



2020

In Search of the Star of Bethlehem 2020

Slide 7 Title: In Search for the Star of Bethlehem

I have a long history with this subject, starting in 1968.

I was a part time “guest lecturer” in my late 20s at the Chaffee Planetarium in Grand Rapids.



The Christmas program was a pre-taped audio program the we had to sync the planetarium projectors and movements to.

And we had lots of special evening showings for mainly church groups.

I hated it!

After moving up here I started producing radio programs at Interlochen Public Radio in 1974.

Back then the program was weekly and 5 minutes in length.

So for the Christmas season of that first year I requested data that they based the Star of Bethlehem program from my friends at Chaffee.

I began presenting this program shortly after the Grand Traverse Astronomical Society was founded, first annually then alternating every other year with either Biblical Cosmology or Ancient Cosmologies

All these programs have changed, or evolved over the years.

Slide 8 A scientific quest

This is a scientific rather than a religious quest.

The Star of Bethlehem is one of the most well known but enigmatic symbols of Christmas, but has scant mention in only one of the Gospels.



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We may find that what's described in the Bible may be incorrect, or not described with clarity

But unlike the Christmas tree, Holly and Mistletoe the Star has a true Biblical origin.

Now, I don't claim to have solved the puzzle,

But as the title of this program says, we are on a search.

And frankly we may never know what the star was or even if it ever existed.

So let's treat this puzzle as a detective mystery, follow the clues and see where they lead.

Slide 10 Reporter's questions

We will also answer the reporter's questions: who, what, when, where and why.

Who were the Magi?

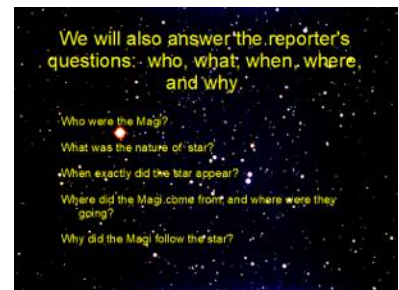
What was the nature of the star?

When exactly did the star appear?

Where did the Magi come from, and where were they going?

And why did the Magi follow the star?

So let's get to it.



Slide 11 Gospel of Matthew

The only Biblical source about the star is the Gospel of St. Matthew.



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According to most biblical scholars the Gospel of Matthew is actually an anonymous work

written by a Greek speaking Jewish disciple for a Jewish audience.

Knowing this the Gospel writer makes the point at every turn to show that Jesus fulfills Old Testament prophecies of the Messiah.

It seems to have been written sometime between AD 60 and 90.

It was written after the Gospel of Mark,

probably sharing a common source Biblical scholars call Q, with Mark and Luke.

Q is thought to be the now lost oral or written tradition of the sayings of Jesus.

Since these Gospels were not written by eye witnesses,

and since the nativity accounts of the two vary so markedly

it is thought that the two nativity accounts came from different sources.

Jewish tradition has it that a star appeared to mark Moses' birth.

Thus Matthew relates the appearance of a star to mark Jesus' birth.

Jesus is the new Moses according to Matthew.

Matthew's account of the star could, then either be a fabrication,

or more charitably,

a myth as one of my correspondents,

Dr. Ken Swanson of Harvard stated.

For this presentation I have some problems with this belief.

Many Christians, however believe all events of the Bible are actual events.

And more importantly for this presentation:

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If the events of Matthew and Luke were not reasonably accurate,
we can start the star party right now.

However since (it's cloudy and) we don't know for sure, we're going proceed.

Slide 15 Astrology

One thing we will run into is astrology.

(You see here the signs of the zodiac)

Astrological interpretations of celestial events will be
involved.



Back then astrology and astronomy were related,
however that is no longer true.

Today astronomers place no faith in astrological prediction whatsoever.

What we will see in the course of this search is not proof of astrology's worth,
but astrological interpretations as a motivation for the Magi to seek "The
King of the Jews".

The Magi did not believe in the Jewish God,
so their interpretation of celestial events and motivation might appear
sacrilegious to us.

Remember that the Bible is filled with many examples of persons doing the
right thing for the wrong reason to unknowingly fulfill God's plan.

Slide 17 Astronomical knowledge

What was the state of astronomical knowledge back in
the time of Christ?

Here are Babylonian astronomers observing a comet.



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The Babylonians had discovered the Saros, the period in which eclipses of the sun and moon repeat.

The Greeks knew the Earth was round and even measured its circumference.

The Bible has pretty much stuck with a flat Earth cosmology, and the use of the “lights in the dome of the sky” only for timekeeping.

Slide 18 Earth at the center

This is a simplified version of the Geocentric Universe

To the Greeks and Babylonians the Earth, however, was held to be in the center of the universe.



The Sun, Moon and planets orbited the Earth in uniform circular motion.

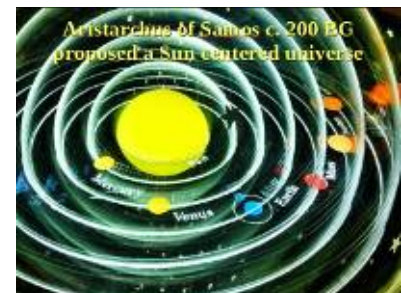
Above it all was the **firm**-ament, solid, on which the fixed stars were attached.

These heavenly precincts were thought to be perfect and changeless.

