

The Prairie Astronomer

March 2020 Volume 61, Issue #3

*In this issue: ARP17, Star Party Photos
April Observing
A Tale of Stargazing and Fish Pie*

*Curiosity's
1.8 Billion
Pixel
Panorama*



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

The March meeting has been canceled due to COVID-19 and likely the April meeting will also be canceled. We'll keep you updated through Night Sky Network emails.

Also Hyde Observatory will be closed on Saturdays until further notice.

FUTURE PROGRAMS

March - Comet Observing (will be rescheduled)
April - The Observable Universe (will be rescheduled)
May - Annual Club Dinner
June - Solar Star Party
July - Review of the Nebraska Star Party
August - TBD
September - TBD
October - Club Viewing Night
November - How to Buy a Telescope
December - Holiday Gathering for club members

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*Cover photo: Curiosity's
1.8 Billion Pixel Panorama.
See page 6.*



Buy the book! The Prairie Astronomy Club: Fifty Years of Amateur Astronomy.

Order online from [Amazon](https://www.amazon.com) or [lulu.com](https://www.lulu.com).

EVENTS



PAC Meeting
Tuesday May 26, 2020, 6:00pm
Annual Club Dinner

June 12-14 MSRAL, Oklahoma City
June 19-21 Sangre Star Festival, Westcliffe, Co

PAC Meeting
Tuesday June 30, 2020, 6pm
Solar Star Party

July 16-18 ALCON, Albuquerque, NM
July 19-24 Nebraska Star Party
July 25 Hillcrest Golf Star Party, Lincoln

2020 STAR PARTY DATES



Photo by Brian Sivill

	Star Party Date	Star Party Date
January	Jan 17	Jan 24
February	Feb 14	Feb 21
March	Mar 13	Mar 20
April	Apr 17	Apr 24
May	May-15	May 22
June	Jun 12	Jun 19
July	Jul 10	Jul 17
NSP	July 19 - 24	
August	Aug 14	Aug 21
September	Sep 11	Sep 18
October	Oct 9	Oct 16
November	Nov 6	Nov 13
December	Dec 11	Dec 27

Dates in **BOLD** are closest to the New Moon.



PAC E-MAIL:

info@prairieastronomyclub.org

PAC-LIST:

Subscribe through [GoogleGroups](#).
To post messages to the list, send
to the address:

pac-list@googlegroups.com

ADDRESS

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P.O. Box 5585
Lincoln, NE 68505-0585

WEBSITES

- www.prairieastronomyclub.org
- <https://nightsky.jpl.nasa.gov>
- www.hydeobservatory.info
- www.nebraskastarparty.org
- www.OmahaAstro.com
- Panhandleastronomyclub.com
- www.universetoday.com/
- www.planetary.org/home/
- <http://www.darksky.org/>



Night Sky Network

PAC meeting minutes February 25, 2020 as recorded by Bill Lohrberg.

President Bob Kacvinsky called the meeting to begin at 7:30 pm. Approximately 22 members and 10 visitors in attendance

Bob offered a welcome, quick preview of the program and invite to bid on several items from part of Jim Rains' donated collection on display for silent auction...winners to coordinate with John Reinert after conclusion of program.

Observing report was given by Jim Kvasnicka

- Good night and turnout for February 21 club star party at B.O.O. with 6 attending (including a curious cat).
- March dusk planets: Venus near moon early in March, Uranus March 8
- March morning planets: Mars, Jupiter Saturn rise about 2-3 hours before sunrise Mars passes close to Jupiter March 20, Mars & Saturn conjunction March 31
- Messiers for March: 41,44,46/47,48,50,67,81/82,93
- NGC objects for March: 2438,2440,2457,2452,2477,2537,2683
- Question was asked about the Messier Marathon at the end of March when all the Messier items can be viewed in one night.

In the news

- NASA's Artemis project radio communications deployment plans on earth for locations in California, Australia, Spain
- A laser capable of vaporizing material from approximately 7 meters will be atop the Mars 2020 rover. A contest is being held for ages K-12 to determine an official name for the rover, and Brett pointed out that Michael Sibbernson is one of the judges who will help determine the winner in the naming contest.

