

The Prairie Astronomer

February 2020 Volume 61, Issue #2

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ARP16

March Observing

Pale Blue Dot Revisited

For the 30th anniversary of one of the most iconic views from the Voyager mission, NASA's Jet Propulsion Laboratory in Pasadena, California, is publishing a new version of the image known as the "Pale Blue Dot."



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

**NEXT PAC MEETING: February 25 at 7:30pm
at Hyde Observatory**

PROGRAM

Adventures in Astrophotography, presented by Brett Boller and Mark Dahmke. Mark and Brett will cover the basics of astrophotography (cameras, mounts, sensors), software tools and techniques and will also describe how they created the Hyde Observatory Milky Way mural.

FUTURE PROGRAMS (Tentative)

March - Comet Observing, Jim Kvasnicka

April - Observable Universe, Chuck Allen

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The Prairie Astronomy Club:
Fifty Years of Amateur Astronomy



COMPILED AND EDITED BY MARK DAHMKE

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Astronomy Club: Fifty Years
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EVENTS



PAC Meeting
Tuesday February 25, 2020, 7:30pm
Program: Astrophotography (tentative)

PAC Meeting
Tuesday March 31, 2020, 7:30pm
Program: Comet Observing

PAC Meeting
Tuesday April 28, 2020, 7:30pm
Program: Observable Universe

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

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PAC-LIST:

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

pac-list@googlegroups.com

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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

Meeting Minutes

PAC meeting minutes January 28, 2020 as recorded by Bill Lohrberg

President Bob Kacvinsky started the meeting at 7:30pm welcoming approximately 23 members and 12 guests who were asked to introduce themselves - most attending for "how to use your telescope" program. A guest sign-up sheet was circulated.

Jim Kvasnicka announced the upcoming star party dates for February 14 & 21, Alternating sites between Branched Oak Observatory and the Cortland PAC observing sites. as to which site for each date will be determined and announced in newsletter.

Jim proceeded with the observing report:

- Planets visible in February
Dusk - Venus, Mercury, Neptune & Uranus to start the month, Morning planets - Mars (occultation Feb 18th by the Moon), Jupiter, Saturn
- Messier list for February M1, 35, 36, 37, 38, 42, 43, 45, 78, 79 (Brian cautioned that M1 is a faint object not recommended for beginners to start out with, however it was noted many other M objects can be seen with small telescopes or binoculars)

- NGC objects for February
NGC 1964, 2244, 2264, 2301, 2362, 2392, 2403
- Comet C/2017 T2 (panstarrs). Binocular object projected to be naked eye by mid May

Bob gave a brief explanation of magnitude ratings, and shared "what's in the news"

- Dragon SpaceX capsule test
- There is a naming contest for new 2020 Mars Rover, has been narrowed down to 9 finalists.
- "Hottest" planet to date Kelt-9b has been discovered

Scheduled star parties, outreach events and reminders

- Hyde is open Saturday nights,
- Star parties at Cortland (private, club members only), and B.O.O.
- Late February into March at Lazy Horse brewery in Ohio, (rescheduling from November which was clouded out)
- Nebraska Star Party July 19-24.
- Hillcrest Country Club will be hosting a star party July 25, (after NSP)
- MSRAL June 12-14 will be in Oklahoma

- Sangre Start Fest in Colorado June 19-21

- ALCON July 15-18 in Albuquerque NM

Other business:

- Club Treasurer John Reinert reminds he will be asking for a few members help with the annual club audit coming up.

With no further business the meeting was adjourned 7:58pm to the program "How to use your telescope".

The President's Message

Bob Kacvinsky

A special Thank You to all the members who came out to the January meeting and helped about 25 guests who came to learn how to use their telescopes. We had 11 family units who signed in and we spent over an hour working as teams with several different telescopes. It was one of our most successful telescope learning sessions.

We have three exciting meeting programs coming up starting with February 25's Astro Photography program by Mark Dahmke and Brett Boller. Mark and Brett have taken some breathtaking photos of the sky over the past few years and they will discuss some of the set-up requirements, background, equipment, and most importantly share some of their best photos.

On March 31st our Observing Chair Jim Kvasnicka will present a program on Comets. What are they, where do they come from, why do some have tails, how do they differ from Meteors will be covered along with some of Jim's famous sketches of his favorite comets of the over 20 that he has logged. This is a program you will not want to miss.

