Star have now been plausibly satisfied:

1. The first conjunction signified birth by its association to the day with Virgo "birthing" the new moon. Some might argue that the unusual triple conjunction by itself could be taken to indicate a new king.
2. The Planet of King's coronation of the Star of Kings signified kingship.
3. The triple conjunction began with the Jewish New Year and took place within Leo, showing a connection with the Jewish tribe of Judah (and prophecies of the Jewish Messiah).
4. Jupiter rises in the east.
5. The conjunctions appeared at precise, identifiable times.
6. Herod was unaware of these things; they were astronomical events which had significance only when explained by experts.
7. The events took place over a span of time sufficient for the Magi to see them both from the East and upon their arrival in Jerusalem.
8. Jupiter was ahead of the Magi as they traveled south from Jerusalem to Bethlehem.

But the ninth qualification would require that Jupiter stop over Bethlehem. *How* could a planet do that? And *did* Jupiter do it?

To Stop a Star

The problem with a planet stopping is not what you might think. The problem is not that planets can't stop. Just the opposite. The problem is that all planets are *always* stopped to the eye of a human observer. The sky moves above Earth at half the speed of the hour hand on a common clock. Its movement is imperceptible to the naked eye. So, if all stars are always stopped, what can Matthew have meant?

Perhaps you have already anticipated the key to this final mystery: retrograde motion. An astronomer tracking the movement of planets through the star field watches not so much on the scale of minutes, but on the longer scale of days, weeks and months. On this scale of time, Jupiter did stop. On **December 25 of 2BC** as it entered retrograde, Jupiter reached full stop in its travel through the fixed stars. Magi viewing from Jerusalem would have seen it stopped in the sky above the little town of Bethlehem.

THERE IS YET MORE TO THE DANCE—THERE IS AN ENDING. And not a pleasant one. If Biblical clues have led us to the sky of Messiah's birth, they now lead to a celestial dirge floating over Jerusalem. The bookends of a life. If the Almighty did orchestrate these signs of Messiah's coming and those at his death, then we are seeing more than stars in the skies. We are seeing a poetry of terrible beauty, of silent awe...

Dating the Crucifixion

Yes, there is more in the sky which declares "Messiah has come." But to see these things, we must know when to look up. Peter used the sky as a proof that Messiah had come, but *which* sky did he use? A body of scholarly work addresses the date of the crucifixion of Jesus of Nazareth. This body of work, together with Roman and Jewish histories, archaeoastronomy and the words of the Bible allow us to identify the day and almost the moment of his death. That is an extraordinary claim. You must judge it for yourself. Consider the evidence.

What can we learn from the Jewish calendar? Quite a lot, if we assemble the puzzle pieces. By law and custom, the Jewish people of Jesus' day took the Sabbath as a day of complete rest. Because no work could be done on the Sabbath, which we call Saturday, Friday came to be known as Preparation Day. It was a day when food and other things needed for Saturday were prepared in advance. This is our first clue to the date of the crucifixion, because all four Gospels state that Jesus was crucified on Preparation Day, a Friday. This is also the common consensus of the Church Fathers and scholars throughout church history.

The Gospels also record that the crucifixion occurred the day before the Passover festival. This is a second important clue, because it gives us a solid connection with the ancient Jewish calendar system. Passover always begins on the 14th day of the Jewish lunar month of Nisan. (Nisan 14 is in the Spring, which is why Easter is celebrated then). By Judean tradition, Passover begins at twilight, the dividing line between Nisan 14 and 15.

On the Jewish calendar (and on ours) a numbered day of the month may fall on any day of the week. For example, in one year your birthday might fall on Tuesday, in the next year it might fall on Thursday. This "float" among days of the week is why this second clue is so powerful. Putting these two Biblical puzzle pieces together, we see that the crucifixion must have occurred in a year when Nisan 14 happened to fall on a Friday, Preparation Day. That narrows things down considerably.

