



Newsletter of
The Black River Astronomical Society
Guidescope

Lorain County, Ohio

Website: blackriverastro.org

July 2018

Newsletter submissions: [Editor](#)

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- Wednesday, July 11, 7 p.m.: Regular meeting, Carlisle Visitors Center, large meeting room. NOTE CHANGE OF DATE—NO JULY 4 MEETING. Topic: Lowell Observatory visit, Mickey Hasbrook
- Friday, July 13, 10-midnight: Public observing, Nielsen Observatory (cloud backup date Saturday, July 14)
- Thursday, July 19, 7 p.m.: Board meeting, Blue Sky Restaurant, Amherst, OH
- Friday, July 20, 10-midnight: Public observing, Nielsen Observatory (cloud backup date Saturday, July 21)
- Sunday, July 29, 1-4 p.m.: Solar observing, Sandy Ridge Reservation
- * * * *

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 the local amateur astronomy community could relate to, please send it to your [humble Guidescope editor](#) for inclusion in forthcoming issues.

BOARD SUMMARY

June 14, 2018

The June Board of Directors meeting was called to order with nine Directors present. The Minutes of the May meeting were read and approved as was the Treasurer's report. Committee reports followed with the *Guidescope* editor Bill Ruth reporting that all was well, and the Website reported as operating as designed. The Instrumentation Chairman, John Reising, reported that, in spite of some health issues, plans are being made to remove the orange tube C-14 from its mount, and send it to Celestron for cleaning. The Metro Parks Liaison had no report.

Programming is set through the end of the year, with the exception of November. Anyone interested in doing a program for November, please contact any Board member or the President at BRASPres@gmail.com. The programs are as follows:

July	Mickey Hasbrook	Lowell Observatory
August	Denny Bodzash	Solar Superstorms, EMP Attacks and Hardening the Grid
September	Dave L., John R.	Planetarium show at the Oberlin College Planetarium
October	Staff	Elections/ Annual Meeting of the Members/short video
November	OPEN	
December	Annual holiday pot luck party at the LCMP Beaver Creek Reservation in Amherst.	

Next came Old Business, with the upcoming elections as the first topic. Four Directors have terms that expire in October: Greg Cox, Greg Zmina, Bill Ruth, and Dave Lengyel. Cox, Zmina, and Ruth have indicated that they will run again, Dave Lengyel reports that he will not. This leaves two Board positions open, the one vacated by Lee Lumpkin last October, and Dave's current position. Any

club member interested in running for a Board position should contact President Steve Schauer or any Board member. Directors serve a three year term, and help plan and implement all club activities. The Board meets monthly on the second Thursday of the month at the Blue Sky Restaurant in Amherst. The meetings start at 7:00 and are typically over at approximately 8:30 p.m.

The second item of business was the report by the President that he has contacted Lee Cross of Sandusky to remind him that we are interested in other eyepieces and astro accessories that he is selling as soon as he has things collected and priced. Next was the report that the planned camp-out at the Equestrian Center that had requested a star party is not happening, so no BRAS participation is required. Next came a discussion of our solar observing session on Sunday June 24th which was also our participation in the World Wide Solstice Festival. This was from 1:00-4:00 p.m. at Sandy Ridge. Schauer made arrangements to transfer the club brochures and hand-outs, plus the WWSF banner, to Tim Kreja, since Schauer will be out of town for the event. A brief update on the TNS system followed, with Mickey Hasbrook reporting that our text notifications seemed to be working as designed on the new club laptop. The final item of Old Business was a report by Dan Walker that we will be doing an outreach program for a Girl Scout group on Friday June 29th from 4:30-10:00 p.m. at the Nielsen Observatory. We will break the Scouts into groups with one group touring the observatory and the other seeing a demonstration on the sun outside. We could use some help with this. Please contact Schauer if you can help.

Under New Business, Schauer reported that he had exciting news from George Trimble, the CVAS Vice President and author, that he has published a new book on the astrolabe. This book reports on the history and use of the astrolabe, but more importantly, on how to make one at home. Bill Ruth will put a press release about the book in the next *Guidescope*.

