

The Observer

The Official Publication of the Lehigh Valley Amateur Astronomical Society

<https://lvaas.org/>

<https://www.facebook.com/lvaas.astro>

August 2022

Volume 62 Issue 8





ad astra *****

LVAAS invited Felipe Maldonado of the DaVinci Science Center to attend the LVAAS BOG meeting to share his thoughts about the relationship between them and LVAAS. After the discussion the BOG agreed to help give astronomy a greater role. In order to do this, we decided to partner with them in two solar party events. The intent is to have them open at a reduced fee for the day of the event. Since they would be expecting 1,000 people or more at the events, we will need 7 or more volunteers to help. Anyone wishing to assist should contact our Education Director Blaine Easterwood. blaine@ieee.org

Don't forget Mega Meet has been rescheduled for August 19-21 and coincides with our annual August meeting at Pulpit Rock. Mega Meet is LVAAS's bare bones star party, without vendors, paid speakers, or registration fees. Members in good standing of regional amateur astronomy clubs are invited to attend. Since it now coincides with our August meeting at Pulpit Rock, our very own Frank Lyter will be presenting on the LVAAS winter projects.

Registration for the Black Forest Star Party (9/23-9/25) at Cherry Springs State Park has opened online. Registration will remain open until September 7th, or until they reach capacity, whichever comes first. The Black Forest Star Party (BFSP) is an annual dark-sky amateur astronomy observing event hosted by the Central Pennsylvania Observers (CPO). Held every year since 1999, the BFSP generally spans a weekend in the late summer or early fall in Cherry Springs State Park in Potter County, Pennsylvania. Cherry Springs State Park is one of the darkest sites in the state of Pennsylvania and has been designated as Pennsylvania's first Dark Sky Park by the PA Department of Conservation and Natural Resources (DCNR).

A meeting was held July 23rd of the Astroimaging group and eight people were in attendance. A video was presented about installing and setting up a ZWO ASI AIR imaging computer based on the Raspberry Pi. Our next meeting will be on August 13th. Note: due to unavailability of several members the September meeting scheduled for 9/17 is cancelled.

Ad Astra!

Thomas Duff



LVAAS MEGAMEET*****

The annual LVAAS weekend camping and observing event, held at our Pulpit Rock Astronomical Park will be held on August 19-21, 2022.

MegaMeet is LVAAS's bare bones star party, without vendors, speakers, or registration fees. Members in good standing of regional amateur astronomy clubs are invited to attend.

There is no fee for attending or camping. However, please notify Tom Duff, our MegaMeet coordinator, of your intention to attend so we can obtain a head count and plan accordingly. For LVAAS members without gate keys and regional club members, access will be available Friday from 4:00 PM to 7:00 PM and Saturday from 4:00 PM to 7:00 PM.

Access to the site, behind the locked gate, is via 2 miles of some rather steep gravel mountain road. The road is in good shape and is readily accessible for cars and light trucks, however if you are towing a small camper, it is recommended that your vehicle be 4-wheel drive. Larger campers should not attempt to access the site.

There will no food service or potable water on site so please plan on bringing your own food and drinking/cooking water. If you do plan on bringing your own food and cooking it yourself, you must use either charcoal or gas for cooking as no open fires are permitted on site.

There are no shower facilities; however, there is a flush toilet available on site.

Please visit www.lvaas.org for pictures of the site and directions.

Regards

Thomas Duff

Director

Minutes of the LVAAS General Meeting – July 9th, 2022

The July 2022 LVAAS General Meeting was conducted electronically using an on-line service and in person at our South Mountain headquarters. Approximately 39 people were in attendance. Director Tom Duff opened the meeting at 7:15 p.m. Tonight's General Meeting's presentation was "Lost Constellations" by LVAAS's longtime member, Ray Harris.

Today's 88 constellations were formalized by the International Astronomical Union in the 1920's. Our modern constellations started with the 48 listed in Ptolemy's 2nd-Century Almagest. We will explore how new constellations were introduced starting in the 16th century and take a look at some of the more than 100 that have been abandoned. This will be a preview for his two upcoming articles for *Sky & Telescope*.

Ray Harris has been a member of LVAAS since 1985 and has served as both Treasurer and Director. After graduating from Yale in 1972 he served five years in the Navy as a nuclear engineer on a submarine. He settled in the Lehigh Valley in 1980 when he accepted a job with PP&L. Ray started collecting antique star charts in 1987 and has accumulated an extensive collection of original material dating back to the early 1500's. He has lectured widely on the history of celestial cartography and his article "The First Deep-Sky Atlas" appeared in the January 2022 issue of *Sky & Telescope*.

