

The Observer

The Official Publication of the Lehigh Valley Amateur Astronomical Society

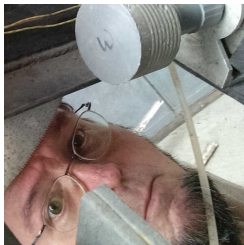
<http://www.lvaas.org>

610-797-3476

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

December, 2017

Volume 57 Issue 12



ad astra*****

Why, and how, would an astronomer pick a favorite star, when there are so many to choose from? In the case of our November speaker, Dr. Agnès Kim from Penn State Worthington Scranton, she had a hundred or two Pulsating White Dwarf stars to choose from, but she had an observatory without a motorized dome. And there was one star that, once the dome was positioned, would follow the open slot for the entire night, with only one rotation (by hand) required as it passed across the meridian. In this case a little bit of convenience made an otherwise arbitrary choice definite and easy.

This was one of the many personal aspects that Dr. Kim shared of her astronomical journey, from the Swiss shore of Lake Geneva to Scranton, of all places, the economically disadvantaged city where I grew up, and where the neglected street signs have now white-shifted into obscurity. Agnès' presentation was a very enjoyable mix of fascinating science and personal history, and we all learned a little about how the White Dwarf get its pulsations, along with how she came to make them her passion.

Riding Shotgun

In a few short weeks, it will be time for me to slide over and allow Carol Kiely to take the wheel as Director of LVAAS, so this will be my last Ad Astra for the foreseeable future. I thought it would be a good time to acknowledge all of the roles that make LVAAS great, and all of the great people that fill them.

As of a recent accounting, LVAAS' membership numbers 219, though the number changes a little every month. Of those, 53 are either Honorary or Life members, some having achieved that status by being recognized for extraordinary contributions to the society, the rest by buying in. Those past contributions to LVAAS' welfare are much appreciated, and many of you continue to help LVAAS with money, effort, and time.

The rest of us paid dues for 2017, some for the first time, and many on a continuing basis. I hope all of us and more will keep it going for 2018, but in any case: Thank You! Member dues are an important part of LVAAS' annual revenue budget; we need those bucks to keep the lights on (until, obviously, the stars come out and it's time to turn them off.)

But of course, many of us did more than pay dues. We came out to help at Star Parties, some just to welcome guests and suggest the best spot to park, some to man the observatories and give our visitors a viewing experience, and some to cook and sell hot dogs (with home-made chili a few times!) and to present the planetarium shows and the lectures. And we helped with other public events as well, working with schools, local governments, and science institutions in the Lehigh Valley.

And some of us put in a lot of time to take care of our assets. Floors and fixtures need cleaning, and grass needs mowing in the summertime. Leaky roofs need to be patched, leaky cisterns need to be taken care of. A notable sub-team spent quite a few heroic hours in that sub-space this year, cleaning and resealing it so that it will hold water for another decade or two.

Sometimes old infrastructure such as wiring and plumbing needs to be renewed. Walls need painting once in a while, both inside and out; roofs need patching, and gravel roads need to be maintained. This category includes some really dedicated efforts by a fairly small group of LVAAS'ers.

Then there are more technical jobs. Telescopes need to be repaired, cleaned, and collimated. The planetarium projector needs to be cleaned and adjusted fairly regularly. Video projectors need to be aligned properly. Locks need servicing and lawnmowers need repairing. It takes effort to maintain the fleet of telescopes that we (as a society) rent to ourselves (as individuals.) Meanwhile, we continue to move forward on our most ambitious project, building the Schlegel Observatory.

And some of us do vital "desk jobs" too, as well as "networking" jobs with other members of our greater community. The Society's finances must be administered, as must our library collection. Keys need to be managed; so does the website. This newsletter has to be compiled, edited, and published every month. Our insurance requirements must be looked after, and we need to keep talking to our public officials in order to keep them on our side. Our calendar is a big puzzle that needs to be solved every year, and then maintained. I just discovered that NASA's Night Sky Network lists our next few events on its calendar - I honestly do not even know how that is getting taken care of. Things are getting done behind the scenes for the benefit of LVAAS that hardly anyone knows about. We preserve records of our proceedings and audit our books. Fulfilling the requirements of our by-laws, we develop a budget every year, and approve it by vote of the membership.

Our monthly General Meeting presenters don't just come knocking on our door - someone has to find them, and convince them to present for us! The folks who do come knocking are organizers of other events, asking us to present astronomy to their guests. This is something we are only too glad to do, but somebody has to coordinate it and the members who volunteer to do it. Similarly, our Star Parties and planetarium shows need to be coordinated, with speakers, planetarium hosts, and volunteer staff to be arranged. LVAAS has about 9 regular public Star Parties every year, plus a handful of additional events arranged for private groups. Another very small team puts in a large number of hours to bring astronomy to Scouting, both at South Mountain and Pulpit Rock, with camping, classes and merit badge programs.

Wrapping Up

LVAAS is a great society with a lot of moving parts, and I would like to thank everyone who helps turn the gears to keep it great, for the past two years and for the past sixty. My term as Director has been a priceless experience, and I look forward to continuing to be a part of the club in other roles. But what truly makes LVAAS great, what makes me glad to remain here, is the team -- from my fellow officers and members of the Board, to the regular volunteers, to the dues-paying members. Thank you all so much for your support and help, and please do the same for our new Director! And please renew your membership promptly. Ad Astra!

— *Rich Hogg*



2018

Will Be Here Soon!

It's time to renew your membership in LVAAS. Support from our members covered about 40% of our annual budget last fiscal year, so your financial support is very important. Keep LVAAS going strong into its 61st year. Please renew by December 31 to remain in good standing.

Dues can be paid in person at General Meetings or can be mailed to our membership chair. A renewal form with mailing address can be downloaded at this link:

http://lvaas.org/filemgmt_data/files/2018_Membership_Renewal_Form.pdf

Thanks for being a member of LVAAS!



