

The Observer

The Official Publication of the Lehigh Valley Amateur Astronomical Society

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October 2017

Volume 57 Issue 10



ad astra*****

As usual, I begin this month's column with a recap of our September meeting program. And, like the August program, the September program was the product of some last-minute improvising and adaptation to unforeseen conditions. Despite that, I think it was one of the best programs we've had in quite a while.

We had the basic idea at a Board meeting early this year. We knew the meeting would occur shortly after the eclipse, so we decided that having some sort of round-table recap of members' eclipse experiences would make a great program. As the date approached, we signed up our premier eclipse experts, Gary Becker and Peter Detterline, to lead it.

Well, just as the Moon got in the way of the Sun, a planet got in the way of our plan. Gary and Peter would not be at our meeting because they would be at the 20th Annual International Mars Society Convention in Irvine, California instead. So, Program Director Sandy Mesics recruited Secretary Ron Kunkel to step in. But Ron was up at Pulpit Rock with the Boy Scouts for most of the weekend. Ron and I talked and we decided that he would lead off the program, and I would organize the contributions from other members. Sometimes we just need to make it up as we go.

Great Stories

The response was good, and the stories made it worthwhile. We ended up with ten presentations on the agenda, so it made for a long meeting — particularly since we needed to do officer nominations and vote on our 2018 budget the same night. But I think it was worth it.

It began with Ron's travelogue of his and Bill Dahlenberg's trip, enhanced by charming Southern hospitality and meeting fellow astronomers from the North (Canada). I followed up with a quick recount of my family's mission, dodging eighteen-wheelers in a truck stop in Crossville, TN. Then Earl Pursell shared some of his photos of the partial phases and of totality, where we saw the different effects obtained from varying the exposure time.

Dave Moll claimed the earliest viewing of the eclipse in Madras, Oregon, only to be challenged from the audience by Priscilla Jacobsen who was also in the area. (I'm not clear on who was actually furthest West.) But Dave had some great photos of his venue, with the prominent Oregon geography and an air show featuring WWII-vintage warplanes.

Tom Duff, in Goodlettsville, TN, defied the clouds by capturing a few images of the first half of totality right through them, a strategy that apparently worked, since the clouds parted for him before it was over. Meanwhile, in Sweetwater, Kathy and Bob Weiss had the wide-open vineyard open to themselves, since most of the other visitors just hung out in the parking lot for the duration.

I think baseball fan Mike Aulenbach had the best time of all, as a spectator at the "Total Eclipse of the Park" home game between the Columbia, SC Fireflies and the Rome, GA Braves. Everyone in the stands was given eclipse glasses, and the game was stopped before totality and some tracks from Pink Floyd's Dark Side of the Moon played on the PA system. (Mike was unable to make it to the meeting, but I showed some images from the [MiLB article](#)).

Lynn Krizan was in Lenoir, TN. (LVAAS had Tennessee pretty well covered for this thing.) Lynn set up in the parking lot of his Holiday Inn and attracted some attention from other hotel guests. He got some great photos, as well.

David Gwyn and Preston Smith forsook the site designated for eclipse watching by Newberry, SC for the parking lot of their Holiday Inn Express, ending up much more comfortable as a result, with outreach to over 80 individuals and families while there. They shared a video with an outpouring of overwhelmed emotion by one man present.

All in all, we had a good time sharing our experiences and it was a lot of fun to get members involved in the program. Somehow, we will have to find an excuse to do that again.

'Til We Megameet Again

So far we have scheduled Megameet four times, and postponed it four times, all due to the weather forecast being unfavorable for a successful event. This last time was the most agonizing, because the atmosphere seemed to be more unstable than usual and the forecasts were all over the place. I heard that the skies did eventually clear on Friday night, but I think it happened so late that few would have hung in there to take advantage of it.

To me there are four possible outcomes to this process, and so far we have avoided either of the "bad" outcomes this year, while also being denied the best:

- Megameet proceeds, and weather turns out good: best outcome, 0 for 4 in 2017
- Megameet canceled, and weather turns out bad: acceptable outcome, 4 for 4 in 2017
- Megameet proceeds, but weather turns out bad: bad outcome, 0 for 4 in 2017
- Megameet canceled, but weather turns out good: bad outcome, 0 for 4 in 2017

I consider "Megameet canceled, weather turns out bad" an acceptable outcome since there is nothing we can do about the weather, and the best case is to allow everyone to make better use of their time than to congregate on top of the mountain, glaring at the clouds and maybe even getting wet.

