

Newsletter of
The Black River Astronomical Society

Guidescope

Lorain County, Ohio

August 2019

Website: blackriverastro.org

Newsletter submissions: [Editor](#)

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- Wednesday, August 7, 7 p.m.: Regular meeting, Carlisle Visitors Center, Program: Astrophotography, by Jodi McCullough
 - Friday, August 9, 10-midnight: Public observing, Nielsen Observatory (cloud backup date Saturday, August 10)
 - Thursday, August 15, 7 p.m.: Board meeting, Blue Sky Restaurant, Amherst, OH
 - Saturday, August 17, 4-9 p.m.: Solar observing, Lakeview Park Sunset Beach Festival
 - Friday, August 30, 10-midnight: Public observing, Nielsen Observatory (cloud backup date Saturday, August 31)

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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.

Guidescope Contributions Wanted

If you have any wanted/for sale announcements, astronomical photos you've taken, interesting article links, equipment reviews, observing reports, essays, 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.

BOARD SUMMARY

July 11, 2019

The July Board of Directors meeting was called to order at 7:06 p.m. with eight Directors present. Our Secretary, Bill Ruth presented the minutes of the June meeting which were read and approved, and treasurer Dan Walker presenter the Treasurer's Report. Committee Reports followed with the *Guidescope* editor, Bill Ruth reporting that all was well. The Website chairman was not present, but Schauer, who uses the site extensively, reported that it seemed to be functioning as designed. Instrumentation came next with John Reising reporting that club member Mike Garrett has donated a Meade 52mm Super Plossl and that the family of Greg Honis donated two Ultra Wide eyepieces, a 14mm and an 8.8mm. Dianna Richardson reported that she is using the club's loaner 8" Dob and that it works well. She replaced the battery in the red dot finder. The OTAA Committee chair reminded everyone of the upcoming OTAA conventions which are:

MVAS Aug. 24

CAA Sept. 21

BRAS Sept. 28

In 2020, the OTAA dates so far are MVAS August 15, 2020, and BRAS Sept. 19, 2020.

The Metro Parks Liaison had no report.

Programming is as follows:

August	Jodi McCullough	Astrophotography
September	Steve Schauer	Survey Results and member "How I got Started" stories.

October	Annual Meeting of the Members/ Board Elections/short video	
November	Oberlin Planetarium visit	
December	Annual Christmas Pot Luck dinner at the LCMP Amherst Beaver Creek Reservation	
January	OPEN	
February	OPEN	
March	OPEN	
April	Steve Schauer	Year in Review-photos of club activities
May	John Reising	Life of William Hershel
June-Sept.	OPEN	

Old Business followed, with the first item being a reminder by Schauer that the transit of Mercury will occur on Monday Nov. 11, 2019. While this transit of the planet Mercury crossing the sun will be visible from Ohio, November is a very cloudy month. The suggestion is that we consider traveling to somewhere where the average weather is better. Louisville, Kentucky is such a place. In Ohio on that date, there is only a 48% chance of clear/mostly clear/partly clear weather. In Louisville the chances grow to 57%. Long-time member Randy Beachler has offered us an opportunity to view from a church parking lot overlooking a valley which yields very good horizons. The clear horizon will be important, because when the transit starts, the Sun will be at an altitude of 3 degrees, although it climbs to 27 degrees at mid-transit. There are several chain motels and restaurants in the area. This church is in the town of Lagrange, Kentucky 22 miles east of Louisville, where Randy lives. The suggestion is that we make motel reservations, then watch our local weather. If the chances of clear weather at home look good, we can cancel our hotel reservations and view from home. If the weather at home looks poor and the Kentucky forecast is better, we can travel there. Over 15 people in our recent club survey indicated that they were interested in traveling to see an astronomical event, so this would be a nice opportunity.