General Meeting Minutes of November 12, 2017

Director Rich Hogg brought the meeting held at our South Mountain site into session at 2:00 p.m. His proposed agenda was the speaker, with a question and answer session, then a short break to be followed by the new member introductions and then the usual information session. The meeting was well attended as the room was filled. There were also quite a few guests, estimated at in excess of 14 guests.

In the absence of Sandy Mesics, LVAAS Assistant Director and Programs Director, Rich introduced the speaker, Dr. Agnès Kim. Dr. Kim is an Assistant Professor of Physics at Penn State Worthington, Scranton. The title of her presentation was “For the Love of Little Stars” and it dealt with white dwarfs stars - actually a subset of white dwarfs - those that pulsate. Of the few tens of thousands of known white dwarfs, about 200 of them pulsate with at least five types of pulsations. Dr. Kim does modeling of the internal structure and chemical composition of these white dwarfs in order to simulate the pulsations. Her talk was very informative and on a very personal level, revealing insights into her career path. The program and questions and answer session lasted until 3:00 p.m.

After the break the meeting reassembled at about 3:20 p.m. with Rich also handling the new member interviews, in the absence of Membership Director, Scott Fowler. Angela Drake, Joe Mangan, and Tobias Hibbs were recognized for their second readings and are now full members of LVAAS. A first reading was conducted for Robert Eustice.

Various members then presented short updates for the membership:

There was no Treasurers report due to the absence of Treasurer, Gwyn Fowler.

Frank Lyter noted that Rich and Ron Kunkel had been working on the polar alignment of the 40” mount and determined that the pivot point needed to be re-engineered. He also noted that the electrical service for the building had been upgraded and was now fully functional thanks to the effort of Ron, Rich, and himself.

Bill Dahlenburg noted that the 2018 Calendar listing LVAAS events was now completed.

Director elect, Carol Kiely, noted that the next star party is Saturday, November 25th.

Rich noted that very favorable comments had been received concerning the 60th Anniversary Banquet held on November 3rd, which about 100 members and guests attended.

Lastly, Rich noted that the next Membership Meeting will be the Annual Holiday Party to be held Saturday, December 9th at 2:00 p.m. at Grace Community Church with a snow date of Sunday, the 10th.

The meeting adjourned at 3:35 p.m.

The minutes were prepared and submitted by Secretary, Ron Kunkel.



LVAAS General Meeting and Holiday Party

Saturday, December 9, 2:00 p.m

Grace Community Church

1290 Minesite Road

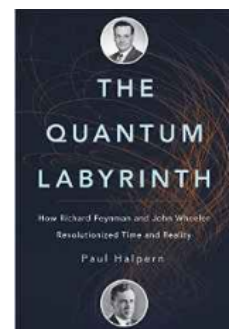
Allentown, PA 18103

"The Quantum Labyrinth: How Richard Feynman and John Wheeler Revolutionized Time and Reality"



Paul Halpern is Professor of Physics at the University of the Sciences in Philadelphia. A prolific author, he has written fifteen science books and numerous articles. His interests range from space, time and higher dimensions to cultural aspects of science. The recipient of a Guggenheim Fellowship, Fulbright Scholarship, and an Athenaeum Literary Award, he has appeared on the History Channel, the Discovery Channel, the PBS series "Future Quest" and "The Simpsons 20th Anniversary Special."

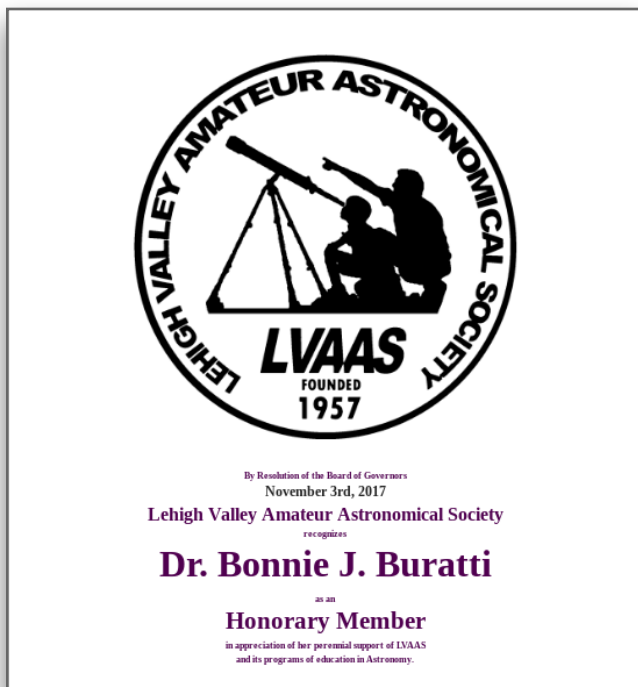
Halpern's books include: *Time Journeys*, *Cosmic Wormholes*, *The Cyclical Serpent*, *Faraway Worlds*, *The Great Beyond*, *Brave New Universe*, *What's Science Ever Done for Us?*, *Collider*, *What's the Matter with Pluto?*, *Edge of the Universe*, *Einstein's Dice and Schrödinger's Cat*, and *The Quantum Labyrinth*.



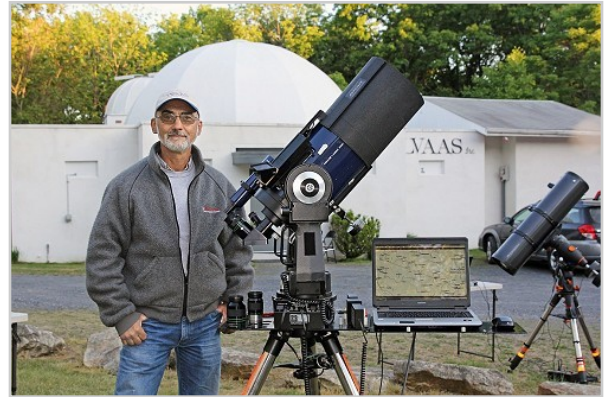
Happy 60th Anniversary LVAAS!



