The Observer

The Official Publication of the Lehigh Valley Amateur Astronomical Society
https://lvaas.org/
https://www.facebook.com/lvaas.astro
May 2021
Volume 61 Issue 5

ad astra **********

The sub-committee revising the By-Laws has completed its work and submitted final drafts to the full Board of Governors for approval. The final step is that once approved, the changes will be presented to the membership for a vote at a General Business Meeting.

One of the changes being made is to clarify the membership structure. Our past two Membership Directors, Gwyn Fowler and Scott Fowler, have in the past received input that the structure was confusing. They have re-written this section to remove the confusion.

Another change is in relation to the Fiscal Policies. In the past there was an overly complicated indexing of the Core Fund to the Consumer Price Index. This indexing caused a lot of work and will be removed in favor of having the Treasurer suggest an investment policy to the full BOG who will review and approve. This will allow us to be more flexible in our fiscal management and budget.

Another change is in relation to insurance requirements. Previously there was detailed insurance information in the By-Laws. It was decided that this level of detail should not be in the By-Laws but instead be maintained in Society Policies. As in the case of the Fiscal Policies the effort was to allow flexibility in our insurance management.

As you can see, most of the effort in re-writing the By-Laws had to do with simplification and flexibility. Our hope is that these changes will create a more efficient LVAAS. If the changes are rejected at any point, we will go back to square one and start over.

I am sad to report that Fred Bomberger has decided to step down as Planetarium Director due to health reasons. Fred has been a mainstay in running the Planetarium for many years. I am sure Fred will continue to help as he is able. I have decided to appoint Earl Pursell as our new Planetarium Director.

Since the weather is getting nicer and the pandemic is becoming more under control, the BOG has been discussing opening up more activities for members. You may have noted that we had a member get-together at Pulpit Rock in April. As part of this opening up we will be having membership meetings at Pulpit Rock (weather permitting) since it allows social distancing along with our Zoom meetings. One note, when we do have these meeting at Pulpit Rock we will be shifting the General Meeting day to Saturday, since this allows members to stay and observe after the meeting.

Also, the BOG has decided to allow an Astro-Imaging meeting at South Mountain on June 19th at 7 p.m. The topic of this meeting will be Equipment Setup and Imaging Setup. The meeting will be outdoors, and all Covid restrictions for masks and social distancing will apply.

With the opening up of LVAAS activities I would like to ask for volunteers to become the Director of Membership Services and some helpers. Rich Hogg has done a wonderful job in managing the Red Shift on an interim basis since our last director left but he has many other LVAAS projects he would like to work on. This position is responsible for running the Red Shift store. Along with the Director it is best to have multiple helpers so that the persons in the store can also observe on nights they are running the store. Anyone interested in this position or as a helper please contact me directly.

Ad Astra!

Tom Duff

Minutes from the LVAAS General Meeting – April 11, 2021

The April 2021 LVAAS General Meeting was conducted electronically using an on-line service in an effort to adhere to the social distancing guidelines with regard to the COVID-19 pandemic.

Approximately 30 people were in attendance.

Director Tom Duff opened the meeting at 7:00 PM.

The General Meeting's presentation was Van de Kamp's Phantom Worlds — the Case of the Disappearing Exoplanets by John Wenz.

John Wenz is currently science editor at Inverse, where he leads a team of space and technology reporters at the cutting edge of current research. Prior to that role, he was a digital producer at Knowable Magazine, an associate editor at Astronomy Magazine, a news writer and contributing editor at Popular Mechanics, and a long-time freelancer. His book, The Lost Planets Peter van de Kamp and the Vanishing Exoplanets around Barnard's Star, was released by MIT Press in the fall of 2019.

Treasurers Report: Gwyn Fowler

Income to the General Fund since the last meeting is $7,473.582 and expense is $1,887.14. The General Fund income this fiscal year is $8,703.00 We received an annual payment of $6,917.00 from First Energy for access to their tower via our road to Pulpit Rock summit. We also received $25.50 of income for the Red Shift.

Fund Activity Since Last Meeting (amounts in dollars).

	14 Mar 2021	Income	Expense	11 Apr 2021
General	41,949.38	7,473.58	1,887.14	47,535.82
Red Shift	260.50	25.50	0.00	286.00

The following table summarizes our annual budget so far this year.

FY 2021 General Fund Budget (amounts in dollars).

	Budget	Actual
Income	20,000.00	16,099.83
Expense	26,565.00	5,188.90
Net	-6,565.00	+10,910.93

Membership: Gwyn Fowler

2nd Readings:

- Robert Dreisbach (has not paid, so he is not full until he pays his dues)
- Leslie Moskowitz
- Kris Warren

1st Readings:

- Patricia Keller
- Sujal Shah
- Mike Swartley

General Comments

- Gwyn Fowler presented the donation/payment tutorial for any members who may have missed it at the last meeting.