The July General Meeting was recorded.

Business Meeting - Tom Duff

- Pulpit Rock - Our lawn mower broke down, so Frank Lyter and Ron Kunkel asked for an emergency fund disbursement to get a replacement mower for \$2,900.
- Per LVAAS by-laws, expenses over 10% of budget must be approved by general membership.
- A motion to approve the expense was made by Dave Binder and seconded by Steve Vlasik.
- The expense was approved by vote of the membership present.
- The motion to close the business meeting was made by Earl Pursell; seconded by Steve Vlasik.

Membership - Rich Hogg

1st readings

Michael James

Tara Garst

Hannah Aurand

Paul Berger

Chris and Martha Papadakis

Randy Rooth

Charlie Wischner

Treasurer's Report - Blair Hogg

- A new lawnmower has been purchased for use at Pulpit Rock
- A comparison of expenses up until this point was done.
- LVAAS's finances are looking "pretty good" at this point.

General Comments:

- The LVAAS officer election is coming up.
- Tom Duff and Rich Hogg have each served two years as officers and so are not eligible for re-election in 2022.
- Any LVAAS member interested in serving in either of these positions should reach out to Bill Dahlenberg.
- Tom Duff is the head of the Astro-imaging group that have their own separate meetings on Saturday nights.
 - The next meeting is Saturday, July 23 at 7 p.m.
 - Imagers of all levels are welcome.
 - Presentation topics range from beginner to expert level.

Pulpit Rock Observatories – Frank Lyter

- Anyone interested in getting trained on telescopes should contact Frank Lyter or Ron Kunkel. Both men are retired and usually available.
- There are 3 'buzz' email lists: Pulpit Rock, South Mountain, and the Astro-imaging groups.
 - Buzz members will receive emails and notifications such as when members are heading up to observe, image and work party notifications.
- Pulpit Rock's locks (except the gate) will be switched over to combination locks.
- The next meeting at Pulpit Rock will be Mega Meet, held 8/19-21, 2022. Please see the ad in this issue of *The Observer*.
 - Frank Lyter will be presenting on 2 projects:
 - Encoders on the Dobsonian telescope.
 - Meteor cameras.
 - 3 members have cameras that are operational.
 - John Kmetz's camera is currently uploading data to the national database.
- Members can sign up for the groups by going to lvaas.org clicking on “menu” and then “The Buzz.”

Library & History – Dave Raker

- Books and DVDs as well antique VHS tapes are available to borrow.

Next General Meeting:

- The next general meeting will be 8/20; combined with Mega Meet.
 - Mega Meet will be held from 8/19 - 8/21, 2022.
 - The General Meeting will be 8/20 at 7 p.m.
- Non-imagers: please park near the utility shed by the radio tower and point the headlights down the mountain.

South Mountain Maintenance – Bill Dahlenburg

- Bill is available at South Mountain most Saturdays from 9 until about noon.
- Anyone looking to get trained on the telescopes feel free to come.
- On clear days the solar telescope will be up and running.
- Telescopes are available in the planetarium, library, and optical shop for rental and/or purchase.

Star Party Coordinator – Bill Dahlenburg

- Bill is asking for volunteers to help with Star Party activities.
- Anyone looking to help, will be trained on running the telescopes. Training is easy!
- Planetarium shows are at 6 p.m. for kids, 7 p.m. presentation, and 8 p.m. planetarium show for adults.
- If anyone is interested in taking over the organization of LVAAS's star parties, please let Bill Dahlenburg know.

The meeting was adjourned at approximately 8:53 p.m.

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Submitted by Michael Huber, Secretary

Via Sandy Mesics, Program Chairperson

Upcoming LVAAS General Meeting Speakers

August, **Frank Lyter** will speak: "**LVAAS Winter Projects: the Meteor Camera, and the Digital Setting Circles for the 17" Dobsonian.**" - Live at Pulpit Rock, and online

September, **Rick Wasatonic** will speak: "**Photometry of Betelgeuse.**" - Live at SMHQ Grady

October, **Mike Huber** will speak: "**Astronomy with Kids**" - Live at SMHQ Grady

November, **John Conrad** will speak: "**Don't Look Up: DART, the World's First Asteroid Deflection Test.**"

A speakers is still needed for **December**; please contact Sandy to volunteer or to suggest a speaker:
astrosandy@gmail.com

Via Bill Dahlenburg, Star Party Coordinato

LVAAS is always looking for volunteers to help out with star party activities. Anyone willing to help will be trained on running the telescopes. Training is easy.