We will have a very special guest on April 28th when Chuck Allen, Past President of the International Astronomical League will present his "Our Scalable Universe" presentation. Chuck presented the program at the 2019 MSRAL Convention and his LED Light Show was the hit of the convention by putting

the scope of our Universe into perspective. If you think the earth is a tiny spec of dust now, Chuck will really change how you look at the universe forever.

I'd like to give an update on the distribution of the materials from the Jim Rains Estate donation. All of the Radio Telescope, the Lunt CaK (only a photographic wavelength) Solar Scope, and the 6" Ritchie Schmidt OTA have been distributed to Boller Sivill Observatory at Branched Oak. Both telescopes are on a long-term loan to BSO as voted on by the Board and membership in November. We also distributed the limited Spectrographic materials to a member who is interested. The electronics materials are being donated for youth learning programs as presented in November.

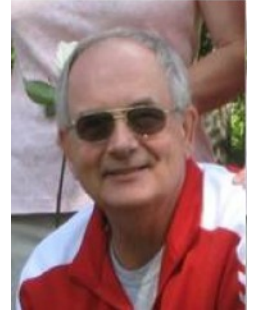
Early in February several members got together and completed putting together the 4" Orion SCT with a functional drive, eyepieces, CCD camera, and other accessories. After discussions it was decided to make it an excellent loaner telescope for the club. This coming month we will do a test run to make sure it is operational and ready for members to check out. If you want to "try out" a simple SCT and AstroPhotography this telescope should be a great tool to learn. Its light weight design makes it easier to set up and operate than the typical larger SCT telescopes.

The 8" SCT LX200 on a fork mount tripod turned out to be a

challenge. The base drives of the Fork were determined to be burned out when tested and after 2 hours

was determined not to be salvageable. The fork mount was removed and will be put up for sale as parts. The OTA will be converted to a dovetail mount for the Celestron EQ mount as a manual telescope. Once we have it fully set up, we will determine if it is a viable loaner telescope or do we offer it for sale to the members. Please have patience as we determine its final state.

Now for the remaining materials from the Rains Estate. We would like to run a silent auction at the February and March meetings and offer all remaining materials to the club membership. There are too many individual pieces to try and cover during a single meeting, so the plans are to spread it out over the next couple of meetings. If you would like to pick up an accessory for your telescope, this will be an excellent opportunity since many of the materials are in excellent / like new condition. I will attempt to send out the weekend before the meetings a brief summary of what will be available and approximate replacement costs for your reference.



Some examples of items you will find:

1. Orion Short Tube 80 mm scope in AI case.
2. LX200 8" fork without functioning drive unit
3. Numerous eyepieces, new finder scopes, planetary filters, telrad, Several CCD Cameras, Diagonals, colli-

mating eyepiece, Meade Deep Sky Imager, "Sol Searcher", other accessories

4. Several Atlases that can be used for observing

I look forward to seeing you at the February meeting for a great Astro Photography Program and a silent auction to pick up some accessories you might need to

fill out your telescope materials.

Dark Clear Skies to you,
Bob Kacvinsky
PAC - President

Planetary Nebula Observing Program

Jim Kvasnicka

Planetary Nebulae are some of the most beautiful and interesting objects in the night sky. They exhibit complex shapes and may even show vibrant colors. It is the hope of the program to inspire your appreciation of these magnificent objects.

For this program 110 planetary nebulae were selected. The list contains examples across the entire range of planetary nebula morphology. The Planetary Nebula Program can be completed visually or by imaging.

The program offers two levels of accomplishment, basic and advanced. The basic program should be achievable with modest equipment and from less than dark skies. To earn the certificate for the basic program you must observe at least 60 objects from the list of 110.

For the advanced program you will need to observe all 110 objects on the list. The Astronomical League acknowledges that a few of the objects may be beyond detection and will allow negative observations if you show evidence of diligent effort to observe the object. To complete the program by imaging you must image 90 objects from the list.

To find the objects you may use any method including GO-TO and PUSH-TO. Your observing log should include all the usual information required for the observing programs. Your detailed description of the planetary nebula should include:

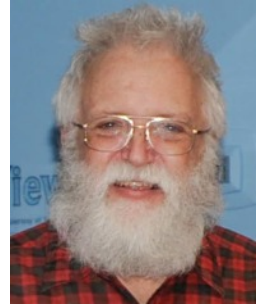
- Is the central star visible?
- Is a filter required to see the PN?