About 100 members and guests were on hand to celebrate the 60th Anniversary of the Lehigh Valley Amateur Astronomical Society at Lehigh University's Wood Dining Hall on November 3. An honorary life membership was presented to Dr. Bonnie Buratti along with flowers and a plaque commemorating her dedication to LVAAS. Below, outgoing Director and master of ceremonies Rich Hogg and incoming Director Carol Kiely present Dr. Buratti with tokens of appreciation for her service and support of LVAAS. Dr. Buratti spoke on her role in the Cassini Mission to Saturn.



Ron's Ramblings



Ron's Ramblings is a monthly series of articles describing some recent or otherwise important event in astronomy. The ramblings will attempt to describe both the astronomical event and its significance. Obviously, the description will be that of a rambling amateur astronomer.

Quantum Entanglement – Spooky Action at a Distance

Quantum entanglement, the apparent property of widely separated particles to instantly communicate regardless of their separation distance, is more akin to science fiction than to physical reality. Any measurement made on one particle will instantaneously convey information about the outcome of the measurement on its partner particle. Einstein skeptically called it "spooky action at a distance." But quantum entanglement is real. It is a verified property of the laws of quantum mechanics. Now researchers from MIT, the University of Vienna, and elsewhere have demonstrated one of the strongest tests of quantum entanglement by using 600 year old starlight to greatly reduce a loophole present in such measurements.

Einstein imagined particles to have their own defined properties prior to measurement. Only local causes were capable of yielding effects on the measurement. Thus more than 50 years ago, Physicist John Bell quantified an upper limit, called "Bell's inequality" to which particle measurement could be correlated. But numerous quantum experiments have observed correlations in excess of Bell's inequality, indicating quantum entanglement in the quantum world is real. But there have always been loopholes in these measurements, such as the freedom-of-choice loophole. The latest experiment reduces the size of this loophole by a whopping 16 orders of magnitude.

To reduce the freedom-of-choice they used light from stars 600 light years distant, i.e. 600 year old starlight, to randomly determine which property of the entangled pair was to be measured. Entangled photon pairs were first created and then set in opposite directions toward detectors located several city blocks away. In the few microseconds before an entangled photon arrived at a detector, a telescope at each detector was used to measure the wavelength of a random stellar photon relative to a reference wavelength. A redder or bluer stellar photon thus determined which polarization direction to measure for the entangled photon. Twice, in three minutes, they measured 100,000 pairs of entangled photons.

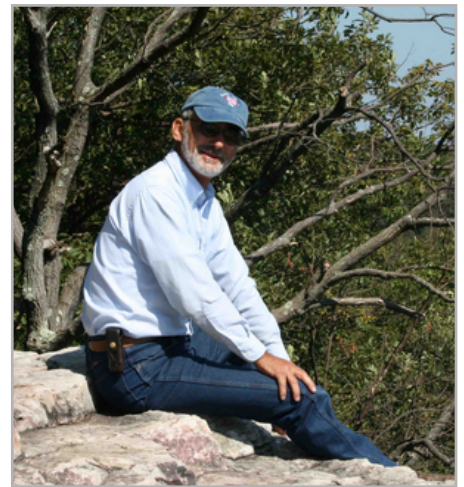
They found that the polarization measurements of the photon pairs were correlated well in excess of Bell's Inequality, in a way explained by quantum mechanics.

Thus the 'conspiracy' that correlates these photon measurements must have occurred 600 years before the actual polarization measurement was made. Quantum entanglement is truly a strange, strange beast, far removed from the reality of our everyday experiences.

References:

Jennifer Chu. (February 6, 2017). Stars align in test supporting 'spooky action at a distance.' Retrieved from <http://news.mit.edu/2017/loophole-bells-inequality-starlight-0207>.

The end of my ramblings until next month. Ron Kunkel



Schlegel Observatory Report

by Rich Hogg

November, 2017

Our activities on the forty-inch, or 1-meter, telescope project this month were focused in two areas: figuring out how to fix the mounting issue that I described last month, and getting ready for winter.

Bolting it down - Frank Lyter, Ron Kunkel, Matt Bailey, and Earl Pursell all contributed ideas to solving this problem, and though perhaps none of our individual viewpoints are completely satisfied, we've reached a consensus that we have decided to use to move forward. The problem is how to attach the telescope mount to the pier post at the south vertex of the triangular pier.

The post that forms this leg of the pier is a steel pipe about eight inches in diameter, and it is capped with a steel plate that is 3/8" thick. This plate is removable and has a 1/2" hole in its center. Above it, attached to the mount, is a similar plate with a similar hole; for the telescope to be properly aligned, they need to be about 2-3/4" apart, and the mount must be tilted about 2-1/2°. It needs to allow this vertical space and tilt angle to be adjusted for perfect alignment in altitude, while being capable of holding the position of the top plate steady, while the north end of the mount is rotated around it for alignment in azimuth.

The original solution consists of a length of 1/2" threaded rod, with nuts above and below each plate. We had three problems with this.

First, it proved to be difficult to keep the joint steady while making the azimuth adjustment. The nuts needed to be a little loose in order to have freedom to rotate the joint, and in fact it was hard to keep them at the correct tightness and prevent the threaded rod from tipping to one side. It gave us trouble in practice, and just seemed not as sturdy as we would like it to be in principle.

Second, the way that the nuts above and below the tilted top plate worked against the plate promised trouble in getting the altitude just right. If the plates were parallel it would be a different story; but here we had four- or six-sided nuts rotating against a slanted plate, and the "cam" action of the points of the nuts made for a bumpy result when adjusting.



