



# Reflections

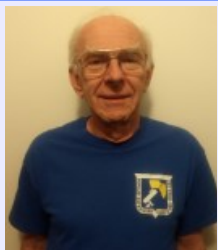
The Newsletter of the Popular Astronomy Club

ESTABLISHED 1936



April 2022

## REFLECTIONS from the President



**Dale Hachtel**

On March 11, the Popular Astronomy Club lost one of its most active members with the death of Terry Dufek. Terry will be dearly missed at PAC meetings and

programs.

Terry's excellent preparation of our "Reflections" newsletter brought much enjoyment and education to our members and resulted in his receiving the Astronomical League's Mabel Sterns award for best newsletter. His participation and attention to detail in planning the NCRAL 2019 convention hosted by PAC resulted in well-organized and enjoyable sessions.

Terry's enthusiasm at public programs enhanced our visitors' enjoyment of amateur astronomy. By presenting educational programs at schools, libraries, scout meetings, and other PAC activities, Terry promoted and improved the public's knowledge of astronomy. His presentations and constellation reports at PAC meetings were always educational and entertaining.

His enthusiasm for amateur astronomy will be missed at our events.

A memorial service is being planned for Terry at the observatory, and a memorial plaque is being made to display in the PACMO. A bench or other memorial is being planned at the observatory.

Please see the final message from Terry and a tribute to Terry elsewhere in this issue of Reflections (see pages 3, 4 and 5).

In Terry's spirit, we have some interesting programs coming up at our meetings.

On April 11, we will have "Fantastic Space Discoveries: Theories of Solar System Formation" by Jim Kovac, member of the Chicago Society for Space Studies and the JPL/NASA Solar System Ambassador Program. He will explore intriguing theories devised to explain the formation of our family of planets. Please attend or join online on April 11, as this meeting will not be available later as a recording.

On May 9, we will have Matt Dieterich, Technical Services Manager at PlaneWave Instruments, to talk about PlaneWave technology and astrophotography.

In June, we have plan to have Geoff Chester of the U.S. Naval Observatory to present "Sky With Ocean Joined: Scaling the Stars at the U.S. Naval Observatory, 1830 to the Present."

Our July meeting will feature an "Update on the OSIRIS-Rex Mission" by Delores Hill of the University of Arizona's Lunar & Planetary Laboratory.

We have nominated our "Reflections" newsletter for the Astronomical League Mabel Sterns Award because of the continuing excellent quality of our monthly publication.

We have had a few months now without many visible planets in our winter sky, but starting in mid-April, we can go out early and watch planets appear in the eastern sky just before sunrise, and by the end of the month we will see Saturn, Mars, Venus, and Jupiter in the southeastern to eastern sky, with a near conjunction of Venus and Jupiter on April 30 if you have a clear view to the east just before sunrise.

Keep looking up!

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## Go stargazing at Retreat Center

Our Lady of the Prairie Retreat Center in Wheatland, Iowa, will sponsor an event titled "Stargazing, Beauty of Springtime Sky" on Friday, April 1, beginning at 7 p.m.

The event will be led by Dr. Steven Spangler, who served as professor of physics and astronomy at the University of Iowa from 1982 to 2021 and maintains the title of emeritus professor. He also worked as a staff scientist at National Radio Astronomy Observatory from 1976 to 1982. Dr. Spangler spoke at the NCRAL convention sponsored by PAC in 2019.

Participants will be taken on a tour of the spring night sky through both naked eye viewing and telescope observations. A similar event featuring the autumn night sky may take place in September.

Cost is \$20 and all members of the public are invited. To register, and for more information, visit the Our Lady of the Prairie Retreat website, at this link:

<https://tpr.retreatportal.com/events/f?p=101:2:3497850166050::::PR OGRAM ID:1274>.



**Dr. Steven Spangler will lead the stargazing event at Our Lady of the Prairie Retreat Center.**

## ANNOUNCEMENTS / INFO



### NCRAL Seasonal Messier Marathon Program

NCRAL's Seasonal Messier Marathon observing program is NOT designed to qualify observers for the Astronomical League's Messier Observing program; the two programs are unrelated and observing requirements are quite different. In the NCRAL program, the main requirement is to quickly observe and essentially check off items from one of four seasonal lists of Messier objects as noted in the section to follow.