Upcoming events were announced

- Hyde observatory roof continues to operate trouble free. Open Saturday evenings
- Pac star parties announced for March 13, and March 20, locations for each to be determined.
- Public star parties and outreach in March for Lazy Horse brewery in Ohio, girls scouts forming an astronomy club,
- NSP in July, registration is in process
- Hillcrest country club at end of July, will need volunteers (tail end of NSP)
- MSRAL in Oklahoma tied with the Astronomics facility in June
- Sangre Star Festival in Colorado later in June
- ALCON in Albuquerque NM in July

- March 31 club meeting program will be about comets by Jim Kvasnicka
- April meeting program with Chuck Allen (Bob stresses this is one you do not want to miss!)

John Reinert treasurers report

- Reminder of upcoming club audit will be scheduled, 2 volunteers to be tapped.
- Announcement that a combining of 2 CD's into one has occurred (with better rate)

At 7:53p the meeting was adjourned to the program on Astro-imaging and photography by Mark Dahmke and Brett Boller.

The President's Message

Bob Kacvinsky

March roars in like a Lion may be the old Almanac's verse, but many of us feel like the lions at the zoo inside a cage with the imposed isolations and suspensions. Yet, I'm sure many of us are adapting well to Zoom and Webinar formats. I personally had been doing Zoom for a while, but the Pod Casts are a new addition. Welcome to the virtual world.

I want to emphasize that the objective of your Board is to always put the health and safety of our members and visiting public first and foremost when making decisions during the COVID-19 pandemic. We want to be sure that we do not place anyone in a risky situation, so are following the CDC and local professional advice over the next several weeks until directions are changed.

By now you all know that Hyde is suspended and our meetings for the time being are suspended until the guidelines change. We will reschedule our speakers for March and likely April's PAC meeting. Once we get through the next couple of weeks and the CDC decides to

modify their group gathering recommendations, we will send out information via the Night Sky Network system. Please be patient as we all work through these unprecedented times.

We had several "Star Party" planned with groups starting this weekend that have been either canceled or will be rescheduled at a later time. It looks like most groups are targeting June and July as new dates or if associated with a school we are targeting early next fall term. I would expect to be able to start locking in some dates and looking for volunteers by late April. Presently I or Mike are in contact with the group leaders and working on alternative dates. Please stay tuned.

I've also received a couple questions about the left-over Astronomy materials from our February auction. A few items have been donated to a boy scout program; the electronics materials have already been distributed to a school robotics project as previously planned. I still have a few items that no one bid on that we will communicate

to the club in the next few weeks.

Your Board will discuss and decide if the April Star parties will still

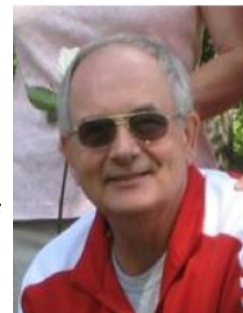
occur for members. Since our telescope footprints create a natural "isolation" and separation it might be optional for members to consider if they wish to attend or not. The spring months are great time to capture deep sky objects.

I wish all a safe and healthy spring. It is a great time to get out – before the mosquitos start getting bad – to work on your observing skills and maybe finish or start a new observing program. If you would like a suggestion, please connect with Jim Kvasnicka for ideas. There is an observing program with your name on it. Just ask.