Planetarium shows are: 6 p.m. for kids, 7 p.m. presentation, 8 p.m. planetarium show for adults
Additionally, if anyone is interested in taking over the organization of LVAAS star parties, please let Bill Dahlenburg know.

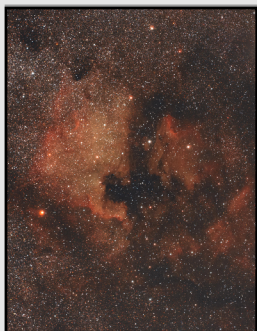
Via Earl Pursell, UACNJ Liason:

United Astronomy Clubs of New Jersey (UACNJ), of which LVAAS is a member, is holding Public Nights (Star Parties) every Saturday from now until the end of October. There will be a talk beginning at 8 p.m. live and online, followed by observing. Since both the talk and the observatories are outside, everything is weather permitting. Reservations are suggested, but not required. Please visit www.uacnj.org for more information.

Benefit from giving to LVAAS through your IRA

If you are 70 1/2 or older, you can make a charitable gift directly from your IRA to LVAAS without paying income tax on the withdrawal. State laws about Qualified Charitable Deductions (QCDs) and how QCDs are handled vary. If interested, please consult an adviser so you can help LVAAS today!

https://lvaas.org/page.php?page=using_rmd_to_support_lvaas



Cover: The North American Nebula - Jamie Elovski, Imager

This image was taken in Jamie's backyard in Center Valley, PA with a Redcat 51 and a Canon 5D mk ii Modified.

Total exposure time around six hours over the course of June and July, 2022.

Library Announcement

The following books are new to the library:

Apollo 11: The Inside Story by David Whitehouse

Brilliant Blunders from Darwin to Einstein by Mario Livio

The Way of the Explorer by Edgar Mitchell (Apollo 14 moonwalker)

Cosmic Dispatches edited by John Wilford

Seeing Further by Bill Bryson

Star Talk by Neil deGrasse Tyson

The Night Sky Month by Month by Will Gater

The following DVD's are new to the library:

National Geographic Mars (donated by Steve Snyder)

Ray Harris Forgotten Constellations

Inventory is underway and Dave is planning to put some DVD's back into their display cases, making sign-out easier but increasing the risk of theft.

Dave is always looking for requests of books and DVDs for the LVAAS Library. Please email him with what you would like to see in the collection and he will do his best to locate what has been requested.

Submitted by Dave, Raker, LVAAS Librarian draker@cedarcrest.edu

LVAAS General Meeting at *Pulpit Rock*

Saturday, August 20

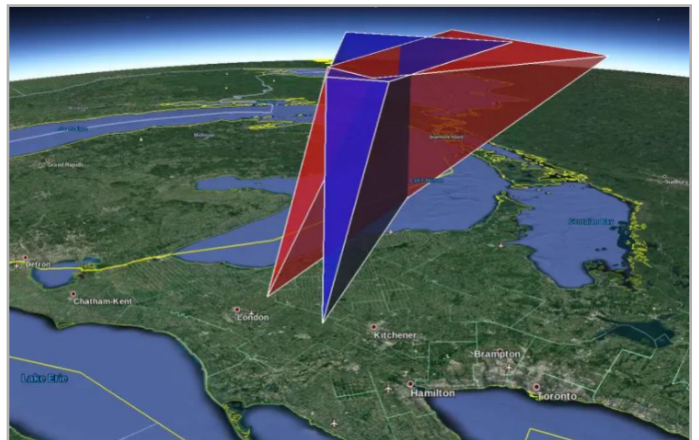
Rain date: Sunday August 21

"UPDATE ON LVAAS PROJECTS"

presented in person by

Frank Lyter

Frank Lyter, Director of Pulpit Rock Observatories, will be presenting an update on two projects he is leading for LVAAS. The presentation will be held at the society's Pulpit Rock Observatory Site.



The first project presented will detail the installation of digital encoders and a controller to the society's 17.5" Coulter Odyssey 2 Dobsonian Reflector "Push to" telescope located at Pulpit Rock Observatory Site. The addition allows users to push the telescope to navigate the night sky while monitoring the position wirelessly via the Sky Safari application on their phone or tablet. The project utilizes the open source Dobsonian DSC application developed by Vladimir Atehortúa and made available via GNU General Public License.