We have some weekends in October that might be suitable, but I am going to put the decision on whether to try again on hold until our Board meeting. The outcome should be on the website by the time you read this.

Elegies and Celebrations

After all of the media coverage of the end of the Cassini mission, I am really looking forward to hearing the inside story from our banquet Guest of Honor at our Anniversary Banquet. I believe Dr. Bonnie Buratti has been involved with the mission in some form since it began, and I'm sure she will have a few stories to tell us on November 3rd. Hopefully that will be enough time for some of the wistfulness to have faded. I guess Cassini is an illustration of the maxim "all good things must come to an end," but LVAAS will be looking forward and so should you. Now is the time to secure your seat at the event! Get out your checkbook and visit <http://lvaas.org/banquet> for the required info. Ad Astra!

— *Rich Hogg*

60 Years of Lehigh Valley Astronomy Celebration Banquet

Friday, November 3, 2017 — 6:00 – 9:00 p.m.

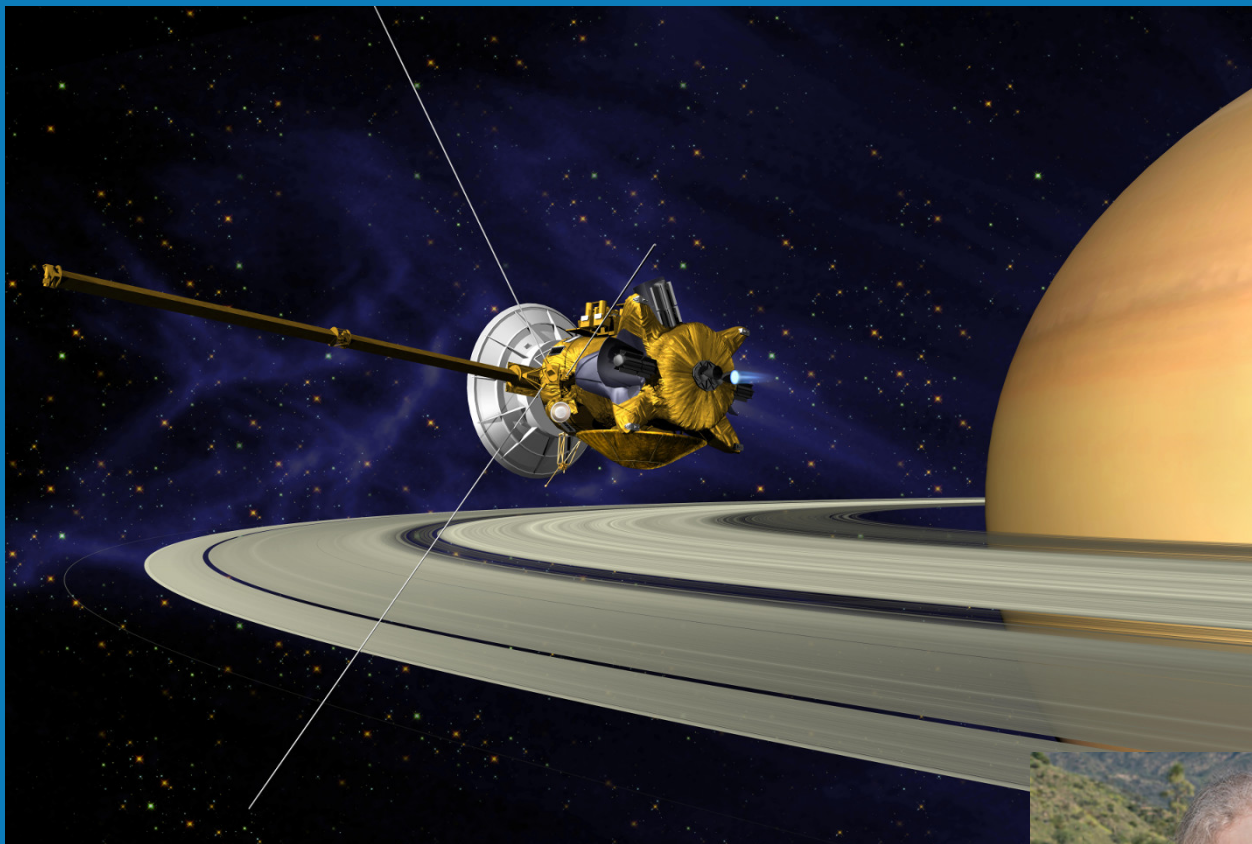
Wood Dining Room

Lehigh University Mountaintop Campus

The Lehigh Valley Amateur Astronomical Society

presents

Dr. Bonnie J. Buratti



Dr. Bonnie Buratti is a Principal Scientist and technical manager at NASA's Jet Propulsion Laboratory, with expertise on the structure and evolution of icy moons and other small bodies. She holds degrees from MIT and Cornell in Astronomy. She is currently serving on the Science Teams for both the Cassini and New Horizons missions, and she is also the NASA Project Scientist for the Rosetta Mission to a comet. The author or coauthor of over 200 scientific papers, Dr. Buratti was awarded the NASA Exceptional Achievement Medal, and the International Astronomical Union recognized her work by naming asteroid 90502 Buratti after her. She is a Fellow of the American Geophysical Union. Her popular book "Worlds Fantastic, Worlds Familiar: A guided tour of the Solar System" was published this year.

Open to the public ••• \$50 (members \$45) ••• Visit <http://lvaas.org/banquet>



General Meeting Minutes of September 10, 2017 held at South Mountain

The General Meeting was held Sunday, September 10th at our South Mountain site in Allentown. The meeting was very well attended by both members and guests, as the program topic was the recent total solar eclipse. Before the meeting began, Director Rich Hogg informed the group that the agenda for this meeting would differ from usual. Initially there would be a business meeting to consider approval of the 2018 budget and to conduct nominations for 2018 offices. Then that would be followed by an information session, and then lastly the program on eclipses. The reversal of the program and the information session was purposed to give the business part of the meeting and the information session sufficient time, because the eclipse program was expected to be a bit lengthy due to the heavy response of requests by presenters.

