The Observer

The Official Publication of the Lehigh Valley Amateur Astronomical Society
https://lvaas.org/
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April 2025
Volume 65 Issue 04

LVAAS General Meeting Public Welcome!

Sunday, April 13, 2025, 7 p.m. at SM Headquarters

Stargazing and Beyond:

A Global Network of Citizen Astronomers

presented by

Dr. Franck Marchis via Zoom

Astronomy is a science that inspires everyone, which makes it a great tool for expanding scientific literacy. It also has a uniquely powerful ability to make us aware of Earth's value and fragility. By inspiring people to engage in citizen science, astronomy fosters not only scientific research but also collaborative knowledge building that's based on a dialogue between experts and amateurs. The Unistellar network is by far the largest network of telescopes and citizen astronomers around the world, with more than 13,000 digital telescopes in more than 50 countries. This network has collected more than 4,000 scientific observations in 2022 and our citizen astronomers have helped the NASA TESS mission by confirming exoplanets and supported NASA DART by recording the impact live and its aftermath, validating the efficiency of the kinetic impactor technique to protect humanity against the threat of asteroid impacts. We present here some of the key scientific results achieved in 2021-2024, and future developments in education to make astronomy, easier, fun, and accessible, but also more inclusive and accessible. With the connected and decentralized platform SkyMapper, we propose to accelerate research space and popularize it by inviting people who own a telescope to be part of space exploration.

Dr. Franck Marchis is a senior astronomer and Director of Citizen Science at the SETI Institute, Chief Science Officer, co-founder of Unistellar, and co-founder and Chief Executive Officer of SkyMapper. After earning his Ph.D. from the University of Toulouse, France, in 2000, Marchis moved to the United States to pursue his passion for astronomy and exploration. His research, published in *Nature*, *Science*, and other leading journals, includes notable discoveries such as the first triple-asteroid system in 2005, the binary Trojan asteroid Patroclus in 2006, the direct imaging of a Jupiter-like exoplanet in 2015, and major advancements in adaptive optics for 8-10m class ground-based telescopes, as well as citizen science using networks small telescopes. In recognition of his contributions to astronomy, the asteroid (6639) Marchis was named in his honor for his discovery of the first triple-asteroid system. In 2023, Marchis was elected a Fellow of the California Academy of Sciences for his dedication to outreach and the search for life in the universe. The following year, he received the Carl Sagan Center Director's Award for his excellence in SETI research, education, and outreach.

The LVAAS 2025 Calendar will be available for sale at this event. Purchase price is $20.

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

2026 LVAAS Youth Sponsorship Program
Proudly Administered by
Astronomy in the Community

The Lehigh Valley Amateur Astronomical Society is pleased to introduce the first annual LVAAS Youth Sponsorship Program for 2026, proudly administered by Astronomy in the Community.

To give back to our LVAAS community for your support during 2023 and 2024, Claudio T. Stabile and Ava Stabile, founders of Astronomy in the Community, proposed this initiative to provide similar opportunities to future youth members.

This astronomy project focused program aims to foster astronomy interest among young LVAAS members by providing financial and in-kind support for ambitious astronomy related projects. By recognizing and rewarding their dedication, we inspire future generations of astronomers within our community.

One applicant will be selected in January 2026 and awarded a $1,000 monetary grant along with support from LVAAS members to accomplish their project. The program is open to LVAAS members in good standing, up to 25 years old, having volunteered at a minimum of 4 LVAAS events in 2025, and with a strong astronomy project proposal. The application deadline is January 16, 2026.

Applications open September 1, 2025. In the meantime, volunteer, gather ideas and put together your best presentations!

For more information, please visit https://lvaas.org/page.php?page=YouthSponshorshipProgram

The LVAAS 2025 Calendar is Here! Now!