Next came the report on the Hidden Hollow star party at the Warren Rupp Observatory in Mansfield. This is a multi-day event with vendors, programs and star parties and starts on Friday Oct. 5 running until the 7th. We will put the flyer in the *Guidescope* as well.

Next came a report on Amazon gift cards from Bill Ruth. There was discussion at the last meeting about having a gratuity to present to outside speakers like Dr. Stinebring. Bill researched that Amazon gift cards are redeemable for 10 years, so the Board decided that those would be purchased as needed in the amount of \$25.00.

A new discussion revolved around buying another supply of solar glasses to sell at our monthly solar viewing sessions, as our supply was depleted by the eclipse last August. Jeff and Tim will research prices and vendors to see what is available.

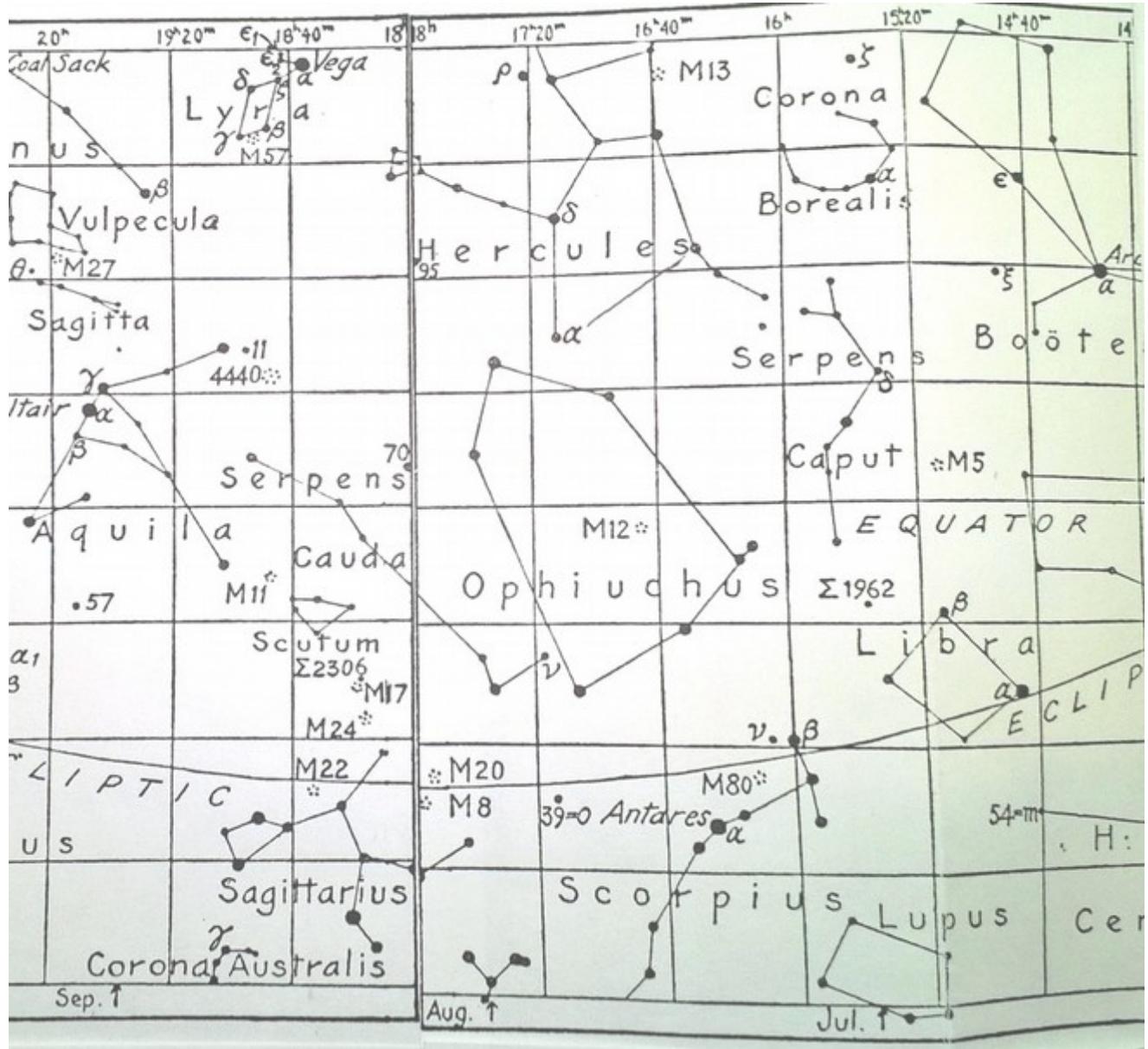
Schauer next reported that we will NEED TO MOVE THE DATE OF OUR JULY MEETING from Wednesday July 4th TO THE FOLLOWING WEDNESDAY, THE 11th, and that we will need to meet in the larger meeting room at Carlisle. We had had the 4th approved by the Metro Parks, but have since discovered that they are closed that day, so moving the meeting was required. We will send out all-club emails reminding everyone of the change and will also use the TNS service as a reminder. Members who get the *Guidescope* in printed form are asked to mark your calendars for the 11th so you don't come on the wrong date. The Board Meeting was also moved a week later to the 19th.