- How does the PN respond to different magnifications?
- Is averted vision required to see the PN?
- A detailed description or sketch of the object.

Once you complete the Planetary Nebula Observing Program you will need to submit your observing logs to me for review. I will contact the Planetary Nebula 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 Planetary Nebula Observing Program or need help getting started in any of the observing programs please ask me and I will be glad to help.

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 16 is better known as M66. It made his atlas under the heading of spiral galaxies with detached segments. It also is part of Arp Arp 317. Making it the only galaxy to have two entries in Arp's atlas. The image seen here was taken back in 2009 under rather poor conditions. The image with Arp 317 was taken under better conditions and processed with more modern tools than I had in 2009. Arp 16 is a rather active galaxy due to interaction with

the other members of its group (again see Arp 317). It is this interaction that likely accounts for Arp's "detached segments" seen in this galaxy. To me, they are just clouds of new, blue stars created by interaction with its neighbors.

NED classifies it as SAB(s)b;LINER Sy2, The NGC Project simplifies this to Sb while Seligman says SAB(s)b?. The galaxy's discovery is credited to Charles Messier on March 1, 1780. While some sources

credit its discovery to Pierre Méchain who did discover many objects in Messier's catalog that is unlikely in the case of M66. Messier was careful to note those found by Méchain but made no such note for this entry.

See my Arp 317 entry for a better image of this galaxy.



Photos from the January Program: How to Use Your Telescope



How to Use Your Telescope, continued.



This is a partial list of objects visible for the upcoming month.

Planets

Venus: Shines at -4.5 with a disk 25" wide.

Mercury: Not visible.

Neptune and Uranus: Uranus is southeast of Venus; Neptune is at conjunction with the Sun.

Mars, Jupiter, and Saturn: All rise 2-3 hours before the Sun. All three are east of the Teapot of Sagittarius. Mars and Saturn are in Conjunction on March 31. Mars passes just $\frac{3}{4}^{\circ}$ SSE of Jupiter on March 20.

Messier List

M41: Open cluster in Canis Major.

M44: The Beehive Cluster in Cancer.

M46/M47: Open clusters in Puppis.

M48: Open cluster in Hydra.

M50: Open cluster in Monoceros.

M67: Open cluster in Cancer

M81/M82: Galaxy pair in Ursa Major.

M93: Open cluster in Puppis.

Last Month: M1, M35, M36, M37, M38, M42, M43, M45, M78, M79

Next Month: M40, M65, M66, M95, M96, M105, M106, M108, M109

NGC and other Deep Sky Objects

NGC 2438: Planetary nebula, foreground object in M46.

NGC 2440: Planetary nebula in Puppis.

NGC 2451: Open cluster in Puppis, bright and irregular.

NGC 2452: Planetary nebula in Puppis, just south of open cluster NGC 2452.

NGC 2477: Bright open cluster in Puppis.

NGC 2537: The Bear Paw Galaxy in Lynx.

NGC 2683: Edge on galaxy in Lynx.



Double Star Program List

Epsilon Canis Majoris: White and light blue pair.

Delta Geminorum: Wasat, yellow and pale red stars.

Alpha Geminorum: Castor, white primary with a yellow secondary.

12 Lyncis: Close pair of yellow-white stars.

19 Lyncis: White stars.

38 Lyncis: White primary with a yellow secondary.

Zeta Cancri: Yellow and pale yellow stars.

Iota Cancri: Yellow and pale blue pair.

Challenge Object

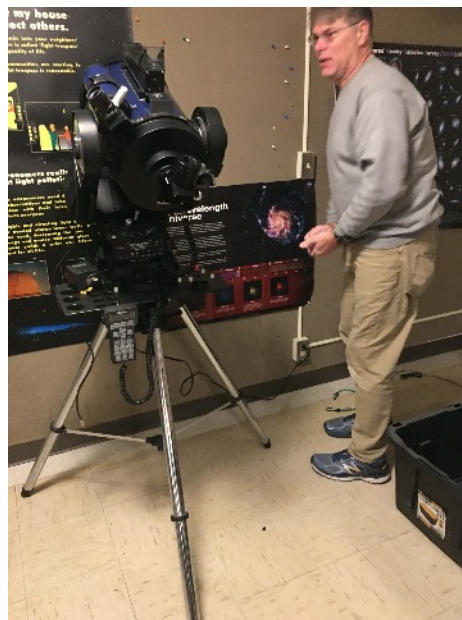
NGC 2562/2563/2560: Trio of dim galaxies, part of the Cancer I Galaxy Group.

