SPECTRUM

Northern Cross Science Foundation Newsletter **December 2005**

LOOKING UP

December 1 Thursday
General Meeting
6:30 p.m. Business Meeting
Annual Holiday Party
Bring a goodie to share

December 6 Tuesday
Buying a Telescope
Workshop
7:00 p.m.
Unitarian Church North

December 15 Thursday
Board Meeting—
Election of Officers
7:30 p.m.
Home of Jeff Setzer

January 5 Thursday
General Meeting
6:30 p.m. Business Meeting
Telescope Workshop

January 7 Sat.
Candlelight Hike/Stargazing
Harrington Beach S. Park

January 19 Thursday
Board Meeting
7:30 p.m.
Location TBA

Astronomy, Astrology and the Star of Bethlehem

By John Clevenger

www.lcas-astronomy.org/

Introduction

A story familiar to Christians is the Star of Bethlehem. The writer of Matthew tells of a star appearing over Bethlehem to signal the birth of Jesus. So significant was its appearance that wise men, called Magi, probably astrologers and possibly from the court of Persia or Babylon, traveled to Judea to find the newborn king that they believed the star heralded. Was it a really a new star or was it something else?

To determine astronomically what the star may have been we first need to set the date of its most likely occurrence. Biblical accounts presage the nativity with Mary and Joseph traveling to Bethlehem. John Mosley of the Griffith Observatory in California in his research on the star of Bethlehem describes a general taxation ordered by Caesar Augustus in 8 BC but believes that the correct translation refers to a registration or an oath of allegiance, in either 3 or 2 BC for Augustus' Silver Jubilee. Unlike a tax, an oath and registration might have required both Joseph and his wife to journey to Bethlehem. Either way these two interpretations bracket the birth of Christ between 8 and 2 BC.

Candidates

Did any unusual astronomical phenomenon occur between 8 and 2 BC? As it happens there were several notable celestial events during that period. The Chinese reported two comets during that time. The comet of 5 BC, in Capricornus and visible for 70 days, was reported to have a tail. Professor Humphreys of Cambridge University believes that this comet, which he describes as having a vertical tail, appeared at the time of the Jewish Passover. Prof. Humphreys believes that this started the Magi, who were knowledgeable of the Jewish prophecy recorded in the Book of Micah, concerning the birth of a Jewish king, on their journey. If right about the vertical tail, this could agree with the biblical account in Matthew that the star "stood over where the young child was". The

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Greentree School Observing Night

By Jeff Setzer

On Thursday, November 10, members of the Northern Cross Science Foundation took their telescopes to Green Tree Elementary School in West Bend. The event was organized in response to a request from faculty at the school, and the NCSF responded with 6 telescopes. We had a crowd of about 250 students and parents view a diverse set of objects including Mars, the Moon, Alberio, the Ring Nebula, Andromeda Galaxy and the Double Cluster. A few dozen people stayed beyond the 8:00pm "closing time" to catch second or third views through the various instruments that were still present. Thanks to Kevin Bert, Gene DuPree, Charlotte DuPree, Rick Poulin and Don Miles for joining me to make sure there were enough scopes to handle the crowd! As an added bonus, the parent's group involved with the project gave us a $50 donation for our efforts.

November Meeting Minutes
By Kevin Bert

The November business meeting of the Northern Cross Science Foundation was held at the Unitarian Church North in Mequon. President Jeff Setzer opened the meeting at 7:30 p.m. to 25 members and guests. After welcoming all the attendees he asked for standard reports.

Treasurer Rob Powell reports a balance of $5,572.21 in the checking account. Other deposits from the observatory fund raising would be coming in soon.

Secretary Kevin Bert noted the 2006 NCRAL convention in April and said that a DVD from the Astronomical League would be shown after the business meeting that would explain activities of the event.

Jeff Setzer explained that one NCSF board position would be available for out going member Joyce Jentges. An election will take place at the December meeting to fill the vacancy. Jeff opened the floor to nominations and. Rob Powell nominated Kip Kaplan. Kevin Bert seconded it. Jeff said because Kip was not in attendance his running status would depend his confirmation of acceptance to serve if elected. Charlotte DuPree nominated Joyce Jentges for another term. Rob Powell seconded. Again, due to her absence acceptance would be required to make it official. With no other nominees, Jeff closed the floor and said that nominations would be open again prior to the actual vote in December.