- Tom Duff mentioned that he is considering scheduling outdoor Astroimaging meetings with the onset of warmer weather.

- Gwyn Fowler mentioned that there is interest in resuming the dual outdoor/online General Meetings with the onset of warmer weather.

Next General Meeting

The next General Meeting will be Sunday, May 2nd, 2021 and may be conducted as a dual outdoor/online meeting. It was commented that we might move it to Saturday May 1st to facilitate possible observing after the meeting, if we have the dual outdoor/online meeting. Please check the website to verify meeting format and start date and time.

The April General Meeting was recorded.

The meeting was adjourned at approximately 8:35 PM.

Submitted by Dennis Decker, Secretary

Via Dave Raker, Society Librarian : New Material

The Great Courses: Great Heroes & Discoveries of Astronomy (DVD set)
Americans Into Orbit (Project Mercury) by Gene Gurney
Skywatching by David Levy
The following books were donated by Stephen Walters:
Pendulum (Leon Foucault) by Amir Aczel
Starlight Nights (updated) by Leslie Peltier
The NewAstro Zone System For Astro Images by Ron Wodaski
The 100 Best Astrophotography Targets by Ruben Kier
Scientific Astrophotography by Gerald Hubbell
Robotic Telescopes edited by Gregory Henry
Small-Telescope Astronomy On Global Scales edited by Wen-Ping Chen
Robotic Telescopes in the 1990s edited by Alexei Filippenko

Benefit from giving to LVAAS through your IRA!

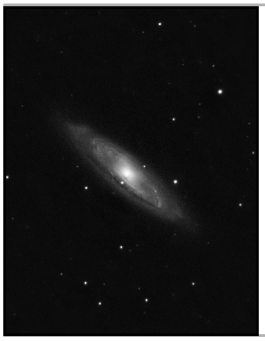
If you are 70 1/2 or older, you can make a charitable gift directly from your IRA to LVAAS without paying income tax on the withdrawal. State laws about Qualified Charitable Deductions (QCDs) and how QCDs are handled vary. If interested, please consult an adviser so you can help LVAAS today! https://lvaas.org/page.php?page=using_rmd_to_support_lvaas

Via Earl Pursell, UACNJ Liason: Presentations through October 2021

UACNJ provides FREE public programs at our Observatory in Jenny Jump State Forest from April through October on Saturday evenings. For the safety of the public and our volunteers, we will be operating the observatory much as we did last year: the entire event will be held outdoors with masks and social distancing required. Weather permitting, an astronomy presentation begins at 8 p.m. As you will be outdoors, please bring a chair or blanket to sit on and be prepared for cool weather. The presentation is followed by some stargazing and we will have screens set up to show live video from the observatory's telescopes until 10:30 p.m. These public programs are free but donations are appreciated. Note admission is limited and by reservation ONLY. For more information and free registration see our website: http://www.uacnj.org/index.php. Reservations for the following week's program go on sale Sunday at 12 noon. Please join us or watch our presentations online by subscribing: youtube.com/UACNJ

Via Earl Pursell: NEAF : The Virtual Experience - Livestream Link:

https://www.youtube.com/embed/KP-GPuHc3BI



Cover image: M65 - The Leo Triplet, by LVAAS member Warren Landis
The 'Medusa' Telescope System
Observatory: SkyShedPod
Mount: iOptron CEM120
WO z61 / Adjustable FF, ZWO EAF, ZWO Filter Drawer, ZWO ASI183mm-cool
Apertura 60ED / Adjustable FF, ZWO EAF, ZWO Filter Drawer, ZWO ASI183mm-cool
AstroTech 60ED / Adjustable FF, ZWO EAF, ZWO Filter Drawer, ZWO ASI183mm-cool
Celestron 8" SCT, Celestron Focus Motor, ZWO Filter Drawer, ZWO ASI1600mm-cool
Pegasus USB Control Hub Rig Runner 4012 Power Distribution

LVAAS General Meeting: Saturday, May 1 at 8:30 p.m.

Rain Date Sunday May 2 at 8:30 p.m. ~ At Pulpit Rock and via Zoom

An Evolutionary Way to View the Moon

presented by

Peter Detterline

You've seen the wispy beauty of a bright nebula, countless stars in a cluster, and the arms of a majestic galaxy. You're marveled at the features visible on the Martian surface during its last opposition, and you can never get enough time to view the spectacular beauty of Saturn's rings. Oh yeah, and you've seen the Moon. A lot. And you've shown the most famous features numerous times to numerous people at star parties. Perhaps so many times you ignore the lunar surface during your personal time viewing the heavens. I would like to propose that you view the Moon again in a totally new way, by examining the evolution of our closest neighbor.

