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To our readers: This annual Christmas Star issue of 'What's up in the midcoast sky?' is our special gift to you for the season. Enjoy!

Ah, December ... the loveliest stars of the year begin to emerge after twilight ... the constellations Orion, Gemini, Canis major and minor.

But stars are ubiquitous this time of year, and can be seen in many other places ... decorating houses, treetops and buildings, and in numerous Christmas cards ... and all because of this one brief line from the New Testament:

"Behold, there came three wise men from the east to Jerusalem, saying, Where is he that is born King of the Jews? For we have seen his star in the east, and come to worship him..." - Matthew 2:1-2

What the wise men, or in some translations, the astrologers, may have seen that led them to make a long journey to welcome a new king has been open to debate over the years (including whether it was not just fanciful storytelling on the part of the writer of the Book of Matthew), but most astronomers agree that the "star" was probably not, in fact, a star. Stars were well-known objects, appeared regularly on an annual basis, and no new permanent stars had appeared in human history.

Other historical information (such as the death of King Herod and the timing of the census that sent Joseph and Mary to Bethlehem) in the New Testament and elsewhere suggests a period of time between 7 B.C.E. and 4 B.C.E. for the actual birth of Jesus of Nazareth. What was visible in the sky during that period that might have led the astrologers to travel? Here are some of the possible "suspects" for the Bethlehem "star":

- A meteor or particularly bright fireball?

Probably not. Meteors and fireballs were not that uncommon in an evening sky without light pollution, and lasted only seconds at the most. The astrologers watched the "star" for many months as they traveled.

- A comet?

While Halley's comet made visit in 11 B.C.E., no record of particularly bright comets was made during the period believed to be most likely, even by the astronomically inclined Chinese. Even if there had been one, comets were usually seen as harbingers of doom, not joyful heralds of a new birth.

- A supernova?

While a supernova, or even a bright recurring nova, would have been enough to attract the attention of dedicated skywatchers, there was apparently no such object during the probable period.

So what was the Christmas star?

Most astronomers believe that it was a conjunction of planets, possibly the triple conjunction of Saturn and Jupiter in the constellation Pisces, which was the constellation associated with the Jews (and later, the Christians). This took place over several months in 7 B.C.E., its most striking conjunction occurring in the fall of that year.

In the fall of 7 B.C.E., the two planets moved so closely together that they appeared to be a single bright object, shining in the autumn sky. Since Saturn was considered the protector of Judea, and Jupiter connoted royalty, the astute Magi of Babylon may have concluded that this sign was a sign of the birth of a king in Judea who would protect that nation.

A more recent conjunction, of Venus and Jupiter in the winter of 1999, was an amazing sight, and it is easy to see how such a bright conjunction could inspire wonder, hope, and faith.

Whether the Christmas star was a conjunction of planets, an appearance of a planet in a favorable constellation ... or something else ... it has become part of the Christmas mythology, and tradition, and is an interesting addition to the holiday season.

** The Planets **

- Mercury: Mercury begins the month setting about 20 minutes behind the sunset, getting closer to the sun until by mid-month it is lost in the glare of sunset but rises around 4 a.m. for a brief pre-sunrise appearance.
- Venus: Venus begins December as the "morning star", rising at about 3:30 a.m., and stays there throughout the month.
- Mars: Mars begins December setting about 10 minutes after sunset, and is for all intents and purposes lost in the glare to begin the month, moving only deeper still into the sun's halo through the rest of the month.
- Jupiter: Jupiter remains nearby Uranus, and begins the month about directly overhead at sunset, setting around 12:15 a.m., and by the end of the month its glare dwarfs Uranus, as they move closer still, setting around 10:30 p.m.
- Saturn: Saturn begins December rising around 2 a.m., and is the most prominent mid-night planet for the month, rising around 12:45 a.m. by the beginning of the year.
- Uranus: Still in close proximity with Jupiter and much darker than earlier in the fall, Uranus

begins the month setting around 12:15 a.m., and ends the month nearly (if not totally) invisible in the glare of the brighter Jupiter.

- Neptune: Neptune is also dark and hard to spot this December. It can be spotted to the southeastern horizon just after sunset near the beginning of the month, when it will set around 10 p.m., and becomes even earlier near the end of the month, setting at about 8 p.m.
- Pluto: Pluto begins December setting around 45 minutes after sunset, and quickly moves into the sun's glare, where it remains lost to us around the first of the year.

**** The Moon ****

The Moon begins the month of December waning quickly into a new phase by December 5, waxing first quarter by December 13, full on December 21 and waning third quarter by December 28, moving towards its new phase into the first of the year.