The second project presented will be the installation of meteor detection cameras to the society's South Mountain and Pulpit Rock Observatory Sites as well as at members' homes. The project utilizes the International Global Meteor Network (<https://globalmeteornetwork.org>) program which is a worldwide organization of amateur and professional astronomers alike, whose goal is to observe the night sky using inexpensive, low-light video cameras to calculate meteor trajectories in a coordinated manner. LVAAS's cameras are the first installations in our area of the United States, and along with other installations across the globe allow for the tracking and determination of the source, size and possible landfalls of meteors impacting the earth.

The meeting will be in-person only, outdoors at LVAAS' Pulpit Rock dark-sky observing site. Click [here](#) for directions. For members who do not have a key, the gate will be manned during a certain period TBA before the meeting starts.

Prospective new members who wish to attend the meeting should email membership@lvaas.org

Get cooking...

In LVAAS style!



Start by shopping for your ingredients using our eco-friendly reusable shopping bag. Made of 100% recycled materials, 12" x 13". Spot clean with damp cloth. Only \$17.99



And when you start cooking, stay neat and clean with our own LVAAS apron. Choose our current logo (left) or our retro 1959 logo (below). 100% cotton twill, 31" long x 29" wide, two large pockets. Machine wash cold, tumble dry low. Only \$20.99



For this and many other items, visit our online LVAAS Redshift Store:

<https://www.cafepress.com/lvaasredshiftonlinestore>



Peter Detterline's
Night Sky Notebook
AUGUST 2022

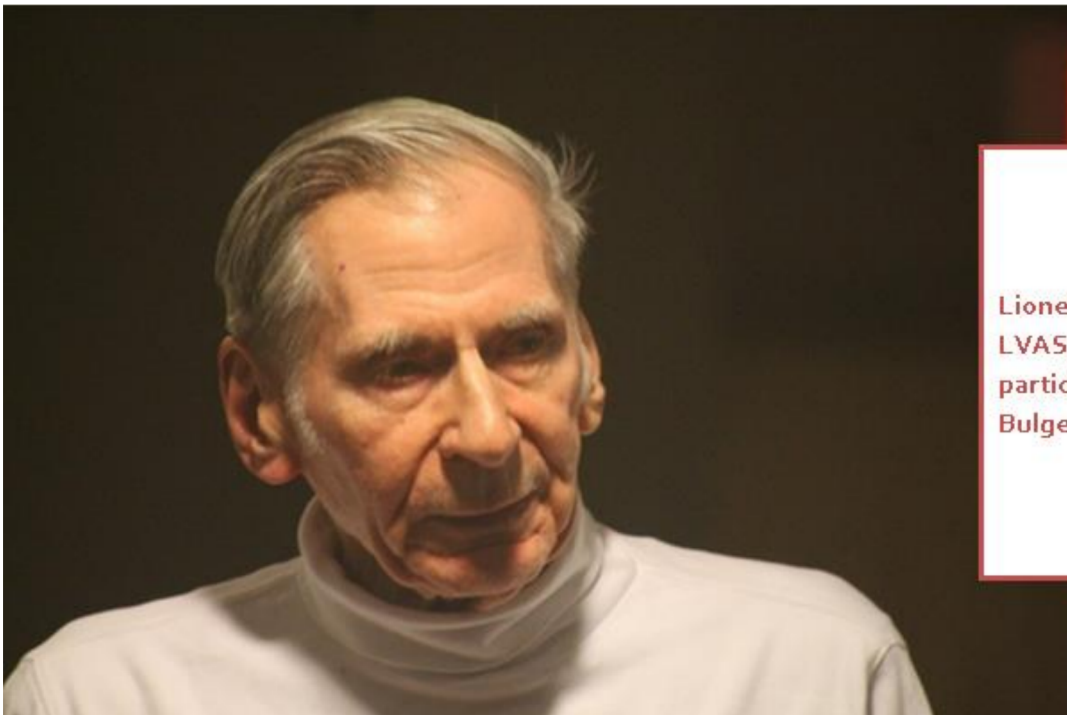


From the LVAAS Archives: A Lunar Eclipse and a World War

By Sandy Mesics

Seven members of the Lehigh Valley Astronomical Society (LVAS) attended its 73rd meeting on Tuesday, August 25, 1942, at the home of LH Cutten in West Allentown. While it was a regular monthly meeting, the occasion coincided with a Lunar eclipse. According to the meeting minutes which were recorded by Secretary Lionel Adda:

“The sky was unusually clear, and the opportunity for the study was excellent. Prior to the commencement of the eclipse, three of the members engaged in the study and observation of clusters, nebulae, and double stars. The various phases of the eclipse were studied through Mr. Cutten’s telescope and a pair of binoculars. A map of the surface of the moon aided the members in identifying the features of the lunar landscape as they entered into the shadow of the earth. The reddish hue of the eclipsed satellite was, as usual, an interesting feature; and the members engaged in discussions regarding the cause and significance of the phenomenon. The formal meeting was adjourned at 11 p.m. at which time the Moon was completely within the shadow. However, a few members remained to continue the study.”



