

Newsletter of  
The Black River Astronomical Society

# Guidescope

Lorain County, Ohio

January 2020

Website: [blackriverastro.org](http://blackriverastro.org)

Newsletter submissions: [Editor](#)

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--Wednesday, January 8, 7 p.m.: Regular meeting, Carlisle Visitors Center. Nielsen Observatory's new storage building, and the new 16" Newtonian, by Steve Schauer (Note: regular meeting is JANUARY 8 due to Jan. 1<sup>st</sup> holiday and unavailability of meeting room. Please remember this date change!)

--Thursday, December 16, 7 p.m.: Board meeting, Blue Sky Restaurant, Amherst (Note: date of board meeting moved to reflect regular meeting date change.)

--Friday, January 24, 7-9 p.m.: Public observing, Nielsen Observatory (cloud backup date Saturday, January 25, 7-9 p.m.) Note: Only one observing weekend is scheduled in January and in February due to weather.

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## Visit Our Website

Explore if you will the informative BRAS [website](#) and all its interesting, timely [links](#), and join the interactive members-only [BRAS Forum](#) to better keep in touch.

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## Guidescope Contributions Wanted

If you have any wanted/for sale announcements, astronomical photos you've taken, interesting article links, equipment reviews, observing reports, or anything that you think to which the local amateur astronomy community could relate, please send it to your [humble Guidescope editor](#) for inclusion in forthcoming issues. Many thanks.

~Bill Ruth

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## BOARD SUMMARY

December 12, 2019

The December Board of Directors meeting was called to order at 7:13 p.m. with ten Directors present. Copies of the minutes of the November meeting were distributed by Secretary Bill Ruth and these minutes were approved as read. Treasurer Dan Walker provided the November financial information, and members are reminded that dues were due in October. Please remember, all dues except Junior (under 18) are now \$20.00.

Committee reports started with the *Guidescope* editor Bill Ruth reporting that all was well and he is getting some submissions. The Website chairman reminded us that we still need to change the dues prices on the on-line membership form. John Reising reported that the 16" Newtonian is in place in the new storage building and rolls well on the Wheely Bars. Greg Cox custom built a support piece to rest the tube on so the scope can be stored in a horizontal position. A few modifications still need to be made on this scope, including adding a Telrad finder on a 4" riser (both of which we have) and moving the focuser. Currently, the scope has no locks as it is designed to be motorized and moved with the hand paddle. The motors, encoders and related electronics still need to be installed, which may need to wait until spring. The Metro Parks Liaison had no report.

Programing has undergone a few changes and currently is as follows:

January	Steve Schauer	Photos of the construction of the new storage building and the 16" telescope
February	OPEN	
March	Dave Lengyel	Measuring distances in space.

April	Ed Burcl	Asteroid Mining
May	John Reising	Life of William Herschel
June	OPEN	
July	Mickey Hasbrook	BRAS trip to Death Valley to observe
August	John Reising	Mars Opposition
September	OPEN	
October	Elections/Video/Annual Meeting of the Membership	
November	OPEN	
December	Annual holiday party and pot luck dinner	

Old Business followed with the first item being a discussion of our OTAA convention date. We had selected Saturday September 19 many months ago, but we recently became aware that CAA had been forced to select the same date. CAA uses the building at Letha House park, where their observatory is, as the site for their OTAA convention. Their problem is that the Letha House building is much in demand for rental, and even when CAA selects dates two years in advance, they often have little choice in when the hall is available. In August of 2020, the only Saturday available was the 19<sup>th</sup>. In 2021, there were no August dates available, and they had to select a date in July. Given that it hurts both organizations to have conventions on the same day, we decided to move our OTAA Convention date up one week to August 12, 2020. This is not definite yet, as we need to confirm with the church that the hall we rent is available on the 12<sup>th</sup>, but we are hopeful that it is. When this is confirmed, Schauer will contact the other club Presidents with our revised date.

The second item of old business was a quick discussion on the use of the new storage building, specifically concerning what will be stored there. The current plan (subject to change) is to store one of the two Beadle scopes, probably the 10" in the storage building while leaving the 8" in the Nielsen. The 4-1/2" Dob which we use as a loaner scope has been returned and will be stored in the new building. Currently there are also the 6" f23 Lucas scope and the 10" Dob that was donated to the club by the family of Greg Honis upon his sad passing in the storage building.