The second item of Old Business was a reminder that Jodi McCullough, the President of MVAS will be coming to our August monthly meeting to speak on astrophotography. Our recent survey indicated that quite a few members were interested in such a program. Tim Kreja will be traveling to MVAS in late August to present his program on the Colonization of Mars at their meeting.

The last item of Old Business was additional planning for our OTAA convention on Sept 28th. Since this year is also the club's 70th anniversary, we are making the event special. We will hold the convention at the Birmingham United Methodist Church hall, which is our usual OTAA venue. We are planning on having our usual pot luck dinner, but the club will also offer pulled chicken (or pulled pork) in addition to the usual hot dogs. We are also planning on having a specially decorated cake or two. We are hoping to have a speaker and will contact Dr. Stinebring from Oberlin College who is in the forefront of the gravity wave research being done. We are hoping some of our long-time members will attend and we have some other surprises planned.

New Business followed. The first item was a request from a *Chronicle Telegram* newspaper reporter, Rini Jeffers, who was interested in interviewing someone about the Apollo 11 moon landing. Dave Lengyel was kind enough to volunteer to be interviewed.

The second item was a suggestion by Bill Ruth that the club purchase a binocular viewer for use with one of our large telescopes. The William Optics binoviewer sells for approx. \$268 from several vendors. Jeff Walsh, our Vice President, will order one through one of the vendors who sends us door prizes each year.

The final item of New Business was the sale of the club's 13" Odyssey mirror to John Reising for \$400. The Odyssey telescope has not been used for many years, and while in storage, the mirror has had a small chip occur along the edge. The chip may be mostly covered by mounting clips, but the mirror is not pristine. The sale was approved.

Dates were set, and the meeting was adjourned at 8:31 p.m.

~Steve Schauer

STORAGE BUILDING UPDATE

As club members know, the Metro Parks is building a storage building for us. We provided the funds for the materials, and the LCMP is providing the labor and expertise. They started construction on Monday July 22, when they set the poles in concrete to serve as the main supports for this pole barn type building. Once the concrete hardened, they set the 2" x12" treated boards along the bottom, and ran horizontal 2"x4" boards along the sides. The boards on the bottom are there so that when the concrete floor is poured, it seals tightly against those boards to form a tight seal which should keep rodents etc. out. The horizontal 2"x4" boards will serve as attachment points for the steel walls. Next, they added the roof which is plywood and OSB (oriented strand board) and as of 1:30 p.m. on Monday July 28th, half of the steel roof is in place. Once the roof is up, the plan is to pour the concrete floor and wait a day or so for that to cure. Then the walls go up, and the two doors are installed. The door facing the existing pad will be a standard steel garage door that will be 8'x8'. On the west side there will be a 3' six panel "man door". The intent is to lock the overhead door from the inside with a padlock and to use the man door to enter and exit, as garage door locks are not very robust. Once the walls and doors are up, the electricity will be added. There will be both white and red lights, on dimmers and ample electrical outlets. They will run the power from the observatory and add a separate breaker box for the storage building. Finally, the light and electrical outlet that is currently in place on the existing pad will be moved to the side.

The roof is a light gray and the steel sides are a slightly darker gray to match the Nielsen. There will be a full-length vent on the peak of the roof. The steel siding is galvanized and has a 40 year paint warranty. The concrete floor will be 1/2" higher than the current pad and will taper down to the pad over about a foot, so that water will not run into the building. The 1/2" slope should not hinder rolling the 16" telescope in and out to any appreciable degree. The hope is for the building to be finished, if not this week, then by our next public observing session on August 9th.

Once the building is finished, we will move some of the telescopes currently stored in the Nielsen into the new building and we will bring the 16" Newtonian components to the site and assemble the new telescope, since it is much easier and safer to transport the components than the finished telescope. The 16" is a Meade Newtonian, on a short German Equatorial Mount. It is motor

driven with push-to capabilities. We will mount it on wheely bars, so it can roll into and out of the building. Eventually, we will add loft storage in the new building as well as some shelving. We will also have to go through the items stored in the Nielsen and discard or donate some unused items. We will also need to go through our inventory sheets and bring to the new building many of the things that are currently stored in Board Members' homes or at the "Reising Home For Wayward Telescopes."

