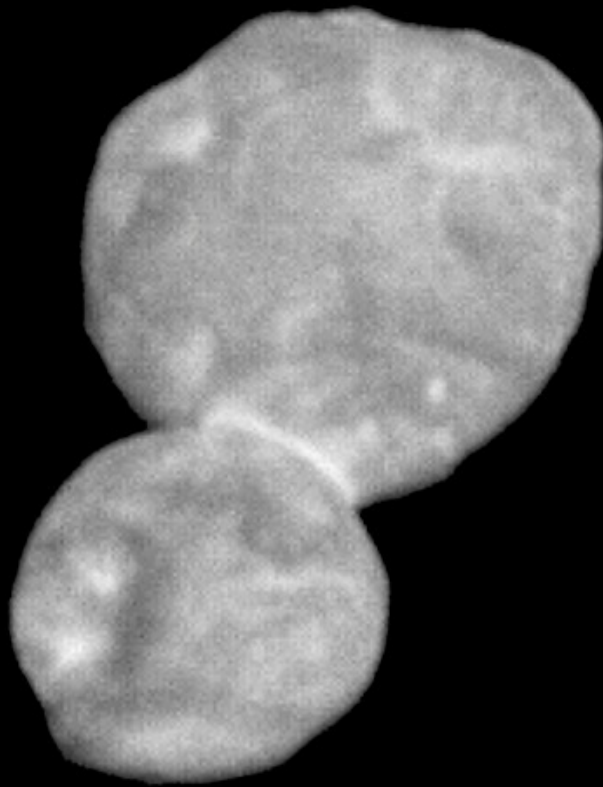


The Prairie Astronomer

January 2019 Volume 60, Issue #1

Ultima Thule!



Night Sky Network



The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

NEXT PAC MEETING: January 29 at 7:30pm at Hyde Observatory

PROGRAM

The Prairie Astronomy Club will offer its annual free session: "How to Use Your Telescope" at Hyde Observatory, Tuesday evening January 29th at 7:30 p.m. Do you own a telescope and need help getting started using it? The Prairie Astronomy Club would like to help. Every year at our January meeting, we offer a session to give hands-on assistance. There is no charge for this session. It is open to the public and if you have a telescope you want to use you are encouraged to bring it. Meetings are at Hyde Observatory and are open to the public.

FUTURE PROGRAMS (Tentative)

February: Lunar Observing

March: Outreach Tips

April: Binocular Observing

May: Annual Club Dinner

June: Solar Star Party

July: Beginning Astrophotography

August: NSP Review

September: to be determined

October: Club Viewing Night

November: How to Buy a Telescope

December: Club Holiday Gathering

CONTENTS

- 4 Rick Johnson
- 5 Lunar Eclipse
- 6 Observatory Update
- 8 Memories of Rick Johnson
- 10 February Observing
- 11 Observing Programs
- 12 Ultima Thule
- 13 From the Archives
- 15 Club Information

Cover photo:

High resolution close-up image of Ultima Thule returned after the flyby. One of 244 1x1 LORRI images taken as part of a ride-along scan observation made with LEISA (Ralph instrument). Image resolution is approximately ~140 meters/pixel.



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 January 29, 2019, 7:30pm
 Program: How to Use Your Telescope

PAC Meeting
 Tuesday February 26, 2019, 7:30pm
 Program: Lunar Observing

PAC Meeting
 Tuesday March 26, 2019, 7:30pm
 Program: Outreach Tips

PAC Meeting
 Tuesday April 30, 2018, 7:30pm
 Program: Binocular Observing

2019 STAR PARTY DATES



Photo by Brian Sivill

	Star Party Date	Star Party Date
January	Dec 28	Jan 4
February	Jan 25	Feb 1
March	Mar 1	Mar 8
April	Mar 29	Apr 5
May	Apr 26	May 31
June	Jun 21	Jun 28
July	Jul 26	Aug 2
NSP	July 28 - Aug 2	
August	Aug 23	Aug 30
September	Sep 20	Sep 27
October	Oct 18	Oct 25
November	Nov 22	Nov 29
December	Dec 20	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

The Prairie Astronomer
 c/o The Prairie Astronomy Club, Inc.
 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/>