The Year. Ancient non-Biblical historians record that Jesus was condemned to death by Pontius Pilate. Pilate was Roman procurator of Judea during the years 26AD through 36AD. This limits our search for a date to those years. In "Setting the Stage" we found that Jesus was born in 3/2BC. And there are also important Biblical clues: the *Book of Luke* records that Jesus began his public ministry when he "was about 30 years old", and the *Book of John* records three annual Passovers during Jesus' ministry. Taken together, these puzzle pieces add to a crucifixion date in the early 30's, AD. During those years, Nisan 14 fell on a Friday, Preparation Day, twice: on April 7 of 30AD and April 3 of 33AD. To help us chose between those two dates, there is ample and fascinating evidence.

Pilate and Sejanus

The next clue comes from a surprising source: a dark tale of intrigue, hidden violence and vicious revenge in Rome. We go to the Imperial court...

By the time Tiberius Caesar (42BC-37AD) reached his mid-sixties, he had wearied of daily Imperial duties. He entered semi-retirement on the Island of Capri in 26AD. There, out of the public eye, he embraced a life of unmentionable depravity and cruelty. Still, even for a degraded and absentee emperor there were the problems of government. As his personal conduit for management of Rome from Capri, Tiberius left a regent in the capitol. This was Aelius Sejanus, who had been captain of the Praetorian Guard. Sejanus had shown himself to be politically capable and apparently loyal to Tiberius, but he was a cunning and ruthless man.

During the 5 years that Sejanus administered the Empire, he artfully engineered the banishment, imprisonment, suicide or other elimination of many of his own opponents and Tiberius' potential successors. As chronicled extensively by the Roman historian Tacitus, Sejanus apparently expected that he might one day plot and murder his way to the throne. He very nearly did. Unfortunately for Sejanus, Tiberius had a trusted sister-in-law, Antonia. She was not a political player, which gave her opinions a certain weight. While nearly all communication from Rome filtered through Sejanus, Antonia managed to place a secret letter before Tiberius in which she described Sejanus' web of plots in convincing detail.

Tiberius responded by plotting his own surprise. He sent an emissary with a lengthy letter to be read before the Roman Senate with Sejanus present. In the turnabout ending of the missive, Tiberius loosed a scathing denunciation of Sejanus and demanded his arrest. The shocked mastermind was dragged out and executed the same day: October 18, 31AD.

Why does this date matter? Because Roman and Biblical history intersect. During his glory days, Sejanus first influenced and then himself made appointments of many Imperial officials, including one Pontius Pilate. Pilate was made Prefect of Judea about the time that Tiberius gave up Rome for Capri. Sejanus was a notorious anti-Semite, and Pilate followed his benefactor's anti-Jewish policies as he governed Judea. A few examples will illustrate Pilate's treatment of the Jews. The Romans were well aware that the Jews shunned all graven images. Tacitus, though himself disdainful of Jewry, accurately comments in *The Histories*, Book V:

"...the Jews have purely mental conceptions of Deity, as one in essence. They call those profane who make representations of God in human shape out of perishable materials. They believe that Being to be supreme and eternal, neither capable of representation, nor of decay. They therefore do not allow any images to stand in their cities, much less in their temples."

Of course, this rejection of graven images comes from the Ten Commandments, recorded in the *Book of Exodus*, Chapter 20:

4 "You shall not make for yourself an idol in the form of anything in heaven above or on the earth beneath or in the waters below. 5 You shall not bow down to them or worship them; for I, the LORD your God, am a jealous God..."