Lionel Adda, Secretary of the LVAS, served in the US Army and participated in the Battle of the Bulge.

Of course, at the time this meeting was held, the United States had been involved in the Second World War for 9 months. The German army was driving on toward Stalingrad, and the American army launched the Guadalcanal campaign in the Pacific theatre. More and more young men were being called into service, and the LVAS members were no exception. LVAS membership at that time was all-male, and the number of members had dwindled from 18 to 11 since the U.S. had entered WWII. The group that night made a serious decision in light of these developments:

"It was learned from Dr. Knecht that Mr. [Ralph] Schlegel was already in the army, serving as a Sargent in the Signal Corps. The increasing number of members called to the service coupled with the increased time and energy being spent on war work prompted the advisors to suggest the suspension of the formal meetings and activities of the group for the duration of the war. The suggestion was approved by the members, and it was decided that notices regarding this move should be sent to the members who were not present. It was agreed that the meetings were to be resumed as soon as the members return from the Army and the war work in general was over."

The next month Lionel Adda sent postcards to the members with the following notice:

"TO THE MEMBERS OF THE LEHIGH VALLEY ASTRONOMICAL SOCIETY: War demands have had a pronounced effect on the activities of the L.V.A.S. In recent months meeting attendance has been on the decline, due in a large part to the induction of a number of the active members into the armed forces and the increase in war work. In

view of this fact, it was suggested and approved at the last meeting that the activities and meetings of the L.V.A.S. should be suspended for the duration of the war. The organization will remain intact and meetings will be resumed after the war.

Secretary, L.V.A.S."

LVAS operations essentially ceased for the duration of the war. While publication of the "LVAS Bulletin" resumed in March 1945, it would be three years until the group reconvened on Monday August 13, 1945 back at the home of LH Cutten. Ten members and six guests attended the informal gathering. Again, conditions were favorable for observing: "The skies during the evening were very clear, affording us splendid views of the moon in first quarter, numerous doubles and the M-13 cluster in Hercules which was a treat for all." A reporter from the Allentown Call-Chronicle was there to cover the event.

Two days after this meeting, the Japanese surrendered, effectively ending World War II.

LVAS resumed regular monthly meetings in March 1946. The group met regularly

All Sections of Eastern Penna.

L. V. Astronomers Study Heavens



Six members of the Lehigh Valley Astronomical society are shown with the telescopes used in their study of the heavens. Pictured are: Robert Fisher, owner and maker of the two telescopes shown in the foreground; M. J. Fisher, Eugene E. Carl Jr., secretary of the society; L. H. Cutten, whose 10-inch telescope is in the back; Leonard Teilmann, and Dr. Paul W. Kunkel, head of the mathematics department at Cedar Crest college.

The Lehigh Valley Astronomical society held its first meeting since the start of the war last night at the home of L. H. Cutten, 2815 Washington St., with 10 members present.

Under the direction of Mr. Cutten and Dr. Paul W. Kunkel, advisors to the society, the members studied and observed the craterous and mountainous surface of the moon, now in its first quarter.

Later the group turned their attention to the M-13 cluster of the Hercules constellation. This cluster contains approximately 50,000 stars. Observations were made through three telescopes. The largest is a 10-inch reflector type belonging to Mr. Cutten, and the other two are four and six inch reflector instruments owned by Robert Fisher. All three telescopes were handmade by the owners.

The society was organized in 1936 for the purpose of bringing together all local amateur astrologers, and now has 50 active members, three of whom are in service.

One of the conditions of membership is that each member build his own telescope. This provision includes the stipulation that members must grind and polish his own lens and reflector.

until 1950, when meetings became more sporadic. In 1957, LVAS dissolved, and members were invited to join the new group, the Lehigh Valley Amateur Astronomical Society (LVAAS).

We are grateful for the service of these amateur astronomers who were members of “the Greatest Generation.”