Dates were set, and the meeting was adjourned at 8:32 p.m.

~Steve Schauer

Binary Beauties

Below is a star chart and a short table with the names, locations and specifications for some of the brightest and easiest binary stars visible in the **summer evening sky**.



The list includes the following:

ADS number: From the ADS double star catalog.

Name: Greek letters, (mostly), or numbers with constellation.

Star Magnitudes: Primary star first & companion star next.

Separation, (“ = arc seconds): Distance between the primary and the companion star.

Included on the list are the following, which I consider as some of the absolute finest binary stars in the heavens:

(epsilon), e Bootes: First 2nd magnitude star up from Arcturus; One of my all time favorite binaries. Mags: 2.5 & 4.9; with a relatively close separation of 2.8 arc seconds and a stunning color contrast: orange primary & a greenish-white companion!! A real challenge for smaller scopes because of the glare and magnitude difference between the two;

(delta), d Serpens: A rather inconspicuous binary just below the head of Serpens; 2 white stars Mags: 4.1 & 5.2; with a 3.9 arc second separation.

(Beta), β Scorpio: The top star of Scorpio’s claws; A blue-white / white pair of stars; Mags: 2.6 & 4.9 with an easy 13.7 arc second split;

(Nu), ν Scorpio: Just north east of Beta Scorp; A nifty double-double of white with the following mags & splits:

A-C	4.0 & 6.3	41.0 arc seconds
A-B	4.4 & 5.4	1.4 arc seconds
C-D	6.7 & 7.8	2.6 arc seconds

The A-B pair is especially challenging due to its low altitude.

(Alpha), α Scorpio: “Antares”! A magnificent pair of red and blue stars with considerable magnitude difference, (1.0 & 5.5), and a rather tight separation, (2.8 arc seconds); Perhaps the ultimate challenge from Ohio due to its low position in the sky;

(Alpha), α Hercules: A magnificent pair of yellow and red stars with considerable magnitude difference, (1.0 & 5.5), and a somewhat tight separation, (4.4 arc seconds). A challenge in small telescopes;