Under old business Jeff explained the observatory status. Plunkett architects were happy to point out to the DNR that their own rules say that a Wisconsin State Stamp is not required for a building with that small of a square footage. With the Stamp requirement satisfied, only one hurdle remained. That was the official acceptance of the gift of the observatory by the State. Construction would begin in the spring if all goes well. Official language of the agreement between the NCSF and the State would be in our hands shortly. When an initial stake out of the site is completed by the park a notice will be posted on the club web site so the membership can drive out and get a feel for the location. Access roads for portable scopes, and light trespass from car lights were brought up along with other building topics, such as the Belgium Luxembourg Cultural Heritage Center and the Parks interpretive center and all feedback was positive.

Kevin Bert informed the membership that the order for shirts was bagged and in his possession. Members in attendance wanting their order should see him after the meeting. Hats were not going to work out with the present logo, as the printing was too small. Hats will be revisited in the near future.

Rob Powell gave a PowerPoint presentation on how the money for the observatory project is rolling in, with over $20,000 in pledges to date primarily from club members. Naming rights for the observatory was resolved with a generous donation by our own members the Plunkett's. A resounding applause followed the announcement. Reaching out to the general public and selected establishments would be the next goal to push the fundraising to even higher levels for supporting equipment.

Under new business, Jeff Setzer talked of upcoming events. The Haunted Hike viewing night at Harrington Beach was on the 29th of October. Kevin Bert said that another telescope was being donated to the club as a loaner scope and would take place at the park on the 29th. It was a 10-inch homebuilt Dobsonian from former member Brad Haubrich. An additional night was going to be added on the 28th for additional chances of Mars viewing.

With no further new business, Jeff closed the business meeting at 7:50 p. m.

Respectfully submitted,

Kevin Bert, secretary

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comet of 4 BC had no tail and whether it was actually a comet or a nova is unknown. While historians have usually suggested that comets were always bad omens, Humphreys believes that history shows them to be either good or bad omens.

If a comet or nova were not the star then could it have been a planet? In his account Matthew refers to the star in the singular, not the plural sense. At the time of the nativity Jupiter was in conjunction with Venus two times and with the bright star Regulus (named for royalty) three times in a ten month period during 3-2 BC. Could this have made Jupiter the "star" of interest? Or could the star have been more unique than Jupiter?

Uranus, which was at its zenith in 6 BC and in retrograde motion, would appear to be standing still overhead. With its magnitude varying between 5.7 and 6.1 it was just at the edge of naked eye visibility. Certainly only astrologers who study the sky intensely would have noticed a new "wanderer". Uranus would be a dim, hard to see object even at zenith and moving very slowly against the stellar background. This is not likely to be the sort of event that would send the court's philosophers on a long journey.

There is an astrological argument for a lunar occultation for the star of Bethlehem. Occultations had significant astrological import, a type of powerful conjunction, and both Jupiter and Saturn were occulted early in 6 BC. While occultations are common, the fact that they occurred in Aries, which was the

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Astronomy 101 And Main Program

By Kevin Bert

To devote extra time to party festivities, there will be no Astronomy 101 class or Main Program in December. Because of the upcoming telescope clinic and NCSF Dinner, look for it to resume in March.

To reach as many members as possible a DVD from the Astronomical League that promotes the regional convention will be shown for a final time.

The holiday party is time to relax and socialize with fellow club members. The NCSF will provide paper goods, soda and ice. Everyone is asked to bring a goodie to share. If you need ideas, this is a sampling of what has been brought in the past: Christmas cookies, desserts, cheese/sausage platters, dips, taco plates. If you have a holiday specialty, that's great! See you there!

CURRENT CLACK

It's not too late!!!! You can still sign up to get your newsletter online! Just send me an email, and tell me you want to get your email online, and I will add you to the online newsletter list starting in January.

With the start of a new year around the corner, you will see that there is a due's invoice in this newsletter. Nearly everyone's membership dues are due in January. See Rob Powell to take care of this obligation.

Candlelight Hikes: Harrington Beach has a hike scheduled for January 7th and one on February 4th. Weather permitting, we will be there. No date yet for the February Ski and Hike at Pike Lake.

Mark your calendars for the banquet on February 2nd. More information will be in the January newsletter.

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house of Judea in Babylonian astrology, adds further weight as to their importance to the Magi. Researches believe that the astrologers of Babylon knew of occultations, as well as other alignments, even if they took place below the horizon or during daylight hours. This supports the idea that the star was not obvious but may have been known only to astrologers. Whether a comet, nova, or a planet any of these would classify the star as a singular event. However, this is not the complete story.