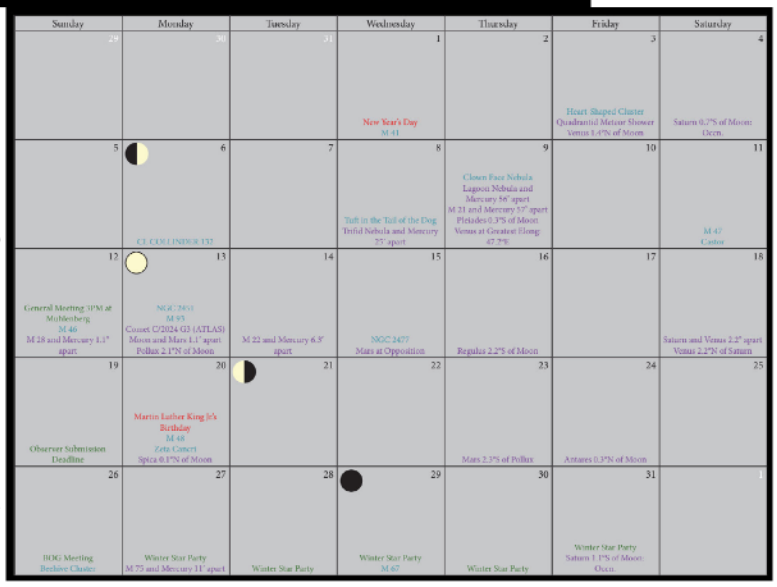
Explore the Universe All Year Long!
Your Guide to the Night Sky in 2025

What's Inside?

- Club Events: Dates for star parties, meetings, and other events.
- Astrophotography: Incredible images contributed by our talented members.
- Significant Astronomical Dates: Meteor showers, conjunctions, eclipses, and more.
- Viewing Highlights: Best times to see planets, galaxies, nebulae, and more!

Why You'll Love It:

- Perfect for planning your stargazing sessions.
- Supports our local astronomy club and outreach.
- A must-have for beginners and seasoned astronomers alike!



Order Your Calendar Today!
Send an email to mhuber614@gmail.com
with subject "Astronomy Calendar Order"

Calendars will be available for purchase for $20 at LVAAS events
both at Muhlenberg College and at South Mountain Headquarters

NEAF TICKETS STILL AVAILABLE

GET YOURS NOW!

The excitement is building for the world's largest astronomy & space expo.

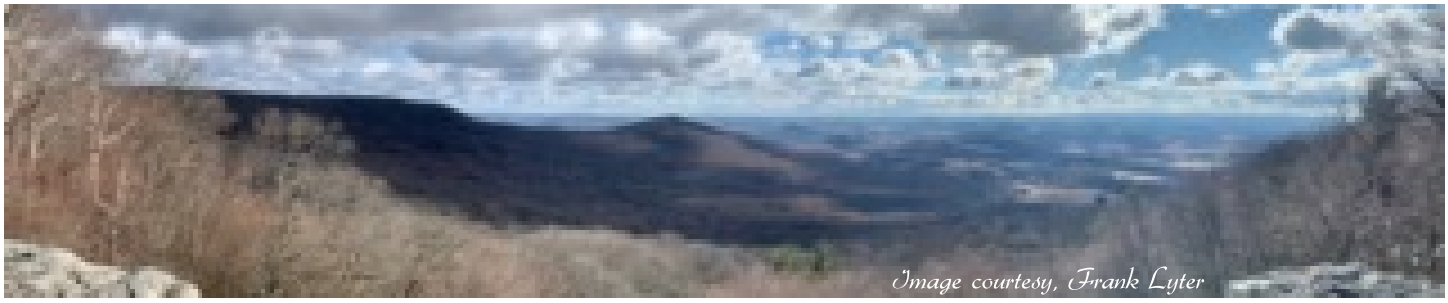
April 5-6, 2025

EXPERIENCE IT TO BELIEVE IT!

Get your tickets today!

https://www.neafexpo.com

Rockland Community College
Suffern, NY



Via Sandy Mesics, Programs Chairperson

Upcoming LVAAS General Meeting Speakers

April: **Franck Marchis** from SETI/Unistellar via Zoom on Stargazing and Beyond: A Global Network of Citizen Astronomers

May: **Brian Kloppenborg** from the AAVSO will speak via Zoom on AAVSO Citizen Science.