Knowing this, Pilate proceeded to install images of Tiberius in the Jewish temple at Jerusalem, a massive offense. From Josephus, *Wars*, Book II, Chapter 9:

"Now Pilate, who was sent as procurator into Judea by Tiberius, sent by night those images of Caesar that are called ensigns into Jerusalem. This excited a very great tumult among the Jews when it was day; for those that were near them were astonished at the sight of them, as indications that their laws were trodden under foot; for those laws do not permit any sort of image to be brought into the city. Nay, besides the indignation which the citizens had themselves at this procedure, a vast number of people came running out of the country. These came zealously to Pilate to Cesarea, and besought him to carry those ensigns out of Jerusalem, and to preserve them their ancient laws inviolable; but upon Pilate's denial of their request, they fell down prostrate upon the ground, and continued immovable in that posture for five days and as many nights. On the next day Pilate sat upon his tribunal, in the open market-place, and called to him the multitude, as desirous to give them an answer; and then gave a signal to the soldiers, that they should all by agreement at once encompass the Jews with their weapons; so the band of soldiers stood round about the Jews in three ranks. The Jews were under the utmost consternation at that unexpected sight. Pilate also said to them that they should be cut in pieces, unless they would admit of Caesar's images, and gave intimation to the soldiers to draw their naked swords. Hereupon the Jews, as it were at one signal, fell down in vast numbers together, and exposed their necks bare, and cried out that they were sooner ready to be slain, than that their law should be transgressed."

Other examples of Pilate's intentional mistreatment of the Jews have come down to us in ancient histories. Philo reports that Pilate also proposed to set up a colossal idol in the holy of holies itself, the most sacred part of the temple at Jerusalem. Josephus reports that Pilate seized religious offerings made by worshiping Jews to pay for Roman work projects. The *Book of Luke* tells us that Pilate killed Jewish worshipers, mingling his victims' blood with that of their religious sacrifices, a hideous desecration. And at the crucifixion, Pilate posted a notice on Christ's cross which declared him "The King of the Jews," thereby mocking the Jewish leadership even as he gave them their way.

But all this raises a large question about the execution of Jesus. Pilate's pattern was to avoid doing "anything which could be acceptable to his subjects" the Jews. So, why would he now give in to the clamor against Jesus? Why not release Jesus, if only to irritate the priests who called for his death? The Biblical record does reflect Pilate's intention to release Jesus, and that he almost did. But something had changed. Something made Pilate respond to the Jewish leaders, grudgingly, rather than treat them with his customary vicious disdain.

What had changed was Sejanus. He was dead. Even worse for Pilate, after the surprise execution in the Fall of 31AD, Tiberius began to root out Sejanus's appointees and allies. Many were tried, tortured at length and executed in ways designed to maximize terror. In *De Vita Caesarum: Tiberius*, Suetonius describes treatment of Sejanus' allies with tortures unmentionable here. One of the milder descriptions from LXII:

"At Capri they still point out the scene of his executions, from which he used to order that those who had been condemned after long and exquisite tortures be cast headlong into the sea before his eyes, while a band of marines waited below for the bodies and broke their bones with boathooks and oars, to prevent any breath of life from remaining in them."

Tacitus records in *The Annals*, Book V:

"Executions were now a stimulus to [Tiberius'] fury, and he ordered the death of all who were lying in prison under accusation of complicity with Sejanus. There lay, singly or in heaps, the unnumbered dead, of every age and sex, the illustrious with the obscure. Kinsfolk and friends were not allowed to be near them, to weep over them, or even to gaze on them too long. Spies were set round them, who noted the sorrow of each mourner and followed the rotting corpses, till they were dragged to the Tiber, where, floating or driven on the bank, no one dared to burn or to touch them. The force of terror had utterly extinguished the sense of human fellowship, and, with the growth of cruelty, pity was thrust aside."