In the time frame under consideration there occurred two other celestial events of importance. First, in 7 BC, from May to December, a triple conjunction of the planets Jupiter and Saturn occurred in the constellation Pisces that was at that time the location of the vernal equinox. In astrology the vernal equinox meant rebirth and would be of great importance. According to the ancient prophecy of Judea and known to the Magi, this occurrence could mean that a king was to be born.

Three months later, in February of 6 BC a second remarkable event occurred. Mars joined Jupiter and Saturn for a massing of the planets in Pisces with the crescent moon added to the mix. Arranged in the western sky as if pointing over the horizon, this would have made a most impressive sight. During this massing were two occultations of Jupiter on March 20 and April 17 that were preceded by two occultations of Saturn the previous day. All occurred in Pisces as they approached Aries. Such a rare occurrence, once every couple of millennia, would have been unique in the cultural memory of the Magi. Additionally, the Magi believed Saturn was a father-god and Jupiter his son. This would have added some weight to the conjunction in Pisces, just 3 months previously! Importantly, the two occultations of Saturn occurred during daylight or after it had set so only those who study the sky would have known it. Finally, the second occultation of Saturn occurred at the approximate azimuth of Bethlehem. This too, would have been known only to astrologers.

The importance of astrology in the story of the Star of Bethlehem should not be downplayed. The star was known only to the Magi and not witnessed by anyone else (Herod's "wise men" were not allowed to practice astrology) so it is unlikely that the star was a singularly bright star, comet or planet visible to everyone. Only those versed in both astrology and astronomy noticed its appearance.

The Sequence of Events

The following is a series of events that would have been significant to the Babylonian astrologers at the time of the nativity. The first was a triple conjunction in 7 BC between Jupiter and Saturn . Three months later, in 6 BC, a massing of Jupiter, Saturn, and Mars in Pisces near the vernal equinox (rebirth). Reinforcing the significance of this massing was the double lunar occultation of Jupiter and Saturn. Then two comets appeared. First a comet with a tail appeared in 5 BC followed by another comet (or a new star?) in 4 BC. Jupiter was in conjunction with Venus and Regulus (royalty) in 3 and 2 BC. Having been alerted by the first two events in 7 and 6 BC either comet of 5 or 4 BC or Jupiter's movements in 3 and 2 BC. could be the single "star" that Matthew referred to. These "multiple" events find further support in Matthew's account where he suggests that the Magi lost sight of the star but that it later reappeared. Notice too that the later the date the more closely it coincides with the oath and registration for Augustus in 3 or 2 BC.

What was most important to the Magi; the triple conjunction, the massing of the planets, the comets, a nova, four lunar conjunctions, Jupiter, or some combination of these celestial events, is not known to us. A sensible hypothesis is that some or all of these events, which occurred about the time of the nativity, were significant to the Magi, with their sequence and succession building in importance. This is perhaps the most reasonable scenario but at the same time it is certainly a very remarkable scenario, too.

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For Sale:

4" Meade Refractor, Model 102ACHR/500, on a German Equatorial mount. $450.00. See Gene DuPree if interested.

Lumicon NGC Sky Vector (Digital setting circles) with encoders and brackets for an SCT telescope. With a little help it could be adapted to most any telescope. Original cost was $500. If interested, call Steve Schowalter at 262-677-4719.

Widestar II 102 mm f/6 Semi-Apo Triplet refractor with 2-inch r&p focuser from Apogee Inc. on a German equatorial mount with aluminum tripod, optical 10x50 and Rigel Quickfinder, all in an Orion case. About 4 years old and has an accessory case with the following: six 1 ¼ eyepieces, one 9-22 zoom lens, 3 element barlow, 2 inch 90 degree and 1 ¼ inch 45 degree diagonals, 2 red flashlights, Lumicon 1 ¼ nebula filter, variable polarizing filter, # 80A blue filter and a home made sun filter. Contact George Heblinger at 262-376-9773 if interested in the whole package or individual components. See Kevin Bert at the December meeting for pictures of the system.

Looking for a way to use your time in winter wisely? Then learn a new program! With Sky Tools you can custom create your own book of star charts, and log your observations. This would make a great Christmas gift. $59.97. Contact Jeff Setzer

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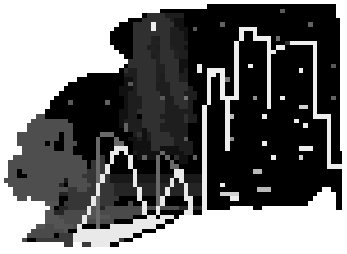

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