A new theory for the formation of the Moon was developed due to results from the Apollo missions. This has led to defining the evolution of the Moon into seven distinct eras. With a little background and practice you can determine which craters, mare and other features belong to which era, and thus how they formed. The program will have examples for you to practice on, as well as resources that you can use, including a look at the Astronomical League's Lunar Evolution Observing Program. Zoom in to learn some history of our closest neighbor. It's something new to share with your guests at star parties, and a wonderful way to understand and explore an old friend.

Peter is an avid astronomer whose interests cover a wide range of the astronomical spectrum. For thirty-five years he was the Director of the Boyertown Planetarium, where he gave programs to over half a million people. He is a recipient of the Thomas Brennan award from the Astronomical Society of the Pacific for exceptional achievement related to teaching high school astronomy. He teaches an astronomy course at Montgomery County Community College, Moravian College and Montana State University. In research he has coauthored numerous papers on eclipsing binaries and contributes data to the AAVSO, ALPO, IMO, and IOTA. He is the Observatory Director for the Mars Society where he heads up an Astronomy Team providing a solar and a robotic telescope for their members at the Mars Desert Research Station in Utah. He also provides training for a robotic telescope in New Mexico as the Lead Astronomer for the Montana Learning Center. Both robotic telescopes are used remotely by students around the world. Peter was selected to be part of the "Astronomy in Chile Educator Ambassador Program", where he visited the largest American observatories in that country. As an amateur astronomer he has traveled the globe to view solar eclipses, built his own observatory, and has completed over 35 observing programs including the Astronomical League's "Master Observer." He is an honorary life member of the Lehigh Valley Amateur Astronomical Society (LVAAS).

When he's not staring at the heavens, Peter is preaching about them as a commissioned minister for the United Church of Christ, and fills in for various churches as needed. Astronomy for him is a deeply enriching experience that connects the heavens to the Earth.

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

For Sale ($250)

Contact Thomas Duff **duffmeister@rcn.com**

Stellarvue SV70ED Travelhawk

The Stellarvue SV70ED Travelhawk is a doublet refractor that was available from Stellarvue for $399. It has an aperture of 70mm, a focal length of 420mm and a focal ratio of f/6. The doublet is hand figured and made from extra-low dispersion (ED) glass.

The SV70ED comes with a Vixen-style dovetail mounting foot that also is threaded for a 1/4 - 20 bolt for use on a standard tripod. The scope weighs 4.5 pounds and is 12 inches long with the dewcap retracted.

A review by Jerry Lodriguss can be seen at **https://www.astropix.com/html/i_astrop/eq_tests/sv70ed.html**

For Sale ($300)