As can be seen, there is still work to be done once the building is finished, and members interested in helping can contact the President or any Board member. We will likely have some weekend work parties as well as some during the week, which we will announce once the time is right. The building, along with the new Nielsen Observatory sign, truly enhance our home and are exciting improvements as we celebrate the club's 70th anniversary. More photos will follow upon completion of the building.

~Steve Schauer



Photos provided by Steve Schauer.

Apollo 11 Anniversary is Golden, NASA's Future Uncertain

Last month marked the 50th anniversary of the Apollo 11 Moon landing. In the lead-up, celebrations commemorating the 50th anniversary of the greatest feat of exploration in human history took place all over the country. On Friday, July 19, surviving Apollo 11 astronauts Buzz Aldrin and Michael Collins, along with Neil Armstrong's sons, were the guests of honor at the White House celebration of the historic achievement.

While the 50th anniversary of Apollo 11 is undoubtedly a great source of pride for Americans (and should be for the whole world), remembering past greatness has also prompted many to look toward America's future in space, which is, unfortunately, not so clear.

In stark contrast to the singular focus NASA exhibited in the 1960s, the NASA of the 21st century could be described as lost not in space, but on the ground.

With mounting calls for the retirement of the Space Shuttle following the 2003 *Columbia* disaster, then-President George W. Bush announced the Constellation Program in 2005, which sought to return Americans to the Moon by 2020 via heavy lift rockets similar to the Saturn V. There were to be two versions of the new *Aries* rocket: one designed for manned launches and another designed for heavy cargo payloads.

By 2009, a study concluded that Constellation was grossly over budget. As a result, in early 2010, then-President Obama announced that Constellation was going to be canceled and replaced with a single rocket: the Space Launch System (SLS), which could be built in multiple configurations while utilizing technology originally developed for Constellation.

Fast forward 9 years and it's more of the same.

The first SLS launch, set to be an unmanned capsule around the Moon, was set for December 2017. The first manned flight was targeted for mid-2021. Obviously, December 2017 is over a year in the rear view mirror, which does not bode well for 2021. Official target dates for the unmanned launch is now 2020 and the manned launch is now back to 2022.

However, manned American spaceflight has a new champion in President Trump, who has made it very clear in the form of executive orders that he intends to see to it that Americans will once again be able to not only fly themselves into space, but to the Moon. Earlier this year, NASA announced that its Project Artemis (the twin sister of Apollo in Greek mythology) seeks to land astronauts on the Moon again by 2024 with the long-term goal being the creation of a permanently manned lunar base that will serve as a stepping stone to Mars.

Additionally, there is a new player in space that wasn't even imaginable in the 1960s: the private sector.

While there are now numerous private companies involved in spaceflight, the far and away leader of the proverbial pack is SpaceX.

Looking at SpaceX and what it has achieved since its 2002 founding is like looking at a shopping list. SpaceX was the first private company to: launch a rocket into orbit (2008), orbit and then recover a spacecraft (2010), send a spacecraft to the International Space Station (2012), complete a propulsive landing of a rocket (2015), reuse a rocket (2017), and launch a payload into solar orbit (2018).

The most intriguing possibility, however, is that offered by SpaceX's Falcon Heavy rocket. First launched in February, 2018, according to NASA, the Falcon Heavy is capable of launching astronauts to the Moon, although the SLS is the preferred option. With the SLS falling ever farther behind schedule, there is a very real possibility that the Falcon Heavy could be NASA's ticket to the Moon by 2024 if the SLS is not ready to go in time.