The Bible shows none of this understanding.

Slide 19 The heliocentric system of Aristarchus

A sun centered system was proposed by the Greek philosopher Aristarchus in the 3rd century BC, but his writings were lost.



He apparently had few followers.

Only hints of his system exist, referenced in the writing of others.

Slide 20 Geocentric Universe prevailed

The sun centered solar system was not rediscovered for nearly 2,000 years.

Until Copernicus.



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Slide 21 Chinese Astronomers

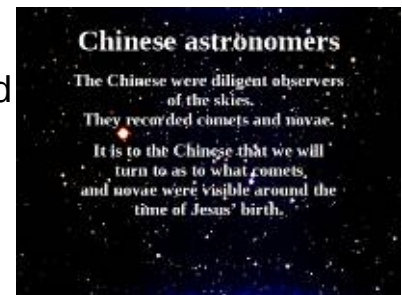
Chinese astronomical records go back over a thousand years before Christ's birth and recorded many celestial events.

If anything unusual had happened in the sky, they would have recorded it.

They didn't believe the Greek nonsense that the heavens were perfect and changeless or moved in perfect circular motion.

For our purposes the Chinese recorded the appearance of comets and novae.

So we will check Star of Bethlehem suspects against what the Chinese saw.



Slide 22 Comets drawn on silk

These are Chinese comet observations of what they called broom stars, recorded on silk, from the third century BC.



The western 'Greek' world didn't believe the heavens actually were capable of change, so didn't consider comets or novae being a heavenly bodies.

One tends to see, or not see what one wants or believes.

This still occurs today:

Kind of like flat earthers who deny the obvious fact that the Earth is round.

or

a climate change denialist when dismissing decades of scientific evidence,

or

anti-vaxers who dismiss the real benefits of vaccines.

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I can go on.

Slide 24 Let's begin our search with the Gospel of Matthew

Let's begin our search with the two nativity narratives found in the Gospels in Matthew and Luke.

We first turn to the second chapter of the Gospel of Matthew which contain the only references to the star.



Slide 25 Matthew 2:1-2 (NAB)

Here are the first two verses of chapter 2.

After Jesus' birth in Bethlehem of Judea during the reign of King Herod, astrologers from the east arrived one day in Jerusalem inquiring

"Where is the newborn King of the Jews?"

We observed his star

at its rising and have come to pay him homage."



I've highlighted that astrologers came from the east to Jerusalem and that they saw the star at its rising.

The Jewish scriptures warned against astrology and other forms of divination, so Herod, who was half Jewish may not have had his own astrologers, Not that astrologers agree on much of anything.

Later on we will see that Herod had some knowledge of astrology.

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Slide 26 Who were these visitors?

This translation calls the visitors astrologers.

Various translations call them Astrologers, Wise Men, or Magi.

The term Magi is closest to the original Greek, and is the most revealing of all because Magi, plural of Magus, were the astrologer-priests of the Zoroastrian religion of Persia to the east of Judea.

It is from the word magus that we get our word magician.

Note that their number is not given.

It is from tradition, not the Bible, that we get the number three, possibly because three gifts were given.

The Persian religion of Zoroastrianism, of which the Magi were priests, was founded by Zoroaster or Zarathustra.

Here's a big clue: The Zoroastrians were expecting not one but three Messiahs, each to rule a millennium. (FW)

Zoroaster, himself, was the first of these messiahs!



Slide 29 We Three Kings”

The visitors were not kings.

The impression that they were is probably taken by applying Psalm 72 verses 10 & 11



***“The kings of Tarshish and the Isles shall offer gifts;
the kings of Arabia and Sheba shall bring tribute.***

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*All kings shall pay him homage,
all nations shall serve him."*

Tarshish, it turns out, was a Phoenician settlement on the southern Atlantic coast of modern-day Spain far to the west and 'Arabia and Sheba' refers to the far south, not to the east.

The psalm is 'for Solomon and his descendants'.

And Jesus was a descendant of Solomon according to the New Testament.

Slide 30 "The Star at its rising?"

The Magi spotted the star, in the translation presented here "At its rising", or "in the east" according to the King James and New International versions.



A star would rise from the east, though an alternate, but not widely held interpretation of the second translation here would be that the Magi saw the star while they were in the east.

Actually in the original Greek there is no ambiguity: The Greek phrase is "en te anatole", which translates to "as it rose" or "at its rising"

In those days some risings were more important than others.

Slide 31 Helical Rising

Here is a heliacal rising which is the first appearance of a star or planet in the morning sky, after it had disappeared from the evening sky.



It is an event that is astrologically linked to a birth date. (SB, p 6)

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Slide 32 Achronychal Rising

The other special rising is an acronychal (A-cron'-i-cal) rising which occurs when the planet rises as the Sun sets.



We call it, today, being in opposition of the Sun; that is opposite the Sun in the sky.

It only occurs with superior planets, those who orbit the Sun outside the Earth's orbit.

In those days that would be Mars, Jupiter, and Saturn.

It's also the time these planets are closest to the Earth and at their brightest.

Astrologically, this was the position of a planet to have the maximum influence on events on the Earth.

Venus and Mercury are inferior planets,

orbiting the Sun inside the Earth's orbit, and always rise or set within a few hours of the Sun.

Lets read further in the Gospel of Matthew.