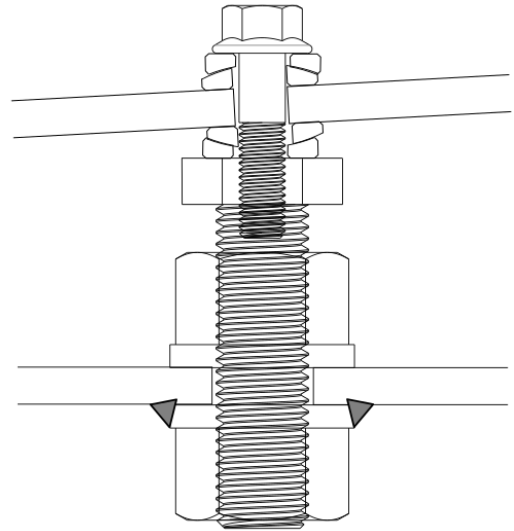
South pier post and plate, and existing solution attaching it to matching plate on mount.

Third, it came apart. We're not sure exactly why but we want something that will be easier to hold together.

There is a kicker to the problem that had a big influence on the solution we are pursuing: there is no practical way to enlarge the 1/2" hole in the top plate, attached to the mount.

Without further ado, here is the solution that we're planning to go with:

- We'll remove the plate from the top of the post and drill the hole out to a bit over 1" in diameter. Then, we'll weld a flanged 1" nut to the bottom of the plate.
- We'll take a fully-threaded 1" bolt, about 4" long, and machine the head of it perfectly flat. We'll then drill it and tap it to receive a 1/2" bolt.
- We'll assemble these as shown in the figure, with an additional 1" nut that can serve to lock down the height adjustment as well as stabilize the 1" bolt. The 1" bolt can be rotated to adjust the altitude, but once locked down it will make a sufficiently stable structure to which the top plate (and the mount) will be attached.
- We'll attach the mount with a 1/2" bolt and two sets of "spherical washers." These uncommon, yet readily available, bits of hardware are designed for just this purpose: to allow a plate to be firmly attached, and smoothly adjusted, without being parallel.



it

When we are adjusting the altitude, we'll loosen the 1/2" bolt and the 1" locknut, and turn the 1" bolt as needed before locking everything back down. For the azimuth adjustment, we'll loosen just the 1/2" bolt a bit; the big bolt will remain firmly locked and will provide a solid foundation.

We are also planning to offset the 1" hole in the bottom plate a little bit. As we align the telescope, it is "hanging out" on the north side, a lot more on the west side than on the east; and since almost all of the weight is on the north side, we think it would be good to equalize the overhang by shifting the attachment point on the south.

Buttoning Up - we did a few things to get the site, the observatory, and the telescope ready for the cold months ahead. Ron has mowed the grass for the last time, and he has been drawing down the water level in the cistern to prepare for freezing temps; a flotation bag will go in soon to relieve the stress of the ice layer. Frank re-connected the heaters to the new electrical panel, and I installed low-wattage heating elements into the electrical boxes on the telescope, to drive out moisture and help keep everything new.

Current Status and Activities: We have converged on a solution to the attachment problem on the South pier post and are commencing to fabricate it. In addition, we are mostly done winterizing the site.

by Gary A. Becker



Geminids Coming To A Sky Over You

On the evening of December 13 and the morning of December 14, one of the great meteor showers of the year takes place. Under perfect conditions the Geminids can produce as many as 120 meteors per hour, however those numbers are more than halved in the light-drenched suburban areas of the East Coast. Geminids move at a relatively slow pace, and some can be exceedingly bright, but cloudy weather and the chill of wintry temperatures have kept them from becoming as popular as the August Perseids.

Meteors from an organized shower diverge from a small point in the sky called the radiant, and this position for the Geminids is located just a few degrees to the northwest of the bright star Castor, the mortal twin of the Gemini brothers. Their origin stems from the debris discarded by a periodic comet turned asteroid that is in orbit around the sun. The meteoroids, the small specks of dislodged cometary dust, are moving parallel to each other in an analogous fashion to a pair of railroad tracks along a straight section of track. The rails would appear to diverge from a distant vanishing point. In meteor astronomy the vanishing point is called the radiant. It is a relatively simple task for anyone who has the desire to view an organized shower of shooting stars to tell whether or not the meteor they have just witnessed belongs to that group, as its path will be traceable back to the radiant position.

Because the moon is in a gibbous phase for most of this week, its light will only allow the brightest stars to be visible, and this will actually aid in finding the Geminid radiant point. Begin with Orion, the greatest hunter in mythology, at 10 p.m. in the SSE. Seven stars form his body, two for the shoulders, three for his narrow waist, and two luminaries for Orion's knees. They are all bluish in appearance except for orange-red, supergiant Betelgeuse, the shoulder star on the left side of the Hunter as we view him in the sky. Orion, in the Robert Frost poem, *The Star-Splitter*, "...always comes up sideways, throwing a leg up over our fence of mountains, and rising on his hands, he looks in on me..." You'll see him that way in the 8 p.m. to 10 p.m. time slot of early December.

From Betelgeuse, move catty-corner to Rigel, a blue supergiant, and most of the time the brightest star of the Hunter. Connecting Betelgeuse and Rigel, move leftward two of these lengths, and you will be above two bright, closely spaced, white stars which are the heads of the Gemini Twins. The star closest to your line segment is Castor, the region from which Geminid meteors will be radiating. Meteors will be plentiful coming from this locale, particularly after midnight on the morning of December 14, but for the moment, go outside and see if you can find the location of the radiant with bright moonlight illuminating the sky.

A map to assist you is online at <http://astronomy.org/StarWatch/December/index-12-17.html>

Wishing everyone good radiant hunting.