NCRAL recognition will consist a suitable printed certificate and a 3/4-inch enameled star pin (a different color for each season). There will be no direct cost to the membership for participating in the award program; the cost of the program (pins, certificates, mailers, postage) will be borne by the Region as a benefit of affiliation. Relevant program documents are linked below

[NCRAL Seasonal Messier Marathon Rules](#)

[NCRAL SPRING Seasonal Messier List](#)

[NCRAL SUMMER Seasonal Messier List](#)

[NCRAL AUTUMN Seasonal Messier List](#)

[NCRAL WINTER Seasonal Messier List](#)

## HOW'S THE WEATHER?



## Popular Astronomy Club Officers



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If you have questions or request, or want more information on PAC, send an e-mail to:  
[popularastronomy-club@gmail.com](mailto:popularastronomy-club@gmail.com)

# TRIBUTE TO TERRY DUFEK

## *PAC is about more than just stargazing*

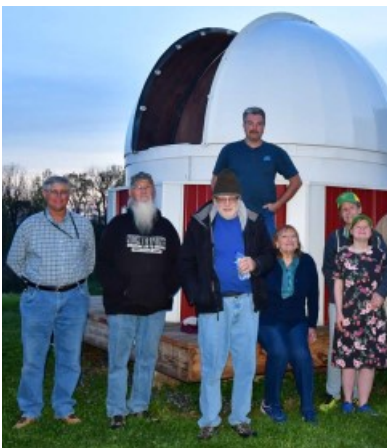
The Popular Astronomy Club lost one of its most active and popular members on March 11, when Terry Dufek died after a long and courageous struggle with brain cancer.

Terry will be sorely missed by both club members and many others who knew him. I cannot claim to have known Terry very well or to have spent much time with him, but I can say that he impressed me as a kind, decent and honest individual with a friendly attitude and good sense of humor. I've heard nothing about Terry that contradicts the impression I had of him, and I only wish that I'd gotten to know him better.

Almost to the end, Terry remained active in club activities and continued to contribute his time and energy to PAC. While the cancer took an awful toll on his body, it could not and did not damage his spirit.

Showing one last time that he was a class act, Terry left a letter praising PAC and its members and expressing his wish that the club would continue its good work in the community (*see page 4*). His legacy to PAC includes this newsletter, which he edited until his health deteriorated to the point where he could no longer do so.

Now that I'm editor of "Reflections," I am benefiting from the work done by Terry in the past. In this and other ways, he helped build a better club and



***Terry Dufek is shown with PAC members at the Paul Castle Observatory.***



***Terry Dufek (third from right, in blue) enjoys dinner with some of his friends from PAC.***

advanced amateur astronomy in the Quad Cities.

While Terry's long and painful illness and death were very sad, they showed me something about PAC, and about the human spirit, that should give us all hope.

From the time Terry received his diagnosis to the time he passed away, PAC members reached out to him and helped him in so many ways. They built a ramp to the entrance of his house and made other adaptations that enabled him to remain in his home. They accompanied him to medical appointments, took him to other places, brought him food, and perhaps did other favors that I'm not aware of. They visited him, sat with him, and let him know that whatever he was facing, he was not facing it alone.

PAC members did all of this while expecting and asking nothing in return. But, in fact, we did get something in return, something of great and enduring value. For we now know for sure that this club is about more than just stargazing.

Every day, we hear and read about war,

***Continued on Page 4***



# **Terry Dufek tribute**

*Continued from Page 3*

and poverty, and crime, and illness, and political strife, and all the other woes that plague humanity. I do not fault the media for reporting “bad news,” because we cannot solve our problems if we don’t learn about them and confront them.

Amidst all this, though, we should not lose sight of all the good that gets done, and that all too often goes unnoticed and unreported. We rallied around Terry in his time of need, and this is a story that should be told, because there are many similar stories that could also be told.

There is still plenty of caring and compassion in this world, and there are plenty of people who are very willing to give of themselves for the sake of others. We lost one of those people when Terry Dufek died, but many more remain, including those of you who can proudly call yourself PAC

members.

On behalf of Terry and myself, thank you for proving to be true friends, and for keeping his spirit alive, a spirit that now shines among the stars we gaze at – shedding light against the darkness.

**Paul Levesque**

*The link that follows will take you to Terry Dufek’s obituary; donations may be*

*made in his memory to the Popular Astronomy Club or to your local Humane Society.*

*<https://www.dignitymemorial.com/obituaries/davenport-ia/terry-dufek-10626495>*



***Terry bundled up for an outreach event at Eldridge Public Library last year.***

## **Terry’s letter to the Popular Astronomy Club**

Soon before he died, Terry Dufek wrote letters to his family and friends. Following is the text of a letter which he wrote to his friends at PAC:

*I should have joined the club a couple decades ago. You have made such a positive change in my life. I got a chance to get out and see the stars again. I have made so many wonderful new friends. You will never know how much your friendship has meant to me. I could never have imagined all the things that you have done in the last year to make my life better during my illness.*

*Thanks to Roy, Mark, and Al for*

*taking me to Iowa City for some of my treatments. A Special Thanks to Al (and Sara for the pie), Rusty, and Byron for your hours of help making it so I can stay in my home for as long as possible.*

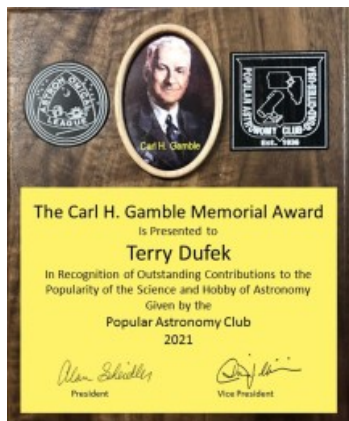
*I hope the club continues to grow and prosper and encourage more members of the community to get involved.*