Slide 33 Continuing with Matthew 2:3-6

At the news King Herod became greatly disturbed, and with him all Jerusalem.

Summoning all of the chief priests and scribes of the people,

he inquired of them where the Messiah was to be born.

"In Bethlehem of Judea",
they informed him.



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“Here is what the prophet has written:

***And you, Bethlehem, land of Judah,
are by no means least among the princes of Judah,
since from you shall a ruler who is to shepherd my people Israel”.***

Analyzing this we find that the Magi didn't know where Jesus was born:

The Magi only knew that the king was supposed to be Jewish or was a Judean, so their logical stop was Jerusalem.

It is the references from the scribes that send them to Bethlehem.

The scripture quoted by the Scribes is actually a paraphrase of two verses:

Micah 5:2, and 2nd Samuel 5:2

Micah 5:1 (5:2)

***But you, Bethlehem-Ephrathah,
too small to be among the clans of Judah,
from you shall come forth for me one who is to be ruler in Israel;
whose origin is from old, from ancient times.***

The bit about shepherding the people of Israel comes from 2nd Samuel 5:2

Heads up: Remember the reference to Judah; It could be important later on.

Slide 35 Continuing with Matthew 2:7-8

Continuing with Matthew:

***Herod called the astrologers aside and found out
the exact time of the star's appearance.***



Then he sent them to Bethlehem after having instructed:

“Go and get detailed information about the child.

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***When you have found him,
report it to me so that I may go and offer him homage too.”***

The reference to the exact time of the star's appearance must be to the heliacal rising,

and was important to Herod since he thought it was connected with the time of the new king's birth.

There is a Jewish tradition that a star would appear 2 years before the Messiah's birth.

There is also a Rabbinical tradition, that states that a conjunction of planets in the constellation Pisces the fish occurred 3 years before Moses' birth.

There was a triple conjunction of Jupiter and Saturn in Pisces that occurred in 7 BC that has been the most popular suspect for the Star of Bethlehem.

We'll check it out, but I think we have a better suspect.

There seems to be many so called coincidences between Jesus and Moses brought out by Matthew.

Slide 36 Continuing with Matthew 2:9-11a

After their audience with the king, they set out.

***The star, which they had observed at its rising
went ahead of them until it came to a standstill
over the place where the child was.***

***They were overjoyed at seeing the star,
and on entering the house,
found the child with Mary his mother.***

The star seems to have appeared for a second time.



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Did it appear, and then disappear?

Or was it visible over a period of time -

Heliacal rising, through acronychal rising as the Magi left Jerusalem?

This could be important later on.

The statement that the star went ahead of the Magi and then stood still is a big problem.

No truly celestial object can move in the way it is described.

One astronomer, Dr Craig Chester suggests the standstill event is when a planet is stationary with reference to the stars, that is the date when it changes from the normal prograde or eastward motion to retrograde or westward motion or vice-versa.

I think Matthew said what he meant. Remember he or whoever wrote this was not a witness.

Note that Astrologers entered a house, not a stable.

Could their visit be sometime later;

days or weeks after Jesus' birth,

or is there a disconnect between the Gospels of Matthew and Luke?

Slide 39 Herod's rage and calculations... Matthew 2:16

Once Herod realized that he had been deceived by the astrologers, he became furious.



He ordered the massacre of all the boys two years old and under in Bethlehem and its environs,

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making his calculations on the basis of the date he had learned from the astrologers.

Not only was Herod informed by the Magi that there was a pretender to his throne being born under his nose,
but they stiffed him by skipping Jerusalem on their return journey.

The reference to the age of the boys and the date given by the Magi means that the first appearance of the star was a heliacal rising,
and was two years or less before the visit of the Magi. (Also see D.1.a)

As we can see, Matthew wasn't concerned with dating his events.

But to link the star with a natural celestial event,
we need to know when Jesus was born.

Let's now leave the Gospel of Matthew
and look at clues to the year of Jesus' birth.

Slide 40 When was Jesus born?

While Matthew relates the Nativity to the Jewish world,
and Old Testament prophesy,

Luke relates it to the Roman world,
but unfortunately not to the Roman calendar.

From Matthew we know only the Herod was king,
Herod the Great that is.

From Luke we have a specific event during the reign of Emperor Augustus
Caesar.

Thanks to research over the years,
we know the Jesus was born sometime in the period shown.



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The notation BC and AD is familiar to us.

BC means Before Christ,

while AD means Anno Domini – In the year of our Lord,
which it is properly put before the number.

This numbering has been adopted around the world including cultures that are not Christian,

so now, mostly the designations are BCE and CE
(Before the Common Era, and Common Era).

These two eras are not contiguous since there is no year zero,

so for astronomical calculations AD 1 is simply 1,
and 1 BC is zero,
2 BC is -1 and so on.

No suffixes required.

So, who determined the year numbering we use today?

The credit or blame belongs to a Roman abbot Dionysius Exiguus,
or Dennis the Short, for short.

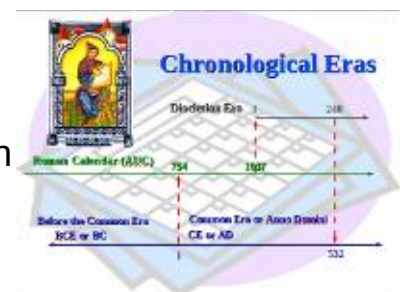
Slide 41 Synchronizing the calendars (Chronological Eras)

On the top line we have the western calendar of the 6th
century.