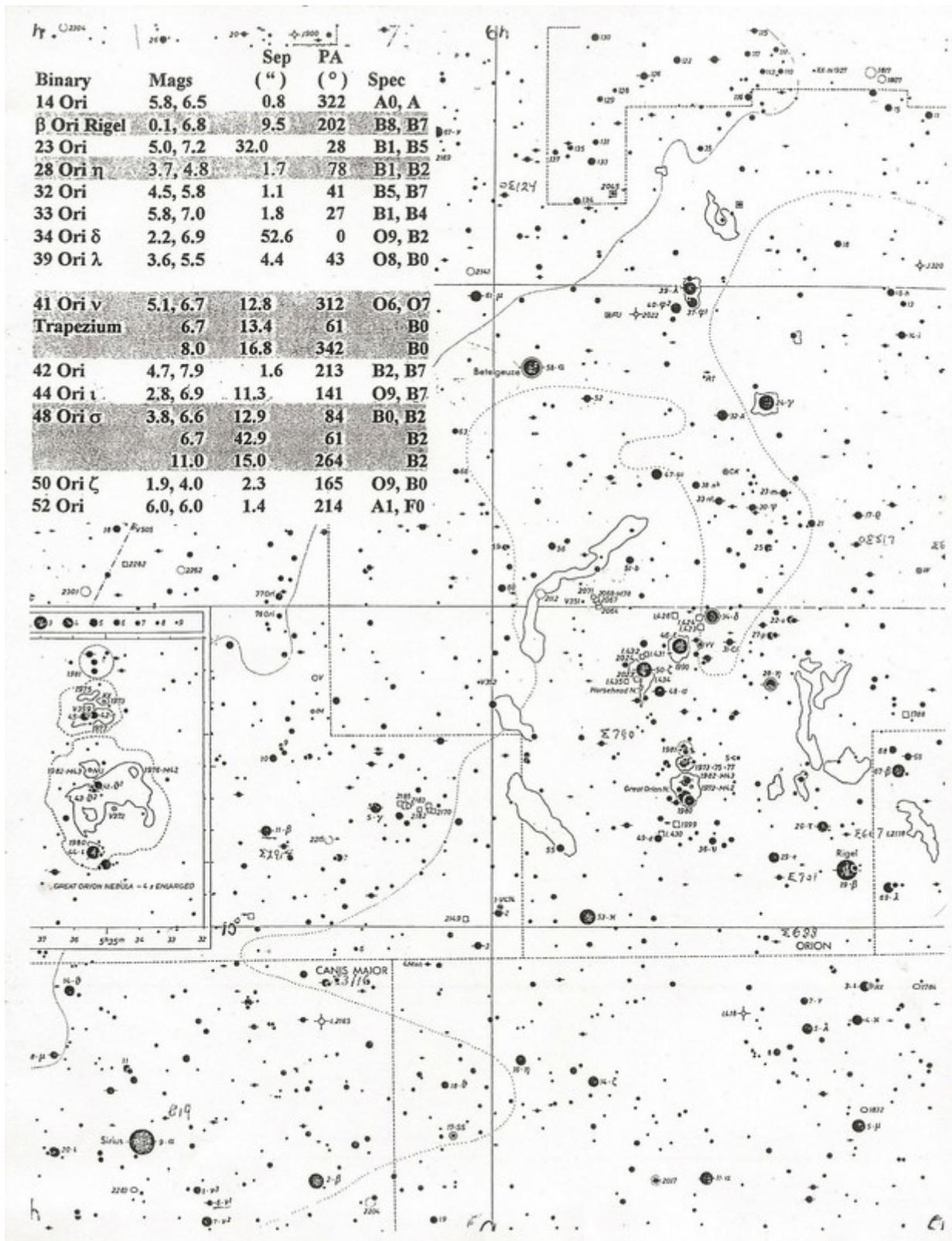
Because this is a quiet time of year for the club, there was only one item of New Business which was the formal voting in of four new members. Welcome to the club is extended to:

Mike Janosko of Lorain  
 Tim Jankowski of Elyria  
 Rose Friend of Amherst  
 Will Jarvis of Oberlin College

We are delighted to have you join us. Please see the President, Steve Schauer, at the next General Meeting for a new member packet.