Yes, these are not the 1960s when manned spaceflight was a matter of national priority and pride, but the possibilities offered by the private sector are undoubtedly exciting, too. NASA astronauts riding a privately-owned rocket to the Moon? The idea would have seemed crazy in 1969 but, come 2019, this could be the future of America in space.

The future of manned spaceflight may look different, but the possibilities are truly limitless.

~Denny Bodzash

E20

Equator, Ecliptic Summer Constellations

NEBULA	Position	v-Mag.	Size	Shape	Type	Vis.	Dist.	R.A.	Dec.
6494 M23	Sgr	6	13/e'	25	O-m OC	☉	2200 ly	17 ^h 56 ^m .8	-19 ^o 02'
6514 M20	Sgr	7	13	20	o Em DN	☉	6000	18 02.6	-23.03
6523 M8	Sgr	4.1	13	60	o Em DN	☉	6000	18 03.8	-24.38
6531 M21	Sgr	6.1	11	10	o m OC	☉	4000	18 04.6	-22.50
M24	Sgr	4	13	100	o Milky Way	☉	8000	18 16.9	-18.48
6611 M16	Sgr	6	12	25	o Em DN	☉	7000	18 18.8	-13.78
6613 M18	Sgr	7	12	10	o p n OC	☉	4000	18 19.9	-17.13
6618 M17	Sgr	6	13	35	o Em DN	☉	6000	18 20.8	-16.18
6626 M28	Sgr	7	11	6	o IV GC	☉	20000	18 24.5	-24.87
6637 M69	Sgr	8	11	4	o V GC	☉	30000	18 31.4	-32.34
IC 4725 M25	Sgr	5	12	30	o m OC	☉	2500	18 31.6	-19.23
6656 M22	Sgr	5.1	11	20	o VII GC	☉	10000	18 36.4	-23.90
6681 M70	Sgr	8	11	4	o V GC	☉	30000	18 43.2	-32.29
6715 M54	Sgr	8	11	4	o III GC	☉	80000	18 55.1	-30.48

- 6494 M23 Resolved in binoculars, impressive in a telescope at low power.
- 6514 M20 **Trifid Nebula**, division into three parts by three radial dust bands, structure visible in a telescope at low power through a nebula filter.
- 6523 M8 **Lagoon Nebula**, visible to the unaided eye, for every scope, fantastic through a nebula filter, open cluster NGC 6530 in eastern part.
- 6531 M21 Resolved in binoculars, few bright stars, inconspicuous, near M20.
- M24 Messier describes clearly the Milky Way cloud and not NGC 6603.
- 6611 M16 **Eagle Nebula**, nebula with dust areas, some 20 stars embedded.
- 6613 M18 Sparse, inconspicuous since the surrounding field is quite rich.
- 6618 M17 **Omega Nebula, Swan Nebula**, fantastic structure, bright arms, knots, and dark dust clouds, more detail through a nebula filter.
- 6626 M28 Asymmetric shape, bright central area; it is barely resolvable.
- 6637 M69 Faint, outer region partially resolved in a telescope, irregular outline.
- IC 4725 M25 Very nicely resolved in binoculars, some irregular stellar groups.
- 6656 M22 Very bright oval, impressive in a telescope, uncountable stars.
- 6681 M70 Rather faint, distinct center, outer portions only just resolvable.
- 6715 M54 Not resolvable, bright concentrated core, takes high power well.