It was based on the Diocletian era,

dated from the ascendancy of the Roman emperor Diocletian who came to
power in 1037 of the Roman calendar,

on the second line, which dated from the legendary founding of Rome by
Romulus and Remus.



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It was the Roman calendar of Jesus' time,
and abbreviated AUC, is represented on the center line.

The initials AUC is an abbreviation for "From the founding of the city".

Our current calendar, is on the bottom line.

Old Dennis, who reckoned years by of the Diocletian era
determined that year 248 was 532 years after the birth of Christ.

This put year 1 of the new calendar equal to year 754 AUC.

This new calendar numbering was adopted throughout Europe in the next few
centuries, and now around the world.

There is some evidence that the calendar could be in error by several years.

AD 1 has been suspected to be up to 7 years after Christ was born,
due possibly to the fact that Caesar Augustus reigned for several years
under his given name Octavius,

And the generally accepted date of Herod's death was in 4 BC.

Slide 45 We next turn to the Gospel of Luke

We next turn to the Gospel of Luke.

Can it help us date the birth of Jesus?

The writer of Luke was probably a Gentile Christian,
and the audience for his Gospel were Gentiles,
and Romans, specifically.

Luke, himself may have been referenced in the closing verses of St. Paul's
letter to the Colossians.

In Chapter 2 he links Jesus's birth in time to the Roman world they knew.



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Slide 46 Luke 2: 1-5

In those days Caesar Augustus published a decree ordering a census of the whole world.



This first census took place while Quirinius was governor of Syria.

***Everyone went to register,
each to his own town,***

***And so Joseph went from the town of Nazareth in Galilee,
to David's town of Bethlehem -
to register with Mary his espoused wife who was with child.***

So here we have two links to Roman events.

By the way, Quirinius is Cyrenius in some translations of the Bible.

We have the first census decree by Augustus,
and the man's name who was governor of Syria at the time.

How does this compare to Luke?

Slide 47 Census timing of the year from from Luke

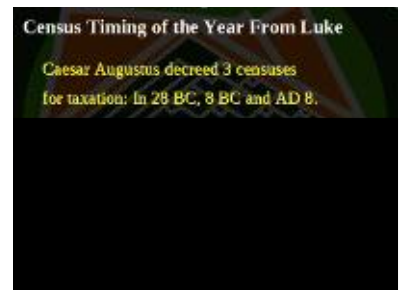
Not so much.

We find that Caesar Augustus actually decreed three censuses for taxation.

The first census of 28 BC is way too early.

Sorry Luke, it wasn't the first census.

The census of 8 BC works if, as has been suggested, old Dennis the Short was 7 years off in his calendar calculations.



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The census of AD 8 is way too late.

Slide 47 part 2 Click!

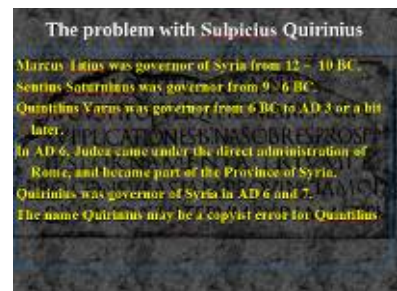
Augustus also decreed a census and oath of allegiance celebrating his 25th anniversary and the bestowal of the title “Pater Patrae”, that is: “Father of the Country”.

That was in 2 BC.



Slide 48 The problem with Sulpicius Quirinus

I believe we have a problem with the mention of Sulpicius Quirinius being governor of Syria at that time.



Marcus Titius was governor from 12 – 10 BC.

Sentius Saturninus was governor from 9 - 6 BC.

Quintilius Varus was governor from 6 BC to AD 3 or a bit later.

In AD 6, Judea came under the direct administration of Rome, and became part of the Province of Syria.

This would be the only time that the governor of Syria would matter to Judeans

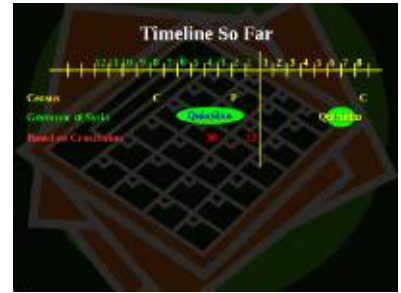
Quirinius was governor, finally, of Syria in AD 6 and 7, which, I believe, is a bit late.

I found one source that the name Quirinius may be a copyist error for Quintilius for the period in question.

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Slide 49 Timeline so far

Here is a time line where we will place events with known dates to help us find out Christ's birth date and the star itself.



The Census years are on the top line, omitting the earliest census of 28 B.C. as too early.

The Governorships of Quintilis and Quirinius of Syria are noted on the second line.

The next line contains the year of Christ's birth based on the Crucifixion narrative of John which suggests that the Last Supper was a Seder on the first night of Passover, and that Christ died on the day of preparation before the Sabbath.

A match occurred in the years AD 30 and 33.

These plots are based on the traditionally accepted age of 33 for Christ at his death.