© Gary A. Becker – beckerg@moravian.edu or garyabecker@gmail.com

Moravian College Astronomy - astronomy.org



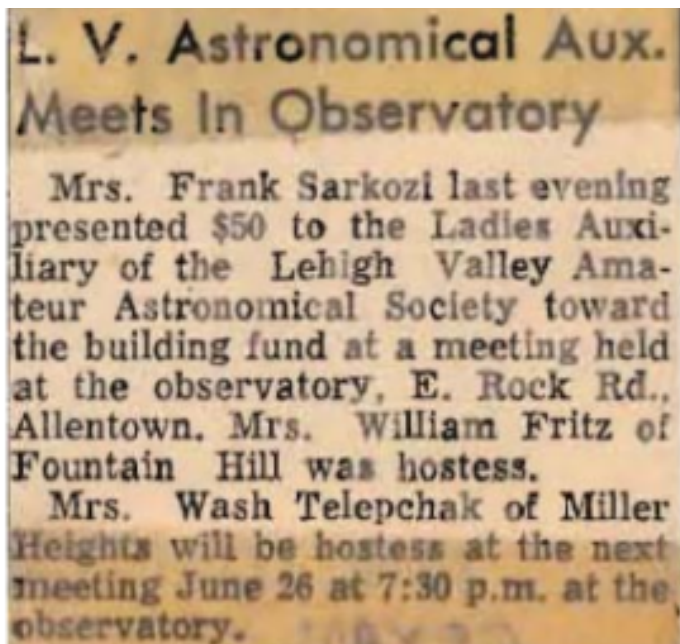
From the LVAAS Archives:

December 1967: The Ladies' Auxilliary Disbands

by Sandy Mesics

In the early days of LVAAS, the vast majority of members were male. Nevertheless, women have played an important role in the success of the Society. In October 1958, in only LVAAS's second year, wives of LVAAS members held a bake sale to raise money to finish the South Mountain headquarters.

Organizing efforts escalated and at the December 1959 meeting, 32 of 48 eligible members voted for a "Women's Auxiliary" to be organized as a subsidiary group. This new group held their first meeting on January 31, 1960 at the home of Mrs. John Crouthamel on Easton Avenue in Bethlehem. There were twelve active members. Mrs. Helen Telepchak was elected President, Mrs. Ann Zawediuk, Vice President, Mrs. Betty Sarkozi, Treasurer, and Mrs. Betty Ference, Recording Secretary. They immediately planned fundraising events, such as an Easter candy sale, which netted \$50.00 for the Society. This is about \$383 in 2017 dollars. This amount was, aside from membership dues, the largest source of LVAAS income in 1960. The Auxiliary also provided a 30-cup electric coffee percolator for LVAAS use.



The group became very active. In April, 1960, the Auxiliary requested use of the South Mountain Headquarters for their summer meetings, to be held the last Sunday of the month. In May 1960, they sponsored a picnic at South Mountain, and the next month the group held another bake sale at the Food Fair in Bethlehem on Stefko Boulevard. They served refreshments at an open house event at the headquarters in July. That month, they donated \$75.00 to LVAAS for the building fund. In September they sold vanilla, almond, and lemon extracts at the general meeting, as well as black pepper and chili powder. In November they sold tins of Golden Butter Bits. All in all, 1960 was a very busy and productive time for the Auxiliary.

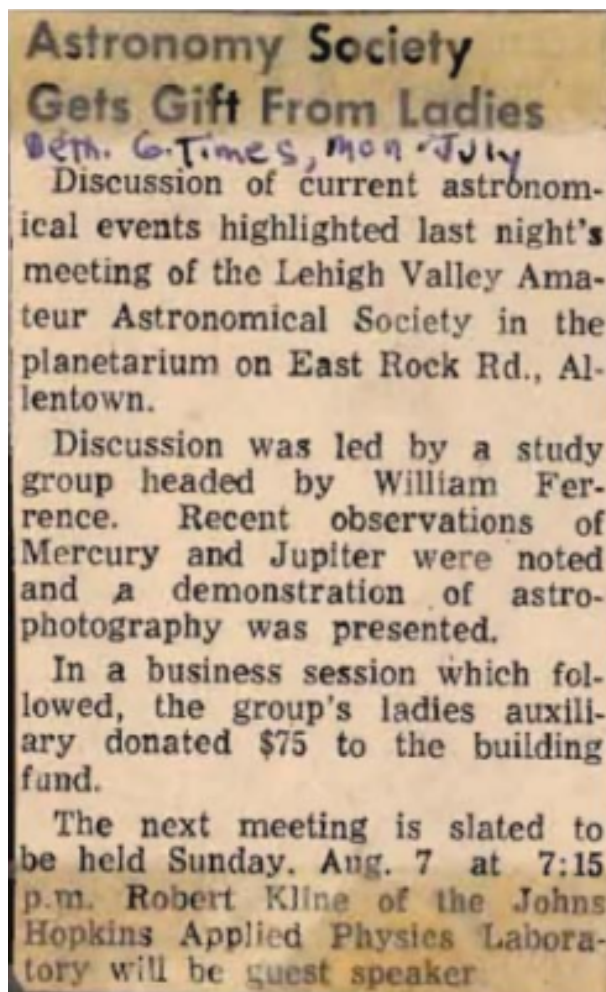
The Auxiliary also had programs of their own: In February, 1961 they had a talk on the Ukrainian art method of decorating Easter eggs. They also enjoyed members' vacation slides of Florida, Louisiana, and the west. In March 1961, the group went bowling at Town & Country Lanes in Bethlehem, and in June, the group held yet another bake sale. In August 1961, the Auxiliary presented a \$100 donation to the South Mountain building fund. In December, 1961, the Auxiliary provided decorations and refreshments for the Christmas party, a tradition that continued until 1966.