Rich then called the business meeting into order. Treasurer Gwyn Fowler presented the Board-approved 2018 budget that was now up for approval by the membership. That budget called for \$17,500 in expected revenue and \$22,415 in expected expenses. She noted that although the budget showed a deficit, the reality of the last few years was that a budget surplus has always been noted, since most budget expense items were not actually spent to their limits. The budget was approved on a motion by Tom Duff, a second by Fred Bomberger, and a unanimous vote by the membership.

Rich then called on Ron Kunkel for a Nominating Committee report. Bill Dahlenburg, committee chair, was not able to attend, but Ron presented Bill's prepared report. First off, Ron thanked the 2017 office holders for their service to the Society. He then opened the nominations for the four elected positions for the 2018 term, but no additional nominees were presented. Nominations were then closed. The final slate of candidates for 2018 offices thus consists of:

Carol Kiely for Director

Rich Hogg for Assistant Director

Gwyn Fowler for Treasurer

Tom Duff and Earl Pursell for Secretary

The actual vote on the candidates will take place at the October Membership Meeting.

Rich then closed the business meeting on a motion by Kathy Weiss, a second by Priscilla Jacobsen, and a unanimous approval by the members. The information session that followed then included the following items: Scott Fowler, Membership Director, conducted new member readings. A second reading was held for Gregory Scott. First readings were conducted for James Czik and Gregory Tomassetti.

Carol Kiely, Education Director, reported that on September 20th there is an event planned at South Mountain for a local sailing club. The astronomy program would be geared toward a navigation theme. She also requested help of members to man some of the observatories for the evening.

Tom Duff, MegaMeet Coordinator, noted that MegaMeet was scheduled for September 15-17, but that it too was likely to be canceled yet again, this time due to rains from Hurricane Irma.

Rich updated the membership on the status of the 60th Anniversary Banquet to be held on Friday, November 3rd. The Wood Dining Room at the mountain top campus of Lehigh University has been reserved. The speaker for the evening will be long term LVAAS supporter Bonnie Buratti who has worked on the Cassini, New Horizons, and Rosetta missions. Ticket pricing for members and their guests would be \$45 each and \$50 each for non-members. Tickets were immediately available.

With the completed information session, Ron Kunkel then led off with the first of various presentations on eclipse experiences. He was then followed by presentations by Rich Hogg, Earl Pursell, and Dave Moll. Then after a short intermission, presentations were done by Tom Duff, Bob and Kathy Weiss, Mike Aulenbach by Rich, Lynn Krizan, Preston Smith and Dave Gwyn, and lastly by Frank Lyter. Presentations covered viewing locations at 3 locations in South Carolina, 4 locations in Tennessee, one location in Kentucky, and 2 locations in Oregon. Rich then presented an epilogue to the presentations and the meeting adjourned at about 9:42 p.m. although much lively discussion between members followed for quite some time.