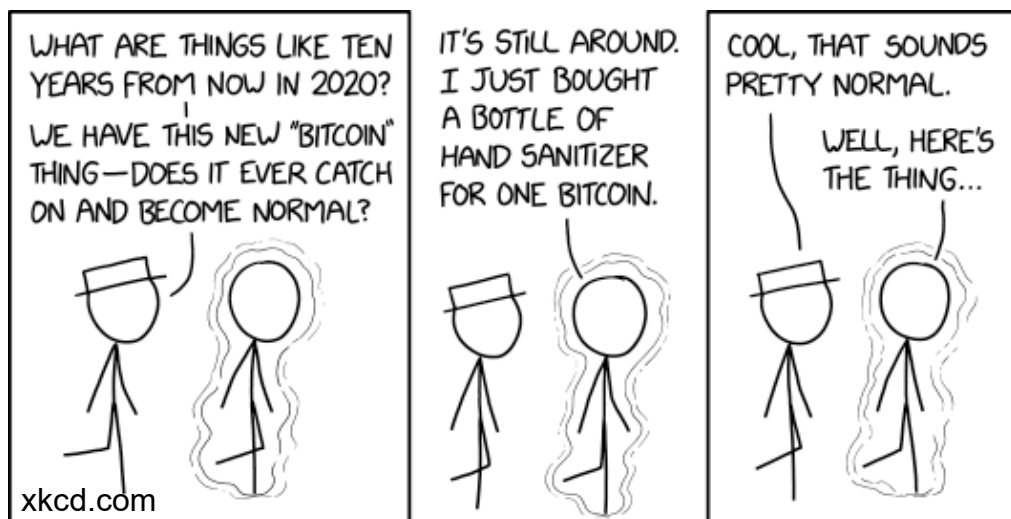
Dark and Clear Skies to all.

Bob Kacvinsky

PAC - President



2010 and 2020



Curiosity's 1.8 Billion Pixel Panorama



NASA's Curiosity rover captured its highest-resolution panorama yet of the Martian surface between Nov. 24 and Dec. 1, 2019. A version without the rover contains nearly 1.8 billion pixels; a version with the rover contains nearly 650 million pixels. Both versions are composed of more than 1,000 images that were carefully assembled over the following months.

The rover's Mast Camera, or Mastcam, used its telephoto lens to produce the panorama and relied on its medium-angle lens to produce a lower-resolution panorama that includes the rover's deck and robotic arm.

Malin Space Science Systems in San Diego built and operates Mastcam. A division of Caltech, NASA's Jet Propulsion Laboratory manages the Mars Science Laboratory mission for the agency's Science Mission Directorate in Washington and built the Curiosity rover.

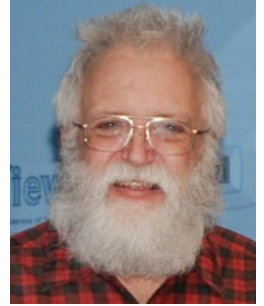
For more information about Curiosity, visit <http://mars.jpl.nasa.gov/msl> or https://www.nasa.gov/mission_pages/msl/index.html.



Below and left: sections of the above image cropped from the 700MB medium-size download.



Rick Johnson, a founding member of the Prairie Astronomy Club, passed away in January, 2019. His legacy lives on through his comprehensive catalog of over 1600 images at www.mantrapskies.com.



Arp 17/UGC 03972/VV 349 is located in Camelopardalis about 230 million light-years away by redshift. I found no other distance estimates. Arp included it in his section for spiral galaxies with detached segments. I assume he is referring to the bright arm pointing nearly straight north. Arp left no comment on this one so I have no idea what he thought about this one.

Two notes at NED read: "The northern, smaller component has a higher UV-excess than the other." and "Late barred spiral with companion superimposed at 0.30, 356 from center, 0.3 x 0.12, interaction, the companion is MCG 12-8-

8b." Translating, the second comment it is saying: "The companion is 0.3 minutes from the core at position angle 356 degrees (measured through east (left in my image with north up) which measures 0.3 degrees by 0.12 degrees." That's about right for the larger detached section as Arp calls it though there seems to be a smaller one to its lower left.

As noted in the second comment, the MCG catalog considers this two interacting galaxies. Not to be outdone the VV catalog considers it as three! Note the core has a dark line dividing it into east and west parts. Besides the "detached segment (VV 349c) the west

core is VV 349a and the eastern is VV 349b. NED labels all three as "Parts of Galaxies". NED classes it as SB?. Saying it is a barred spiral but we have no comment on the arm structure. It didn't get a peculiar designation, however. The UGC says only SB. It resides as a pretty lonely galaxy with nothing much in the area. Certainly, nothing that NED has much information on so I didn't prepare an annotated image with anything but Arp 17 having useful data.