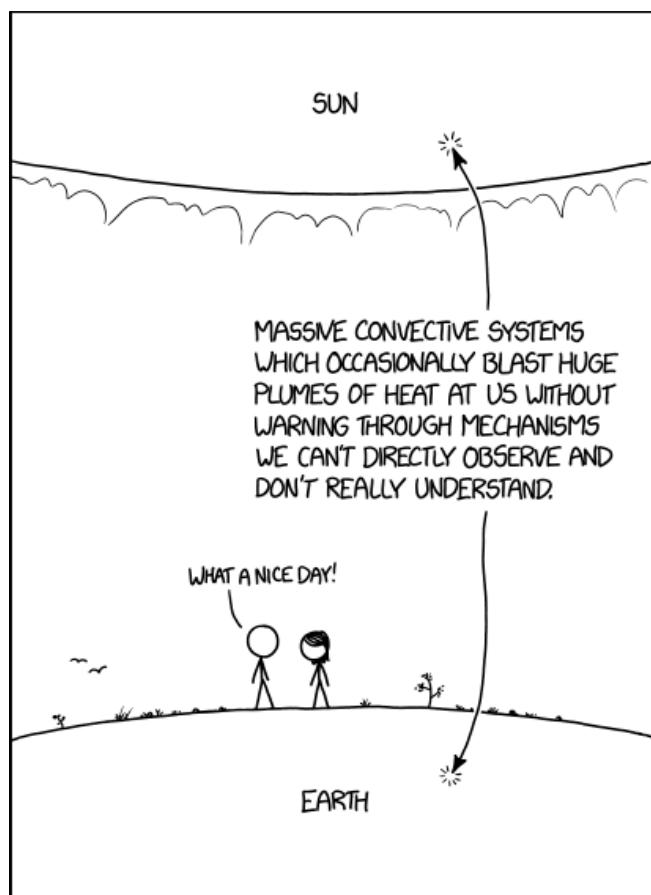
(Rho), ρ Hercules: Two Jewels!! A blue-white / white pair of 5th magnitude stars. Again, a challenge in even the small telescopes!

(Epsilon), ε Lyra: “The Double Double”! A stunning pair with a golden yellow primary coupled with a fainter blue-blue companion. As above, good in any size scope, although a little more of a challenge compared to the two above.

(Beta), β Cygnus: “Albireo”: One of the most beautiful and easiest to locate double stars in the heavens. The bottom star of the “Northern Cross” part of Cygnus, Albireo sports a 3rd magnitude orange primary with a 5th magnitude blue companion at a large separation of 35 arc seconds.

(Gamma), γ Delphinus: The furthest left or tip star of the diamond shaped part of the small constellation of Delphinus above and left of bright Altair. A beautiful pair with a 4th magnitude yellow primary and a 5th magnitude white companion separated by 9 arc seconds.

~John Reising



(mouse over text at site image using link below for extra drollery)

<https://xkcd.com/2004/> (thanks to Lee Lumpkin)

Deep-Sky Objects for July

Objects for Binoculars							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
18 ^h 03.8 ^m	-24° 23'	M8	6.8v (oc)	45'x30'		Sgr	"Lagoon Neb." + Cl. 113*
18 ^h 16.5 ^m	-18° 50'	M24	4.6v	95'		Sgr	Sm Sagittarius Star Cloud
18 ^h 36.4 ^m	-23° 54'	M22	5.1v	24'		Sgr	Globular Cluster
19 ^h 59.6 ^m	+22° 43'	M27	7.3v	348"		Vul	Pl. Neb. "Dumbbell Nebula"
18 ^h 51.1 ^m	-06° 16'	M11	5.8v	13'		Sct	"Wild Duck Cluster"
19 ^h 25.4 ^m	+20° 11'	Cr399	3.6v	60'		Vul	Cluster 40+, "Coathanger"

Objects for Small Telescopes (2-6 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
18 ^h 02.3 ^m	-23° 02'	M20	-	20'x20'		Sgr	"Trifid Nebula"
18 ^h 20.8 ^m	-16° 11'	M17	Cl. 6.0v	20'x15'		Sgr	"Omega/Swan Neb" + Cl.
18 ^h 24.5 ^m	-24° 52'	M28	6.8v	11.2'		Sgr	Globular Cluster
18 ^h 45.2 ^m	-09° 24'	M26	8.0v	14'		Sct	Open Cluster 30+
18 ^h 53.6 ^m	+33° 02'	M57	8.8v	>71"		Lyr	Pl. Neb. "Ring Nebula"
19 ^h 08.8 ^m	+34° 46'	E2470	6.6, 8.6	13.4"	272°	Lyr	Double Star, w/E2474
19 ^h 09.1 ^m	+34° 36'	E2474	6.7, 8.8	16.2"	262°	Lyr	Double Star, w/E2470