References:

The LVAS Bulletin, various issues 1942 & 1945

LVAS minutes

LVAS Members in the Armed Forces 1941-1945

- **Lionel Adda**, Sergeant, U.S. Army, D Co. 393rd Infantry, 99th Div. European theatre. Adda was drafted in 1942 and served at the Battle of the Bulge. He went on to earn an engineering degree, and ultimately a PhD in Physics from Lehigh University.
- **Ralph Schlegel**, Master Sergeant, Signal Corp., U.S. Army, Pacific theatre
- **Eugene Carl**, U.S. Army
- **Paul Frankenfield**, company clerk, infantry, European theatre. He was a machinist at Mack Trucks for 44 years before retiring in 1977. He died in 1986 at age 71.
- **Wallace J. Knetz Jr.**, Midshipman, U.S. Navy



StarWatch

Find Copernicus!

About one week ago, I had the pleasure of volunteering for an evening star party hosted by the Reading Rotary Club, STEM-YEA, and Albright College. It was facilitated by Peter Detterline, who along with me, teaches astronomy at Moravian. Peter handled the first evening, talking about the moon, identifying the lunar seas (maria) and specific craters that could be revealed, some with binoculars and most with a small telescope. The second evening was a scavenger hunt peopled by amateur astronomers from Berks and Lehigh counties. The kids involved were 7th graders, part of a program for underprivileged children from the Reading area. • It had been over a decade since I had worked with 13-year-old students. These kids had an incredible amount of enthusiasm, thanks to Peter's lesson. My group of three guys and one girl wanted to see Copernicus immediately, a 58 mile-in-diameter impact crater, 2.5 miles deep with a central peak (mountain) nearly 4000 feet in altitude. The crater is positioned in an isolated area on the southern edge of the Imbrium Basin. Most of the lunar basins, the darker, circular areas of the moon, were created nearly four billion years ago by asteroids driven sunward by the gravitational pushes of Jupiter and Saturn. Several hundred million years later, these huge and deep depressions gradually filled with molten rock. The lava which created the darker maria had a slightly different composition from the brighter highland regions. • The highlands revealed the history of the moon from the time it formed a crust. The creation of the maria were more recent than the highlands and erased the earliest history of the moon, in a way like icing can cover a damaged area of a cake. The lowlands show the history of the moon from about 3.5 billion years ago to the present. After the period of lava inundation, for all practical purposes, the moon became a geologically dead body except for occasional impacts from meteorites that

created craters big and small, but still left the maria relatively smooth and featureless. • This topographical difference makes Copernicus really stand out when it is observed through a telescope under the correct lighting conditions. Rays emanating from the crater, strands of ejecta that *gardened* the regolith (lunar soil) exposing lighter soil beneath, are easily visible. This is always an indication of a younger age. Apollo 12 astronauts brought back to Earth for analysis some of this ray material thrown from Copernicus. Radiometric dating showed that this soil was only 800 million years old, a recent major impact event in the 4.5-billion-year geologic history of the moon. • "I see it; I see Copernicus!" shouted one of the students upon looking into the eyepiece of my refractor for the first time. The scavenger hunt was in full swing. • My eyepiece had a reticle (crosshair) etched into the glass. It also was equipped with a hand controller/computer to move the telescope across the lunar surface. The buttons were positioned in a similar fashion to a computer game, giving the participants of my group instant familiarity with the positioning attributes of my mount, gliding the telescope around to pinpoint the Sea of Crisis and the Sea of Tranquility, where Neil Armstrong put humanity's first footprint on the lunar surface. They found Copernicus in a flash and a few other craters too. The crosshair zeroed in on the location, and because the telescope had a drive system which followed the moon, the reticle remained fixed at that spot so that the pupil's positioning could be verified by me. My four 7th graders hit the mark precisely about 80 percent of the time which was a tribute to Pete's orientation lessons. It was an evening of fun and camaraderie as our group shared our love of astronomy to a group of impressionable teens who were interested, animated, and wanted to learn. Ad Astra!