Contact Thomas Duff **duffmeister@rcn.com**

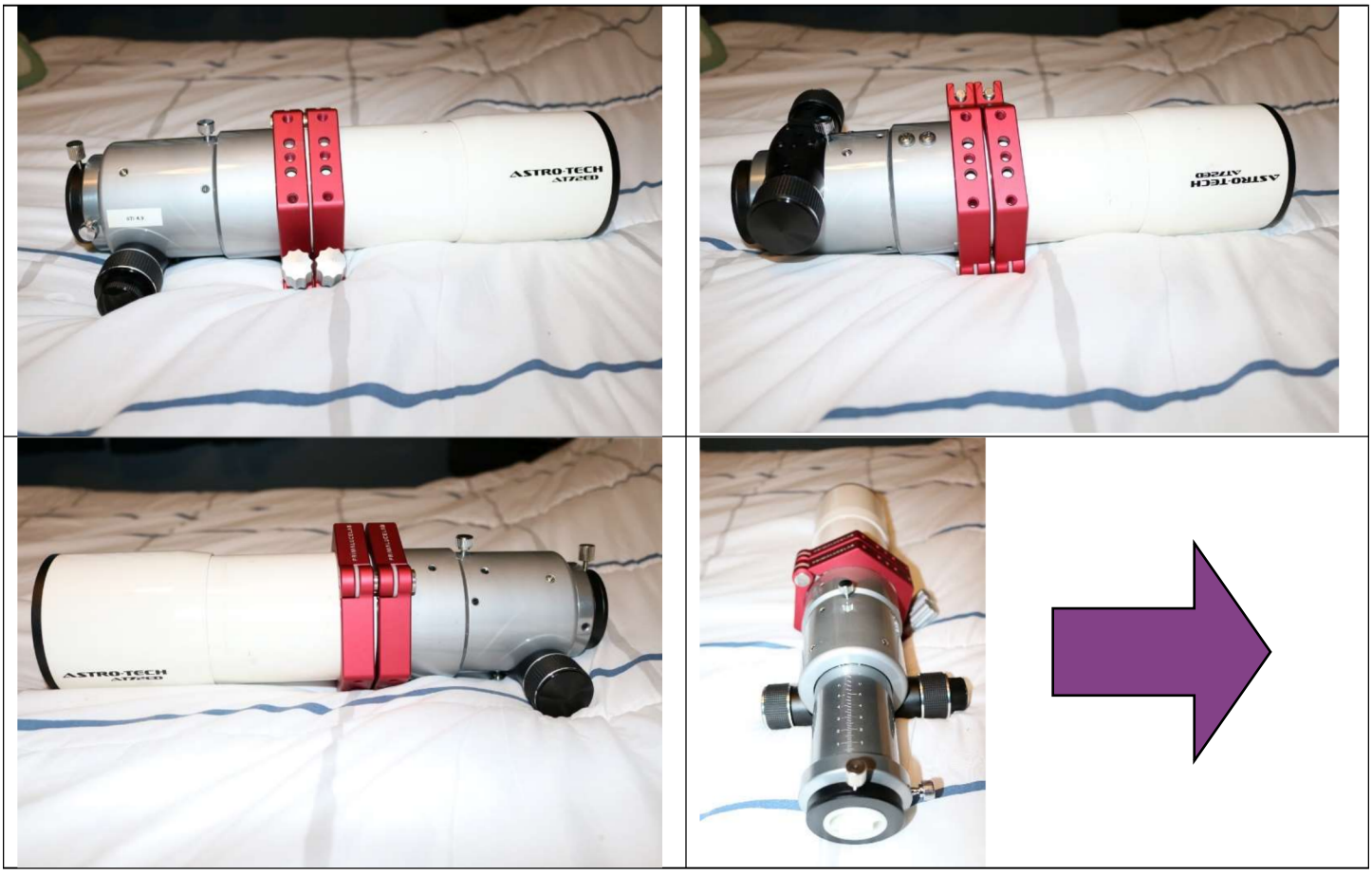
Astro-Tech AT72ED

The Astronomy Technologies Astro-Tech AT72ED is a doublet refractor that was available for $379. It has an aperture of 72mm, a focal length of 430mm and a focal ratio of f/6. It also includes a glass white light solar filter and a set of Prima Luce Rings

The Astro-Tech AT72ED upgrades that best-selling predecessor (AT66) by increasing the aperture to 72mm to give you 9% higher resolution and 19% more light gathering; upgrades the focuser to 2", with a 1.25" adapter; and increases the focuser travel to 80mm to allow imaging with a wider variety of camera types.

The scope has a dual speed 2" Crayford-style focuser with a microfine 10:1 fine-focusing ratio. You can rotate the focuser a full 360 degrees to put your eyepiece or camera in the most comfortable observing position. The Astro-Tech AT72ED has a retractable lens shade.

A review by Scope City can be seen at **http://www.scopecity.com/detail.cfm?ProductID=8802**