Objects for Medium Telescopes (8-14 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
16 ^h 04.4 ^m	-11° 22'	Xi Sco	4.8, 7.3	7.6"	51°	Sco	Double Star, w/E1999
18 ^h 18.4 ^m	-18° 25'	NGC 6603	11.1p	5.0'		Sgr	Open Cl. In M24
18 ^h 44.3 ^m	+39° 40'	Epsilon Lyr	5.1, 5.4	2.6", 2.3"		Lyr	"Double, Double" Star
19 ^h 16.6 ^m	+30° 11'	M56	8.3v	7.1'		Lyr	Globular Cluster
19 ^h 18.4 ^m	+06° 33'	NGC 6781	11.4v	109"		Aql	Planetary Nebula
19 ^h 52.2 ^m	+29° 25'	NGC 6834	7.8v	5'		Vul	Open Cluster 50+
19 ^h 53.8 ^m	+18° 47'	M71	8.0v	7.2'		Sge	Globular Cluster

Objects for Larger Telescopes (16-inch & larger) Challenge Objects							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
18 ^h 17.6 ^m	+36° 46'	Eta Sgr	3.2, 7.8	3.6"	105°	Sgr	Double Star
18 ^h 31.4 ^m	+32° 21'	M69	7.6v	7.1'		Sgr	Globular Cluster
18 ^h 42.2 ^m	-32° 18'	M70	8.0v	7.8'		Sgr	Globular Cluster
18 ^h 55.1 ^m	-30° 29'	M54	7.6v	9.1'		Sgr	Globular Cluster
19 ^h 14.6 ^m	-02° 42'	NGC 6772	12.7v	>62"		Aql	Planetary Nebula
19 ^h 30.6 ^m	+20° 16'	NGC 6802	8.8v	3.2'		Vul	Open Cluster 50+
19 ^h 31.6 ^m	-09° 13'	NGC 6804	12.0v	31"x66"		Aql	Planetary Nebula

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

Select from a topic in the navigation bar on the left, or from the links below.

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Thanks to Len Jezior for deep sky objects charts.

**Hidden Hollow Star Party Oct. 4 - 8, 2018
Dark Skies, RV+Tent Camping, Bunkhouses, Restrooms.
Big Blue 36" Newtonian Telescope
Speakers, Vendors, Raffle**

**Warren Rupp Observatory
Hidden Hollow Camp
near Mansfield, Ohio**

www.wro.org



**Keynote Speaker Dean Regas
Astronomy Author
Astronomer for the Cincinnati Observatory**

Latest updates and additional information:

<http://wro.org/hidden-hollow-star-party/>

George Trimble & Sapere Aude Books release only English language

book in print covering modern astrolabe manufacture

Valuable resource for astronomy enthusiasts everywhere

By George Trimble

May 25, 2018

Cleveland, OH— *The Theory, Design, Manufacture & Use of The Astrolabe; Wheel of Esoteric, Ancient Wisdom* has just been released by Sapere Aude Books and the author, Dr. George Trimble. Five years of research and preparation went into its creation. The book's release is timed to coincide with the launch of the website supporting its release.

About the astrolabe

The astrolabe is an ancient astronomical observational tool and analog computer based on the stereographic projection. First conceived by Hipparchus, perfected by Ptolemy and later embellished by the Arabs of antiquity, the astrolabe is used to solve problems relating to the timing and location of astronomical phenomenon.

“It can actually tell time, and solve problems in plane and spherical trigonometry,” says Dr. Trimble.

About the Book

The release of this book is important, as it represents the only English language resource on the topic in print.

“There have been other books about astrolabes available in modern times, but none is now in print,” says the author. “None of these previously available books on the subject of astrolabes addressed the very practical question of how to actually manufacture your own working metal device at home using modern tools and techniques.”

This four-part textbook begins by teaching the ancient astronomy upon which the device is founded. Readers are introduced to the first, second and third motions of the sun; ancient methods of equinox and solstice determination; how to determine the length of the year; the solar anomaly and the surprising variation in the length of seasons. From these observationally determined parameters, Hipparchus reached the startling conclusion that the Earth’s position within the circle of the sun’s motion must be eccentric. “An accurate value for the eccentricity of Earth’s orbit may be derived from the astrolabe drawing by forming the ratio between the lengths of two lines. It is amazing that orbital parameters just jump out of the 2000-year-old drafting methods,” Says Trimble. He goes on to describe how to calculate precession of the equinoxes using mathematics within easy reach of anyone possessed of high school algebra.