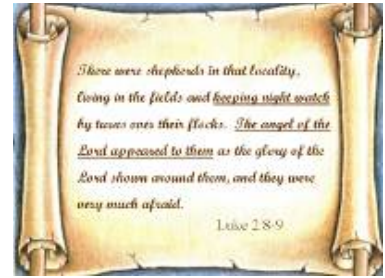
The data on the Crucifixion years I got were from David Hugh's excellent book The Star of Bethlehem.

Let's continue with the Gospel of Luke.

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Slide 51 Luke 2:8-9

***There were shepherds in that locality,
living in the fields and keeping night watch by
turns over their flocks.***



***The angel of the Lord appeared to them as the glory of the Lord shown
around them,
and they were very much afraid.***

We have two clues here:

The shepherds were tending their sheep at night

And Luke describes an angel, not a star in the heavens.

Slide 52 What's wrong with this picture

It's stated that the shepherds were out at night.

This is especially true during the lambing season in the spring when the flocks were most vulnerable.

Since November and December is the rainy season, the sheep were probably in pens that time of year.

This tells us that Christ was probably born in the spring.



Slide 53 So, why do we celebrate Christmas on December 25?

So if a reading of Luke about the shepherds hints that Jesus was born in the spring, why do we celebrate his birth on December 25th?



Early on, the various churches tended to celebrate Christ's birth at different times of the year.

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So it took several centuries for church fathers to consolidate on one specific date.

This was apparently helped by the Roman persecution.

Slide 54 Saturnalia

The Romans celebrated a feast called Saturnalia

It was celebrated between during the dark days of

December as the Sun was moving as far south as it will go and the days were the shortest, December 17th and 23rd..



<click to display each line below>

It honored the god Saturn, the god that ruled over the mythical Golden Age, and the return of the Sun, ending just after the winter solstice.

A spirit of good will prevailed

Gifts were exchanged

Masters and slaves exchanged places for a day

Garlands of holly and mistletoe were displayed,

and as you can see not much has changed except the deity honored.

Slide 55 Josephus

Let's go outside the Bible to the Jewish Historian Titus Flavius Josephus who lived in the 1st century and was a contemporary of the Gospel writers.

Unlike history writers of today, he doesn't give any dates.

He has scant mention of Jesus.



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However, he does mention Jesus' death and reported resurrection, but doesn't date it. (Antiquities: 18.3.3, though the passage is controversial)

Matthew's account assumes that Herod the Great was alive at Christ's birth, and Josephus does give an astronomical hint as to when Herod died.

Slide 56 Herod the Great

According to the Gospel of Matthew that we saw first, Herod the Great was alive at Christ's birth.

So when, exactly did he die?



Slide 57 Herod's death

Josephus records that Herod died between a lunar eclipse and the following Passover.

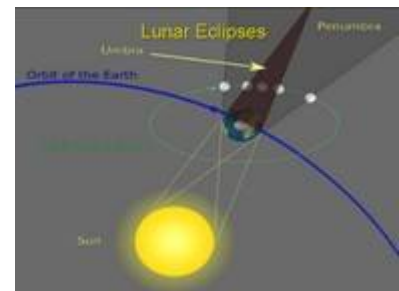
There are two lunar eclipses around the time in question.



Slide 58 Lunar Eclipses

Here's a quick primer on how lunar eclipses work:

In about one in six full moons the Moon dips into the Earth's shadow causing an eclipse of the Moon.



The trick is, that you have to be on the night side of the Earth to see it.

Then there is also a penumbral eclipse,

where the Moon just misses the umbra, the Earth's inner shadow.

The effect is so slight that hardly anyone would notice it unless they knew it would happen..

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We had a penumbral lunar eclipse earlier this week on Monday morning.

The effect was practically invisible.

And Passover also starts at a full moon.

Slide 59 Partial Lunar Eclipse, March 13th, 4 BC

This eclipse of March 13th, 4 BC has been touted by historians as being the eclipse just prior to Herod's death.

This is the maximum of the eclipse which occurred in the early morning of March 13th, 4 BC.

It was, as you can see, a slight Partial Lunar Eclipse.

This eclipse occurred 1 month before Passover.

Isaac Asimov the great science fiction and science writer exclaimed in one of his essays that due to this eclipse, Herod's death was the most accurate date known in antiquity.

I am going to have to disagree with Dr. Asimov on that.

There is a better eclipse 3 years later.

Slide 60 Total Lunar Eclipse January 10th, 1 BC

This is the middle of the total lunar eclipse of January 10th, 1 BC which started around midnight.

This eclipse occurred 3 months before Passover.

It turns out that we may need that 3 months based on a reading of Josephus that we will review later.

Let's bring up our timeline.

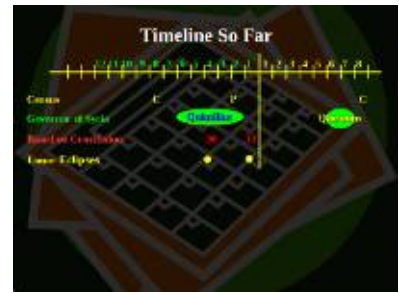


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Slide 61 Timeline so far

To it we've added the two lunar eclipses of 4 and 1 BC.

These would be latest dates Jesus could have been born based on King Herod's death.



Slide 62 What was the star?

So what was the Star?

Back then just about anything in the sky was a star.

What we call stars today were the fixed stars.

Planets were wandering stars.

Our word planet is from the Greek word for wanderer.

Novae and Supernovae were new stars

or for the Chinese, guest stars.