June: **Gary A. Becker** and **Peter Detterline** will speak; topic TBA.

July: **Linda Prince** will speak; topic TBA.

August: **Brett Fadem** and **Jonathan Cuadra** will speak; topic TBA.

September: **Joe Zitarelli** will speak on The Expanding Universe.

October: **Mike Huber** will be back to do 1913 Astronomy, Part 2

Speakers are still needed for November and December

- Please contact astrosandy@gmail.com if you have ideas for speakers, or would like to do a talk yourself.

THANK YOU, LVAAS VOLUNTEERS!

During the cold winter months, our dedicated LVAAS volunteers have been busy maintaining and improving our observatories, equipment and grounds so you can enjoy astronomy at our 2 locations, South Mountain and Pulpit Rock. We'd like to thank **Ron Kunkel, Frank Lyter, Mike Clark, Bill Dahlenburg, Earl Pursell, Ben Long, Kyle Kramm, Earl Pursell** and **Pete Brooks** for their hard work and dedication to LVAAS.. Thank you so much, LVAAS volunteers!

Via Benjamin Long, LVAAS Director

LVAAS is in the process of re-keying the locks on our properties. To request your **free replacement keys**, please contact the "Key Coordinators" listed on our website's Contacts page.

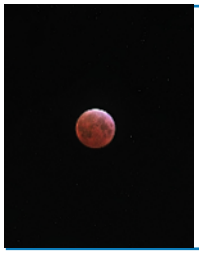
Via Earl Pursell, UACNJ Liason

Public Program Nights and weekly star parties have resumed at United Astronomy Clubs of New Jersey. There will be a 30-60 min talk every Saturday from the beginning of April until the end of October. Anyone who would like to give a talk is welcome to contact Chris Callie (reddog176@gmail.com).

UACNJ also has its own YouTube channel and the schedule of videos is on its website. Please visit uacnj.org to watch and /or subscribe.

Via France Kopy, Editor

Did you know you can advertise telescope equipment you'd like to sell in our newsletterat at no charge? See the black box on the last page for details. *The Observer* is always looking for new topics and ideas for improvement in 2025 and beyond. If you'd like write an article, now's the time! Do you have an idea for a new feature? Contact me to discuss it! Email: observer@lvass.org If no response, please forward your email to editorlvaas@gmail.com. Thanks!



cover: **Total Lunar Eclipse** *imager:* **Peter Detterline**

Photographed on March 14, 2025 at 3:15 a.m. from the Fancy Hill Observatory, Douglassville, PA. Peter used a Canon 60Da DSLR camera with a 75-300 mm lens set at 300 mm; a standard tripod with no clockdrive; ISO 1600; Exposure Moon 0.5 seconds; Stars 3 seconds. This is a composite image.

To watch Peter's eclipse video, please click

From The Library ~ Joe Zitarelli

In the summer and early fall I participated in a Zoom course on astronomy entitled "Adventures in Astronomy: Approaching Infinity." I watched it along with other LVAAS members to see if it was something worth viewing. It is an interactive first course in astronomy with a target audience of high school science teachers to be better prepared to teach the subject. The course also targets high school students with an interest in the subject who do not have an available astronomy course at their school. The course is not taught by PhD astrophysicists, rather by an amateur astronomer with an interest in teaching the subject. The course is quite appropriate for adults with an interest in learning more about a wide range of topics in astronomy. The course is held weekly on Tuesday nights at 7:30 p.m. They usually start with a brief review and any questions from the previous week, then spend about an hour on that evening's topic, and finally end with a question-and-answer period. It is given over Zoom, and all participants are welcome and encouraged to ask questions. The cost of the course is $100 and you can attend as many or as few sessions as you like. The slides for each lesson are provided beforehand and a video is posted a few days after each session. The schedule for the next session is:

Class number	Date	Topics
1	1/14/25	Intro, Geo-centrism, Kepler's laws, the Kepler-Newton law, the scientific method
2	1/21/25	Eclipses, tides, solar system formation, planet tilts & density
3	1/28/25	Rocky & giant planets, moon, escape velocity, planet atmospheres, the greenhouse effect
4	2/4/25	Determining Earth's age, comets, asteroids, distances using parallax
5	2/11/25	Distances using cepheid variable stars; M31 is a galaxy!, sun, fusion, the Hertzsprung-Russel diagram
6	2/18/25	Identifying atoms in stars; star characteristics, luminosity, element creation & supernovae
7	2/25/25	Neutron stars, black holes, pulsars, professional telescopes, building the Extra Large Telescope (39 meters)
8	3/4/25	Radio & space telescopes; Observing the sky: stars, moving groups, Mars, the moons of Saturn & Jupiter
9	3/11/25	Galaxy classification, active galactic nuclei, blackbody & synchrotron radiation, the cosmologic redshift
10	3/18/25	The Hubble-Lemaitre law, dark matter, the cosmologic principle, special relativity
11	3/25/25	General Relativity & its proofs, gravitational waves, the cosmic microwave background radiation
12	4/1/25	Women astronomers, Universe age, size, early years & expansion. Does it have an edge? The Big Bang
13	4/8/25	Fate & density of the U; proportions of normal, dark, and energetic matter; inflation; the 4 forces of nature.
14	4/15/25	Habitable exoplanets, astrobiology, the lifetime of K type stars. Are ETs out there?
15	4/22/25	Are ETs on Earth? #1
16	4/29/25	Are ETs on Earth? #2
17	5/6/25	Highlights of the course & informal discussion

While I don't feel the course is perfect, I don't know of any other comprehensive, interactive courses on Astronomy at this price point. For more information or to sign up go to https://www.astronomyteacher.net/

Books, Books, Books

We have been approached by Princton University Press and offered a 30% discount as members of LVAAS for any of their books on Astronomy. For starters they recommended the following:

- Hidden in the Heavens: How the Kepler Mission's Quest for New Planets Changed How We View Our Own (2024) : click **here**
- The Sky Is for Everyone: Women Astronomers in Their Own Words (2023) : click **here**
- Back to the Moon: The Next Giant Leap for Humankind (2022) : click **here**
- A Traveler's Guide to the Stars (2024) : click **here**
- The Little Book of Exoplanets (2023) : click **here**
- Stars and Planets: The Most Complete Guide to the Stars, Planets, Galaxies, and Solar System – Updated and Expanded Edition (Princeton Field Guides series, 2017) : click **here**
- Welcome to the Universe in 3D: A Visual Tour (2022) : click **here**