STAR	Position	V-Mag.	B-V	Te.	Abs.	Name	Dist.	R.A.	Dec.
10 γ	Sgr	3.0	1.0	1 ⁺	..	Alnasl ..	97 ly	18 ^h 05 ^m .8	-30 ^o 42'
13 μ	Sgr	3.8	0.2	1	-7	..	4000	18 13.8	-21.06
19 δ	Sgr	2.7	1.4	1	-2	Kaus Media	300	18 21.0	-29.83
20 ϵ	Sgr	1.8	0.0	1	-1	Kaus Australis	145	18 24.2	-34.38
22 λ	Sgr	2.8	1.0	1	1	Kaus Borealis	78	18 28.0	-25.42
27 φ	Sgr	3.2	-1	1	-1	..	230	18 45.7	-26.99
34 σ	Sgr	2.0	-1	1	-2	Nunki	220	18 55.3	-26.30
37 ξ^2	Sgr	3.5	1.2	1	-2	..	350	18 57.7	-21.11
38 ζ	Sgr	2.6	0.1	1	0	..	90	19 02.6	-29.88
39 ν	Sgr	3.8	1.0	1	1	..	140	19 04.7	-21.74
40 τ	Sgr	3.3	1.2	1	0	..	120	19 06.9	-27.67
41 π	Sgr	2.9	0.4	1	-3	..	430	19 09.8	-21.02



Thanks to John Reising for the constellation of the month.

Deep-Sky Objects for August

Objects for Binoculars							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
20 ^h 18.1 ^m	-12° 33'	Alpha-1 & 2	3.6, 4.2	378"	291°	Cap	Double Star
20 ^h 21.0 ^m	-14° 47'	Beta Cap	3.4, 6.2	205.3"	267°	Cap	Double Star
20 ^h 23.9 ^m	+38° 32'	M29	6.6v	6'		Cyg	Open Cluster 50+
21 ^h 30.0 ^m	+12° 10'	M15	6.0v	12.3'		Peg	Globular Cluster
21 ^h 32.2 ^m	+48° 26'	M39	4.6v	31'		Cyg	Open Cluster 30+
21 ^h 33.5 ^m	-00° 49'	M2	6.4v	12.9'		Aqr	Globular Cluster
Objects for Small Telescopes (2-6 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
19 ^h 30.7 ^m	+27° 58'	Beta Cyg	3.1, 5.1	34"	54°	Cyg	Double Star, "Albireo"
19 ^h 44.8 ^m	+50° 31'	NGC 6826	8.8v	>25"		Cyg	"Blinking Planetary" Nebula
20 ^h 46.7 ^m	+16° 07'	Gamma Cyg	4.3, 5.1	9.6"	268°	Del	Double Star
21 ^h 43.5 ^m	+53° 47'	Mu Cep	3.4, 5.1	730 days	Var.°	Cep	"Herschel's Garnet Star"
22 ^h 15.3 ^m	+49° 53'	NGC 7243	6.4v	21'		Lac	Open Cluster 40+
23 ^h 11.5 ^m	+60° 34'	NGC 7510	7.9v	4'		Cep	Open Cluster 60+
Objects for Medium Telescopes (8-14 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
19 ^h 41.3 ^m	+40° 11'	NGC 6819	73.v	9.5'		Cyg	Open Cluster
20 ^h 22.4 ^m	+20° 05'	NGC 6905	11.1v	39'		Del	"Blue Flash" Plan. Neb.
20 ^h 23.1 ^m	+40° 52'	NGC 6910	7.4v	7'		Cyg	Open Cluster 50
20 ^h 45.7 ^m	+30° 43'	NGC 6960	-	70' x 6'		Cyg	"Veil Nebula", W. Segment"
20 ^h 56.4 ^m	+31° 43'	NGC 6992-95	-	60' x 8'		Cyg	"Veil Nebula", E. Segment
22 ^h 10.5 ^m	+52° 50'	IC 1434	9.0p	7'		Lac	Open Cluster 40+
Objects for Larger Telescopes (16-inch & larger) Challenge Objects							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
20 ^h 12.0 ^m	+38° 21'	NGC 6888	-	18' x 13'		Cyg	"Crescent Nebula"
20 ^h 16.4 ^m	+30° 34'	NGC 6894	12.3v	>42"		Cyg	Planetary Nebula
21 ^h 00.6 ^m	+54° 33'	NGC 7008	10.7v	83"		Cyg	Planetary Nebula
21 ^h 04.2 ^m	-11° 22'	NGC 7009	8.3p	>25'		Aqr	"Saturn Nebula"
22 ^h 54.3 ^m	+60° 50'	NGC 7419	13.0p	2'		Cep	Open Cluster 40+
00 ^h 44.4 ^m	+85° 20'	NGC 188	8.1v	13'		Cep	Open Cluster 120+

Thanks to Len Jezior for deep-sky objects charts.