Tiberius also issued countermands to Sejanus' orders and policies, including his anti-Semitic policies. The new official line was to "let the Jews alone". But this was not a casual change of direction. The new mandate arrived amidst the vigorous extermination of many officials Sejanus had put in place. *Officials like Pilate.*

After October 18, 31AD, Pilate lived in a lethal political context. If Jesus' "trial" happened after this date, Pilate's strange ambivalence toward Jesus and the Jewish leadership is not strange after all — at this moment of history, his prejudices could cost him his life. Knowing this context, we can also understand why Pilate would genuinely dread the chant of those Jews who demanded Christ's execution. The *Book of John*, Chapter 19:

12 From then on, Pilate tried to set Jesus free, but the Jews kept shouting, "If you let this man go, you are no friend of Caesar. "

Daniel's Prophecy

It's becoming more clear that April 3, 33AD is our date. An ancient and startling Jewish prophecy of the Messiah adds more evidence.

Centuries before the birth of Christ, a young Jew was taken prisoner. He was abducted from his homeland and all that he had known. Perhaps he went along stumbling, bloody-footed with other prisoners. More likely, he rode a camel or cart because of his high birth. History does not say. He journeyed months from Judea, which he would never again see. But, when uprooted from everything familiar, this young man did not forget. According to the Bible, he did not lose faith in his god. His name was Daniel.

It was 605BC. The tiny state of Judah was overrun by the great army of Nebuchadnezzar, king of Babylon. Judah had taken the wrong side in a regional conflict between Egypt and Babylon, and it paid the price. To insure its submission as a vassal state, many from Judah's royal and aristocratic families were carried away in what is sometimes called the first Babylonian captivity. Daniel was among these.

The Bible records that Daniel was groomed for service in Nebuchadnezzar's court. He learned the Babylonian language, literature and customs. With time, he became a trusted advisor to the king, more accomplished than all the other royal advisors. The Bible says that his true strength was in his faith and his god, not his personal ability.

Though his success in the king's court was remarkable, and though he never returned to his homeland, still his heart must have remained in the land of his birth. The Bible records his prayers—heartcries, really. Pleas of such passion that there must have been tears on his face. Daniel pleaded with God for his people, that their captivity might end, that the temple at Jerusalem might be rebuilt.

The Bible records that during such a time of passion, Daniel had a vision. The angel Gabriel appeared to him and spoke. The *Book of Daniel*, Chapter 9:

"21 while I was still in prayer, Gabriel, the man I had seen in the earlier vision, came to me in swift flight about the time of the evening sacrifice. 22 He instructed me and said to me, "Daniel, I have now come to give you insight and understanding. 23 As soon as you began to pray, an answer was given, which I have come to tell you, for you are highly esteemed..."

25 "Know and understand this: From the issuing of the decree to restore and rebuild Jerusalem until the Anointed One, the ruler, comes, there will be seven `sevens', and sixty-two `sevens'... 26 After the sixty-two `sevens', the Anointed One will be cut off..."

The word "Christ" means "anointed one." For this and other reasons, most commentators conclude that Daniel received a prediction of Messiah's coming. More than that, Daniel was told the *date* of Messiah's death, the date he would be "cut off." That's the date we seek for our astronomical investigation. So, can the numeric symbolism of Daniel's "sevens" be deciphered? Perhaps it is not terribly complicated.

Taking a direct approach, let us assume that the "sevens" are seven years. Gabriel told Daniel that after the decree to rebuild, there would be "seven sevens" (which is 49), plus "sixty-two sevens" (which is 434). After these 483 years, the Anointed One would be cut off. If the prophecy is true, this would be the year of the crucifixion. Remember that in ancient times, our modern calendar system was not in use. In other prophetic passages a year of 360 days is used. To convert to our modern system which uses the longer solar year, we must divide by the time it takes for Earth to orbit the Sun, which is 365.24 days. This yields 476 years on our calendar.

We now have a number of years, but when do we start the countdown? Gabriel said to count "from the issuing of the decree to restore and rebuild Jerusalem." When was that? The prophet Nehemiah records such a decree, and he dates it as the twentieth year of Artaxerxes. On our calendar, that date is 444BC. Counting 476 years from 444BC, and remembering that there is no year numbered "zero" AD, we discover what Gabriel told Daniel: the Messiah would be cut off in 33AD.