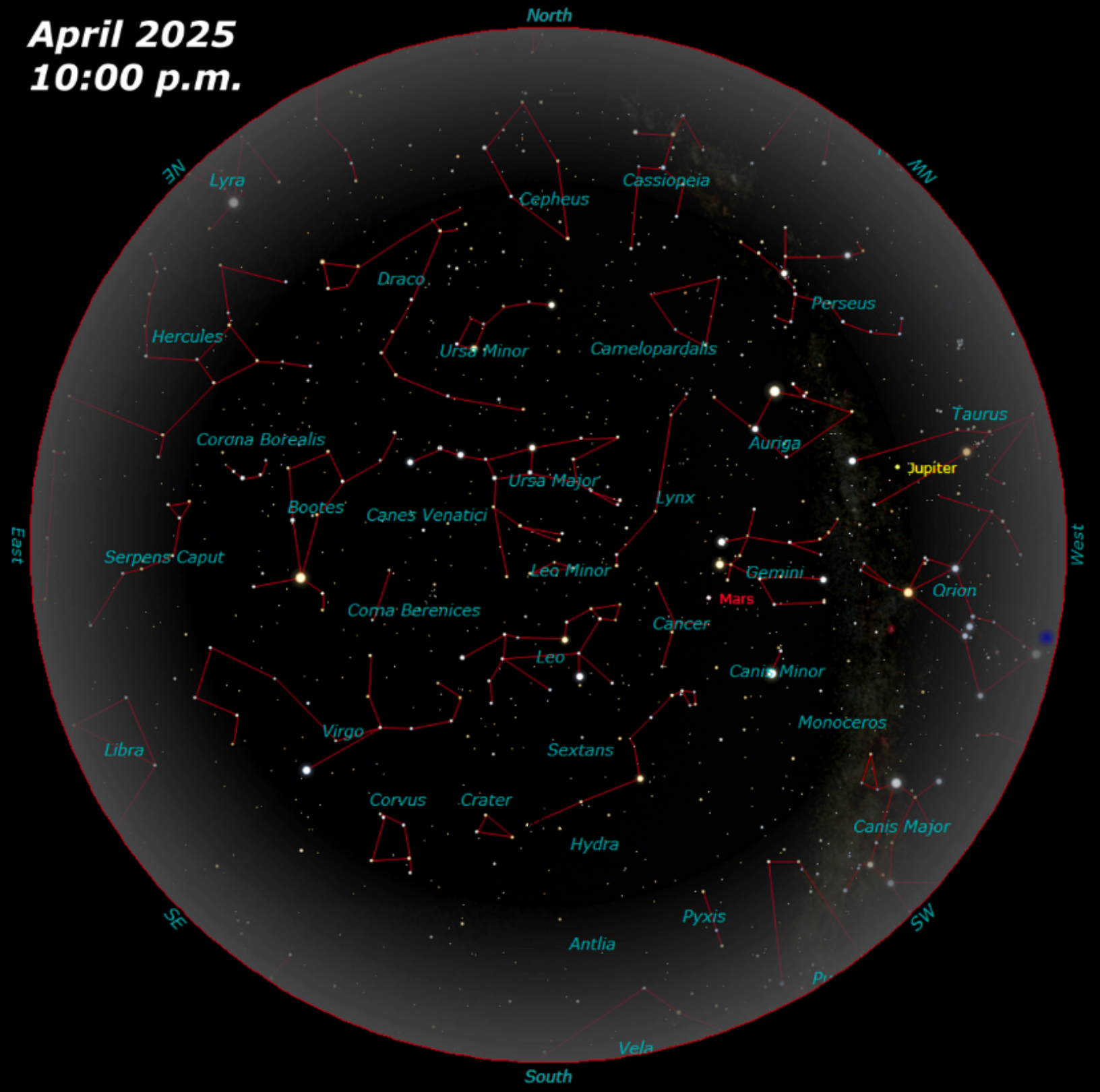
If you are interested in purchasing any of these or other Astronomy books contact me at library@lvaas.org and I will send you the discount code. Or if you would like me to consider purchasing any of these titles for the library, let me know.

Peter Detterline's

Night Sky Notebook

April 2025

While you're here,
why not subscribe?