*Your Friend,  
Terry*



## CLUB CALENDAR

**Terry has long been involved in astronomy, as shown in this clip from a Chicago suburban newspaper from the late 1970s.**



**A tribute to Terry Dufek was published in "Northern Lights," NCRA's newsletter; Terry received this plaque last year as winner of the Carl H. Gamble Award.**

Lastly, it is with a profound sense of sorrow that I announce the passing of Mr. Terry Dufek, a member of Popular Astronomy Club (PAC). Terry passed away on March 11<sup>th</sup> after more than a year of suffering from brain cancer. He was an extremely active member of PAC, having participated in countless public outreach events and club activities. Terry was one of PAC's most active members in the history of the club. He will be remembered by NCRA members for having won the Astronomical League's Mabel Sterns Newsletter Editor Award in 2018 and having developed the NCRA logo in 2019 as well as the masthead of this newsletter that stands in

lasting tribute to Terry's memory. Terry was instrumental in hosting NCRA 2019 in Moline, Illinois as well. He was a shining example of an amateur astronomer dedicated to the service of others. He will be greatly missed by all who knew him. R.I.P. dear friend!



**Terry shown doing some of what he loved: Peering through a telescope and sharing his knowledge of astronomy.**

## ***Terry Dufek's PAC achievements***

- Served as editor of "Reflections" from August 2017 to February 2021; earned the Mabel Sterns Award as best newsletter in the Astronomical League in 2018
- Served as PAC Secretary from 2017 to 2021
- Named as PAC Member of the Year in 2017
- Participated in numerous public outreach events, and made talks and presentations at these events; his efforts earned him the Astronomical League Outreach Award in 2016
- Supported the North Central Astronomical League Convention sponsored by PAC in 2019; made a presentation at that convention
- Recipient of NCRA Mini Messier Marathon Awards
- Designed a new NCRA logo
- Contributed "Skywatch" newspaper articles
- Helped maintain the PAC Facebook page
- Represented PAC in television and media interviews
- Donated equipment to PAC
- Worked on the Library Telescope Team, and serving as support person for the Eldridge Library telescope
- Helped remodel the Paul Castle Observatory in 2020

## SUMMARY OF PAC MARCH MEETING

The Popular Astronomy Club held its regular monthly meeting on March 14 at 7 p.m. at the Butterworth Center in Moline. Fourteen PAC members and guests attended the meeting “live,” with another 15 joining via Zoom, including members of other astronomy clubs in the region.

After calling the meeting to order, PAC president Dale Hachtel presented a tribute to Terry Dufek, a beloved club member who died on March 11. During the tribute, photos of Terry were displayed and a letter which he wrote to PAC thanking the club for its support during his illness was read. The tribute concluded with a brief moment of silence.

Rusty Case then proposed creating a display that would include a photo of Terry, the Mabel Sterns Award for best newsletter in the Astronomical League won by Terry in 2018 as editor of “Reflections,” and the Carl Gamble Award presented to Terry at last year’s PAC banquet. The display would be mounted in the PACMO as a remembrance of Terry. Those present at the meeting expressed support for the idea, so Rusty will proceed.

Dale then called the business meeting portion of the agenda to order. The minutes of the December business meeting, as published in the January issue of “Reflections,” were

approved, following a motion by Roberta Wright and second by Dino Milani.

Dale then summarized a PAC board meeting held on March 7 actions taken during



***During the meeting, Alan Sheidler showed how he used a club telescope to take photos of the sun.***

that meeting included formally appointing Alan Sheidler as observing coordinator and supporting the nomination “Reflections” for the 2021 Mabel Sterns Award (*see page 8 for a summary of the meeting*).

The annual treasurer’s report for 2021 was then presented by Dale, who served as treasurer during that year. Following a motion by Wayland Bauer and second by Rusty Case, the report was approved.

Newly elected treasurer Michael Haney then presented a report summarizing 2022 to date. He noted that income had been received from new and renewing members; Dale then noted that some current members still had not sent in their membership dues and would need to be reminded.

Paul Levesque noted that some revenue may soon arrive in the form of memorial gifts honoring Terry Dufek, whose obituary stated that donations could be made in his name either to PAC or to a local Humane Society.

As secretary and “Reflections” editor, Paul then encouraged PAC members to send in photos of Terry and words of remembrance for the next newsletter, as well as other submissions. He noted that other Astronomical League awards beside the one for best newsletter were also available, and that the deadline for nominations was March 31.

In his report as observatory director, Rusty said that the PACMO would need to come out of storage and be prepared for the first Niabi Zoo public observing session on Saturday (March 19). He and Al Sheidler also discussed going out to the Paul Castle Observatory sometime during the week to get it ready for the observing season. Al said that he could help members interested in participating in observing programs sponsored by the Astronomical League.