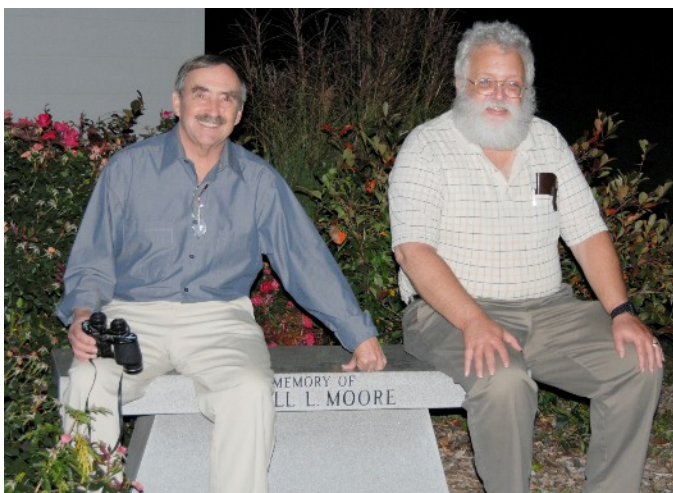
Night Sky Network

Rick Johnson, 1945-2019

Richard Johnson passed away in Minnesota on January 10th, 2019. He was born May 24, 1945 in Omaha, Nebraska. His parents were Philip Graham Johnson and Della Jane Bowman Johnson. He was deeply interested in science from an early age, especially Astronomy. At the age of eight he built his first telescope, grinding his own lenses.

While in High School at Lincoln Southeast he met Professor Carroll Moore of Nebraska Wesleyan University. Rick became part of a small group of students who, along with Carroll and Jess Williams, formed the Prairie Astronomy Club. One of Rick's close friends from that group was Peter Schultz who went on to become a top researcher in cratering and planetary geology at NASA and Brown University. Rick completed a law degree and later an accounting degree. He taught accounting at the University of Nebraska – Lincoln for many years.

From even a young age he was interested in photography and became fascinated with



The Prairie Astronomer

photographing astronomical objects. When he found that existing chemical developers didn't do what he wanted, he invented his own developer. It was not only cheaper to make, it performed better than any commercial developer.

Rick was part of the founding committee that built Hyde Memorial Observatory in Lincoln in 1977. At the time public stand-alone observatories were a rarity in the US. For many years he volunteered at Hyde Observatory to host groups of school kids. He met Holly Whitmore one night at Hyde and they were married in 1991.

He continued his passion for astrophotography as the world moved into the digital age. When Rick and Holly moved to Nevis, Minnesota in 2005 to build their dream home at the edge of Paul Bunyan State Forest, he was able to build an observatory as an addition to the house. He received national and international acclaim among astronomers both amateur and professional for his imaging and the extensive documentation that he did for each image. His data was even used by professional astronomers in their research. And as he processed the images, he sent them out on an ever-expanding e-mail list that included not only the previously mentioned astronomers but also schools across the country.

Rick Johnson is survived by wife Holly, daughter Mira (Chris) Lett, son Alex Myatt, grandchildren, Jade, Kaden, Lily, Amelia, & Eleanor, great grandson Hudson.



Above left: Rick (right of flag pole) at Gateway Mall during a solar eclipse in the 1960s. Left: Dr. Peter Schultz and Rick. Above: Rick, Harlan Franey, Pete Schultz and Earl Moser.



Brett Boller



Mark Dahmke

*Panasonic Lumix
G9 with Celestron
Onyx ED80
600mm refractor.*

Observatory Update: NGC 7559 and NGC 7563

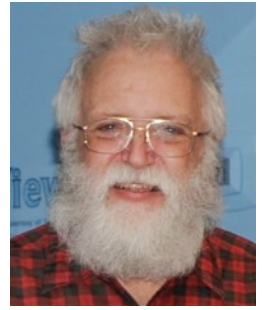
Rick Johnson

Rick's image catalog of over 1600 images is now available through his [website](#). Also see the article about his catalog on the [Sky & Telescope website](#).

These two galaxies are in Pegasus under the Great Square. Both were discovered by William Herschel on October 19, 1784. Neither are in either of the H400 programs. NGC 7559 is classified as E0 by NED and E/S0 by Seligman. NGC 7563 as SBa by NED and SBa? by Seligman. Both have a similar redshift that puts them about 170 to 190 million light-years from us. They likely are related.