The Auxiliary continued to be active in 1962: efforts from candy and bake sales resulted in another gift of \$125 to LVAAS. Again, the Auxiliary sold candy at the annual LVAAS holiday and also provided a buffet supper at the party. In October 1963, the Auxiliary served coffee and cake to guests at an LVAAS open house.

Again, at the holiday party in 1963 and 1964 the group sold Kathryn Beich Milk Chocolate Candy Bars with Toasted Almonds. The Auxiliary also provided the drapes for the headquarters windows, and the LVAAS Board of Governors offered thanks to Auxiliary President Mrs. (Preston) Dorothy Smith for all these efforts.

In 1964, the Auxiliary elected officers: Dorothy Smith, wife of Preston Smith, was elected President. Arlene Moffat was elected Secretary, and Isabelle Crouthamel as Treasurer. The next year in March 1965, the Auxiliary donated another \$175 to LVAAS. In September 1965 the group prepared food for the Eastern PA Amateur Astronomical Symposium, at South Mountain, which was attended by approximately 100 individuals. Again, at the Holiday party in December 1965, the Auxiliary held a Christmas bazaar, selling corsages, toys, Christmas stockings, etc.

In January 1966, the group elected Betty Sarkozi, President, Betty Fedora, Secretary, and Isabelle Crouthamel Treasurer. But the group needed some new members. According to an Observer article: "Several years have elapsed since the Auxiliary's last membership drive, and in view of the fact that the wives of the newer members of the Society may not have been contacted, we would like to extend an invitation for them to attend one of our meetings." In March 1966, the Ladies Auxiliary sponsored a bus trip to the Philadelphia Flower Show, and in September, they sponsored a bus trip to New York to see "Hello Dolly." At the 1966 Holiday party, they sold "objects d'art" to raise funds.



Because of these efforts, in May 1967 the group donated \$400 for the Pulpit Rock fund. However, by the end of the year, the group had hit a dead end. From a notice in the December, 1967 Observer, "We note with sincere regret the decision of the Ladies' Auxiliary to officially disband their organization. The society owes much to the Auxiliary, who not only lent a willing hand at many society functions over the past ten years but also contributed materially in a financial way. Their helping hand will be missed."

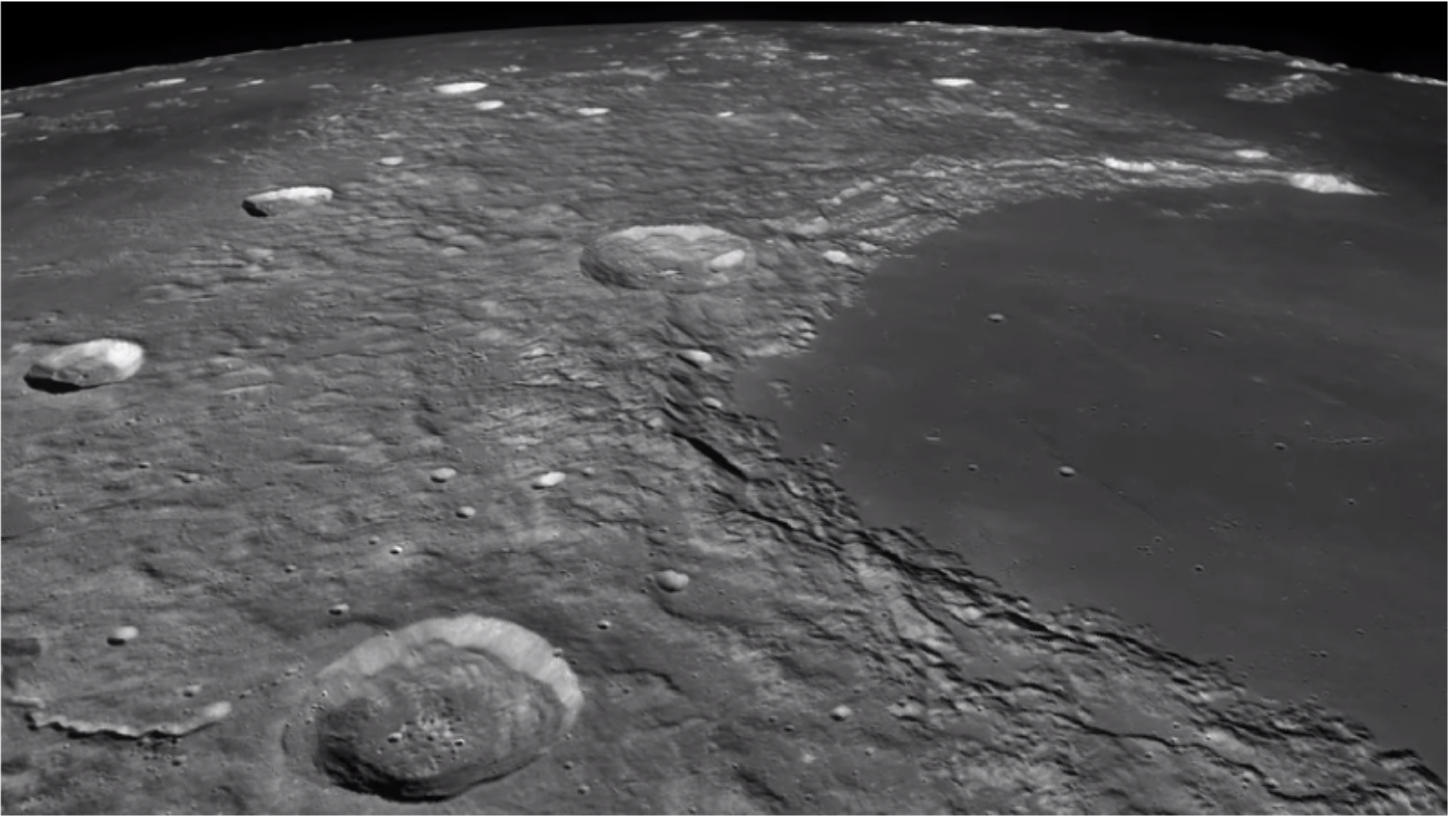
The reasons for the group's demise are lost to history. Perhaps it was because Ladies Auxiliaries of all types were falling out of favor in the heady days of the emerging women's movement. Women were beginning to become members of the groups they supported, rather than segregating themselves in "auxiliary" groups. It is interesting to note that from 1959 through 1965 there were women serving in elected positions at LVAAS, in the roles of Secretary and Treasurer. In fact, in 1968, the year following the demise of the Auxiliary, women were elected as Secretary (Dot Temperley) and Treasurer (Margaret Otto). However, it was not until 1984 that a woman would be elected Director (Rae Klahr.) In fact, to this date there have only been three women elected to this position.