The next General Meeting will be October 8th at South Mountain with Brooks Thomas from Lafayette College speaking on dark matter.

Minutes were prepared and submitted by Secretary, Ron Kunkel.

October General Meeting At South Mountain

Sunday, October 8, 7:00 p.m.

Re-envisioning the Invisible: A New Perspective on the Dark Matter Puzzle



**Brooks Thomas, Assistant Professor,
Physics, Lafayette University**

Overwhelming evidence now suggests that the majority of the matter in our universe consists of some exotic "dark matter" that neither emits nor absorbs light, yet makes its presence felt via its gravitational pull on normal matter. Over the years, a number of simple and elegant ideas have been advanced to explain the nature and origin of this dark matter. However, a variety of puzzling experimental results and tantalizing potential signals have recently emerged which are difficult for these simple proposals to explain. These results have motivated more complicated proposals for what the dark matter might be, and have even given birth to the idea that our universe might contain a whole "dark sector" comprising a variety of different particles with different properties, all hiding in plain sight. In this talk, I'll review what we do know about dark matter, explain why traditional ideas about dark matter are being called into question, and describe an alternative perspective on the dark-matter puzzle -- one which in some sense represents the most general approach to that puzzle which can possibly be imagined. This new perspective brings to light a variety of new possibilities for dark matter whose unusual and distinctive experimental consequences are only beginning to be explored.

***Megameet is currently scheduled for October 13-15.**

Nomination Of Officers Of LVAAS For 2018 Term

NOTICE -- A Business Meeting will be convened for Election of the 2018 Society Officers at the October General Meeting

The LVAAS October General Meeting will be held on its regularly scheduled date – October 8, 2017, 7:00 p.m. at South Mountain - during which a Business Meeting will convene for the purpose of election of our 2018 LVAAS Officers.

LVAAS Full Members in good standing (current dues paid) are entitled to vote and/or be considered for office. Any society member in good standing may nominate qualified individuals until nominations are closed during the September General Meeting on September 10, 2017. At the time of nomination, nominees need to agree to accept the nomination in person, or in writing and signed by the nominee (should the nominee not be able to be present when nominated.) Except as provided for, no nomination shall be accepted by the Nominations Committee, nor shall additional nominations be placed on the ballot after the close of nominations during the September 10, 2017 General Meeting.

In the event no qualified candidate is listed for one or more positions at the time of election (October 8, 2017) the election shall go forward for the remaining offices. After the election results are verified, the nominations committee shall open the floor for the nomination of any qualified candidate to a vacant position. Any LVAAS member (in good standing and not elected to an office in the just-completed election) may be nominated for an open position, if said person has not held that position for the immediate past two consecutive terms of office.

The newly elected officers' terms begin at midnight November 30, 2017—and continue until midnight on November 30, 2018.

Nominees to date include:

<u>Director:</u>	Carol Kiely
<u>Assistant Director:</u>	Rich Hogg
<u>Secretary:</u>	Earl Pursell Tom Duff
<u>Treasurer:</u>	Gwyn Fowler

Regards,

Bill Dahlenburg -Nominating Committee Chairman

Schlegel Observatory Report

by Rich Hogg

October, 2017

Alignment progress

This month I am going to focus on our progress on preliminary polar alignment.

A few months before I joined LVAAS, I fooled around with imaging just a bit. I wanted to capture an image of [Supernova 2011fe](#) in M101, the Pinwheel Galaxy, using my Dad's "classic" Meade LX200 8" and a Canon DSLR. I planned to use many short, unguided exposures, and to do this I needed decent polar alignment.

I had what I thought was a cool idea of how to do this, and it worked. With the camera mounted on the 'scope and connected to my laptop, I first rough-aligned the mount, and positioned the DEC axis of the telescope as close to 90° North as I could. Then I captured a frame, and after rotating the mount about 90° in RA, I captured another one.

I don't remember if it took a couple of tries, but once I had the DEC close enough to 90°, I had some of the same stars in both of these frames, just rotated. I was able to determine the center of rotation on the image plane, and I knew I needed to align this with the north pole.

This is where "plate solving" comes in. If you have an image of some stars, you can figure out where in the sky that image is taken from, because of their unique pattern; it's kind of like recognizing a constellation, taken to an extreme. In 2011 I did this manually, by alt-tabbing between one of my captured frames and a planetarium program, and hunting around for the pattern. I don't remember how long it took, but it wasn't terrible.