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# March PAC meeting

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After the business meeting was adjourned, a “smorgasbord” of presentations by PAC members followed, as summarized below:

- Al Sheidler made a hands-on demonstration on how he used one of PAC’s “grab and go” telescopes to observe the sun and take astrophotos showing sunspots and other solar phenomena. Al stressed that the correct equipment and filters should be used both to protect the telescope and to prevent eye injuries. Anne Bauer praised Al for his article on the sun, accompanied by a photo he took, which appeared as part of the monthly “Skywatch” series published by the Quad City Times and Rock Island Argus.
- Dale Hachtel summarized an article he’d read in an engineering publication on “Copenhagen Suborbital,” a crowd-funded “do-it-yourself” effort aimed at making space flight available to anyone with the time and interest. Dale showed photos and illustrations of the rocket and space capsule that would be used, and said that the group hoped to launch a crewed flight within 10 years.
- Roberta Wright, who described herself as an “armchair astronomer,” made presentations on a rocket, probably first launched by China, that is due to crash on the far side of the moon, and on the Oort Cloud, a vast region of the Solar System extending far outside the orbits of Neptune and Pluto where long-term comets are believed to originate.
- Dino Milani discussed objects found in the tomb of King Tut, including a scarab made



***Dale Hachtel’s presentation was on “Copenhagen Suborbital,” a crowd-funded effort aimed at making space flight more widely available.***

of “Libyan glass” and an iron dagger, that were produced from metals that came from meteorites. He then displayed photos and information on carbonados, also known as “black diamonds,” very rare gems that were formed inside of exploding stars and brought to Earth by meteorite strikes.

- Paul Levesque gave away three books on astronomical subjects to interested members.

The meeting concluded with a display of observations that included photos of the sun taken by Al Sheidler, and photos of deep space objects taken by Byron Davies.

A recording of the meeting is available on YouTube via the following link:

<https://youtu.be/aJ0oWF1B0K0>.

The meeting was adjourned at 8:45 p.m.; the next PAC meeting is scheduled for Monday, April 11, at 7 p.m. at the Butterworth Center and via Zoom.

## SUBMISSIONS WELCOME!

This is YOUR newsletter, so we want to hear from you! If you have an article or photos to submit, or

items that might be of interest, send them along to Reflections. Send to: [levesque5562@att.net](mailto:levesque5562@att.net). Thank you!

## SUMMARY OF PAC BOARD MEETING

The quarterly board meeting of the Popular Astronomy Club was held March 6 at the Port Byron home of Dale and Joanne Hachtel. In attendance were PAC President Dale Hachtel, Vice President Dino Milani, Treasurer Mike Haney, Observatory Director Rusty Case, and Past President Al Sheidler. PAC Secretary Paul Levesque and ALCOR Roy Gustafson were absent but submitted reports via email prior to the meeting.

After Dale called the meeting to order at 7:30 p.m., board members gave updates as follows:

- Dino reported he will take care of renewing the PAC website and that he will donate the cost of the renewal for the club. He received thanks for his generosity. Dino also reported he has the following presenters for the “smorgasbord” at the March membership meeting: King Tut (Dino); European Amateur DIY Space Vehicle (Dale); How to set up and use the club’s ETX-90 telescope for solar observing (Al); Roberta Wright (unknown topic).
- Mike reported that the club is in a good financial condition with healthy bank account balances. A full financial report has been submitted by Mike and will appear as a separate document in the next PAC newsletter (*see page 16*).

Currently, the club uses an Excel document to keep track of club finances, but Mike will also start using an accounting program called QuickBooks.

Mike also reported on the number of club members who have not yet renewed their club membership for 2022. After some discussion, the board recommended contacting those individuals to remind them it is past time to renew. It was noted that some of the delinquent renewals are by individuals who do not regularly use email. Telephone contact may be necessary.

- Observatory Director Rusty Case reported that, due to winter weather, we have not been out to the Paul Castle Memorial Observatory since January. He would make sure everything is in good working order prior to the spring observing season. Rusty will set up a time to do this and Al, if available, has offered to assist. The PACMO remains in winter storage at Sun-Rys, and Rusty will determine a good time to meet there to remove the tarp, reinstall the storage battery, and put the telescope back in the observatory. The first public outreach opportunity for the PACMO is March 19 at Niabi Zoo. It was noted that we can use the PACMO tele-

scope even if the PACMO itself is not yet out of storage for this outreach session.

- Paul’s email suggested submitting the club’s “Reflections” newsletter for the Astronomical League’s Mabel Sterns Newsletter Editor Award. It

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### ***LINKS TO OTHER CLUBS***

- [\*\*Quad Cities Astronomical Society\*\*](#)
- [\*\*Peoria Astronomical Society\*\*](#)
- [\*\*Cedar Amateur Astronomers\*\*](#)
- [\*\*Champaign-Urbana Astronomical Society\*\*](#)
- [\*\*Twin City Amateur Astronomers\*\*](#)
- [\*\*Rockford Amateur Astronomers\*\*](#)



# ***PAC Board meeting***

## ***Continued from Page 8***

was agreed the club's newsletter is of high quality and worthy of submission. Paul has identified a couple of candidate newsletters to submit as examples and Dale, as president, has agreed to write a cover letter and facilitate the submission with the AL.