Comets were hairy stars,

or for the Chinese, broom stars.

But none of these can physically lead anyone anywhere.



Slide 63 Johannes Kepler

The search for the Star really started with Johannes Kepler.

He was an astronomer.

He cast horoscopes for the odd prince or duke,
which is how he made a living.

His mother was even charged for being a witch, but nothing came of it.

And after much trial an error discovered his Three Laws of Planetary Motion.



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His story is a fascinating one

Slide 64 Kepler's Nova

Kepler also discovered a supernova, the last one seen in the Milky Way

This is an old star chart that records Kepler's Star, a supernova, or super bright new star Kepler discovered on October 9, 1604.



Slide 65 Stellarium's sky with Kepler's Nova

Here is a Stellarium recreation of the sky the night of his discovery

It's the southwestern sky near the end of evening twilight October 9, 1604, the night Kepler discovered the supernova that bears his name.



It got him to thinking, could a similar grouping of a nova and planets be the Star of Bethlehem.

What other kinds of stars could it have been?

Slide 66 A meteor

Meteors were falling stars.

While they can point to a direction, especially when seen close to the horizon, their appearance seems too brief to be the "Star".



A super bright daylight meteor like what exploded over Chelyabinsk, Russia in 2013 would have been an act of vengeance by God, and not a falling star.

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Slide 67 A comet

What about a comet?

This past July we had the appearance of a naked-eye comet called NEOWISE.

It sure looks like it's pointing off into the northwest.

The problem is a week or so earlier it was visible in the morning sky, pointing in a different direction.

It's pointing at the Sun, actually.

Comets are only visible for a few weeks or months before disappearing.



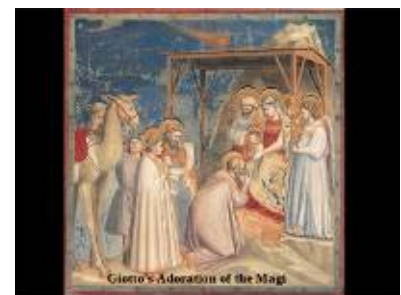
Slide 68 Giotto's Adoration of the Magi

Giotto in his painting of the Adoration of the Magi, placed Hawley's Comet at the top of the painting.

A comet he had actually witnessed.

Hawley's comet itself wasn't the star. It was observed in 12 BC by the Chinese.

Which was too early for our purposes.



Slide 69 Comets = Disasters

There's another problem with a comet being the Star of Bethlehem:

comets were universally regarded as Bad News.

They supposedly portending disasters, famine, pestilence, and the death of kings.

Of course when one king dies, there will be another to take his place.



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It's considered bad form to visit the old king,
bearing gifts for the new king.

It happens that the word disaster means ill-starred.

Slide 70 Novae & Supernovae

Then there are what were called new stars that would
appear at random around the sky.

The Latin name was Stella Nova, or nova for short.

These stellar cataclysms cause a star to flare up briefly,
then fade,
and may lead,
in the case of a supernova,
to the complete destruction of the star

How could a nova convey the message the Magi were reading into the star?

Western observers,
contaminated by the Greek philosophers,
thought that novae were perhaps not part of the stellar sphere which was
thought to be changeless,
so were probably ignored.

The Chinese had no such reservations.

What did the astronomers of the far east see in the sky around the time of the
Nativity?



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Slide 71 Chinese and Korean Novae or Comets #1

Chinese and Korean astronomers discovered 2 Novae or Comets during the interval between March 10th and April 7th of 5 BC.



Chinese astronomers also reported that a comet appeared close Alpha and Beta Capricornii and was visible for more than 70 days"

Then, Korean astronomers recorded a bushy star that appeared close to Altair on March 31st of 4 BC.

But what message could such a nova convey?

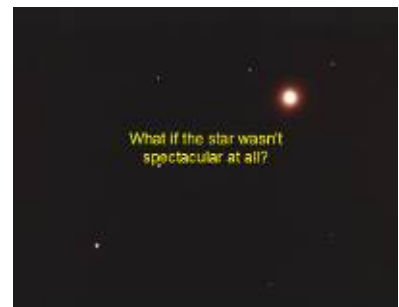
Kepler saw a nova near the planets Jupiter and Saturn, which could lend meaning to the nova.

However, there were no planets near the constellation of Capricornus in the period in question for the first nova and Altair is off the beaten planet track for the second.

Slide 73 What if the Star wasn't spectacular at all?

What if the Star was hidden in plain sight?

The Jews really had no knowledge of astrology before the exile.



Even then it was called the "Wisdom of the Orient".

Maybe the Star was some meeting or configuration of planets.

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Slide 74 Real sky back in 1977

Computers are no help with regressing back in time to find random events like Novae and non-periodic comets.

But they are great with going back to view the sun, moon and planets.

Here's a photograph of the moon and planets I took back on the morning of August 9th, 1977.

The big blob is the overexposed Moon.

The star just to the upper left of it is Mars.

Jupiter is the star near the center of the picture, and Venus is at the lower left.



Slide 75 Computer sky 1977 recreated

Here's what the computer shows, a very good match, though the scale is different.



Slide 76 Conjunction of June 15, 1991

Planetary conjunctions and groupings were a big deal to astrologers.

Here's a very nice grouping of Mars, Jupiter, Venus and the Moon I photographed on the evening of June 15th, 1991.