This stunning prophecy, made over 500 years before Christ was born, is consistent with all of the other evidence we have seen. So, we have increasing confidence that Jesus was crucified on April 3, 33AD. But the "clincher," perhaps the most powerful evidence, is astronomical. Let's consider Peter's argument.

Peter's Argument

We now leap beyond the crucifixion to add a last piece of evidence about the day of the cross. The Bible reports that the resurrected Messiah instructed his disciples not to leave Jerusalem until they received power from the Holy Spirit. They may have been confused, wondering if Jesus was talking about something political. But stay they did.

They were still there for the Jewish celebration of Pentecost, 50 days after the Passover Feast and the crucifixion. Jerusalem was full of worshipers from all over the Near East. The Bible reports sudden startling events during this celebration: the sound of a great rushing wind, something like flames hovering about the disciples. Just as strange, the disciples began to speak, but not in their native Aramaic or Hebrew. They spoke in languages they had not learned. They were understood by countless foreign visitors to the city.

There was pandemonium. A boisterous crowd jostled closer. Travelers heard their own languages spoken by Galileans and were bewildered. Hecklers shouted: "They're all drunk!" The apostle Peter jumped up amid the confusion. We can imagine his hand outstretched to still the crowd. He then boomed out his explanation of what was happening. Listen and consider as Peter argues from the words of the prophet Joel recorded circa 835BC. From the *Book of Acts*, Chapter 2:

"14 Then Peter stood up with the Eleven, raised his voice and addressed the crowd: "Fellow Jews and all of you who live in Jerusalem, let me explain this to you; listen carefully to what I say. 15 These men are not drunk, as you suppose. It's only nine in the morning! 16 No, this is what was spoken by the prophet Joel: 17 "In the last days, God says, I will pour out my Spirit on all people. Your sons and daughters will prophesy, your young men will see visions, your old men will dream dreams. 18 Even on my servants, both men and women, I will pour out my Spirit in those days, and they will prophesy. 19 I will show wonders in the heaven above and signs on the earth below, blood and fire and billows of smoke. 20 The sun will be turned to darkness and the moon to blood before the coming of the great and glorious day of the Lord. 21 And everyone who calls on the name of the Lord will be saved."

Then Peter delivered the knockout punch. The *Book of Acts*, Chapter 2:

22 "Men of Israel, listen to this: Jesus of Nazareth was a man accredited by God to you by miracles, wonders and signs, which God did among you through him, *as you yourselves know*."

Peter asserts that Joel's prophesy has been fulfilled *and that his listeners know it*—that they have seen the signs themselves. This is the same argument the apostle Paul made, as discussed in "Setting the Stage" on this web site. This argument would have had exactly no persuasive force unless Paul's and Peter's audiences knew that signs had occurred. Both men assumed that everybody knew about the signs. That's powerful evidence that they had occurred. Of particular interest for us: Joel said there would be astronomical signs. And now Peter says, "you've seen them."

What were they?

"The sun will be turned to darkness and the moon to blood..." The gospels do recount that the sun was darkened on the day of the crucifixion from noon until 3 in the afternoon. Ancient non-Biblical sources confirm this. Phlegon Trallianus records in his history, *Olympiades*:

"In the fourth year of the 202nd Olympiad [AD 32-33], a failure of the Sun took place greater than any previously known, and night came on at the sixth hour of the day [noon], so that stars actually appeared in the sky; and a great earthquake took place in Bithynia and overthrew the greater part of Niceaea," obviously not a simple astronomical event.

But what about the bloody moon?

The Celestial Dirge

The answer to that question fixes the date of the crucifixion with precision. Beyond reasonable doubt, in fact, because a "blood moon" has a specific meaning. In ancient literature, not only the Bible, it means a lunar eclipse. Why bloody? Because when the moon is in eclipse it is in the Earth's shadow. It receives no direct light from the sun, but is lit only by the dim light refracted and red-shifted by the Earth's atmosphere. The moon in eclipse does glow a dull red, as you know if you have seen it.