The final step was to make ALT-AZ adjustments to the mount base, and repeat the process until I was sufficiently well aligned. It worked and the result made me happy.

More traditional method

A couple of years later, Ron Kunkel and I undertook to align the 18" at Pulpit Rock using drift alignment. I tried to enhance the process by setting up some fancy calculations in a spreadsheet, but I messed that up somehow and it didn't end up helping. It also didn't help that, once or twice, I got the directions backwards and we went the wrong way.

Another problem was that there was a lot of mechanical coupling in the way that mount is adjusted, so that an adjustment in azimuth caused a change in altitude and vice-versa.

Ladies and gentlemen, let me tell you, what a pain in the neck it was. We kept at it as long as we could, going back and forth between a star overhead and a star in the East, between adjusting the AZ and adjusting the ALT, until we were tired and sick of it, but the result was good enough to get by. I have had in mind ever since that we need to go back sometime and improve it, but I haven't found the time or the courage to do it yet. But, at least now I know what to do and what not to do.

The 40" situation

I previously mentioned that we need to do a preliminary alignment on the 40", because doing so will likely require grinding and welding, and we want to get that out of the way before we bring the optics into the room. I have been thinking for a long time that some variation of my 2011 procedure would be the best way to go.

A couple of months ago, I stopped by Dave Moll's house one evening, and Tom Duff was there, and Dave was messing around with the latest version of [SharpCap](#). It now has a built-in database of stars near the pole, and a procedure for doing polar alignment, which Dave was trying out. "Hmm hmm hmm!" Subsequently, a write-up in [Astronomy Technology Today](#) confirmed my feeling that this was something I needed to investigate.

Well, it's not done yet, but I am happy to report that we are "all systems go" and we should have our results within a matter of weeks, depending on how well the weather cooperates. Here is how it came together:

- ▶ I needed a camera. I have a QHY 5L-II M now, and I want to use it.
- ▶ I needed a telescope of about the right FL, to give a roughly 1° field in the camera. I found the Potato Masher Hand Grenade Telescope (described last month) in a cabinet at South Mountain.
- ▶ I needed a temporary setup for testing. I have an el-cheapo Celestron Bird-Jones Newtonian with a 1/4-20 stud that fitted a mounting hole on the PMHGT; a Velcro strap around the finder made it stable enough. See photo.
- ▶ I needed to install the camera and get it focused. Since we don't have a focuser in this setup, it requires some delicate manipulation and carefully tightening the set-screw, but I was able to get a decent image of a tree about a mile away out my window. Mission accomplished.



- ▶ I needed a clear night for some testing, when I was available and paying attention enough to realize the opportunity. Well, that happened also, although the cloud layer condensed magically out of the night air just as I was getting finished. The bottom line is, I was able to capture frames that had stars in them, and SharpCap was able to recognize the stars, plate-solve the frames, and tell me how far off my mount was from being aligned.
- ▶ Just to prove that I wasn't being lied to, I was able to match up the frames I captured with the star field in Stellarium planetarium software.
- ▶ Next I need to mount the PMHGT on the 40". I am going to attach it directly to the fork, to take the DEC axis out of the equation, since it is not perfectly balanced and I am afraid it will slip. To this end, I have asked Ron if we can use his geared tripod head, and I have ordered a big magnet with a 1/4-20 screw on it.
- ▶ We'll need to get all of this together at PR on another clear night, for long enough to do the measurement. Sometimes, waiting for a clear night can be frustrating, but we'll get it eventually and then we'll get this done.

I had to visit the SharpCap forums to understand it, but now I think I know how SharpCap does what it does to guide the polar alignment process. First, it obviously can tell where the telescope is pointed and so on, by matching the stars that it sees with its plate-solving database, as long as you are within 5° of the pole. And by doing this twice, with the RA axis rotated between them, it can figure out the center of rotation and then it knows precisely where the RA axis is pointed. And it tells you how to adjust it, in terms of moving it so many degrees right or left and so many degrees up or down, with real-time feedback to help you zero it in.

But, how does it translate RA and DEC to up and down? In kind of a rough fashion, it turns out. It looks at the clock settings in your computer; the time of day, and the time zone; and it assumes your latitude is roughly 45°. This gives it enough information for a rough adjustment.