For access to more features, please click here
then click 'April' in the index

Contributed by Gary A. Becker

StarWatch

Peeking around the Moon

Several years ago, I remember having a rough night's sleep. When counting asteroids and taking melatonin did not work, my wife asked why I was so restless. I said, "Lunar librations… I'm trying to visualize them in my mind." Her response was, "Why are you just picturing them? Place an order at the State Store." "Not libations," I responded, "librations, the wobbling effect that the moon goes through as it orbits the Earth." "Can't help you there," she replied, promptly falling back to sleep. * There are three of them, two in longitude (east-west) and one in latitude (north-south). Over a 30-year period, they allow astronomers to view 59 percent of the lunar surface, not just the standard 50 percent that most individuals believe can be observed. The never-before-seen far side of the moon was first imaged by the former Soviet Union's Luna 3 in 1959. * The moon keeps its same face pointing towards Earth, a synchronous dance that allows Luna to complete one rotation (spin) in exactly the same interval of time that it needs to complete one revolution (orbit) around the Earth. If the moon did not rotate, we would have been able to map its entire surface from Earth. While the moon's rotation takes place at a uniform (angular) rate, it is also revolving around the Earth in an elliptical (oval-shaped) orbit, moving towards and away from our planet, constantly changing the gravitational attraction between these two bodies. * At perigee, the moon's closest location to Earth where the mutual attraction for Earth and moon is strongest, Luna is orbiting at its greatest velocity. The moon's angular change due to rotation lags behind the more rapid angular change due to its orbital motion, and we get to peek around the moon's eastern limb (side). When the moon reaches apogee, its greatest distance from Earth, we see it face on again with no libration in longitude. Here, the moon is moving at its slowest orbital pace but continues to rotate at a constant angular rate. Rotation outpaces Luna's orbital motion. We now peek around the moon's western limb. * Another smaller diurnal (daily) libration in longitude is at its maximum when the moon rises and sets. When Luna rises, our terrestrial position is "higher" than the moon's location, and we get a little peek over the eastern limb, similar to being on the summit of a high mountain and being able to gaze over a greater distance to the horizon. Likewise, we have a view a little beyond its western limb when the moon sets. Those are the two geometrical librations in longitude, but there is also a libration in latitude. * The moon's axis is tilted about 1.5 degrees to the perpendicular of its orbital plane, but the plane of the moon's orbit is also tilted by about 5.2 degrees to the plane of Earth's orbit (the ecliptic), causing the moon to have a total tilt of about 6.7 degrees in latitude. Again, think of being on a mountain. When the moon is located below the ecliptic, we have a view beyond the lunar North Pole, but when the moon is above the ecliptic, we now get a peek past the lunar South Pole. * Keep in mind that while these librations are occurring, the moon is moving closer and farther from the Earth as well as above and below the ecliptic plane, which is tilted to the celestial equator. It's a roller coaster ride that can be observed by clicking on this link that will lead you to an amazing year of librations compiled by NASA's Lunar Reconnaissance Orbiter during 2019. I have also enclosed two slides modified from a Launch Pad Astronomy video that helps to explain the major lunar librations more visually. Having been able to envision these three librations in my mind and write descriptively about them, I feel the need to celebrate, taking my wife's advice with a libation. Ad Astra!

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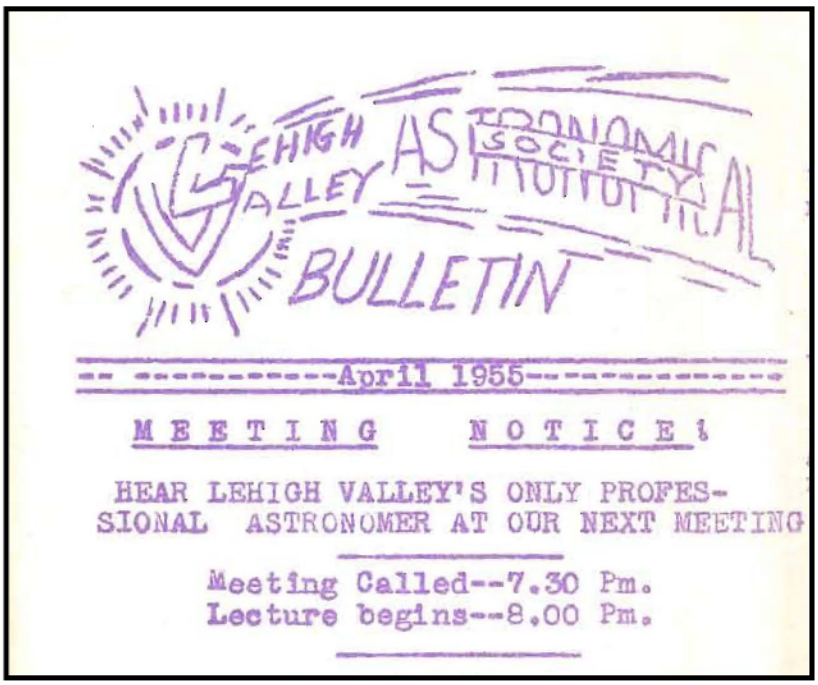
Moravian University Astronomy - astronomy.org

Professor Van Arnam

By Sandy Mesics

By 1955 the Lehigh Valley Astronomical Society (LVAS) had been around for almost 20 years, including a 3-year hiatus during World War II. In 1955 the group was meeting at the Swain School in Allentown. The baby boomers were starting to swell the ranks of amateur astronomy, and LVAS boasted about having junior members.