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Slide 77 Let's go back in time to 7 BC

Let's go back a little over 2,000 years to 7 B.C. and see what astrologers might have seen.

This is the year Kepler said there was an interesting conjunction of Jupiter, Saturn and Mars that could have been the "Star".

He calculated that this grouping would occur every 805 years.

Two times 805 equals 1610.

Subtract 1610 from 1604, the year he saw the grouping and the nova, gives minus 6 or 7 BC!

So let's see what happened.



Slide 78 The Jupiter-Saturn Triple conjunctions

In 7 and 6 BC the planets Jupiter and Saturn passed each other three times against the constellation of Pisces, which was thought to be the constellation of the Jews.



Jupiter was the King of the Gods

Saturn was the Star of the Amorites,
who lived in Palestine along with the Jews.

By the way, Saturn is the only planet mentioned in the Bible.

* The first Conjunction May 29th

* Both planets stopped their eastward motion around July 6th

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- * Heading westward Jupiter overtook Saturn a second time, the second conjunction around October 11th
- * Both planets stopped their westward motion, and resumed their eastward motion on November 1st
- * The third and final conjunction occurred around December 8th.
- * Finally around February 26th of 6 BC Mars joins the group.

Jesus could have been born in the spring of 6 BC.

Slide 79 Matthew implies that King Herod died...

After the visit of the of the Magi as described in Matthew, Mary and Joseph took the child to live in Egypt for an undisclosed period of time until Herod died and was no longer a threat.



By tradition this was for two years.

The period between the lunar eclipse in 4 BC and Passover that year was one lunar month, 29 days, Passover starting at the next full moon.

Can we fit Josephus' chronology into those 29 days?

You be the Judge.

Slide 80 Events around Herod's death #1

<Click Mouse for each point.>

Josephus mentions an eclipse of the moon. (AJ 17)

Herod, being very very ill, went from Jericho,

beyond the river Jordan to the warm baths at Callirrhoe by the Dead Sea, which was 26 or more miles away.



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He knew he was near death as the treatments failed, so he returned to Jericho.

Before he did he had his soldiers paid a bonus.

He ordered all the principal men of the Jews to meet with him under penalty of death. Those who did come, were imprisoned at the Hippodrome to be killed upon his death.

There's more...

Slide 81 Events around Herod's death #2

<Click Mouse for each point.>

Herod then attempted suicide.

Herod's son Antipater, on hearing a false report of his father's death, attempted to take the throne, and Herod had him executed.

Five days later Herod died.

Herod had bequeathed the kingdom to another son Archlaus, who then organized the funeral for Herod.

The funeral procession could have taken up to 25 days.

Then there were 7 days of mourning after that.

That ain't all...



Slide 82 Events around Herod's death #3

<Click Mouse for each point.>

Archlaus sent his generals to Caesar on his behalf to have him declared King.



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The people were beginning to demand lighter taxes and release those whom Herod had imprisoned.

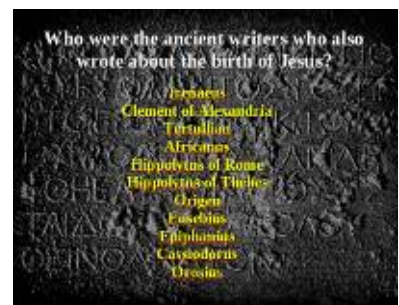
At that point Josephus mentioned that Passover was approaching.

This would fit better with the January 10, 1 BC eclipse, with 90 days for all this to happen.

Now let's look at writers who lived in the first few centuries of the Christian era and what they wrote about the year of Jesus' birth.

Slide 83 Who were the ancient writers...

Here are some of the ancient writers, of the second and third century AD that placed Christ's birth with other important contemporary dates.



In many cases their documents are fragmentary, or are mentioned by later writers.

Let's take a look at three of them.

Slide 84 They bracket the birth of Jesus

Irenaeus and Tertullian state the Jesus was born 41 years after Augustus, then named Octavian, was elevated as Consul in 43 BC. Giving 2 BC as Christ's birth year.



Tertullian also related Christ's birth to Cleopatra's and Augustus' deaths. 28 years after the first and 15 years before the other. Again the answer was 2 BC.

Clement of Alexandria places Christ's birth 194 years before the death of the Roman Emperor Commodus in 192 AD, of course using the Roman Calendar. Giving the Nativity year as 3 BC.

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These guys lived 3 or more centuries before Dennis the Short.

Slide 85 Timeline so far

Lets check out the time line so far.

Here we have Caesar Augustus's Censuses,

Quintillus and Qurinius ruling dates,

Birth dates backtracking Good Friday as the day before the Passover,

Our lunar eclipses

And now we add the years according to early Christian writers

Slide 86 Roman Catholic Proclamation of the Birth of Christ

These are excerpts of the Christmas Proclamation of the Birth of Christ that is read or sung at the beginning of the first Mass of Christmas in Catholic churches.



I am unaware of the scholarship behind the dates proclaimed here.

The operative lines for our purposes are:

The seven hundred and fifty-second year from the foundation of the city of Rome.

The forty-second year of the reign of Octavian Augustus;

Slide 87 Back to our Chronological Eras slide

Note that 752 AUC equates to 2 B.C.

Remember again, there is no year 0.