Nothing I saw said they were interacting. A couple LEDA galaxies to the east have a similar distance estimate. They are dwarf galaxies, however. Assuming a distance of 180 million light-years I get a size for NGC 7559 of 63,000 light-years for NGC 7559 and 83,000 light-years for elongated NGC 7563. Little UGC 12463 is about 23,000 light-years in size.

This image is another severely hit by smoke that cost me over a magnitude eliminating many small distant galaxies I'd normally pick up. Though most NED had data on were picked up. One galaxy I'd hoped to get was LEDA 1424541 to the southwest of the NGC galaxies.



It has an interesting faint outer spiral arm structure I just wasn't able to pull through the smoke. While the smoke cost faint details I believe the colors are reasonable for a change. The

smoke particles didn't hit blue and green nearly as hard as earlier in this smoke fiasco.

had no redshift but seemed worth at least identifying so I did.

Low surface brightness LEDA 214925 southeast of NGC 7563



Vicki and I were struck and saddened by the passing of Rick Johnson. He was an extraordinary person and his loss leaves us feeling that something important has been taken from our lives.

Rick grew up immediately after WW2 and like many young men of his generation he was fascinated with science and technology and followed a do-it-yourself approach. He got interested in astronomy and ham radio at a very early age, and built his own telescope as well as many electronic projects. In his hobby pursuits he displayed the characteristics that made him so successful – high intelligence, intellectual curiosity, enthusiasm, hard work, and a self confidence that led him to do things his own way.

I met Rick when I joined PAC in about 1965, and was involved in many events and adventures with him until I moved away from Lincoln in 1978. After that I only saw him every year or two when I came back for visits. I was happy when he and Holly connected and were married, and Vicki and I enjoyed getting together with them and with other Lincoln friends when we were in town.

It was always great fun to spend time with Rick, and at a table of friends he was often



Jack Dunn, Lee Thomas, Rick Johnson, Ron Veys, Holly Johnson, Larry Stepp

the center of attention. He was always doing such interesting things, and he told wonderful, amazing stories. I can still hear his laugh as he would get to a part of the story that he found humorous.

Some of his stories were hard to believe, and you might suspect that he was telling some tall tales, but then you would talk to someone who had shared the experience and who confirmed every detail.

Like the time he met a kindly old man in the restroom during a tour of the White House, and was told by his father that nice man was Dwight Eisenhower.

Or the time he vacationed on Maui and drove to the top of Haleakala, where the government has a secure compound of observatories used for pur-

poses like monitoring satellites. Rick just walked in unannounced, found some engineers and scientists, and began discussing technical details of telescopes, imaging, electronics, etc.

Or the time his flight was delayed several hours at the last minute with no explanation. Rick called the control tower and learned the airline had diverted the plane for a last-minute charter and was going to make the scheduled passengers wait several hours while they brought in another plane, without offering to provide transfers to allow them to take an earlier flight on another airline. Rick got the names of the other passengers and filed a class-action lawsuit against the airline. (Rick was very generous and

kind-hearted, but he had a strong sense of fairness and he was no push-over.)

Rick not only had degrees in law and accounting, and was an expert at astronomy and photography, but he was also very capable in electronics. He had a couple of patents for circuits he developed for communication systems. He was an avid ham radio operator, and I remember times when he would tell us about messages exchanged with people on the other side of the world where there was a war or natural disaster.

When lasers were new and experimental, Rick built a helium-neon laser with a tube he purchased and power supply he designed and built. He had a 3.5-inch Questar telescope, which he would use as a beam expander for the laser to keep the beam tight for a mile or two. Not satisfied with putting bright red spots on distant buildings (which on one occasion apparently prompted a call to the fire department) he developed electronics to modulate a signal on the beam. With a photocell and additional electronics he could then receive and recover the signal miles away from the source. Rick told a hilarious story about an encounter with a skeptical policeman who refused to believe the story of a young man with a

box of electronics (that looked vaguely like a bomb) who swore he was only trying to find his laser beam so he could see if the signal from the local radio station was coming through OK, until the officer himself found the beam by looking directly into it and dazzling his vision for a few seconds.