Arp's image:

http://ned.ipac.caltech.edu/level5/Arp/Figures/big_arp17.jpeg



Photos from the February 14 Star Party

Photos by John Reinert



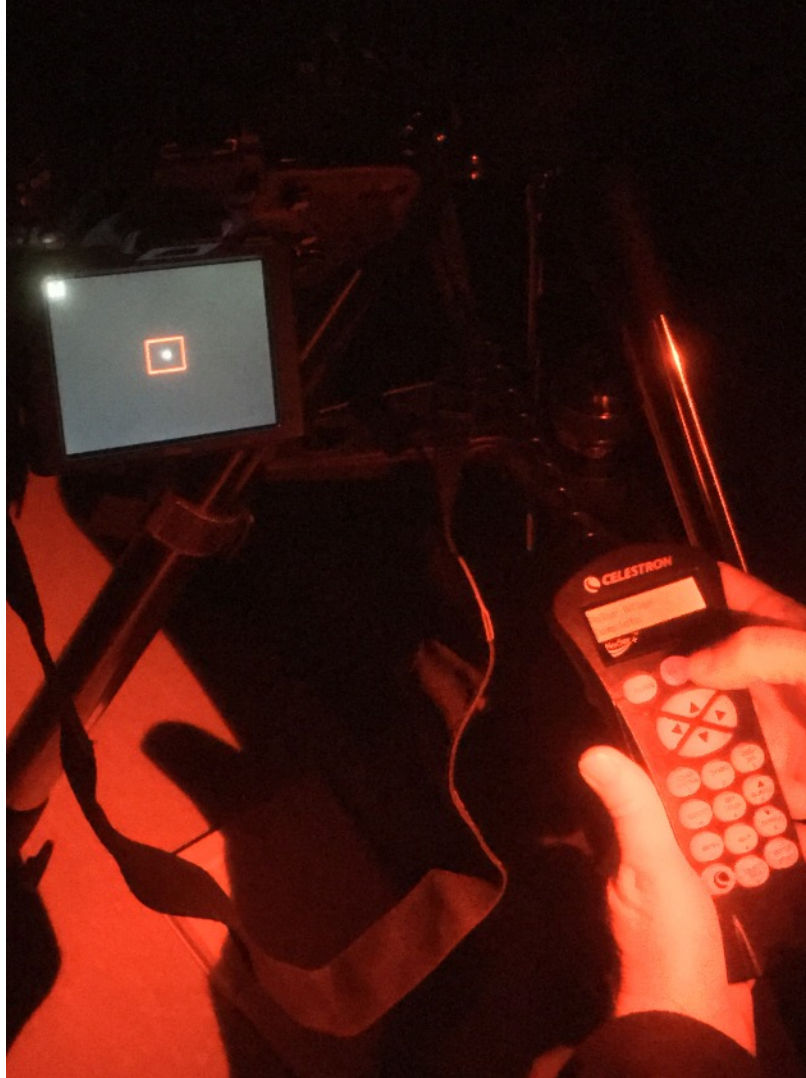
Above: Bob Kacvinsky
Below: Jim Kvasnicka