Gary A. Becker -- beckerg@moravian.edu or garyabecker@gmail.com
Moravian University Astronomy - astronomy.org also facebook.com/StarWatchAstro/

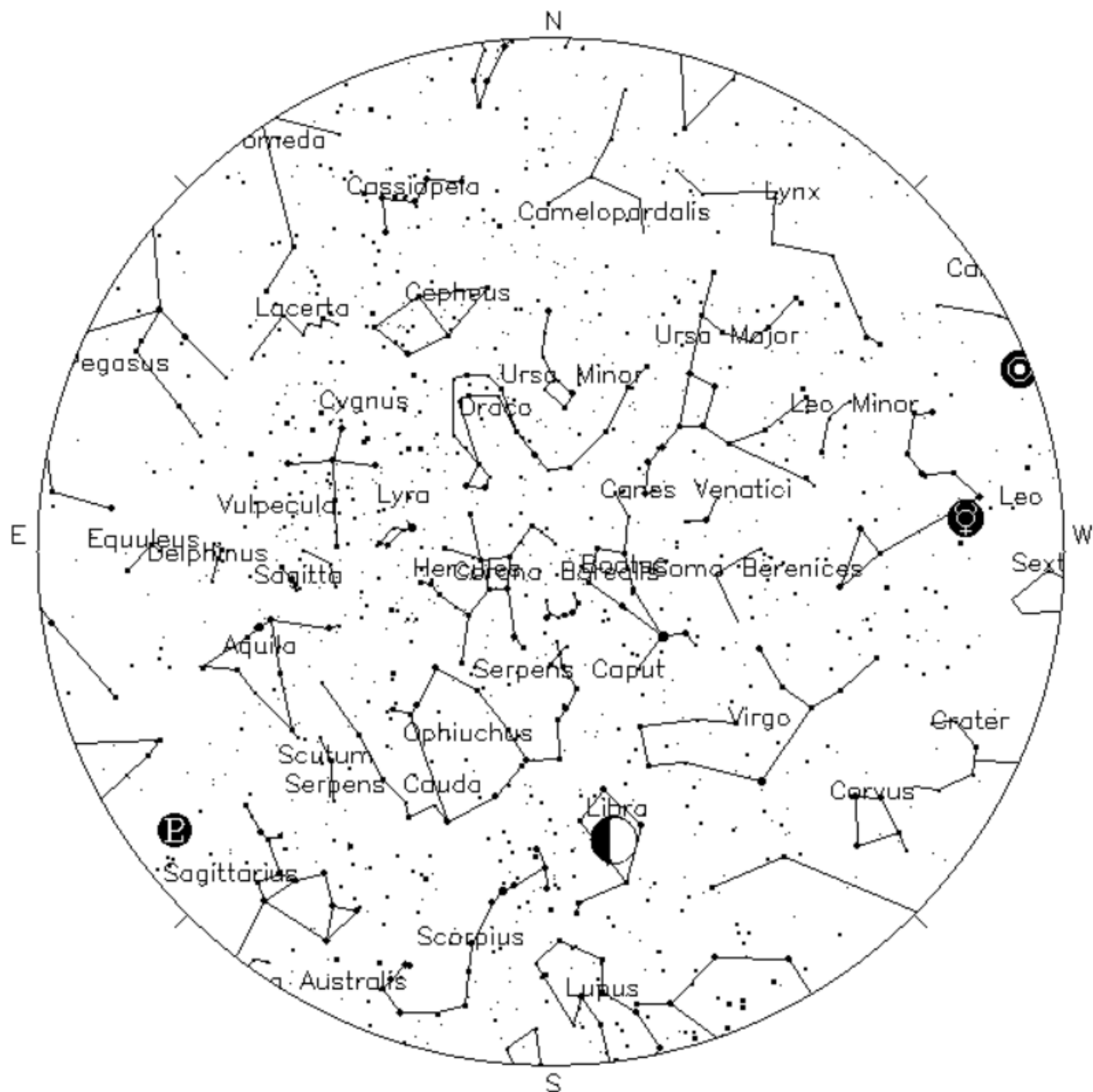
Forward this **StarWatch** to a friend by clicking [Join](#)

AUGUST

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	01	02	03	04	First Quarter Moon 05	Star Party 06
07	08	09	10	11	Full Moon 12 Scout Camping at Pulpit Rock	Scout Camping at Pulpit Rock 13 Astro Imaging at SM 7pm
Scout Camping at Pulpit Rock 14	15	16	17	18	MegaMeet at PR 19 Last Quarter Moon	MegaMeet at PR 20 General Meeting Pulpit Rock - 7:00 PM
MegaMeet at PR 21 Deadline for submissions to the Observer General Meeting Pulpit Rock (rain date) - 7:00 PM	22	23	24	25	26	New Moon 27
LVAAS Board of Governors Meeting 28	29	30	31			