After Rick and Holly moved to Minnesota I didn't see them as often, but I got on his mailing list and began reading his updates that he sent with the marvelous astrophotos he took. It was great fun, not only reading about how he made the telescope work and how he processed the images, but also to hear about him cutting up the tree that fell and blocked the road, or pulling his dock in for the winter, or Holly rescuing a starving cat, or the turtles laying eggs in the middle of the road only to be dug up by the raccoons. As always, Rick was a great story teller. These updates were almost like a personal letter, arriving every couple of days. Somehow I just assumed the letters would keep coming for a long time, and now I miss them a lot.

Again, these updates revealed Rick's qualities of hard work, keen intelligence, love of learning (whether about galaxies or the abundant Minnesota wildlife), love of technology (not only telescopes and imaging

software, but things like repairing the snow blower) and generosity (feeding the wildlife in winter, or spending many hours corresponding with graduate students who needed specific images that only Rick could provide).

I think all PAC members know that Rick was a founding member, and he devoted countless hours over many decades to supporting club activities and the Hyde Observatory, serving as a club officer in several different positions, serving on the Hyde Board of Supervisors for many years, writing newsletter articles, giving presentations, building and repairing needed equipment and hosting hundreds of school groups and public star parties. He was very generous with his time and was always energetic in encouraging people to enjoy and learn more about astronomy.

Rick was a great friend and one of the most remarkable people I've ever met. He will be sorely missed.

February Observing: What to View

Jim Kvasnicka

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

Planets

Mercury: Not high enough to be seen at dusk until February 12th.

Mars: In the southwest after dusk, sets around 11:00 pm.

Neptune: Sets too soon after the Sun to be seen.

Uranus: On February 12th Uranus is about 1° south of Mars.

Jupiter: Rises at 3:30 am to start the month and by 2:00 am to end the month.

Venus: Rises about 30 minutes after Jupiter to start the month.

Saturn: On the morning of February 18th Saturn is separated about 1° from Venus.

Messier List

M1: The Crab Nebula in Taurus.

M35: Open cluster in Gemini.

M36/M37/M38: Open clusters in Auriga.

M42: The Orion Nebula.

M43: Emission nebula just north of M42.

M45: The Pleiades.

M78: Emission nebula in Orion.

M79: Class V globular cluster in Lepus.

Last Month: M33, M34, M52, M74, M76, M77, M103

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

NGC and other Deep Sky Objects

NGC 2264: The Christmas Tree Cluster in Monoceros.

NGC 2266: Open cluster in Gemini.

NGC 2301: Open cluster in Monoceros.

NGC 2362: The Tau Canis Majoris Cluster.

NGC 2392: The Eskimo Nebula in Gemini.

NGC 2403: Galaxy in Camelopardalis.

Double Star Program List

32 Eridani: Yellow primary with a white secondary.

56 Eridani: Yellow and pale yellow stars.

Gamma Leporis: Pair of yellow stars.

Epsilon Monocerotis: White and pale yellow stars.

Beta Monocerotis: Three bluish white stars.

Kappa Puppis: Equal pair of white stars.

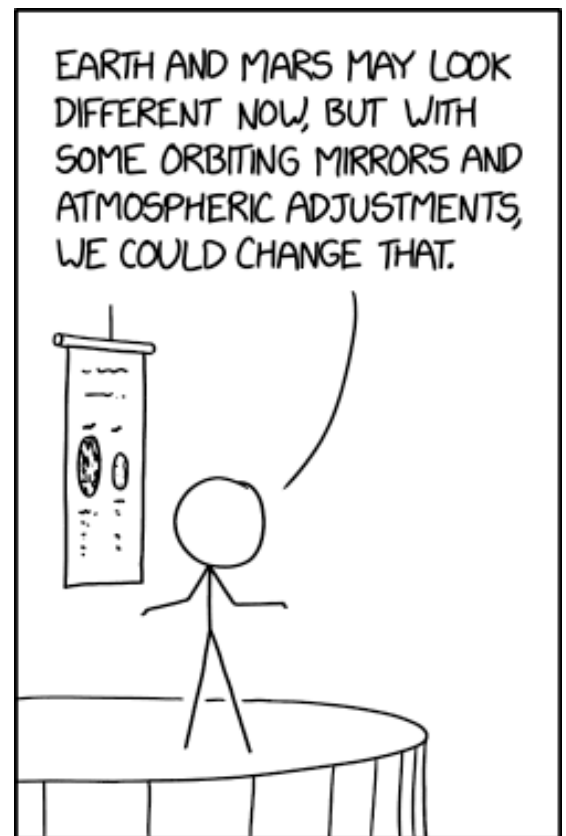
Alpha Ursa Minoris:

Polaris, yellow-white primary with a white secondary.