This matters, because with Kepler's equations we can determine exactly when historical eclipses occurred. Perhaps it will not surprise you to learn that only one Passover lunar eclipse was visible from Jerusalem while Pilate was in office. It occurred on April 3, 33AD, the Day of the Cross.

That day followed a night of horrors predicted by the prophet Isaiah. In place of sleep for Jesus there were torch-lit hours of interrogation and mockery, spittle in the face and beatings, barbed lashes tearing flesh from his back and thorns pressed into his scalp. Isaiah wrote that the messiah would be beaten until "marred beyond human likeness". And so, Jesus was brutalized during multiple "trials" and retrials before priests Annas and Caiaphas, King Herod and Roman prefect Pontius Pilate. In the end, his fate was decided by a mob. He was marched to Golgotha, the "place of the skull," and crucified. He would die within six hours.

The gospels tell the chronology. Hammers thudded spikes through Jesus and into the cross at 9AM. He was raised up. At noon and for three hours the sky was darkened. In the Temple at Jerusalem, only priests were permitted to enter the presence of God—a thick curtain excluded common men. During the crucifixion, this veil was torn apart, top to bottom, as a shattering earthquake split rocks and broke open tombs. In the darkness and tumult of these signs, even the Roman guards regreted their part in the killing. Jesus died at 3PM. He was removed from the cross before nightfall to preserve the sanctity of the impending Passover. But the signs and wonders did not end. When the moon rose that evening, it was blood red. We can imagine the wonder of those who were present through all of this, and their increasing dread as the signs kept coming.

But there is more which they could *not* see. Kepler's equations indicate that the moon rose already in eclipse, already bloody, fulfilling Joel's vision. Necessarily, this means that the eclipse commenced *before* moonrise. With software we can look below the horizon and see Earth's shadow begin the eclipse. When we do, we find that at 3PM, as Jesus was breathing his last on the cross, the moon was going to blood.

The sky at Christ's birth can be viewed as a kind of visual poetry, with the new moon symbolically "birthed" at the foot of Virgo, the virgin. To complete that celestial poem, on the night of Jesus' death the moon had returned to the foot of the virgin. But now it was a full moon. A life fully lived, blotted out in blood.

KING DAVID SAID "THE STARS SPEAK." The starry events you have seen match the 9-point account in The *Book of Matthew*. A reasonable person could conclude that we have found the Biblical Star. If we have, then you have heard the stars speak. You have heard the celestial fanfare for the birth of a King. The Messiah. You have heard the hushed celestial dirge played out in the sky at his crucifixion. But, what do these things mean?

The Fuller Message

The Bible says the stars can carry messages from God on high. If that is true, then behind any other message, the fundamental meaning of these events is that God is there. The stars were part of his communication to those living in the Magi's day. Through our understanding of what happened in the sky, he continues to speak to us today.

When God called Moses into closer relationship with himself, he used a startling event in the natural world. A bush burned, but it was not consumed by the flames. The burning bush was God's invitation to Moses, an invitation to draw near and to hear a fuller message. When the Magi saw signs in the heavens, they responded as did Moses. They drew near to learn more. The Star of Bethlehem is an invitation for people who see it today, including you. A natural response when you see a sign is to draw near. To want to know more. To seek the fuller message.

Most people believe there is a God. Christians, Jews, and those of countless other religious traditions believe that we were created for relationship with our Creator. That is probably why the idea of having a relationship with God sounds attractive to most of us. We're simply built that way. As French philosopher Blaise Pascal (1623-1662) wrote:

There is a God-shaped vacuum in the heart of every man which cannot be filled by any created thing, but only by God the Creator made known through Jesus Christ.