Jim White and Dan Delzell

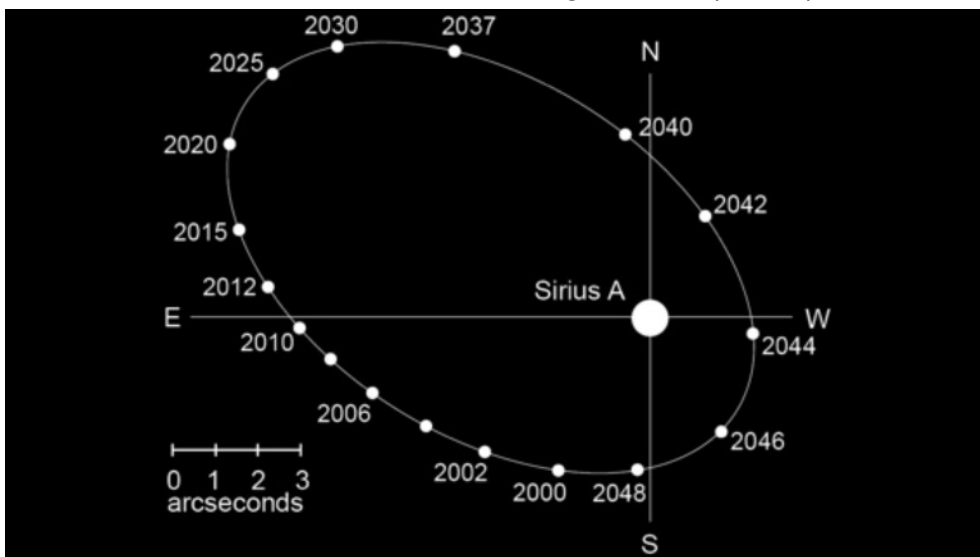


Star Party Photos, continued.



Celestron 9 1/4 and Nikon D750 (Jim W)

Dan had an interest in resolving Sirius B (NASA)



Planets

Venus: On April 3rd Venus is just $\frac{1}{4}^{\circ}$ southeast of the Pleiades at magnitude -4.7.

Mercury, Neptune, and Uranus: Not visible.

Mars, Jupiter, and Saturn: All rise 3-3½ hours before the Sun with Jupiter 6° west of Saturn and Mars. All three planets increase in brightness in April. Jupiter is at -2.3, Saturn at +0.6, and Mars at +0.4. Jupiter's disk increases to 41", Saturn to 17", and Mars to 7.6".

Meteor Showers

Lyrids: Peaks the night of April 21-22. Expect up to 20 meteors per hour. The moon will not interfere.

Messier List

M40: Multiple star in Ursa Major.

M65/M66: Part of the Leo Triplet Group.

M95/M96: Galaxies in Leo that fit in the same FOV.

M105: Galaxy in Leo.

M106: Galaxy in Canes Venatici.

M108: Galaxy in Ursa Major.

M109: Galaxy in Ursa Major.

Last Month: M41, M44, M46, M47, M48, M50, M67, M81, M82, M93

Next Month: M49, M51, M61, M63, M64, M85, M94, M101, M102, M104

NGC and other Deep Sky Objects

NGC 2903: Elongated galaxy in Leo.

NGC 3077: Galaxy in Ursa Major.

NGC 3384: Galaxy in Leo.

NGC 3521: Elongated galaxy in Leo.

NGC 3675: Elongated galaxy in Ursa Major.

Double Star Program List

Alpha Leonis: Regulus, white and yellow stars.

Gamma Leonis: Algieba, pair of yellow stars.

54 Leonis: Yellow primary with a greenish colored secondary.

Alpha Canum Venaticorum: Cor Caroli, bluish white and greenish yellow stars.

Zeta Ursa Majoris: Mizar, pair of white stars.

Gamma Virginis: Porrima, close pair of yellow stars.

24 Comae Berenices: Yellow primary with a pale blue secondary.

Delta Corvi: White and rose colored stars.

Challenge Object

NGC 3190 Group: NGC 3190 is the brightest member in a group of galaxies that include NGC3185, NGC 3187, and NGC 3193.



Stellar Evolution Observing Program

Jim Kvasnicka

Everything that we see in the night sky is visible to us because of light from a star. The stars, nebulae, planets, moons, are all visible because of starlight. We exist because early generations of stars generated the elements that make up our planet and the chemicals required for life.

The Stellar Evolution Observing Program will be of interest to the beginning observer as well as more experienced observers. The purpose of this program is to develop in the observer an appreciation for the most common objects that they see in the night sky – stars. Stars are born, live their lives, and then end their lives. Understanding this “Stellar Evolution” is important to understanding how the Universe works.

Some of the objects in this observing list are on other observing program lists, so you may have already observed some of the objects. After performing the observations you will have enough information to put each object into the context of stellar evolution.

The observing list for this program is divided into several sections, each illustrating a separate phase of stellar evolution. A total of 100 objects must be observed to complete the program. Objects you have already observed must be observed again to complete this program.

Type	#
Stellar Nurseries	14
Colorful Stars	34
Young Open Clusters	7
Low Mass Stars	8
Red Giant Stars	6
Carbon Stars	5
Planetary Nebula / White Dwarfs	9
High Mass Main Sequence Stars	6
Red Supergiant Stars	5
Supernova Remnants	2
Variable Stars	4
Total	100

Once you complete the Stellar Evolution Observing Program you will need to submit your observing logs to me for review. I will contact the Stellar Evolution Observing Program chair for approval. Once I receive your certificate and pin I will present them to you at the next PAC meeting.