For Sale: 6" f/15 Refractor

Jack Draper built 6" f/15 refractor on an original German Equatorial Mount and beautiful oak tripod. This is an exact duplicate of the 8" telescope at the Mahoning Valley Cortese Observatory. This telescope was the guide scope on the 16 inch at MVCO back in the 1970s. Asking \$1800.00. I can meet you near Canton for delivery.

Chris Stephan

1899 Lost Creek Rd

Fort Gay, WV 25514

304-648-5571



Binoviewing

A William Optics binoviewer with matching 20mm wide-angle eyepieces is now on hand at the Nielsen Observatory. Members of the BRAS and the public recently had the opportunity to give it its first light at an observing session, using the orange Nielsen Celestron C-14. It was an interesting experience, although the learning curve for properly using the binoviewer was a bit steep for many people.

While monocular viewing only involves focusing one focuser behind the mirror of the C-14, using the binoviewer may require not just focusing the telescope, but possibly requiring adjusting the helical focuser of one of the binoviewer's eyepieces, making a total of two focusing adjustments, depending on individual eyesight peculiarities.

There is also the matter of correctly adjusting the interpupillary distance of the binoviewer to match the unique spread of each observer's eyes.

While it's fairly easy to find the best eye relief distance for monocular viewing, placing both eyes at the correct distance for the best eye relief for two eyepieces requires that the head is kept in the proper position relative to the binoviewer in order to get a full, symmetrical image from identical eyepieces.

Many people are already familiar with adjusting their own binoculars, and have no problem with using the binoviewer.

Others, however, find adjusting the binoviewer difficult, with the several unexpected additional variables presenting themselves at the telescope.

It takes a little time, and practice, and patience, to reap the full benefit of binoviewing. Binoviewing during a well-attended public star party, especially with a line queued up at the telescope, is challenging. People who are not experienced binocular users, especially children, find using the binoviewer somewhat daunting, and simply look through one side of the binoviewer.

Proper adjustment of the binoviewer is actually easy and straightforward:

- Close one eye, and adjust the focus of the telescope through one side of the binoviewer, just like a normal monocular telescope eyepiece.
- Close the other eye, and adjust the helical focuser of the binoviewer eyepiece on the other side of the binoviewer for best focus.
- Squish or spread the two sides of the binoviewer's prism housings until the best single image is seen with both eyes, just like with a typical binocular.
- Put eyes equally at the best distance at the binoviewer's eyepieces for the fullest, brightest image. The eye relief of the 20mm wide-angle eyepieces seems to be adequate, even for eyeglass wearers.

We will soon be experimenting with other eyepiece pairs with the binoviewer to see which provide the most satisfying and user-friendly combination of magnification, eye relief, and field of view.

Monocular viewing, tried and true, can most easily accommodate different eyes and skill levels at observing sessions. Why, then, bother with using a binoviewer at all, and needlessly complicate an already rather complicated viewing experience?

Just as we don't put an earplug in one ear before going to a concert, the symphony of the sky is best appreciated with both eyes wide open. Why be limited to mono when stereo is available? Both aural and visual stereo perception is spatial, and that makes space spacious. The brain needs input from both eyes to help confirm that what it sees is "real"--signal, not noise. This provides a 40% improvement in low contrast perception, and a 10% improvement in detail and color perception, handy for both survival and aesthetic purposes.

Unless blind in one eye, enjoy using both whenever possible—that's how we're naturally configured.

~Bill Ruth