Sources:

Observer, January 1957 through December 1967.

LVAAS Board minutes and general meeting minutes, 1957-1967.

"MOON"



<https://www.youtube.com/watch?v=D2yAdKzWS0k&feature=youtu.be>



Seán Doran

Published on Nov 14, 2017

Made with Lunar Reconnaissance Orbiter Camera data

'Lux Aeterna' by György Ligeti

NASA / LROC / Seán Doran

Resolutions...



Doug Wheelock  @Astro_Wheels · Nov 1
endless sea of stars

remind me to breathe
by leaving me breathless

in those moments
when I lose perspective
as I often do

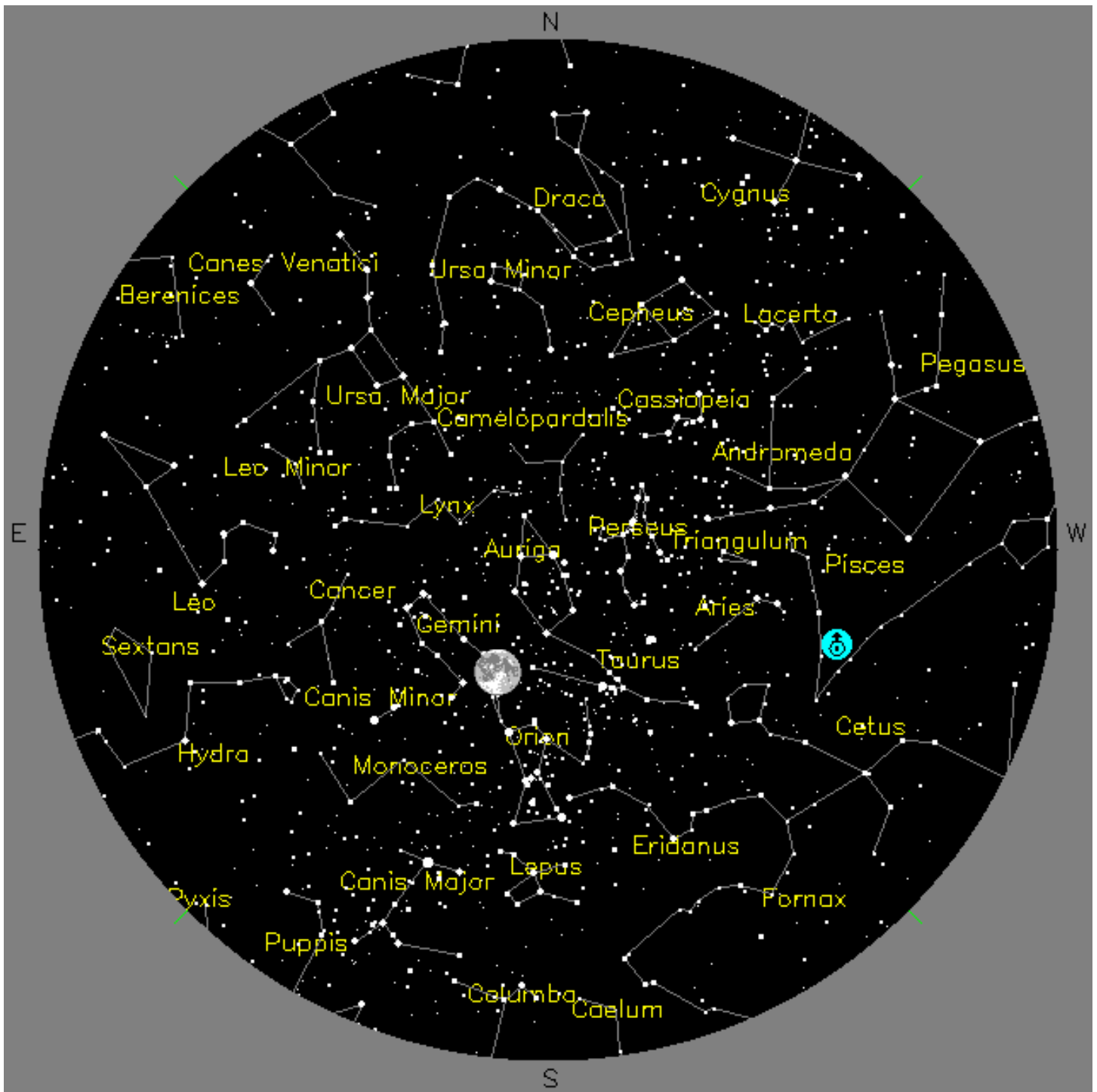
in my intoxicating vanity
remind me that we are all
wonderfully made

remind me
to walk gently
to speak kindly
to love fearlessly

remind me to breathe

Source: Twitter

Sky above 40°33'58"N 75°26'5"W at Tues Dec 6 2017 0:00 UTC



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 [mgardi@watdscu.waterloo.edu].