SEPTEMBER

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				01	02	First Quarter Moon 03 Star Party
04	Labor Day 05	06	07	08	Scout Camping at Pulpit Rock 09	Scout Camping at Pulpit Rock 10 Full Moon
Scout Camping at Pulpit Rock 11 General Meeting - 7:00 PM	12	13	Scout Presentation at South Mountain 14	15	16	Last Quarter Moon 17 (Cancelled) Astro Imaging at SM 7pm
Deadline for submissions to the Observer 18	19	20	21	22	BFSP 23	BFSP 24
BFSP 25 New Moon LVAAS Board of Governors Meeting	26	27	28	29	30	



Your Sky was implemented by John Walker in January and February of 1998. The calculation and display software was adapted from Home Planet for Windows. The GIF output file generation is based upon the ppmtogif module of Jef Poskanzer's pbmplus toolkit, of which many other components were used in creating the images you see here.

ppmtogif.c - read a portable pixmap and produce a GIF file

Based on GIFENCOD by David Rowley

Lempel-Zim compression based on "compress"

Modified by Marcel Wijkstra

Copyright © 1989 by Jef Poskanzer.

Customize Your Sky at <http://www.fourmilab.ch/yoursky/>

2022 LVAAS EVENT CALENDAR

Contributed by Bill Dahlenburg

2022 LVAAS Event Calendar												
	Sundays				Saturday	Saturday	Monday	Multi-Day	Moon Phase			
	General Meeting time	Date/location	Board meeting	Observer submission deadline	7:00 PM Astro Imaging	Star Parties	Scouts at S. Mountain	Weekends Scouts at Pulpit R.	New	First	Full	Last
January	3:00 PM	9 Muhlenberg/Zoom	30	23	no mtg	no mtg		no camping	2	9	17	25
February	3:00 PM	6 * Muhlenberg/Zoom	27	20	no mtg	no mtg		no camping	1	8	16	23
March	3:00 PM	13 Muhlenberg/Zoom	27	20	26	12			2	10	18	25
April	7:00 PM	10	24	17	23	9			1 30	9	16	23
May	7:00 PM	1 *	22 *	15	21	7			30	9	16	22
June	7:00 PM	12	26	19	25	4			29	7	14	21
July	5:00 PM	9/10 Picnic – S.M.	31	24	23	2			28	7	13	20
August	7:00 PM	13/14 Pulpit	28	21	20	6			27	5	12	19
September	7:00 PM	11	25	18	17	3			25	3	10	17
October	7:00 PM	9	30	23	15	1			25	3	9	17
November	7:00 PM	13	27	20	19	5			23	1 30	8	16
December	**	10/11	18 *	11	17	no mtg		no camping	23	30	8	16

* early due to conflicts

July, Aug & Dec are Saturday meetings with rain date on Sunday
 Jan, Feb & March general meetings Muhlenberg (tentative)
 August meeting is at Pulpit Rock
 December meeting / Holiday Party **

NEAF
 Cherry Springs S.P.
 Stellafane
 Black Forest S.P.
 MegaMeet

April 9-10
 June 2-5
 July 28-31
 August 19-21

Publishing images is a balancing act!

When preparing your images for publication in *The Observer*, please consider the following guidelines:

Put the quality in:

- ▶ Considering the "print" size of the image, make sure you have at least 150 pixels/inch.
- ▶ Use a reasonably good quality for the JPEG compression ratio.

But watch the "waistline"!

- ▶ Don't go too much above 200 pixels/inch max.
- ▶ Use the lowest JPEG quality that still looks good!
- ▶ Shoot for <300KB for a 1/2 page image or <600KB for a full page.

Tip: If you're not Photoshop-savvy, you can re-size and compress undemanding images ("human interest" not astroimages), with an online tool such as:

<https://www.ivertech.com/freeOnlineImageResizer/freeOnlineImageResizer.aspx>. It will also tell you the pixel size and file size of your original, even if you don't download the processed copy.

The Observer is the official monthly publication of the Lehigh Valley Amateur Astronomical Society, Inc. (LVAAS), 620-B East Rock Road, Allentown, PA, 18103, and as of June 2016 is available for public viewing. Society members who would like to submit articles or images for publication should kindly do so by emailing *The Observer* editor, France Kopy, at editorlvaas@gmail.com. Articles submitted prior to the Sunday before the monthly meeting of the board of governors (please see calendar on website) will appear in the upcoming month's issue. PDF format is preferred. Early submissions are greatly appreciated. Articles may be edited for publication. Comments and suggestions are always welcome.

LVAAS members please feel free to submit ads for astronomy equipment you have for sale, and additionally you may sponsor a maximum of three ads from non-members per year. Please submit your finished ad as a PDF, with pictures and text. Every attempt will be made to include submissions in a timely manner.

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