Jim Rains Estate Telescopes: Some Assembly Required

Photos by John Reinert



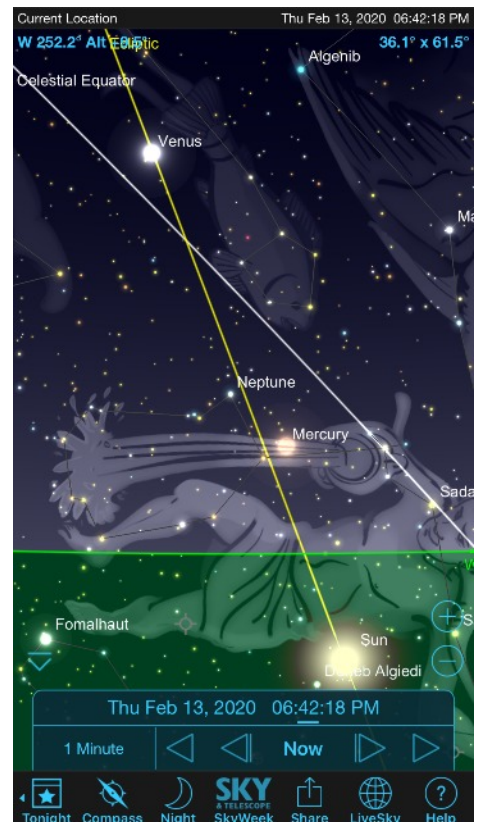
Early in February several members got together and completed putting together the 4" Orion SCT with a functional drive, eyepieces, CCD camera, and other accessories. After discussions it was decided to make it an excellent loaner telescope for the club.





This is a single handheld photo taken with my iPhone 6s Plus, 12 Mega pixels, at the time cited in the Sky Safari Pro screenshot (CST).

With Venus in the upper left, Mercury is seen just above the uppermost right arm of the utility pole. Venus was observable before 6pm, however Mercury waited until after 6:30pm to make its naked eye presence known.



Pale Blue Dot Revisited

A recent update to this historic portrait shows Earth as a tiny speck surrounded by the vastness of space.

For the 30th anniversary of one of the most iconic views from the Voyager mission, NASA's Jet Propulsion Laboratory in Pasadena, California, is publishing a new version of the image known as the "Pale Blue Dot."

The updated image uses modern image-processing software and techniques while respecting the intent of those who planned the image. Like the original, the new color view shows Planet Earth as a single, bright blue pixel in the vastness of space. Rays of sunlight scattered within the camera optics stretch across the scene, one of which happens to have intersected dramatically with Earth.

The view was obtained on Feb. 14, 1990, just minutes before Voyager 1's cameras were intentionally powered off to conserve power and because the probe - along with its sibling, Voyager 2 - would not make close flybys of any other objects

during their lifetimes. Shutting down instruments and other systems on the two Voyager spacecraft has been a gradual and ongoing process that has helped enable their longevity.

This celebrated Voyager 1 view was part of a series of 60 images designed to produce what the mission called the "Family Portrait of the Solar System." This sequence of camera-pointing commands returned images of six of the solar system's planets, as well as the Sun. The Pale Blue Dot view was created using the color images Voyager took of Earth.

The popular name of this view is traced to the title of the 1994 book by Voyager imaging scientist Carl Sagan, who originated the idea of using Voyager's cameras to image the distant Earth and played a critical role in enabling the family portrait images to be taken.

Additional information about the Pale Blue Dot image is available at:

<https://solarsystem.nasa.gov/resources/536/voyager-1s-pale-blue-dot/>

The original Pale Blue Dot and Family Portrait images are available at:

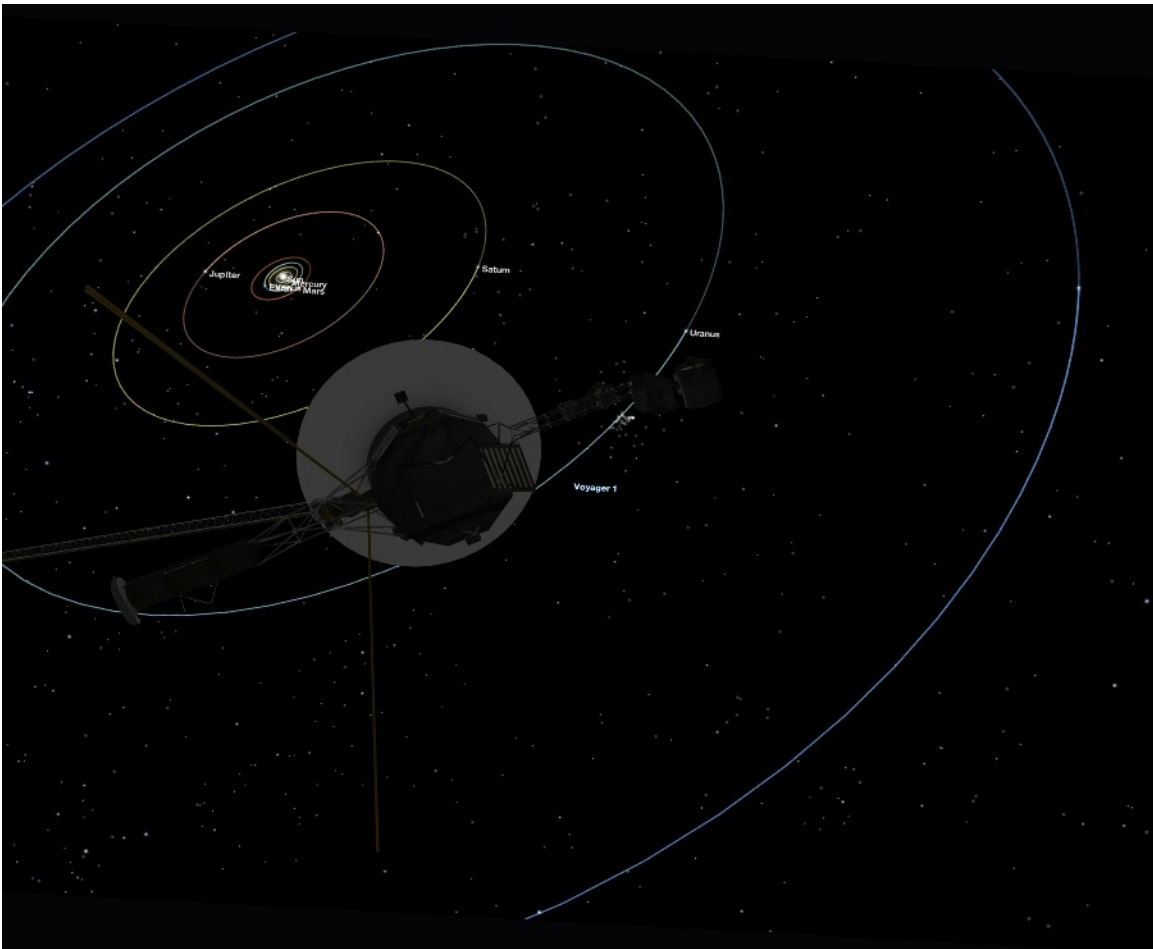
<https://www.jpl.nasa.gov/spac-images/details.php?id=PIA00452>