Part two of the book focuses on the geometric construction methods of Ptolemy using inexpensive, modern CAD drawing software. “I wanted the astrolabe to be available to the average guy with a bit of motivation, and drawing software commonly available for \$40.00 or less at his local software store or online,” says Trimble. The reader is guided through drawing his own latitude specific device using the geometry of the ancients, avoiding the algebra of previous modern books on the subject which were directed at those interested in writing computer code to programmatically generate

the lines of an astrolabe. “There is so much more to be learned about astronomy from doing the drawings like the ancients,” says the author.

Part three of the book has no equivalent in all of historical writing. It takes the reader step-by-step through the process of safely acid etching a device at home in the kitchen using a method the author perfected for the task. “Without expensive engraving tools and the training to laboriously hand cut the many lines of the astrolabe into a metal plate, the astrolabe would be out of reach to the average maker. My technique makes a working metal astrolabe attainable by anyone,” says Dr. Trimble.

Naturally, part four of the book is dedicated to the use of the device. “Not since Geoffrey Chaucer wrote *A treatise on the Astrolabe* has such a detailed treatment on the subject been available in English.”

Says Trimble “The amateur astronomy enthusiast will love my book. They will harken back to the heady days when they made their first telescope by hand grinding their own optics. I think they will greatly value a new homemade instrument of such observational and predictive power.” He continues: “Anyone interested in the history of science and technology will be appreciative of the detailed historical treatment of how we know what we know.”

Dr. Trimble is Vice President of The Chagrin Valley Astronomical Society in Ohio and is Editor of *The Valley Skywatcher*. He is also the Founder of The Eastlake School of Amateur Astronomy. He is the author of *Einstein’s Theory of Special Relativity, A Mathematical Approach for Non-Physicists*. He is available to lecture to interested groups on either of these topics nationwide. The book is now available for purchase at WWW.AstrolabeBook.com, where more information is available. It will soon be available at bookstores nationwide.

For more information or to inquire about lectures for your club or group contact:

George Layton Trimble IV, MD

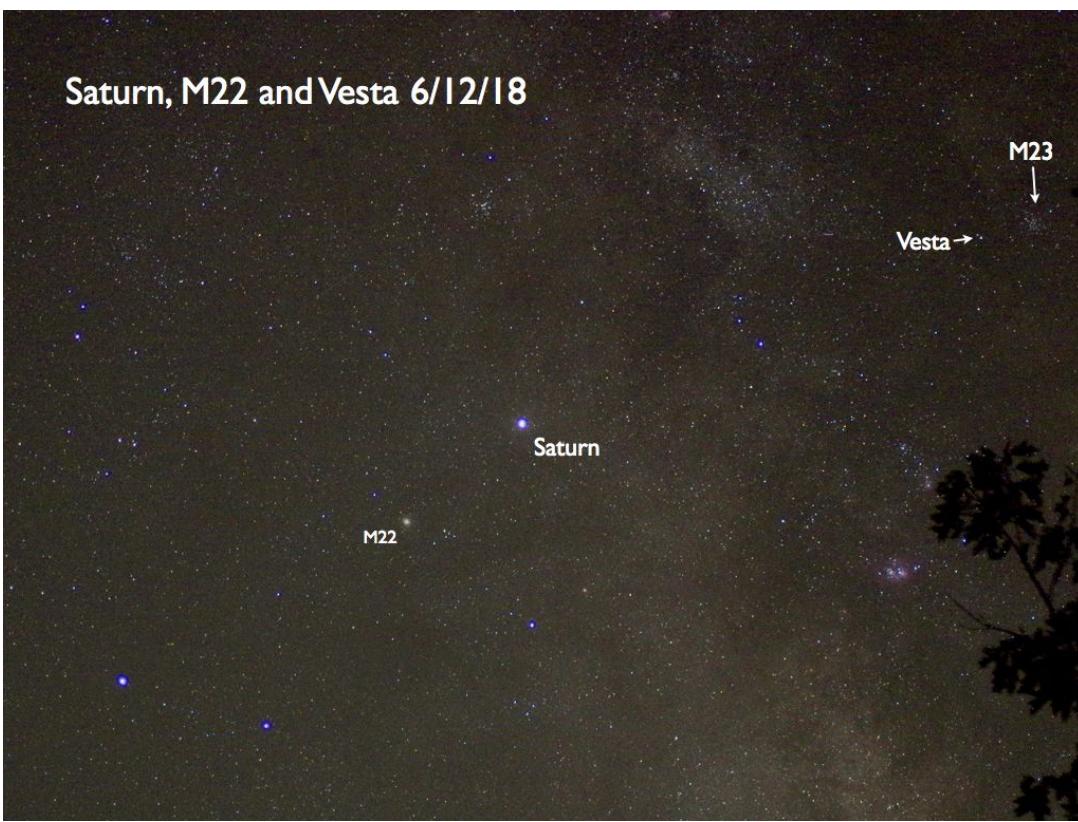
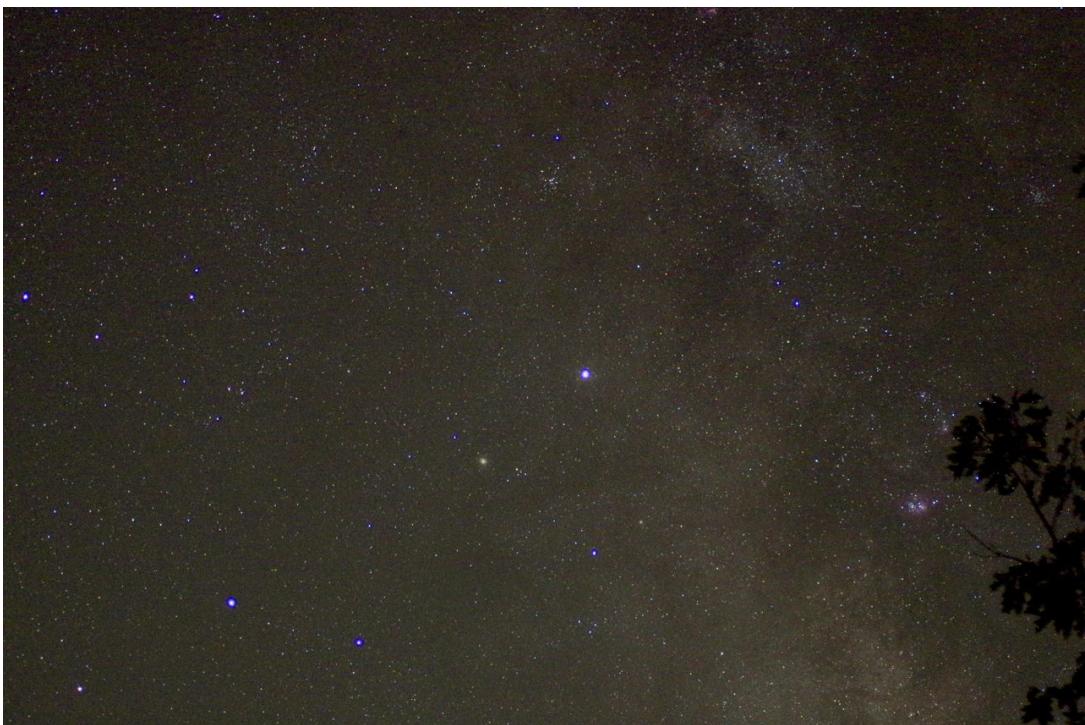
36480 Sandy Knoll Dr.

Eastlake, OH 44095

440-488-0727

gtrimble@AstrolabeBook.com

http://www.AstrolableBook.com



We finally had a clear and moonless morning, so I decided to get up early (2:30 a.m.), to photograph Saturn near M22, and also Mars, now brighter than Sirius, in Capricornus. I used the Pentax K-3 II with the Astrotracer function, on a fixed tripod. Here are one unlabelled and one labelled photos. The unlabelled view of Saturn and the Sagittarius region was a 25.2 second exposure using a 70mm zoom lens.
~Dave Lengyel