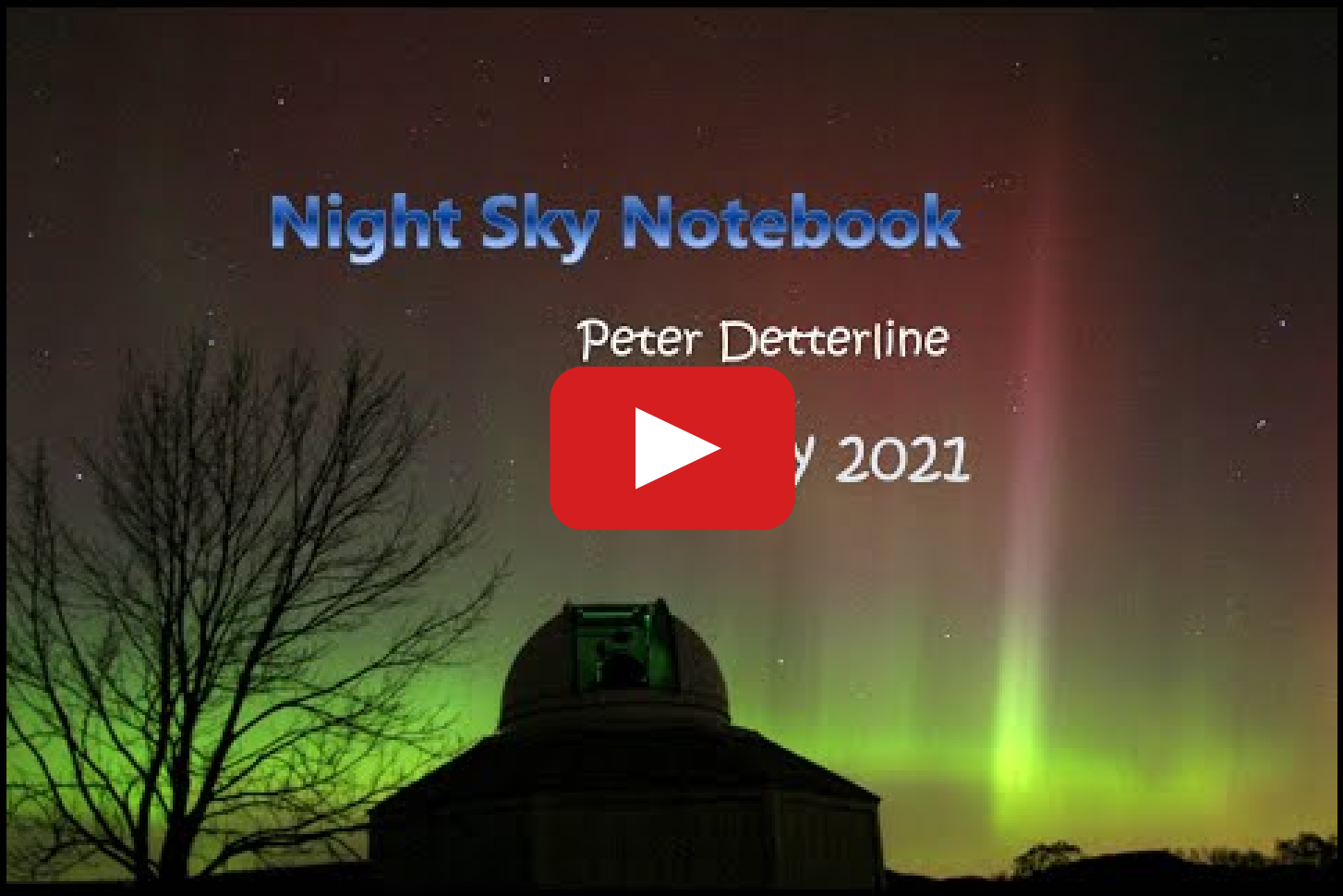



ASTRO-TECH
AT72ED FPL OBJECTIVE
FULLY
MULTICOATED

Night Sky Notebook For *May*

by

Peter Detterline



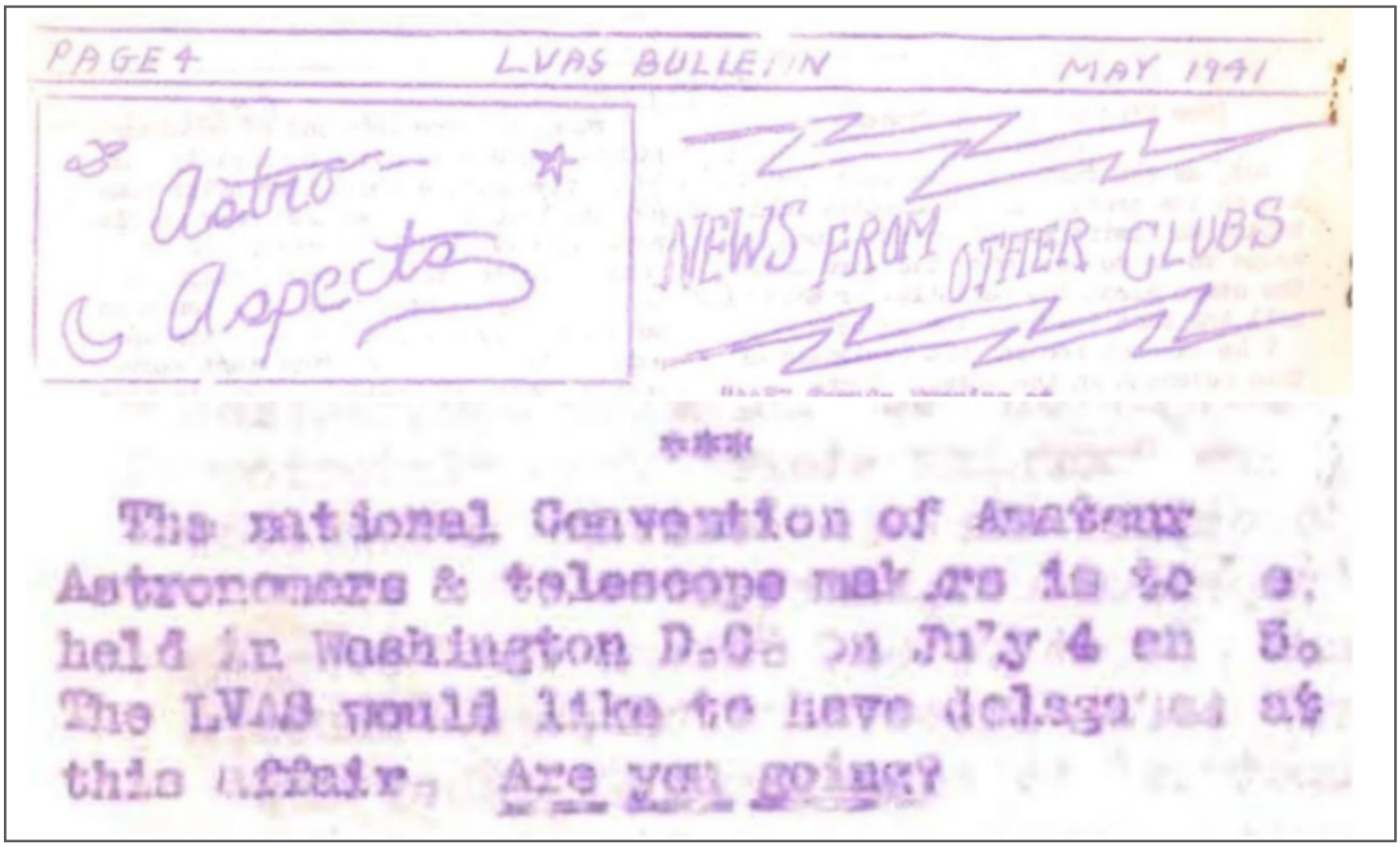
From the LVAAS Archives:

The Astronomical League Is Born

by

Sandy Mesics

The May 1941 issue of the LVAS Bulletin made mention of a "national convention of Amateur Astronomers & telescope makers" that would be held in Washington DC in July 1941. This, it turns out, was the third annual meeting of what would eventually become the Astronomical League.



PAGE 4 LVAS BULLETIN MAY 1941

Astro-Aspects

NEWS FROM OTHER CLUBS

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The national Convention of Amateur Astronomers & telescope makers is to be held in Washington D.C. on July 4 en 5. The LVAS would like to have delegates at this affair. Are you going?

The effort to create the Astronomical League was the brainchild of Charles Federer (1909-1999.) He was a self-taught astronomer, who earned a physics degree from City College of New York while working as an insurance underwriter. By 1935 he became a staff assistant and lecturer at the new Hayden Planetarium at the American Museum of Natural History, and secretary of the Amateur Astronomers Association of New York, which he had helped found.

In 1939 he became the editor of Hayden Planetarium's struggling *The Sky* magazine, and in 1941 at the urging of Harlow Shapley, he took over Harvard Observatory's *The Telescope* magazine. Meanwhile, in 1939 he promoted a convention of amateur astronomers and an exhibition by the Amateur Astronomers of New York that was held at the 1939 World's Fair in New York. At this event, he gathered 300 amateur astronomers and discussed forming a national organization. He became chairman of a committee to establish a permanent national organization of amateur astronomers.

The next convention was held in Pittsburgh in 1940, and on July 4-6, 1941 a third convention was held in Washington DC. The committee presented the proposed bylaws of the "Amateur Astronomers League of America." Following the convention, Federer sent the proposed bylaws to the nation's astronomical groups, and at least 10 groups ratified the bylaws of the new League. There is no record in the LVAS archives that LVAS was one of the groups that ratified the bylaws.

1. Charles Federer. Credit: Robinson L.L. (2007) Federer, Charles Anthony Jr. In: Hockey T. et al. (eds) The Biographical Encyclopedia of Astronomers. Springer, New York, NY. https://doi.org/10.1007/978-0-387-30400-7_444

Of course, no sooner had this effort taken off, than World War II intervened. There would not be another Astronomical League convention until 1946. At the 1947 convention in Philadelphia the bylaws were adopted, officers were elected, and the name Astronomical League was selected. Since then, the League grew and to this day is the largest organization of Amateur Astronomers in the United States. Bringing this organization from idea to reality was difficult work, and largely came about due to Federer's labor of love.

Federer ran *Sky & Telescope* for 33 years. According to former Sky & Telescope editor, "He wanted to build as large a community of amateur astronomers in the United States as possible. *Sky & Telescope* was the vehicle to connect them."

In 1991 Charles Federer secured a place in the sky when the IAU named minor planet 4726 in his honor.

References

The LVAS Bulletin, May 1941.

Astronomical League Receives Bequest from Founder
https://www.astroleague.org/al/news/al/bequest.html

https://www.nytimes.com/1999/10/02/nyregion/charles-a-federer-jr-stargazer-editor-90.html

StarWatch

by Gary A. Becker

Season of Galaxies

Have you ever noticed that after the brilliant starscapes of winter comes the blandness of spring? The heavens no longer resound with the same beauty as the winter sky. That's because we live in one of the arms of a pancake-shaped spiral galaxy called the Milky Way, and our night views into space change with the seasons.