Terry Dufek and Lee Farrar were both nominated for the Mabel Sterns award. Terry received top honors in 2018 and Lee honorable mention in 2013. Al will check his files to see if he still has either of these previous submissions and forward to Dale as examples.

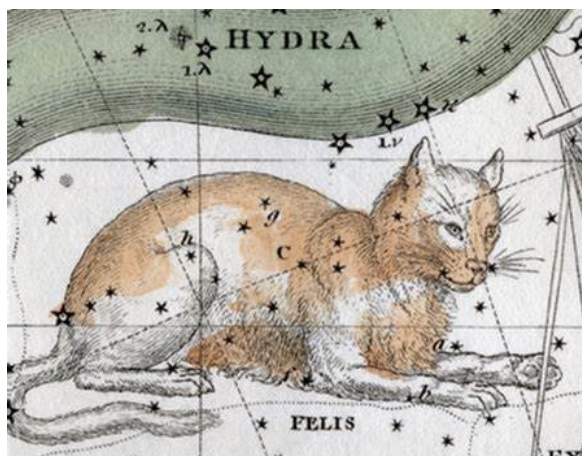
- Al reminded the board that someone needs to email Tammy Schmidt and Lee Jackson at Niabi Zoo to remind them of our Niabi Zoo public outreach observing sessions. The zoo needs to know when we plan to be there so they can keep the gate unlocked so we can access the parking lot. Al also reported he has completed rebuild and repair of the John Deere Middle School's 8" LX200 telescope. Work done included replacing stripped plastic gears with steel gears, repair of a damaged focuser, and reprogramming of the motherboard. He plans to meet with Chad Potter to star test the scope and to set a date for the next John Deere Middle School observing sessions. *NOTE: Al met with Chad Potter on the evening of March 8 and the telescope worked well.*

Al also proposed doing some field trips to neighboring clubs, such as the Southeast Iowa Astronomy Club, Cedar Amateur Astronomers, and Twin Cities Amateur Astronomers. He mentioned that he will not be available to participate in club meetings and observing sessions during April.

- Dale reported on the schedule of public outreach requests so far. Besides the regular third Saturday Niabi Zoo outreach sessions we have also received requests from the following:
  - ♦ Scouts at Loud Thunder on May 21: Rusty and Dino are planning to be present on site with solar telescopes to support this event
  - ♦ Illiniwek Campground on June 25 (July 23 rain date)
  - ♦ Moline Public Library is working on a grant to support doing something with PAC; further discussion will be needed to establish what we will do. Dale asked Al to review what he has for Astronomy Day presentations and programs done with the library in the past.
  - ♦ LeClaire Public Library wants us to come this year and will propose some potential dates. Port Byron Library also wants us to come and is looking for a possible location to set up scopes. Mike suggested a local golf course.Dale wants to get in touch with the Putnam Museum to ask if they have interest. We have done many programs there in the past but we noted they often don't give us a lot of lead time, so it would be good to proactively reach out to them now and ask.
- Dino mentioned that the American Doll and Toy Museum in Rock Island would also like to have an observing session. Durant School had contacted the Quad Cities Astronomical Society, the Cedar Amateur Astronomers and PAC about having a school field trip to visit one of our observatories. Upon discussion, the PAC board felt it best to let QCAS

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## Constellations that didn't make the cut



*In 1922, the International Astronomical Union announced the names of 88 constellations that would be used to form the boundaries of sky maps going forward. To mark the centennial of adoption of the modern constellation list, Reflections is looking back at some constellations that were once found on some sky maps, but didn't make the final cut.*

There are dog people and there are cat people, and French astronomer Jerome LaLande was among the latter. LaLande, who once wrote "I am very fond of cats," thought that if wild felines rated their own constellations (e.g. Leo, Lynx), so did the domestic cat. Thus, in 1799, LaLande created the constellation **Felis** and placed its stars south of the equator, between the constellations Hydra (the water snake) and Antlia (the air pump).

Felis appeared in a star catalog published in 1801 and a few others that followed, but it faded from use and its stars were placed within the borders of neighboring constellations. But LaLande and his fellow cat lovers can take comfort in knowing that the name Felis does now appear in astronomy texts. In 2018, the International Astronomical Union designated HD 85951, the brightest star in the obsolete constellation, as Felis, and added it to the list of approved star names.

## Board meeting

*Continued from Page 9*

handle this particular request due to the proximity of Durant to Menke Observatory.

Dale asked the board members to review the PAC constitution and policies and procedures document to verify board members activities and suggest revisions as necessary. We will review at the next board meeting.

Dale is looking for a PAC picnic chairman. Typically, Wayland and Anne Bauer have been picnic organizers. Dale will contact Wayland and ask if they will organize this year's picnic.