N Hydrae: Equal yellow stars.

Challenge Object

NGC 2158: Dim open cluster in Gemini just SW of M35. Look for a milky glow.



The Astronomical League offers a variety of Observing Programs that Prairie Astronomy Club members can participate in. The observing skills required to complete these Observing Programs range from the beginner to the advanced observer.

The rules, regulations and easy to use forms necessary to complete the Observing Programs are available on the Astronomical League website. Go to the Astronomical League website and click on Observe. Select the Observing Program you are interested in.

<http://www.astroleague.org>

When you complete an Observing Program please contact me, the PAC Observing Chair. I will review your records for accuracy and completeness. A letter of approval will be forwarded to the Astronomical League's Observing Program Chair and you will receive a certificate of accomplishment and a pin to show you have reached your goal.

Now is the best time to start one of the Observing Programs. If you have any questions concerning any of the Observing Programs please contact me.

Observing Programs Available:

Beginning Observer

Asterism Observing Program
Beyond Polaris Observing Program
Carbon Star Program
Constellation Hunter Program
Galileo Observing Program
Lunar Observing Program
Meteor Observing Program
Occultation Observing Program
Sketching Program
Sky Puppy Observing Program
Stellar Evolution Program
Two in the View Program
Universe Sampler Program
Variable Star Observing Program

Intermediate Observer

Analemma Observing Program
Asteroid Observing Program
Binocular Double Star Program
Binocular Messier Program
Binocular Variable Star Program
Caldwell Observing Program
Comet Observing Program
Deep Sky Binocular Program
Double Star Observing Program
Earth Orbiting Satellite Program
Globular Cluster Observing Program
H-Alpha Solar Observing Program
Lunar II Observing Program
Messier Observing Program
NASA Observing Challenge
Nova Observing Program
Open Cluster Observing Program
Planetary Nebula Observing Program
Radio Astronomy Program
Solar System Observing Program
Sunspotters Observing Program
Urban Observing Program

Advanced Observer

Active Galactic Nuclei Program
Advanced Binocular Double Star Program
Arp Peculiar Galaxy Program
Bright Nebula Observing Program
Dark Nebula Observing Program
Flat Galaxy Observing Program
Galaxy Groups & Clusters Program
Herschel 400 Observing Program
Herschel II Observing Program
Local Galaxy Groups and Neighborhood

New Ultima Thule Discoveries from NASA's New Horizons

Data from NASA's New Horizons spacecraft, which explored Kuiper Belt object Ultima Thule earlier this week, is yielding scientific discoveries daily. Among the findings made by the mission science team in the past day are:

- Initial data analysis has found no evidence of rings or satellites larger than one mile in diameter orbiting Ultima Thule.
- Data analysis has also not yet found any evidence of an atmosphere.
- The color of Ultima Thule matches the color of similar worlds in the Kuiper Belt, as determined by telescopic measurements.
- The two lobes of Ultima Thule — the first Kuiper Belt contact binary visited — are nearly identical in color. This matches what we know about binary systems which haven't come into contact with each other, but rather orbit around a shared point of gravity.

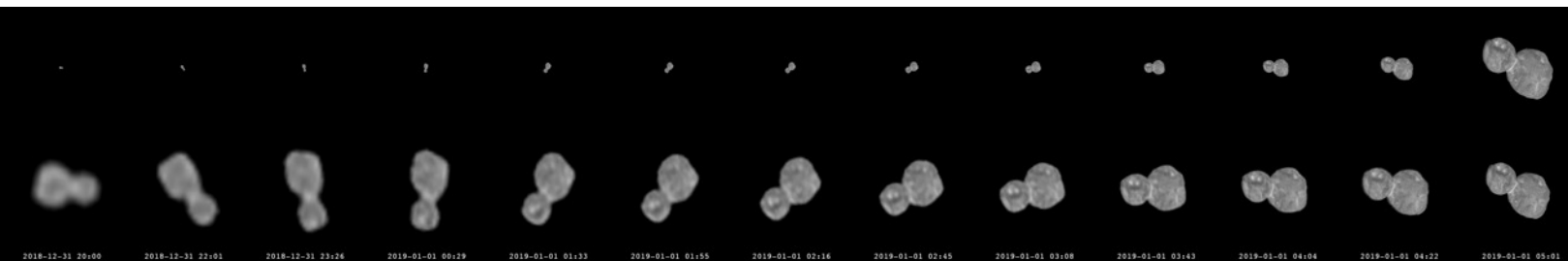
"The first exploration of a small Kuiper Belt object and the most distant exploration of any world in history is now history, but almost all of the data analysis lies in the future," said Alan Stern of the Southwest Research Institute in Boulder, Colorado.