January dates were set, and the meeting was adjourned at 8:17 p.m.

~Steve Schauer



Constellation of the Month (Orion) courtesy of John Reising.

## Deep-Sky Objects for January

Objects for Binoculars							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
06 <sup>h</sup> 32.4 <sup>m</sup>	+04° 52'	NGC 2244	4.8v	23'		Mon	Open Cl in Rosette Nebula
06 <sup>h</sup> 41.1 <sup>m</sup>	+09° 53'	NGC 2264	3.9v	20'		Mon	OC 40• "Christmas Tree Cluster"
07 <sup>h</sup> 03.2 <sup>m</sup>	-08° 20'	M50	5.9v	16'		Mon	Open Cluster 80•
07 <sup>h</sup> 36.6 <sup>m</sup>	-14° 30'	M47	4.4v	29'		Pup	Open Cluster 30•
07 <sup>h</sup> 41.8 <sup>m</sup>	-14° 49'	M46	6.1v	27'		Pup	Open Cluster 100•
07 <sup>h</sup> 44.6 <sup>m</sup>	-23° 52'	M93	6.2:v	22'		Pup	Open Cluster 80•
Objects for Small Telescopes (2-6 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
06 <sup>h</sup> 23.8 <sup>m</sup>	+04° 36'	Epsilon (AB)	4.5, 6.5	13.4"	127°	Mon	Double Star
06 <sup>h</sup> 51.8 <sup>m</sup>	+00° 28'	NGC 2301	6.0v	12'		Mon	Open Cluster 80•
07 <sup>h</sup> 37.5 <sup>m</sup>	-12° 04'	Melotte 71	7.1v	9'		Pup	Open Cluster 80•
07 <sup>h</sup> 38.8 <sup>m</sup>	-26° 48'	k Puppis	4.5, 4.7	9.9"	318°	Pup	Double Star
08 <sup>h</sup> 05.3 <sup>m</sup>	-28° 10'	NGC 2527	6.5v	16'		Pup	Open Cluster 40•
08 <sup>h</sup> 10.7 <sup>m</sup>	-12° 50'	NGC 2539	6.5v	21'		Pup	Open Cluster 50•
Objects for Medium Telescopes (8-14 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
07 <sup>h</sup> 08.3 <sup>m</sup>	-10° 39'	NGC 2343	6.7v	6'		Mon	Open Cluster 20•
07 <sup>h</sup> 17.8 <sup>m</sup>	-15° 37'	NGC 2360	7.2v	12'		Cma	Open Cluster 80•
07 <sup>h</sup> 41.8 <sup>m</sup>	-14° 44'	NGC 2438	11.0v	66"		Pup	Plan Neb in M46
07 <sup>h</sup> 41.9 <sup>m</sup>	-18° 13'	NGC 2440	9.4v	14"/32"		Pup	Planetary Nebula
08 <sup>h</sup> 00.2 <sup>m</sup>	-10° 47'	NGC 2506	7.6v	6'		Mon	Open Cluster 70•
08 <sup>h</sup> 00.7 <sup>m</sup>	-19° 04'	NGC 2509	9.3p	8'		Pup	Open Cluster 150•
Objects for Larger Telescopes (16-inch & larger) Challenge Objects							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
06 <sup>h</sup> 32.3 <sup>m</sup>	+05° 03'	NGC 2337-39	-	80'x60'		Mon	"Rosette Neb" (Use O-III filter)
06 <sup>h</sup> 39.2 <sup>m</sup>	+08° 44'	NGC 2261	-	3.5'x1.5'		Mon	"Hubbles Variable Nebula"
06 <sup>h</sup> 49.0 <sup>m</sup>	-36° 00'	NGC 2298	9.4v	6.8'		Pup	Globular Cluster
07 <sup>h</sup> 38.4 <sup>m</sup>	-10° 41'	Melotte 72	10.1p	9'		Mon	Open Cluster 40•
07 <sup>h</sup> 47.4 <sup>m</sup>	-27° 20'	NGC 2452	12.0v	19"		Pup	Planetary Nebula
07 <sup>h</sup> 47.8 <sup>m</sup>	-27° 14'	NGC 2453	8.3v	5'		Pup	Open Cluster 30•

Print and use the [Deep-Sky Interest Group - Observation Form](#) to record your observations.