We will need to capture some frames to confirm the plate-solving (like I did in my test), along with the RA and DEC reported by SharpCap, and factor this in with the exact coordinates of the telescope and the exact time of day, but we should be able to recover a more precise measurement of exactly how far off the alignment is. This is important, because at this stage we won't be aligning it, so the interactive feedback won't be useful to us. We'll be doing some very careful calculations and measurements, and then getting out the grinders and welding equipment, to modify the mount so that alignment is possible.

Current Status and Activities: The optical setup for checking polar alignment is assembled and tested, and the task will be completed when we have an opportunity under clear skies.

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.



Replacing General Relativity's Theory of Gravity

Newton's theory of gravity described gravity as a force in 3-D space. Einstein's General Relativity theory described gravity, not as a force, but rather as a property of the 4-D space-time continuum. In General Relativity the presence of mass warps the space-time continuum and it is this warping of space-time that then determines how mass moves through it.

Now a new theory of gravity, proposed by Erik Verlinde of the University of Amsterdam, called Emergent or Entropic Gravity, describes gravity as an emergent property of space-time. For example, temperature is an emergent phenomenon that arises from the motion of molecules and atoms. Verlinde proposes that gravity emerges from the quantum entanglement of bits of information stored in the very structure of space-time. In its simplest form the theory holds that when gravity becomes vanishingly weak, such as at interstellar distances, its strength then diverges from the usual inverse distance squared dependence to a simple inverse distance dependence. Thus the new theory obviates the need to invoke the existence of dark matter to explain galaxy rotation curves and other phenomenon ascribed to it.

Emergent Gravity was first proposed by Verlinde in 2010 when he showed that Newton's theory of gravity could be derived from the quantum entanglement of information stored in the structure of space-time. Now in his November 2016 paper he shows how his theory accurately predicts the velocities by which stars rotate around the center of the Milky Way and other galaxies.

General Relativity and quantum theory are the two most extremely successful theories of 20th century physics, but both cannot be true. They become incompatible in the realm of the very small with high gravitational fields. Verlinde's theory has its origin in first principles from quantum theory and it describes gravity as an emergent force, thus possibly replacing General Relativity as the best description of gravity. The theory has been controversial within the physics community and it has sparked research and experiments to test its validity.

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Erik Verlinde. (November 7, 2016). Emergent Gravity and the Dark Universe. Retrieved from <https://arxiv.org/abs/1611.02269>.



From the LVAAS Archives:

LVAAS Turns 10, and Gertrude Fox

by Sandy Mesics

On Saturday, October 14, 1967, LVAAS celebrated its tenth anniversary by holding a banquet at the Candlelight Room of the Hotel Bethlehem (the price was \$5.50 a person.) The affair, which was attended by just over 100 members and guests, began at 6:30 p.m. with an hour of cocktails and talk followed by “a delicious dinner of beef. Among the guests were Miss Sarah Lee Lippincott and Dr. Igor Jurkevich, each of whom appeared on society programs at general meetings earlier in the year. Mr. Burkholder of Albright College was there, as was our good friend, Professor Ralph Van Arnam, formerly of Lehigh University and now in semi-retirement.” Other guests included Ed Bailey from Edmund Scientific Company, as well as members of the Princeton Amateur Astronomers, the New Jersey Astronomical Society, and the Rittenhouse Astronomical Society in Philadelphia.

After dinner, LVAAS Director, Ernie Robson kicked off the program with a short speech of introduction for the first speaker, Mrs. Gertrude Fox of the Lehigh Valley Cultural Center, who gave a rather enjoyable speech on the Center and its butterflies. More on Mrs. Fox later, but according to the October 1967 Observer, she gave a delightful talk. “We recall, also, Gertie Fox’s rib-tickler when she recounted Peter van de Kamp’s reply to her question, “Do you believe there are other creatures in the universe who are more intelligent than man?” The good doctor’s earnest reply: “I certainly hope so!”

Following Fox’s talk was an address by Peter Espenscheid of the U.S. Naval Observatory, “who gave an excellent talk on the grazing occultation program of the Observatory.” This was followed by a special skit written by member George Maurer, which poked fun of the officers and involved a fictional meeting of the LVAAS Board of Governors. This was described as “a human comedy beyond compare.”

The guest of honor was Dr. Peter van De Kamp, of Sproul Observatory at Swarthmore College. He was also the speaker at the dedication of the South Mountain facility in 1963, and had visited the LVAAS on several other occasions. His talk “included an engrossing account of the world convention of the International Astronomical Union in Prague, Czechoslovakia, this past August. Following his talk, Dr. van de Kamp showed two films of the dedications of McDonald and Mt. Palomar Observatories.”