On April 29, 1955, the regular meeting featured a talk on "Stellar Classification of Stars" by Professor Ralph Van Arnam, head of the Mathematics and Astronomy department of Lehigh University.



LEHIGH VALLEY ASTRONOMICAL SOCIETY

BULLETIN

April 1955

MEETING NOTICE!

HEAR LEHIGH VALLEY'S ONLY PROFESSIONAL ASTRONOMER AT OUR NEXT MEETING

Meeting Called--7.30 Pm.
Lecture begins--8.00 Pm.

Van Arnam was billed as "Lehigh Valley's Only Professional Astronomer." He had served as research assistant at Yerkes Observatory, where he worked with the 40-inch refractor, still the largest instrument of its kind in the world. He also did some work at Ohio State's Perkins Observatory which boasted a 69-inch reflector.

Van Arnam was born in Beaver Falls, New York in 1902. He graduated from Lowville Academy in New York State and received an electrical engineering degree and a Master of Science degree at Cornell University. He did advanced study at Yale University and the University of Chicago. Van Arnam taught at Lehigh from 1928 to 1967, and later at Muhlenberg College and Moravian College. At Lehigh in 1932 he was elected an associate member of Sigma Xi Fraternity. In 1942, Lehigh promoted van Arnam from instructor to assistant professor. In 1944 he was voted a life member of the Astronomical Society of the Pacific. He was promoted to associate professor in 1961. He was considered an expert in applied astrophysics and binary star orbits.

A young Van Arnam

Throughout the decades of the 30s to 60s, local media regularly sought out Van Arnam for information about eclipses, meteor showers, fireball sightings, Mars oppositions, satellite sightings, UFOs, and even weather phenomena. Obligingly, Van Arnam always responded.

He was politically active as well. In 1956, Van Arnam spoke at a Bethlehem rally supporting the Hungarian freedom fighters who were rebelling against the Soviet Union. Van Arnam was quoted as saying that where communism was concerned, there was no middle ground. “This is a time when all men must stand up and be counted.” (Allentown Morning Call, Nov. 12, 1956)

Yerkes Observatory staff 1932. Van Arnam is third from left in the back row. University of Chicago Photographic Archive, apf6-00469, Hanna Holborn Gray Special Collections Research Center, University of Chicago Library.

Van Arnam was interviewed in the aftermath of the Soviet launching of Sputnik 1 in 1957. He was described as a “… grey-haired, cheerful Bethlehemite.” Van Arnam was surprised at the lift capability of the Soviet rocket that launched a satellite weighing 185 pounds. He was prescient when he remarked, “Oct. 4, 1957, will not be remembered for the World Series, or Little Rock crisis but rather the beep, beep, beep that came from the first man-made satellite.” (Allentown Morning Call, October 6, 1957)

Van Arnam was described as a true friend of LVAAS. He would go on to speak at LVAAS meetings many more times. He also invited LVAAS members to visiting lecturers at Lehigh such as Harlow Shapley and Peter Van de Kamp. He directed individuals interested in amateur astronomy to LVAAS and donated many books to the LVAAS library. He was unanimously voted an Honorary Member of LVAAS in recognition of his long-time support. George Maurer remarked in the *Observer*, “Professor Van Arnam was a cordial person, vitally interested in his fellow man. He often joined us on trips, expeditions, meetings and social gatherings; always offering his help and graciously joining in our comradery.”

STAR GAZER — Prof. Ralph VanArnam of Lehigh University adjusts 3½-inch Quester telescope for summertime star gazing.

Allentown Morning Call, August 8, 1966.