If you have any questions regarding the Stellar Evolution Observing Program or need help getting started in any of the observing programs please ask me and I will be glad to help.



Moon - Mars Occultation, February 18, 2020. By Brett Boller.



This is a stitched panoramic made from six images taken with a Panasonic Lumix G9 through an Astro-tech 6" RC. ISO 800, 1/50 second. The stitched image size is 9800 x 7600 pixels.

By Mark Dahmke.

A Tale of Stargazing and Fish Pie

Mark Dahmke

This article might seem to be more appropriate for a travel or culinary magazine, but there is a connection with stargazing, however tenuous...

Last summer I was trying to decide where to go next, and settled on London. It's been on my bucket list for years and I was able to use some of my airline miles. I decided on December because it's off-season and everything is a lot cheaper and less crowded. Then one evening, while watching [*Doc Martin*](#), a popular TV series filmed in Port Isaac, I thought, "I can go there!" [*Port Isaac*](#) is a small fishing village in Cornwall, about a four hour drive from London. In *Doc Martin*, it's called Portwenn. This also seemed like a great opportunity to see the countryside, so I hired a guide ([*Richard's Tours*](#)) for a two day tour.

My guide recommended several hotels in the area, but while googling, I discovered one called the [*Stargazy Inn*](#). Naturally, I had to stay there, just because... what better place for an amateur astronomer? But the strange spelling was intriguing, so I did



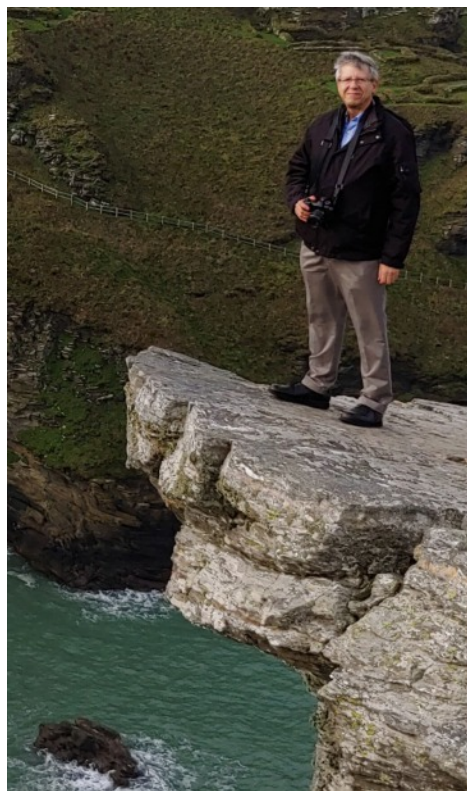
The foot bridge at Tintagel



some more googling and discovered that the Inn did not get its name from stargazing. I'll explain later.

Richard picked me up at my London hotel at 6am. About a two hours later we stopped so I could take pictures of Stonehenge. We arrived at [*Tintagel*](#) a couple of hours after that.

Tintagel is the legendary birthplace of King Arthur. After lunch in Port Isaac we wandered around town, looking at various



A great vantage point at Tintagel
Photo by Richard Chambers

filming locations for *Doc Martin*. By late afternoon, he dropped me at the Stargazy Inn and we later met for dinner at The Golden Lion, the pub often featured in the TV series.



Doc Martin's house
in the TV series
Photo by Richard Chambers

Of course it was cloudy almost the entire time I was in Cornwall, so I didn't have the opportunity to do any astrophotography. In fact, the only shots I got of anything other than this planet were of the Moon and Venus - from central London.

So how did the Stargazy Inn get its name? Not because of stargazing, but because of a fish pie. The pie is made of sardines along with eggs and potatoes, covered with a pastry crust. It is said to have originated in the village of Mousehole in Cornwall. In the 16th century a fisherman named Bawcock saved the village from starvation by rallying the town's fishermen to go out during very stormy weather. The legend is that

the entire catch was baked into a huge pie, thus saving the town from starvation. The fish were skinned and boned, tails and heads removed, before putting them in the pie. The heads poked through the pastry lid, to prove that there were indeed fish in the pie. The pie was named "stargazy" because the fish appeared to be gazing upward at the stars.