DSO chart courtesy of Len Jezior.

## **The Planet of Bethlehem?**

It is one of the most universally recognized images of all time but no one knows exactly what it was. For 2,000 years, the Star of Bethlehem has captivated people the world over. Described in the Bible as the star that led the Three Magi to the infant Christ, little else is related about the Star, leaving a lot of questions, and just as many possible answers to its true identity, assuming that the whole story of the Star was not made up by the Biblical writer, as the Star only appears in the Gospel of Matthew.

One problem that must be confronted right before we can even start to narrow down the possible identities of the Star is this: no one knows exactly when Jesus was born. Our current calendar is based on the birth of Christ in that His birth separates the B.C./A.D. eras. However, it is clear that the dating is wrong as the Bible describes how the Holy Family fled to Egypt to avoid the wrath of King Herod, a well-documented historical figure who died in 4 B.C. Thus, 4 B.C. is the last possible year in which Jesus could have been born. It is now generally thought that Jesus was born anywhere between 8 and 4 B.C.

There are two schools of thought about the Star of Bethlehem: it was either astronomical or astrological. Astronomical possibilities include supernova, planets, comets, and conjunctions. However, with historic records available from all over the world from the time of the Star, no unusual events were recorded anywhere by anyone, leaving astrology as the more likely explanation to the Star story.

People at this time were almost universal believers in astrology. A notable exception here were the Jews, who were forbidden to practice astrology at numerous spots in the Old Testament. As far as everyone else was concerned, heavenly bodies had special meaning.

One thing we know was that the Magi came from the East. Considering the geographical location of Judea, "East" almost certainly meant Persia. In Persian language, the word "magi" referred to Zoroastrian priests, who practiced medicine and magic ("magic" comes from "magi"), which could also include astrology, at which the Persians were very sophisticated. Coincidentally, it is this astronomical focus of the Persians that can cause the traditional astronomical explanations for the Star to be discounted.

One particular passage in Matthew can greatly narrow down possible candidates for the true Star of Bethlehem. According to the Gospel, “the star which they had seen in the East went before them till it came and stood over where the young Child was.” If this is to be believed, the Star was a planet. Over the course of months, a star's position will change as it rises about four minutes earlier each night. Stars don't stand still, but planets do.

Observe a planet over the course of a year (Mars is best as it is closest), noting where it is in the constellations. For most of the time, it moves with the background stars. However, there are times where it stops, reverses course, stops again, then continues with the stars once more. This apparent change in direction called retrograde motion is an optical illusion caused by the Earth passing the slower planet as both orbit the Sun. A comparison can be made to passing cars on the highway. As you pass, the slower car seems to travel backwards. The same is true of planets.

Besides retrograde motion, there is more. Planets and constellations had different significances. Jupiter was widely considered to be associated with kingship. The constellation of Ares the ram was often associated with Israel/Judea. Putting this information together with the knowledge that the Star of Bethlehem was almost certainly a planet allows one to start putting the puzzle together.

In 6 B.C., an astronomical/astrological event that fits the bill very nicely occurred. In that year, the planet Jupiter (planet of kingship) moved into the constellation of Ares (the constellation for Israel/Judea). Thus, this could be interpreted as a sign that a new king of Israel was born. To add even more weight to the hypothesis, Jupiter first appeared as a morning object in the East. At this time, the Sun was also in Ares (Jupiter was rising just ahead of the Sun). In astrology, any constellation is at its n the East after a period of invisibility in the Sun's glare.

As it would have taken the Magi months to reach Bethlehem from Persia, this also explains the motion of the Star. As time progressed, the Magi could have observed Jupiter slow down and stop before going into retrograde motion. The stoppage could have coincided with the arrival of the Magi in Bethlehem after stopping in Jerusalem and being told of the prophecy predicting the Messiah's birth there.

In the end, though, the Star of Bethlehem will probably remain a matter of faith.

~Denny Bodzash



Sundogs, 11/25/19

Denny Bodzash