At the end of the program, Director Ernie Robson presented life membership awards to Marguerite Braymer of the Questar Corporation and Henry Kawecky for their generosity to the LVAAS. Questar had donated two telescopes to LVAAS, and, of course, Henry Kawecky gave LVAAS Pulpit Rock.

According to the November 1967 Observer, “If you missed the 10th Anniversary Banquet, you lost out on a very pleasant affair. The program was many things from humorous to interesting, the attendance was satisfyingly good and the meal was just great. ... Bouquets to Marion Robson and her small group of helpers. And so, the first ten years have passed. Let us hope than the excellent turnout is a true indication of the strength of the society as it turns to face the future.”

Environmentalist Gertrude Fox



The first speaker of the evening, Gertrude Fox (1916-1995), was a remarkable woman. She was raised in New England and received her high school education at the Girls' Latin School-Boston Latin Academy in 1934, and her bachelor's degree from Simmons College, Boston, where she graduated in 1939. She came to Bethlehem from Boston with her husband, Sydney Fox, who was a researcher at Bethlehem Steel. While she was a math and science teacher, she also worked as an industrial biologist and metallurgical investigator at Bethlehem Steel from 1945 to 1947. She earned a master's degree in education from Lehigh University, and went on to teach mathematics at Moravian Preparatory School for 12 years and was head of the mathematics department. She also taught mathematics at Notre Dame High School and Lehigh County Community College.

Fox became a Lehigh Valley legend due to her environmental advocacy. When she spoke at the banquet, she was still grieving the loss of her 15-year-old son, Arthur Fox, who in 1965 was hit by a car on Jacksonville Road in Hanover Township, Northampton County. This launched her lifelong efforts in advocacy and politics. She pressed for a walking path and traffic controls along Jacksonville Road — both of which are there today -- and eventually moved into conservation and environmental activism.

Incidentally, her late son was a junior member of LVAAS, and the LVAAS junior society, The Ursa Major Astronomical Society, honored his memory by naming their Pulpit Rock observatory the Arthur Fox Memorial Observatory.



At the time of her talk at the LVAAS 10th anniversary banquet, Fox's scientific background and her love of the outdoors led to her involvement in environmental activism. She became assistant director of the Lehigh County Cultural Center, and was in charge of establishing innovative methods in environmental education for Lehigh County Schools. In 1969, "Gert" became a founding member of the Pennsylvania Environmental Council. During her long career, Fox was the associate director of the Northampton County Conservation District and a member of the Mid-Atlantic Council of Watershed Associations.

According to her friend, journalist Glenn Kranzley, Gert knew how to get results by fostering compromise, using humor, and doing her research to show that good environmental practices also were good for developers. Kranzley (2014) relates that Fox would sit “in the back row at public meetings with a pile of knitting on her lap, head down and seeming not to pay attention. ‘I wanted them to just see a little old lady,’ she would explain. Then, when the public’s turn to speak came, she would walk to the microphone where her intelligent, probing questions would rivet the audience and send officials scrambling through their notes.” She testified before the U.S. House and Senate Appropriations Committees and the state Department of Environmental Resources on various environmental issues.

It was inevitable that recognition and awards would come her way. In 1984 she was awarded the Silver Conservation Award by the North East Region of Pennsylvania Garden Clubs and the first annual Conservationist of the Year award by the Lehigh Valley Sierra Club. Known as "Mrs. Monocacy," Fox was a president of the Monocacy Creek Water Shed Association from 1983-87. To honor her for this work, in 1987 Northampton County created the Gertrude Fox Conservation Area, a four-acre site along her beloved Monocacy Creek near Routes 22 and 512.

She won a first place award in the 1988 Take Pride in Pennsylvania campaign. Fox was a member of the board of directors of Burnside Plantation and was chairman of the research committee; a former member of the Planning Commission of Hanover Township, Northampton County and a member of the Monocacy Creek Conservation Corridor. In a 1989 article in the Los Angeles Times, Fox said "Kids nowadays don't know where chickens come from. They think they come from the freezer. So we will have teaching facilities here [at Burnside Plantation]. This will be our last chance. It will be the last farm left in the three cities" (Murphy, 1989).

In 1990, Fox was one of the first 76 recipients of the Theodore Roosevelt Conservation Award, presented by President George H.W. Bush. She died in her Hanover Township home in 1995, at the age of 80.