The Milky Way is about 100,000 light years in diameter, but in our locale, 27,000 light years from the center, its thickness shrinks to roughly 1000 light years in depth. Keep in mind that a light year is equivalent to the distance that light travels in one year. One light year is slightly less than 5.9 trillion miles, a vast distance, but still small compared to the 52 billion light year span of our universe.

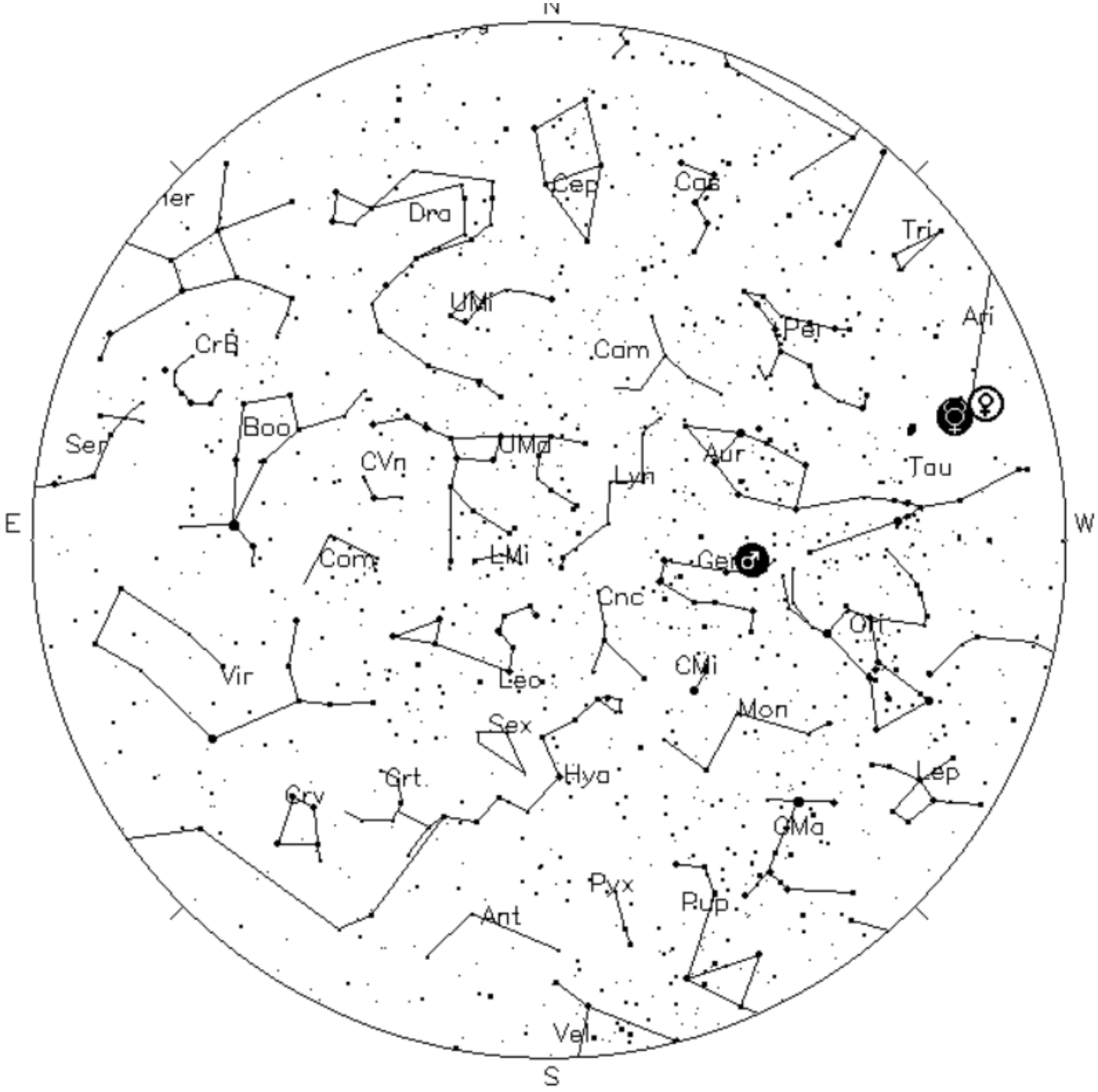
The solar system is tipped with respect to our galaxy with the Earth-sun plane, called the ecliptic, tilted at a 60-degree angle to the galactic plane. This creates four distinct views during the year, serendipitously in sync with the seasons. During the winter months, our nighttime vista of the heavens points us towards the outer regions of the Milky Way, through the Orion arm along the gas and dust rich galactic plane where new star generation is commonplace. Here we observe the dazzling luminaries of Orion the Hunter. They will burn brightly for a mere 10-million years, as compared to the 10-billion year expected history of our much fainter sun. Our sun will live 1000 times longer than the stars that compose the outline of the Hunter. Such vivid stars as Betelgeuse and Rigel are just momentary bursts of luminescence when compared to the history of our galaxy and even to the sun.