<https://www.jpl.nasa.gov/spac-images/details.php?id=PIA00451>

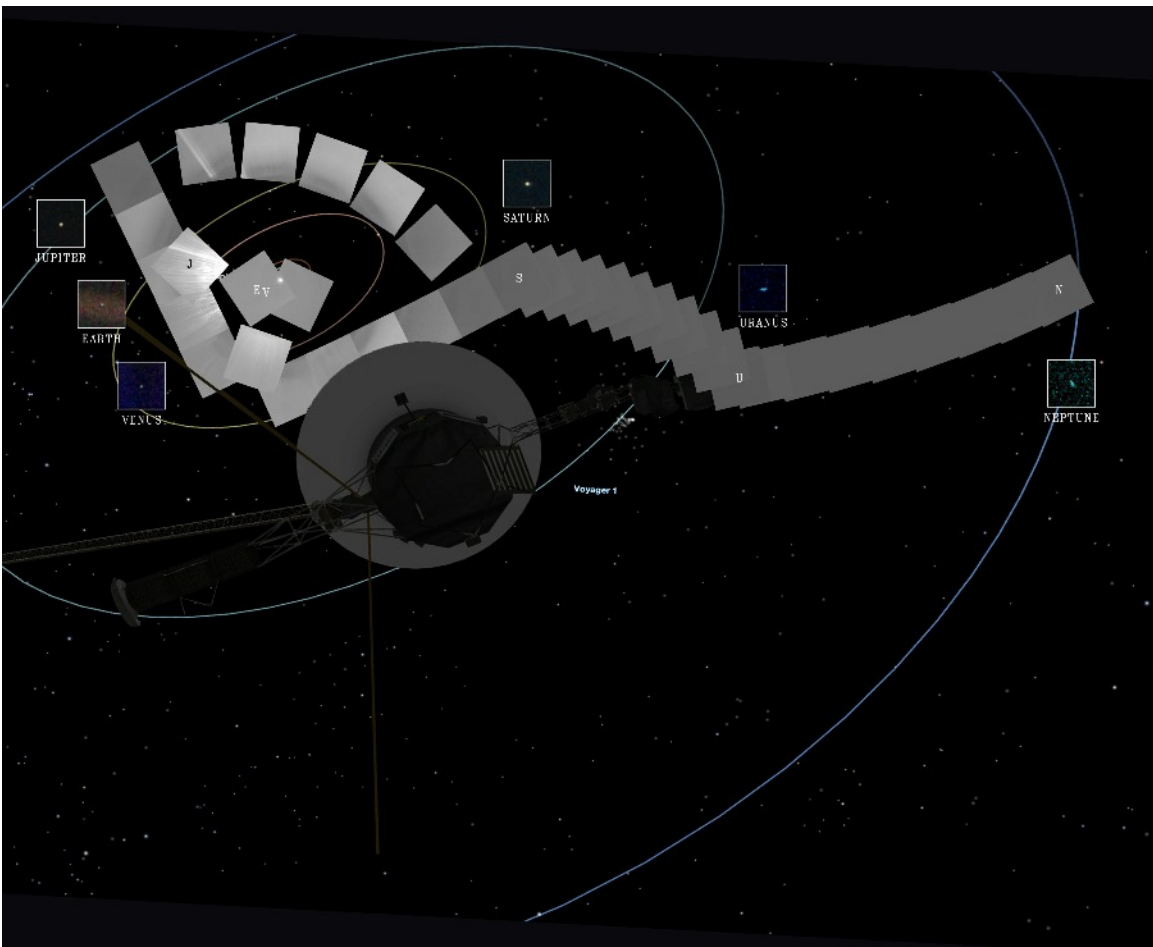
The Voyager spacecraft were built by JPL, which continues to operate both. JPL is a division of Caltech in Pasadena. The Voyager missions are a part of the NASA Heliophysics System Observatory, sponsored by the Heliophysics Division of the Science Mission Directorate in Washington. For more information about the Voyager spacecraft, visit:

<https://www.nasa.gov/voyager>

<https://voyager.jpl.nasa.gov>



This simulated view, made using NASA's Eyes on the Solar System app, approximates Voyager 1's perspective when it took its final series of images known as the "Family Portrait of the Solar System," including the "Pale Blue Dot" image. Figure 1 shows the location of each image.



The President's Report

We had a very fine meeting in January. We had a good attendance and an excellent program. Jess Williams gave the club some good suggestions on viewing and photographing the Sun. We were privileged to have: Pete Schultz as our special guest speaker. Pete told of his work with the 36 and 82 inch telescopes he had worked with at McDonald Observatory in Texas. Pete also showed slides of the construction of the new 107 inch telescope at the McDonald site. It is a real treat to have a former member of our Club working in the BIG observatory. A special thanks to Pete for taking time out of his busy schedule while in Lincoln to take part in our program.

The telescope which belongs to the club is now paid for. I want to thank everyone who helped

relieve the club of that financial burden.

The next step in the program is the observatory. There has been a lot of controversy on the subject. There are the in-townners and out-of-townners. After a lot of heated discussion the issue has finally been settled. It will be located in or near Lincoln where it will be more readily available to everyone interested in astronomy. An observatory committee will be formed to proceed with the plans and location of this phase of the project.

The 1969 Mid-States Regional Convention will be held in Fayette, Missouri on June 6-7-8. Mark this on your calendar now and plan to attend.