1 BC and AD 1 are back to back.

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Dennis the Short wasn't that short after all

So let's check out the skies of 3 and 2 BC.

Here the constellation involved is Leo, not Pisces.

Slide 88 Leo the Lion

This is the constellation Leo, which is Latin for lion

Leo was well known by the Persians and Mesopotamians.



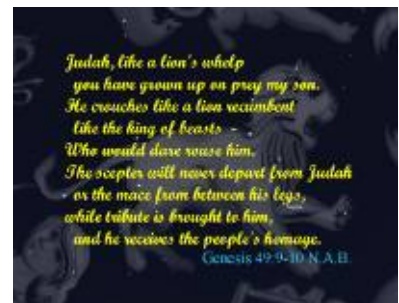
Check out this blessing or prophesy giving by Jacob to his son Judah.

The Magi should have been aware of it, since Genesis was finalized near the end of the Babylonian Captivity.

Slide 89 Jacob's Blessing

Jacob gives a blessing to each of his 12 sons.

This is his blessing to Judah, for whom land of Judea is named.



He compares him to a lion cub, the king of beasts from whom the leaders of Israel will come.

Of course this is a connection to the celestial lion.

Lets take a look at the celestial happenings against the constellation of Leo with Jupiter and Venus in 3 and 2 B.C.

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Slide 90 August 3 BC Animation

Here is an animation of Venus, the brighter one and Jupiter on consecutive mornings from August 8th to 15th, 3 BC near the star Regulus, the brightest star in Leo.

On August 12th of 3 BC Jupiter and Venus appeared to come together so close as to be separable only in telescopes.

This may have been the star at its rising mentioned to Herod.

Could this predawn celestial mating of Jupiter who the Babylonians saw as the god Marduk and saw Venus as Ishtar, the goddess of fertility bring forth a powerful king?

The Magi, I'm pretty sure, would have known that 10 months later, a little longer than the human gestation period, that the two planets would again come together.

Slide 91 Telescopic view August 12, 3 BC

This is how close the planets appeared if they could be seen in a telescope.



Slide 92 Jupiter and Regulus September 14th, 3 BC

Here we see Jupiter in conjunction with the "Little King" star Regulus on September 14th 3 BC.

One or two days after the beginning of the Jewish New Year.



Was this another sign that a new King of the Jews would be born?

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This little tidbit I learned from a web site Bethlehemstar.com by Rick Larson.

Slide 93 June 16th 2 BC Animation

Ten months later, perhaps the Magi neared Jerusalem, they saw Jupiter and Venus approaching each other again.

Perhaps as they left Herod's palace in the evening of June 16th, 2 BC the conjunction was at its tightest, and they saw the star again, as Matthew relates.



Slide 94 Telescopic view second conjunctions

Telescopes, which wouldn't be invented for another sixteen hundred years, could have seen this extremely close conjunction of Jupiter and Venus.



But even to the best naked eye observer, Jupiter and Venus would merge into a single star.

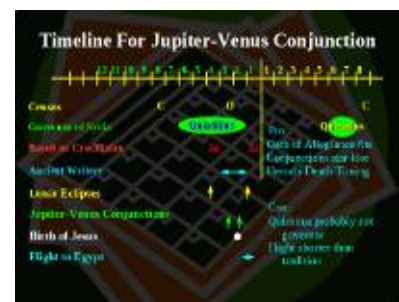
Slide 95 Timeline for Jupiter-Venus Conjunctions

Let's check out the time line one more time to see how these conjunctions fit in.

That would place Jesus' birth in the spring of 2 BC, perhaps just before the second Jupiter-Venus conjunction.

The visit of the Magi would have been around the second Venus-Jupiter conjunction in June of 2 BC.

Herod's death would be in the spring of 1 BC



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What problems still remain?

Quirinius or Cyrenius was never Governor in Syria in any year in question, so we will have to accept that his name was a scribal error for Quintillus.

And the flight to Egypt could be as short as as 9 months.

Tradition holds that the flight to Egypt lasted at least 2 years.

Slide 96 Conclusion (What do you think?)

I gave short shrift to the triple conjunction of Jupiter and Saturn in 7 BC, that would point to the Nativity being in the spring of 6 BC.



We would be here way late if I covered that in detail too.

Beside most literature on the subject concentrates on that event.

If the Star was real,

I tend to prefer the Jupiter-Venus conjunctions in 3 and 2 BC, pointing to a 2 BC Nativity.

The Gospel writers did not have first hand knowledge of events that occurred 80 or so years before the Gospels were written.

I suppose it's a matter of faith.

So I must leave it up to you.

Slide 97 The End

Thank you!

Questions?



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AJ	Antiquities of the Jews Book 17, Josephus
CBC	Collegeville Bible Comentary, edited by DianneBergant and Robert Karris
CdC	Cartes du Ciel (Sky Charts), Patrick Chevalley, et al (Star charting program)
DA	Dictionary of Astrology, Dal Lee
ES	Explanatory Supplement to the Ephemeris, 1961
FW	Funk & Wagnalls Standard Reference Encyclopedia – Article on Zoroastrianism
KJV	King James Version of the Bible
NAB	New American Bible
NIV	New International Version of the Bible
NJB	New Jerusalem Bible
PJ	Protoevengelium Jacobi (Protoevengelium of James) A version found in TOB and references in SB
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