As the Northern Hemisphere begins to lean towards the sun, Sol has climbed higher into the sky, the days have lengthened, and our orbital location with respect to the galaxy has provided us with new nighttime vistas. As darkness calls, Orion has now retreated into the southwestern corner of the sky and sets about an hour after sundown. A whole new constellation of stars has taken center stage, but these luminaries lack the vibrancy of the winter sky because they are cooler and spaced farther apart from each other.

The Earth’s rearward vista is now pointed above the galactic plane into deep space. Because this region is less thick, there is simply less matter, and therefore, less gas, dust, and stars to peer through from a galactic perspective, making spring the optimal time to view faraway galaxies. The sky is peppered with clusters of them, such as the Virgo, Leo, Coma (Berenices), and Ursa Major clusters. If these galactic assemblages were in the plane of the Milky Way, they would be obscured by the copious amount of dust from untold supernova events that have occurred throughout our galaxy’s 13-billion-year history. So when you gaze skyward in the spring, more photons of light from deep space are reaching your eyes, maybe even some from the Big Bang itself. Spring is the wondrous season for the sighting of galaxies.

beckerg@moravian.edu garyabecker@gmail.com astronomy.org facebook.com/StarWatchAstro/

Sky Above 40°33'58"N 75°26'5"W Sat. May 1 2021 00:00 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

Lempel-Zim compression based on "compress"

Modified by Marcel Wijkstra

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

MAY 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						01 General Meeting - 8:30 PM
02 General Meeting Rain Date - 8:30 PM	03 Last Quarter Moon	04	05	06	07	08
09 Mothers Day	10	11 New Moon	12	13	14	15
16 Deadline for submissions to the Observer	17	18	19 First Quarter Moon	20	21	22
23 LVAAS Board of Governors Meeting	24	25	26 Full Moon	27	28	29
30	31 Memorial Day					

JUNE 2021

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

New Member Application

LEHIGH VALLEY AMATEUR ASTRONOMICAL SOCIETY

Make checks payable to: LVAAS
Mail your completed application(s), with your dues to:

LVAAS MEMBERSHIP
c/o Gwyn Fowler
97 Yeager Road
Lenhartsville, PA 19534

Name: _____ Are you age 18 or older? Yes ____ No ____

Address: _____ City: _____ State: _____ Zip: _____

Email Address: _____ Phone Number: _____

Occupation (Optional): _____

Where did you first hear about LVAAS? _____

Specific Astronomical Interests: _____

Are you a member of other Astronomical Societies? _____

Please list any astronomical instruments owned: _____

Experience in Astronomy (circle one): **Novice** **Amateur** **Advanced Amateur** **Professional**

Type of Membership (circle one):

Full-time student: $15 Individual: $45 Family: $65 Junior: $15 Sustaining: $90 Life: $675

If you are a full time student over the age of 18, you will need to show proof (class schedule, school ID) to the membership director via email or at a meeting. Students under 18, should apply for Junior membership if they are not a part of a family membership.

Are you a part of a Family Membership?: Yes: ____ No: ____
*(**Note:** Each family member must have a completed application regardless of age)*

Donations are greatly appreciated!
Would you like to give an additional donation? If so, please list the amount. If you want it to be designated please specify (e.g. roof, Prod, 40" telescope). **Donation:** _____

Committee Use Only:

Dues: _____ Donation: _____ Total: _____ Check #: _____ Date: ____/____/_____

1st Reading: ____/____/_____ 2nd Reading: ____/____/_____ Card Issued: ____/____/_____ To Treasurer: ____/____/_____

Publishing images is a balancing act!

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

Put the quality in:

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

But watch the "waistline"!

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

Tip: If you're not Photoshop-savvy, you can re-size and compress undemanding images ("human interest" not astroimages), with an online tool such as: https://www.ivertech.com/freeOnlineImageResizer/freeOnlineImageResizer.aspx. It will also tell you the pixel size and file size of your original, even if you don't download the processed copy.

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

To become a member of LVAAS, please complete and submit an application form, which can be downloaded at https://lvaas.org/filemgmt_data/files/LVAAS_New_Member_Form.pdf

Existing members please update your LVAAS profile information by emailing the membership director at membership@lvaas.org