Unfortunately I couldn't find a single restaurant that serves Stargazy Pie. It's still made for celebrations and in a few high-end restaurants, but has otherwise fallen out of fashion. However there are several recipes online and someday I might have to try making it, because by all reports it's delicious.

I think I'll go back to Port Isaac someday, but in the summer.



Stargazing Fish Baked into a Pie

*Source: Wikipedia.
Baked Stargazy Pie by Krista
Uploaded by Diádoco, CC BY 2.0.*

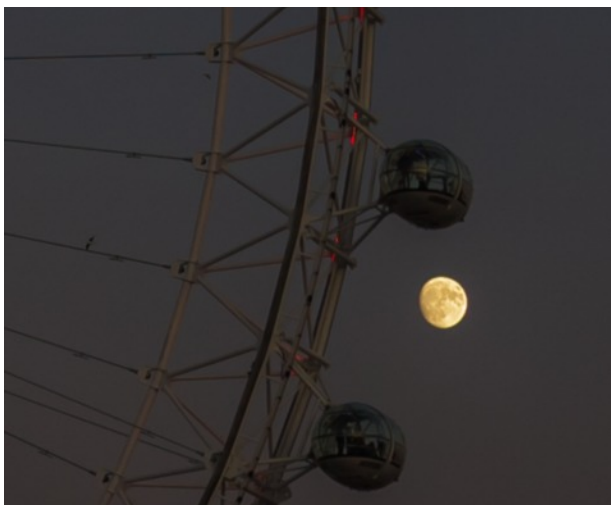
The sun always shines in the fictional town of Portwenn, but not so much in Port Isaac. The dramatic coastline and landscape would be great for astrophotography.



A traditional Cornish "pasty" is a meat pie with beef, turnips, potatoes and onion. Some are very similar in taste and texture to a Runza.



The Stargazy Inn



The only good astro photo I took while in England was of the Moon with the London Eye. F/2.8, 1/400 second, ISO 400, 40mm lens. December 9, 2019.



THE PRESIDENT'S REPORT:

Spring has arrived, both by the calendar and by the thermometer. The thaw has turned the parking area at the observatory into a bog. The Parks Department has added some rock, but too little to be of any use. Hopefully, the problem will have been corrected by meeting night.

When the observatory first opened we planned on holding a club star party in conjunction with an open house night, but the weather soon turned frigid and such plans were scrapped awaiting warmer weather. April 8 would seem to be an ideal night to plan for such an event. The moon will be nearly new and will not interfere with deep sky observing. April 15 will serve as a rainout night.