This religious impulse is durable. History shows that even relentless brutal repression of religious expression cannot drive out human interest in The Existing One. Still, according to the Bible there is a disconnection between God and man. We are interested in God, yes, but we are much *more* interested in ourselves—this is the heart of what the Bible calls "sin." The Jewish prophet Isaiah describes our sinful self-centeredness this way in the *Book of Isaiah*, Chapter 53:

6 We all, like sheep, have gone astray, each of us has turned to his own way...

The Bible says that spiritual death, separation from God, is the payment we receive for sin. The Apostle Paul says in the *Book of Romans*, Chapter 6:

23 For the wages of sin is death...

But if God did create us for relationship with himself, surely he would also provide a way to come into this relationship, to overcome the problem of sin and the spiritual death it brings. The fuller message of the Star of Bethlehem is that he has provided that way. He has provided the Messiah, the Christ. Both Old and New Testaments of the Bible say that this Messiah will willingly accept the punishment for sin in our place. This is God's provision to heal our separation from him.

Both of the two verses above state our human spiritual problem—the bad news. But the quotations are incomplete. The verses continue and state the solution to the problem—the good news. They go on to say that the Messiah will bear the punishment for our sin, that we can have relationship with God because of what the Messiah did. Here are the complete verses, with both the bad news and the good. They say God has made a way:

Isaiah 53.6: We all, like sheep, have gone astray, each of us has turned to his own way; and the LORD has laid on him [the Messiah] the iniquity of us all.

Romans 6.23: For the wages of sin is death, but the gift of God is eternal life in Christ Jesus our Lord.

So the fuller message of the Star is good news. That Christ, the Messiah has come. The Messiah has paid the penalty for our sins. It is possible to have the relationship with God that so many desire. There have probably been times when you have thought about God and the possibility of knowing him. That is true of most of us.

A man found the girl of his dreams. She was intelligent, beautiful, and she loved him. He was convinced that she was the perfect mate. He wanted to marry her. But he never asked her. So, they were never married. Wanting to be married doesn't make it so. You have to decide and then act.

Our situation with God is something like that. We feel the God-shaped vacuum. We desire relationship with him. We hear that Christ's sacrifice makes that relationship possible by paying the price for our wrongdoing.

But the relationship will never happen unless we decide and then act.

Jesus said in the *Book of Revelation*, Chapter 3:

20 Here I am! I stand at the door and knock. If anyone hears my voice and opens the door, I will come in and eat with him, and he with me.

Through Jesus the Christ, God is inviting you into relationship. But you must decide and act. If you accept the invitation, Jesus promises to come and be with you. If you feel God calling you into relationship, you need to decide and to act. You can do this by praying to God right now. Prayer is just talking to God. The exact words you use are not important. God looks at the heart. You can begin your new relationship with God by praying a prayer like this one:

God, I want to come into relationship with you. I know that I am not perfect, that I'm a sinner in your eyes. Thank you that you sent Jesus to die in my place, to take the punishment for my sinfulness. Come into my life, Lord. Begin making me the person you designed me to be. Amen.

If you have just prayed this prayer, please us right now, so that we can send you information which will help you in your new relationship with God.

A Clockwork Star

But the Star means yet more. Jesus said in the *Book of Matthew*, Chapter 10:

30 And even the very hairs of your head are all numbered.

Many have marveled at Jesus' statement—that God's "mind" is so great that it allows his complete familiarity with the creation in all of its detail. We can barely begin to contemplate it. But confronting the Star, we see the same message.

For if the Star wasn't magic or a special miracle from outside of the natural order, then it was something even more startling. It was a Clockwork Star. And that is overwhelming. The movement of the heavenly bodies is regular, like a great clock. The Clockwork Star finally means that from the very instant at which God flung the universe into existence, he also knew the moment he would enter human history in the person of Jesus of Nazareth. He marked it in the stars. And from before the beginning of time as we experience it, God knew the very moment when Messiah would breath his last on the cross.

Jesus is "the Lamb that was slain from the creation of the world." *Revelation 13:8*

Accept the invitation. Decide, and act.

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