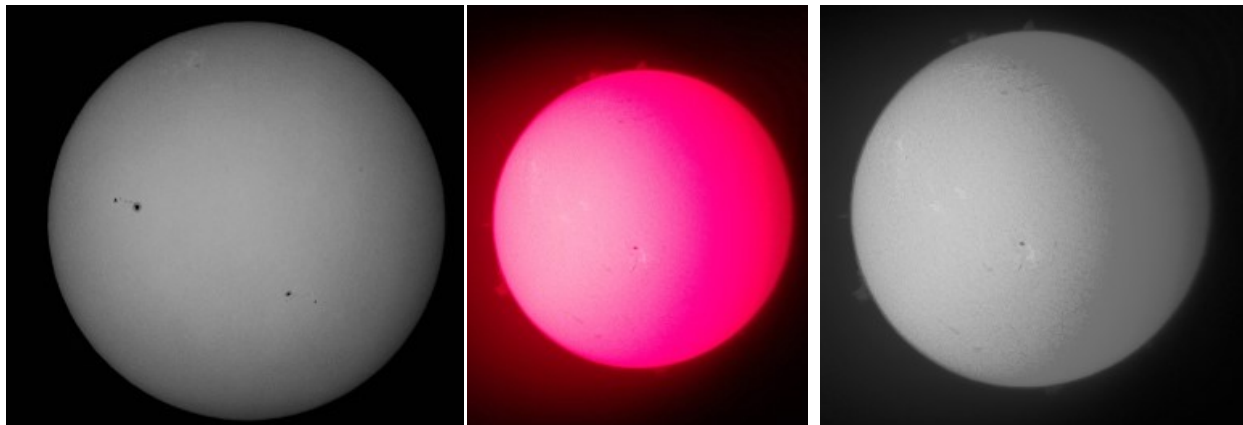
A nominee for PAC's Gamble Award was named, and a vote on the nomination will be held at the next board meeting.

Dale would like to have a person serve as Observatory Coordinator. Responsibilities would include sending email invitations to club members; informing the Nordicks of observing sessions at Castle Observatory; developing observing lists; and promoting observing programs. Al has been serving informally in this capacity and has agreed to continue doing it.

The meeting adjourned at about 9:30 p.m.



# MEMBER OBSERVATIONS & CLUB ACTIVITIES



*Here are more images of the sun; the monochrome photo at left was taken by Alan Sheidler on March 4 and shows some interesting sunspot clusters. The other two photos were taken by Rolando Gamino, using a recently purchased Lunt LS60T Ha with a B1200 Ha filter and a Samsung Galaxy S8 camera; note the prominences captured on the color photo.*

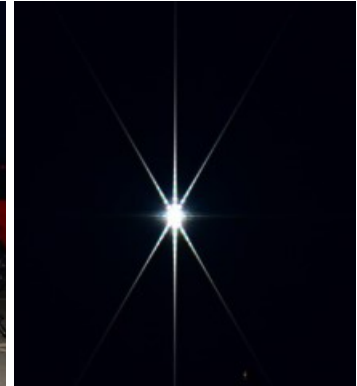


*Rusty Case and Alan Sheidler met at Paul Castle Observatory on March 15 to check the equipment and do a little observing. In the photo at left, note what appears to be a flock of birds in the upper right background; it's possible that these are birds migrating at night using stars as navigation guides, a subject covered at PAC's meeting in February. While observing, Rusty and Al caught the occultation of the third magnitude star Eta Leonis by the moon. Al says he "loves carbon stars" and here's a sample of some of images of those beloved objects captured that night.*

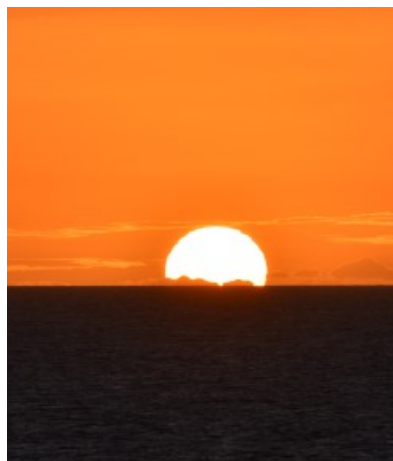




# MEMBER OBSERVATIONS & CLUB ACTIVITIES



*The first public observing session at Niabi Zoo in 2022 was held on March 19. About 25 visitors attended, including Byron Nesler all the way from the University of Dubuque. Here's a sample of some of the astrophotos taken that night; above is Sirius as taken with a Bhatinov mask; at left are photos of the Moon, the Orion Nebula, Uranus and its moons, and Cor Caroli. Public viewing sessions will continue at Niabi Zoo on the third Saturday of the month through November.*



*'Reflections' editor Paul Levesque and his wife, Dawn, took a Caribbean cruise in March, and found that you just can't beat the view of a sunset that you get from the deck of a cruise ship. Here's just a few examples of the sunset photos take during the cruise; note how you can see the sun dip all the way below the horizon with nothing but the flat ocean to interrupt the view. The colors are even more beautiful to the eye than the camera can capture.*



**April  
2022**

## **Omicron!**

Over the last few months, you must have read dozens of articles, online or in print, about the Omicron variant of COVID-19. Fortunately, this is not one of them.