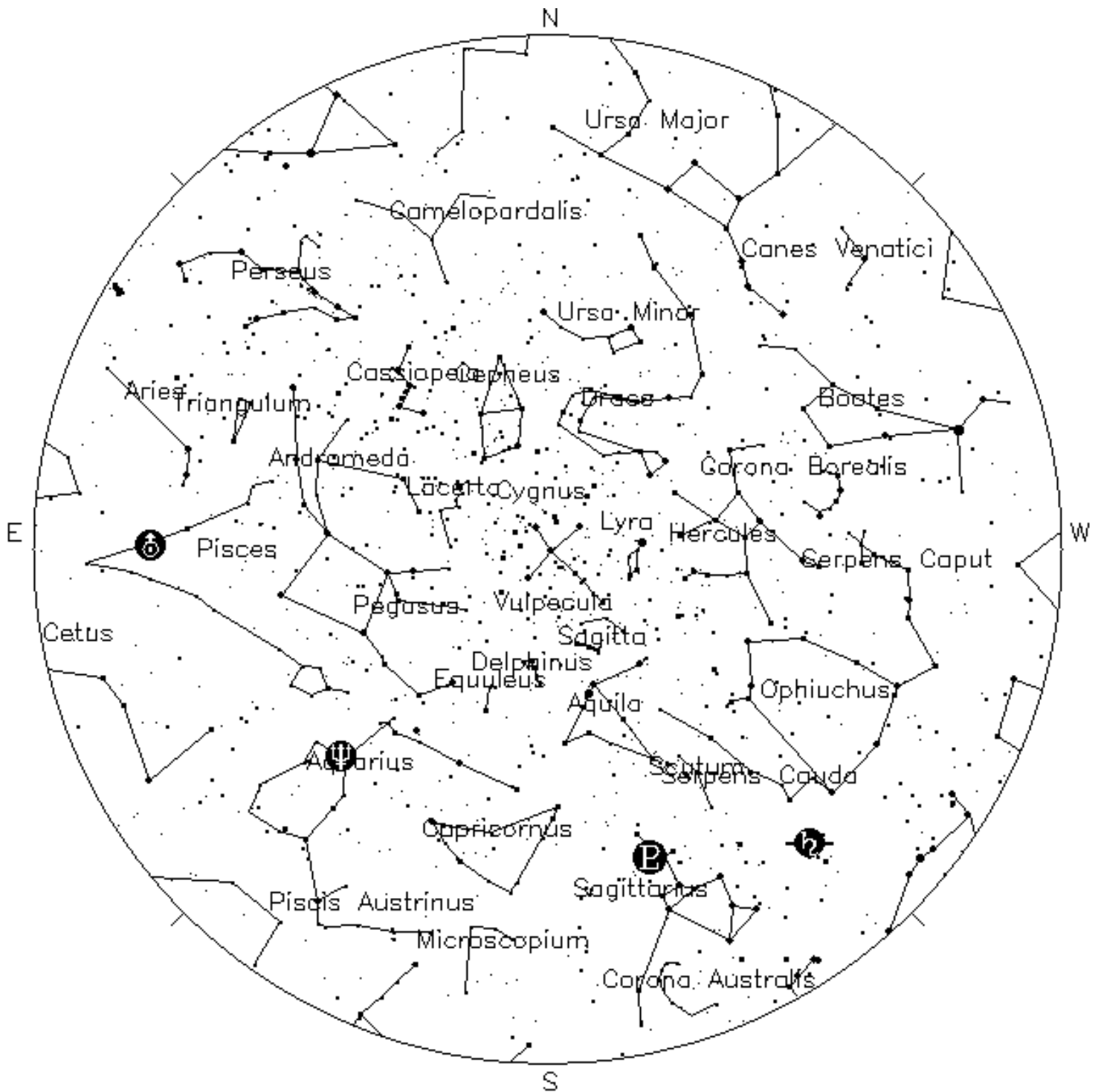
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Sky above 40°33'58"N 75°26'5"W at Fri 2017 October 13 0:00 UTC



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 pmtogif 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]

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

OCTOBER 2017

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

NOVEMBER 2017

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

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	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 8	Muhlenberg	29	12	no mtg	no mtg		no camping	27	5	12	19
February	2:00 PM 12	Muhlenberg	26	9	no mtg	no mtg		no camping	26	3	10	18
March	2:00 PM 12	Muhlenberg	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 October 13-15.

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

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Put the quality in:

- ▶ Considering the "print" size of the image, make sure you have at least 150 pixels/inch.
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But watch the "waistline"!

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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.

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