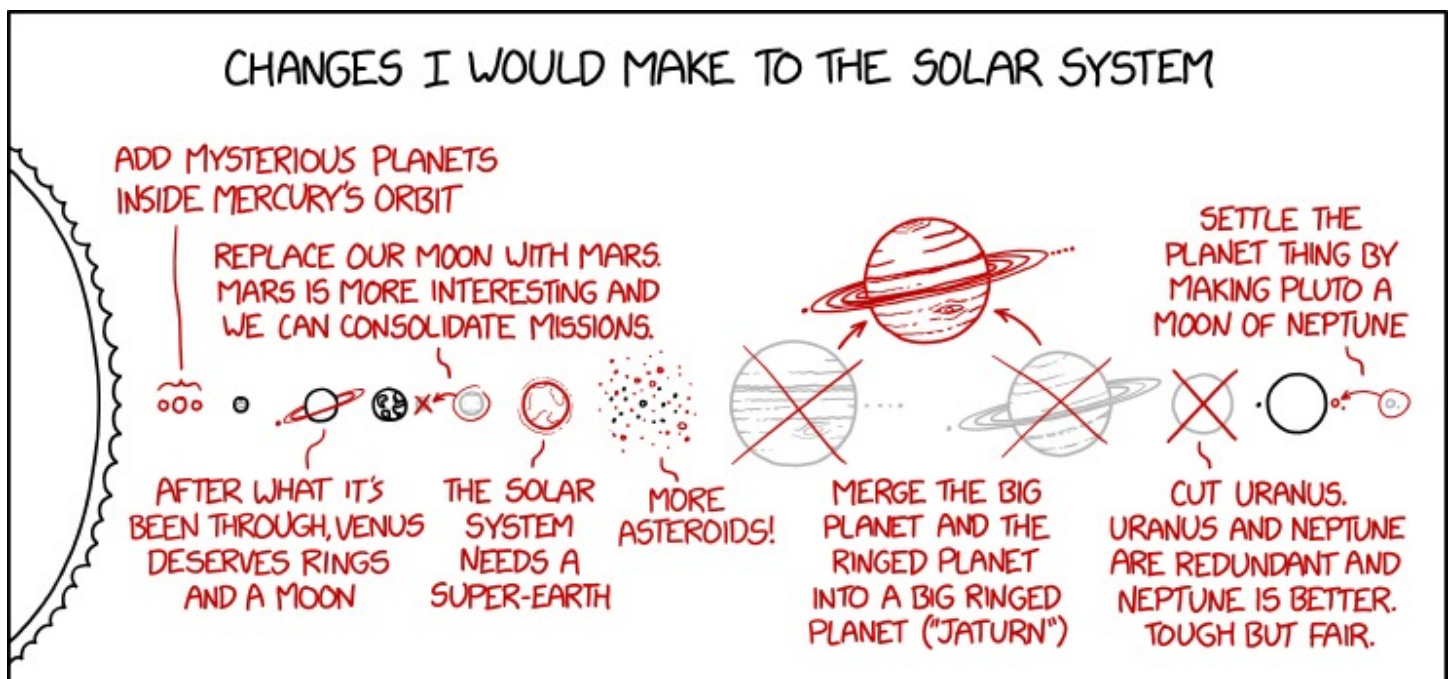
The St. Joseph and Kansas City clubs are planning to observe a Moon and Pleiades Grace near

Sparks Kansas on Saturday evening March 22. I'm sure our club would be welcome to join in if some of you would like to make the trip. I plan to go and will take passengers.

How many of our club have seen Mercury? For those who haven't seen it there will be a good eastern elongation in early May. I think we can soon have a star party for the club. Let's plan on Friday May 9th at my place. If the weather is bad we will have it the next night, May 10. Mark these dates on your calendar too. I will have my 8 inch and the Club's 12 inch up on the hill. This also will be a good chance to view Mars as it nears its bi-annual opposition.

See you at the meeting.

Earl Moser, President.



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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The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc. Membership expiration date is listed on the mailing label. Membership dues are: **Regular \$30/yr, Family \$35/yr.** Address all new memberships and renewals to: **The Prairie Astronomy Club, Inc., PO Box 5585, Lincoln, NE 68505-0585.** For other club information, please contact one of the club officers listed to the right. Newsletter comments and articles should be submitted to: **Mark Dahmke, P. O. Box 5585, Lincoln, NE 68505** or mark@dahmke.com, no less than ten days prior to the club meeting. The Prairie Astronomy Club meets the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, NE.