This article is about Omicron<sup>2</sup> Eridani. It is a faint star in the constellation of Eridanus, the River.

Actually, there are two Omicron stars in that constellation. The first is brighter, and is a variable star. The second is one of the closest stars to the Sun. Omicron<sup>2</sup>, also known as 40 Eridani, happens to be not a disease but one of the most interesting star systems in the entire sky.

Omicron<sup>2</sup> is a triple star system that is only about 16 light years away. Its brightest component is a Sun-like star faintly visible to the unaided eye on a good night. It lies in northern Eridanus, the River, just a few degrees west of Rigel at the foot of Orion.

The secondary is a white dwarf star. Unlike the companion of Sirius (also a white dwarf), this star is ninth magnitude and not near the brighter star, so it is easy to see in a small telescope. The third star in the trio is not far from the secondary, but at 11th magnitude it is also not difficult to spot. This third star is a red dwarf.

Although red dwarf stars are the most plentiful, by far, in our region of the Milky Way galaxy, they are almost impossible to see because they are so small. The closest one to us is Proxima Centauri, or Alpha Centauri C, which at 4.24 light years away is the closest star to the Sun. Also, because they are so small and intrinsically faint, only a few of them are easy to find. 40 Eridani C is one of



***Omicron<sup>2</sup> Eridani is shown in this beautifully focused photo taken by Tim Hunter.***

the easiest to find.

This interesting star has something else going for it. In 2018, astronomers discovered a planet orbiting the primary star. With a rapid orbit around Omicron<sup>2</sup>, such a planet would receive much more radiation from the primary star than Earth gets from the Sun. But in 2021, new observations cast doubt on whether this planet exists at all.

Whether Omicron<sup>2</sup> Eridani really hosts a planet is subject to debate. But in the universe of Star Trek, it surely does. It is the home of Vulcan, Mr. Spock's home world.

In the episode "Operation Annihilate", aired near the end of the first season, Spock is blinded by the intense light used to immobilize the invading parasites on the planet Deneva. However his blindness is temporary because of the existence of an inner eyelid.

Vulcan is said to orbit Omicron<sup>2</sup> Eridani's primary star, and since it is so much brighter than our Sun, even though Vulcan is at the same distance that Earth is from our Sun, residents of Vulcan need the inner eyelid to protect their eyes.

I rather enjoy the idea that the fictitious Vulcan happens to orbit one of my favorite real stars. And unlike the Omicron variant, which one hopes will be eradicated soon, we admire Omicron<sup>2</sup> Eridani, the real star, and wish it to "Live long and prosper."

# ‘Catspotting’: Lynx and Leo Minor

Many constellations are bright, big, and fairly easy to spot. Others can be surprisingly small and faint, but with practice even these challenging star patterns become easier to discern.

A couple of fun fainter constellations can be found in between the brighter stars of Ursa Major, Leo, and Gemini: Lynx and Leo Minor, two wild cats hunting among the menagerie of animal-themed northern star patterns!

Lynx, named for a species of wild cat, is seen as a faint zigzag pattern found between Ursa Major, Gemini, and Auriga. Grab a telescope and try to spot the remote starry orb of globular cluster NGC 2419. As it is so distant compared to other globular clusters – about 300,000 light years from both our solar system and the center of the Milky Way – it was thought that this cluster may be the remnants of a dwarf galaxy consumed by our own.

Additional studies have muddled the waters concerning NGC 2419’s possible origins, revealing two distinct populations of stars residing in NGC 2419, which is unusual for normally homogenous globular clusters. This marks it as a fascinating object for further research.

Leo Minor is a faint and diminutive set of stars. Its “triangle” is most noticeable, tucked in between Leo and Ursa Major.

Leo Minor is the cub of Leo the Lion, similar to Ursa Minor being the cub to the Great Bear of Ursa Major. While home to some interesting galaxies that can be observed from large amateur scopes under dark skies, perhaps the most intriguing object found within Leo Minor’s borders is Hanny’s Voorwerp.

This unusual deep-space object is thought to be a possible “light echo” of a quasar in neighboring galaxy IC 2497 that has recently “switched off.” It was found by Hanny van



***This map shows where to find Lynx and Leo Minor, two faint constellations that can be observed in the spring night sky.***

Arkel, a Dutch schoolteacher, via her participation in the Galaxy Zoo citizen science project. Since then, a few more intriguing objects similar to Hanny’s discovery have been found, called “Voorwerpjes.”

Lynx and Leo Minor are relatively new constellations, as they were both created by the legendarily sharp-eyed European astronomer Johannes Hevelius in the late 1600s. A few other constellations originated by Hevelius are still in official use: Canes Venatici, Lacerta, Scutum, Sextans, and Vulpecula.