Van Arnam suffered a heart attack in 1960 but returned to Lehigh after he recovered. He died in August 1977 at the age of 75. He bequeathed some of his artwork to the Kemerer Museum in Bethlehem. He would be honored with a chamber music series at Lehigh University.

References

Allentown Morning Call, November 12, 1956, October 6, 1957.
L.V.A.S. Bulletin, April 1955.
L.V.A.A.S. *Observer,* September 1977

APRIL 2025

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		April Fool's Day 01	02	03	04	NEAF 05 First Quarter Moon
NEAF 06	NEAIC 07	NEAIC 08	09	10	Scout Camping at Pulpit Rock 11 Stargazers Group Meeting	Scout Camping at Pulpit Rock 12 Star Party
Scout Camping at Pulpit Rock 13 Full Moon General Meeting 7:00 PM South Mountain	14	15	16	17	18	19
Last Quarter Moon 20 Deadline for submissions to the Observer	21	22	23	24	25	Astroimaging Meeting - 7:00 PM 26
LVAAS Board of Governors Meeting 27	28	29	30			

MAY 2025

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				National Day of Prayer 01	02	Star Party 03
First Quarter Moon 04 General Meeting 7:00 PM South Mountain	Cinco de Mayo 05	06	07	08	Stargazers Group Meeting 09	10
Mother's Day 11	Full Moon 12	13	14	15	Scout Camping at Pulpit Rock 16	Scout Camping at Pulpit Rock 17 Astroimaging Meeting - 7:00 PM
Scout Camping at Pulpit Rock 18 Deadline for submissions to the Observer	19	Last Quarter Moon 20	21	22	23	24
LVAAS Board of Governors Meeting 25	Memorial Day 26	27	28	29	30	31

2025 LVAAS EVENT CALENDAR

Contributed by Bill Dahlenburg

2025 LVAAS Event Calendar

	Sundays				Saturday			Moon Phase			
	General Meeting time/date	location	Board meeting	Astro-Imaging	Star Parties	Stargazers Group	Observer Submission Deadline	New	1st	Full	3rd
January	3:00 PM 12	Muhlenberg	26	no meeting	no meeting	no meeting	19	29	6	13	21
February	3:00 PM 2	Muhlenberg	23	no meeting	no meeting	no meeting	16	28	5	12	20
March	3:00 PM 9	Muhlenberg	30	no meeting	8	14	23	29	6	14	22
April	7:00 PM 13	S.M.	27	26	12	11	20	27	5	13	20
May	7:00 PM 4	S.M.	25	17	3	9	18	27	4	12	20
June	7:00 PM 8	S.M.	29	14	7	13	22	25	3	11	18
July	5:00 PM 12 (13)	S.M.	27	19	5	11	20	24	2	10	17
August	7:00 PM 9 (10)	Pulpit	31	16	2	8	24	23	1 31	9	16
September	7:00 PM 14	S.M.	28	13	27	12	21	21	29	7	14
October	7:00 PM 12	S.M.	26	11	25	10	19	21	29	7	13
November	7:00 PM 9	S.M.	30	15	29	14	23	20	28	5	12
December	2:00 PM 14	?	28	13	no meeting	no meeting	21	20	27	4	12

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

NEAF	4/5 – 4/6
Mega Meet	6/27-6/29
CSSP	6/19 – 6/22
Stellafane	7/24 – 7/27
BFSP	

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 400 pixels/inch max.
- Use the lowest JPEG quality that still looks good!
- Shoot for 400kb for a 1/2 page image or 1MB 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://imageresizer.com/resize/download/6779bd945d63ac1a3032f37d

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 observer@lvaas.org**.**

Astroimaging Director, Tom Duff is our new Astroimaging editor, and welcomes all image submissions.

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. Early submissions are greatly appreciated. PDF format is preferred. 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.

Every effort will be made to properly credit the sources of the material used in this publication. If additional credit is required, please notify the editor.

If you are interested in becoming a member of LVAAS, please visit our membership page for information on applying. Existing members please update your LVAAS profile information by emailing the membership director at membership@lvaas.org .