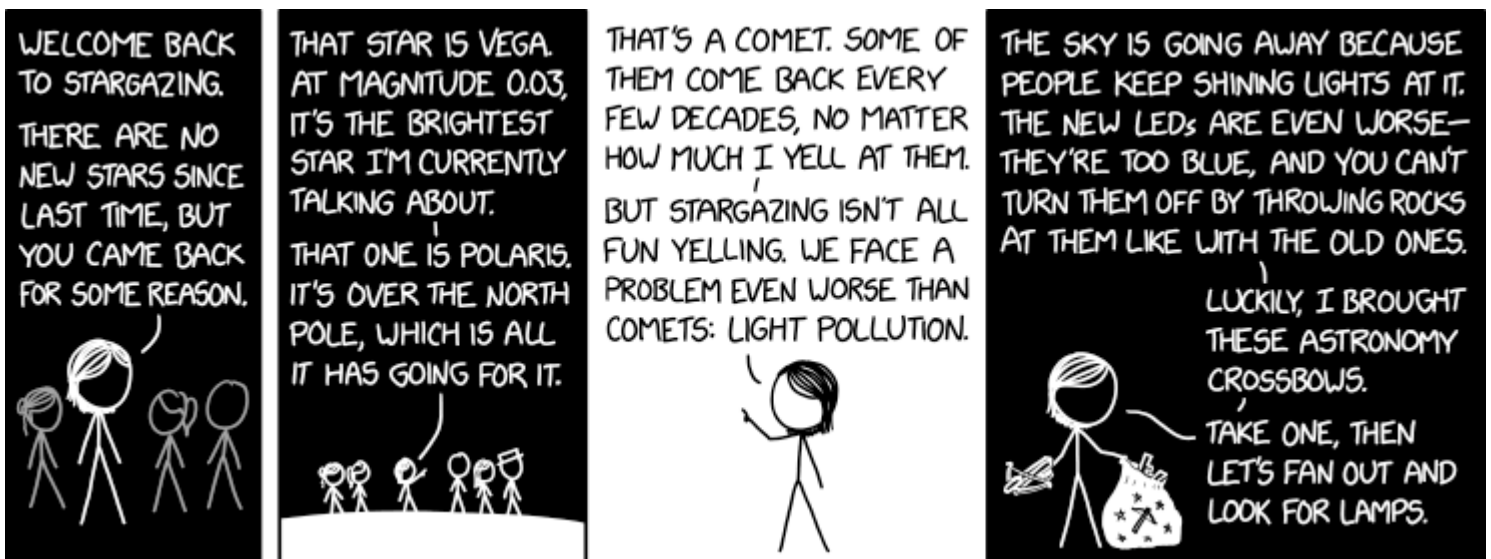
Lee has published elsewhere (pp. 4-5) the selected observatory objects for April. Five of them are easily seen by the naked eye or small binoculars. This should give each club member at the star party a starting place in his conversations with the general public. We should try and publicize the evening and ask the public to bring binoculars with them. Any club member with a 6-volt lantern or a 3-5 cell flashlight should bring it to act as a sky pointer.

Edmund Scientific has given the club one of their \$30 28 mm. Kellner eyepieces. Since the observatory is short of eyepieces, we are temporarily loaning the new eyepiece to the observatory. Edmund has asked us to evaluate the eyepiece, so if the sky permits Tuesday night, take a look through it and see what you think.

The Observatory's Astroscan 2001 telescope has been replaced by Edmund with a much improved unit. I hope I have heard the last of comments such as, "See! I told you stars have points!" I never did convince that mother that her gradeschool son was right, and the problem was in the telescope.

See you at the meeting!

-- Rick Johnson



27th Nebraska Star Party - July 19-24



Join us this summer as families from all over the US and around the world gather in the sparsely populated sand hills of North Central Nebraska to spend a good week under a galaxy of stars.

NSP Schedule of Events

Sunday: registration and check-in, optional dinner.

Monday: registration and check-in, field school, optional dinner.

Tuesday: registration and check-in, swap meet, field school, free "Cattle Country" hamburger dinner.

Wednesday: (All at Valentine High School) field school, registration, swap meet, speaker program, children's program, dinner on your own.

Thursday: Brewer's Niobrara Canoe or tube float, optional dinner.

Friday: public star party at 9pm.

For more information see the [NSP website](#).

Register online or at NSP!

CLUB MEMBERSHIP INFO

REGULAR MEMBER - \$30.00 per year. Includes club newsletter, and 1 vote at club meetings, plus all other standard club privileges.

FAMILY MEMBER - \$35.00 per year. Same as regular member except gets 2 votes at club meetings.

STUDENT MEMBER - \$10.00 per year with volunteer requirement.

If you renew your membership prior to your annual renewal date, you will receive a 10% discount.

Club members are also eligible for special subscription discounts on Sky & Telescope Magazine.

CLUB TELESCOPES

To check out one of the club telescopes, please contact a club officer. Scopes can be checked out at a regular club meeting and kept for one month. Checkout can be extended for another month if there are no other requests for the telescope, but you must notify a club officer in advance.

100mm Orion refractor: Available
10 inch Meade Starfinder Dobsonian: Available
13 inch Truss Dobsonian: Needs repair
10 inch Zhumell: Needs mount

CLUB APPAREL



Order club apparel from cafepress.com:



Shop through Amazon Smile to automatically donate to PAC:



CLUB OFFICERS

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