What if your eyes aren’t quite as sharp as Johannes Hevelius – or if your weather and light pollution make searching for fainter stars more difficult than enjoyable? See if you can spot the next Voorwerp by participating in one of the many citizen science programs offered by NASA at [science.nasa.gov/citizenscience](https://science.nasa.gov/citizenscience)! And of course, you can find the latest updates and observations of even more dim and distant objects at [nasa.gov](https://nasa.gov).

*This article is courtesy of NASA’s Night Sky Network program, which supports astronomy clubs across the USA and is dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to learn more.*



# UPCOMING EVENTS



**Date: April 11, 2022**

**Event: Regular Meeting @ 7 p.m.**

**Location: Zoom / Butterworth Center**

**Program: "Fantastic Space Discoveries: Theories of Solar System Formation" by Jim Kovac, Chicago Society for Space Studies**

**ZOOM LINK: [https://us06web.zoom.us/j/82345942515?](https://us06web.zoom.us/j/82345942515?pwd=SVpvaXArZUg0VVhndUp0ckpBcHBEQT09)**

**[pwd=SVpvaXArZUg0VVhndUp0ckpBcHBEQT09](https://us06web.zoom.us/j/82345942515?pwd=SVpvaXArZUg0VVhndUp0ckpBcHBEQT09)**

**THIS MEETING WILL *NOT* BE RECORDED FOR LATER VIEWING**

**All these events, dates and times are tentative and subject to change! Please check your emails for any updates and changes!**

MONTH	NEWSPAPER ARTICLES	MEMBER PRESENTATION	MEETING / PROGRAM
MAY 2022	AVAILABLE	AVAILABLE	May 9 - Presentation: "Technology for the Astronomical Community & More" by Matt Dieterich, Technical Services Manager, PlaneWave Instruments, Inc., Adrian, Michigan
JUNE 2022	AVAILABLE	AVAILABLE	June 13 - Presentation: "Sky With Ocean Joined: Scaling the Stars at the U.S. Naval Observatory, 1830 to the Present" by Geoff Chester, Public Affairs Officer, U.S. Naval Observatory, Washington D.C.
JULY 2022	AVAILABLE	AVAILABLE	July 11 - Presentation: "OSIRIS-REx Mission Update" by Dolores Hill, Senior Research Specialist, Lunar & Planetary Laboratory, University of Arizona, Tucson, Arizona

## UPCOMING EVENTS

- **NIABI ZOO PUBLIC VIEWING:** April 15, sunset; third Saturday of the month through November
- **April 2:** Messier Marathon
- **April 18:** Quad Cities Astronomical Society Meeting (third Monday of every month)
- **May 7:** Astronomy Day: Bettendorf High School / Menke Observatory
- **May 13-14:** NCRAI Convention, Port Washington, Wisconsin
- **May 14:** Astronomy Night at the American Doll and Toy Museum, Rock Island, 8 p.m.
- **May 21:** Boy Scout STEM Event at Loud Thunder Forest Preserve
- **June 4:** Girl Scout campout at Scott County Park
- **June 25:** Public viewing at Illiniwek Forest Preserve, sunset
- **July 31:** Perseid meteor show public viewing, Pleasant Valley Middle School (QCAS event)
- **August 13:** Annual PAC Picnic (*no regular meeting*)
- **September 23-24:** Eastern Iowa Star Party
- **October 22:** Annual PAC Banquet (*no regular meeting*)

**DATES AND EVENTS ARE TENTATIVE AND SUBJECT TO CHANGE**



**STEP INTO  
THE SPOTLIGHT!**

Volunteers are needed for many of the upcoming events listed above, and to make presentations at future meetings. Contact any club officer if you're interested; your participation makes PAC go!

3/3/2022 **TREASURER'S REPORT**

from 1/1/2022 to 2/28/2022

description	current period detail	current	YTD
<b>Receipts:</b>			
memberships		150.00	150.00
member donations			
program donations			
misc donations			
interest		0.09	0.09
banquets			
birdies			
special			
sales			
other			
<b>Total Receipts</b>		<b>150.09</b>	<b>150.09</b>

<b>Expenditures:</b>			
programs			
speakers		100.00	100.00
PACMO operation			
observatory		301.00	301.00
equipment			
maintenance			
Astronomical League			
insurance			
operating supplies			
newsletter			
web page			
banquet			
donations			
miscellaneous			
legal			
observatory upgrade			
other			
adjustments			
<b>Total Expenditures</b>		<b>401.00</b>	<b>401.00</b>

<b>Balances</b>	<b>as of</b>	<b>2/28/2022</b>	
previous balance		9422.33	9422.33
net change		-250.91	-250.91
ending balance		9171.42	9171.42
check account			3699.86
money market account			5415.33
savings account			10.23
business special			45.44
cash			0.56
undeposited checks			
<b>Total Cash Assets</b>			<b>9171.42</b>

**Popular Astronomy Club of the Quad Cities, Inc.**

<http://www.popularastronomyclub.org/>