Lempel-Zim compression based on "compress"

Modified by Marcel Wijkstra [wijkstra@fwi.uva.nl]

Copyright © 1989 by Jef Poskanzer.

Check out additional features of **Your Sky** at : <http://www.fourmilab.ch/yoursky/>

DECEMBER 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01	02
03 Full Moon	04	05	06	07 Astro Imaging 7:00 PM	08	09 General Meeting/Holiday Party 2:00 PM Grace Community Church
10 Last Quarter Moon	11	12	13	14	15	16
17 Deadline for submissions to the Observer LVAAS Board of Governors Meeting (early due to holidays)	18 New Moon	19	20	21	22	23
24	25	26 First Quarter Moon	27	28	29	30
31						

JANUARY 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01 Full Moon	02	03	04 Astro Imaging 7:00 PM	05	06
07	08 Last Quarter Moon	09	10	11	12	13
14 General Meeting - 2:00 PM Muhlberg	15	16 New Moon	17	18	19	20
21	22	23	24 First Quarter Moon	25	26	27
28 LVAAS Board of Governors Meeting	29	30	31 Full Moon			

2017 LVAAS Event Calendar

* Lunatics and Stargazers has been discontinued until further notice

2017 LVAAS Event Calendar

	Sundays		Board meeting	Thursday	Friday	Saturday	Mondays	Multi-Day Weekends Scouts at Pulpit R.	Moon Phase			
	General Meeting time	location		Astro-Imaging	Lunatics and Stargazers	Star Parties	Scouts at S. Mountain		New	First	Full	Last
January	2:00 PM 8	Muhenberg	29	12	no mtg	no mtg		no camping	27	5	12	19
February	2:00 PM 12	Muhenberg	26	9	no mtg	no mtg		no camping	26	3	10	18
March	2:00 PM 12	Muhenberg	26	9	3 & 31	4		no camping	27	5	12	20
April	9	S.M.	30	13	no mtg	1		7 - 9	26	3	11	19
May	7	S.M.	21	11	5	6		19 - 21	25	2	10	18
June	11	S.M.	25	no mtg	2	3		9 - 11	23	1 30	9	17
July	05:00 PM 8	S.M.	30	no mtg	28	29		14 - 16	23	30	9	16
August	12	Pulpit	27	no mtg	25	26		4 - 6	21	29	7	14
September	10	S.M.	24	7	29	30		8 - 10	20	27	6	13
October	8	S.M.	29	5	27	28		6 - 8	19	27	5	12
November	2:00 PM 12	S.M.	26	2	no mtg	25		3 - 5	18	26	4	10
December	2:00 PM 9	Grace Community	17	7	no mtg	no mtg		no camping	18	26	3	10

Megameet is currently scheduled for September 15-17. A new rain date will be announced.

July, Aug & Dec are Saturday meetings with rain date on Sunday

Jan., Feb., and March meetings are at Muhlenberg College

August meeting is at Pulpit Rock

December meeting / Holiday Party is at at Grace Community Church

All meetings 7 P.M. unless otherwise noted

2018 LVAAS Event Calendar

2018 LVAAS Event Calendar												
	Sundays		Board meeting	Thursday	Friday	Saturday	Mondays	Multi-Day Weekends	Moon Phase			
	General Meeting time	location		Astro-Imaging	Lunatics and Stargazers	Star Parties	Scouts at S. Mountain	Scouts at Pulpit R.	New	First	Full	Last
January	2:00 PM	14 Muhlenberg	28	4		no mtg		no camping	16	24	1 31	8
February	2:00 PM	11 Muhlenberg	25	1		no mtg		no camping	15	23		7
March	2:00 PM	11 Muhlenberg	25	1		24		30-31-1	17	24	1 31	9
April		8 S.M.	29	5		28		27-28-29	15	22	29	8
May		6 S.M.	20	3		19		25-26-27	15	21	29	7
June		10 S.M.	24	no mtg		23		29-30-1	13	20	28	6
July	5:00 PM	7 S.M.	29	no mtg		21		27-28-29	12	19	27	6
August	7:00 PM	11 Pulpit	26	no mtg		18		24-25-26	11	18	26	4
September		9 S.M.	30	27		15		21-22-23	9	16	24	2
October		14 S.M.	28	25		13		26-27-28	8	16	24	2 31
November	2:00 PM	11 S.M.	25	29		17		no camping	7	15	23	29
December	2:00 PM	8 Grace Com.	30	30		no mtg		no camping	7	15	22	29

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 is at at Grace Community Church

NEAP
 Cherry Springs S.P.
 Stellafane
 Black Forest S.P.
 Mega Meet

April 21-22
 June 14-17
 August 9-12
 September 7-9

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

<http://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 (LVAAS) Inc., 620-B East Rock Road, Allentown, PA, 18103 and as of June 2016, is available for public viewing. Contact the editor at editorlvaas@gmail.com.

Members please use above email address for submissions.

Society members who would like to submit articles or images for publication should kindly do so by the Sunday before the monthly meeting of the BOG (please see calendar on website) for the article to appear in the upcoming month's issue. PDF format is preferred. Early submissions are greatly appreciated. Articles may be edited for publication. Your comments and suggestions are welcome.

Every effort is made to properly credit the sources of the material used in this publication. If additional credit is required, please notify editorlvaas@gmail.com for a timely correction.

No permission is required for non-profit educational use of the material in this publication. Please send a link to, or copy of the publication containing the reprinted material to the editor at the above address.

Some material in this publication may be copyrighted.

To become a member of LVAAS, please follow the directions on the application form, which can be downloaded at: http://lvaas.org/filemgmt_data/files/LVAAS2017MembershipRenewalForm.pdf.

For existing members to update LVAAS information, or to make member contact changes or corrections, please email the membership director membership@lvaas.org.

Copyright 2017 LVAAS, Inc.