Data transmission from New Horizons will pause for about a week while the spacecraft passes behind the sun as seen from here on Earth. Data transmission resumes Jan. 10, starting a 20-month download of the spacecraft's remaining scientific treasures.

"Those of us on the science team can't wait to begin to start digging into that treasure trove," said Stern. New Horizons completed the farthest flyby in history when it came within about 2,200 miles (3,500 kilometers) of Ultima Thule at 12:33 a.m. EST on Jan. 1, zooming past the object at more than 32,000 miles (51,000 kilometers) per hour.

The Johns Hopkins Applied Physics Laboratory in Laurel, Maryland, designed, built and operates the New Horizons spacecraft, and manages the mission for NASA's Science Mission Directorate. The Southwest Research Institute, based in San Antonio, leads the science team, payload operations and encounter science planning. New Horizons is part of the New Frontiers Program managed by NASA's Marshall Space Flight Center in Huntsville, Alabama.

Follow the New Horizons mission on Twitter and use the hashtags #UltimaThule, #UltimaFlyby and #askNewHorizons to join the conversation. Live updates and links to mission information are also available on <http://pluto.jhuapl.edu> and www.nasa.gov.



These raw images were used to create an animation demonstrating the propeller-like rotation of Ultima Thule in the seven hours between 20:00 UT (3 p.m. ET) on Dec. 31, 2018, and 05:01 UT (12:01 a.m.) on Jan. 1, 2019, as seen by the Long Range Reconnaissance Imager (LORRI) aboard NASA's New Horizons.

Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute

"Imagine a strain of submicrobes as small as molecules. They inhabit a poppy seed they call "EARTH" and vow to invade a tobacco seed, the "MOON" before long, even though it is a 1.5 inch journey.

Already, a few of them have traveled a small fraction of an inch from their native poppy seed. And by shooting some

submicroscopic particles they call "PROBES" they have succeeded in reaching hundreds of inches into space and approach other seeds, like the one known as "VENUS."

The inhabitants of the poppy seed use powerful telescopes to study remote objects they call "STARS" none of which is closer than 2,500 miles, and "Globular

Star Clusters," which the nearest being six million miles away. They also study "galaxies" which they dream of visiting some day. These "galaxies" are found no closer to the poppy seed than 2,000,000,000 miles.

For such small microbes tiny have L A R G E Dreams."

– Rick Johnson

Close Encounters of the Bovine Kind

Rick Johnson

Editor's note: Rick told many stories of his encounters with various critters, some of which were hard to believe, but actually happened. This is my favorite. I asked Rick to write it down for the PAC history book.
–Mark Dahmke

One cool summer night in the mid 60's we were using the hill top cow pasture of Earl's father as our viewing site. It was by far the darkest night I can recall. I believe we were there for the Perseid Meteor Shower. Earlier in the evening a cow had gotten loose from the pen. Earl simply shooed it away and back down the hill. It was so dark I didn't see the cow but only heard it. By this time nearly everyone but Pete Schultz and I had left. I was in a reclining lawn chair wrapped in a blanket counting meteors. Pete was on the other side of

the hill crest taking wide angle images of the sky hoping to catch some great Meteors.

He worked at the Miller and Paine Camera store at the time and had ordered in some fantastic Linhof cameras and lenses which he then tested by shooting the meteor shower with a medium format camera with fish eye lens.

Earl went to drive back down to his house for cocoa or something like that. He tried driving out without his lights so as not to bother Pete's imaging nor my dark adaption. But the night was so dark he managed to drive over his camera and tripod. The tripod was toast but the tires missed the camera.

While Earl was gone, with Pete concentrating on his guiding and me counting meteors I suddenly

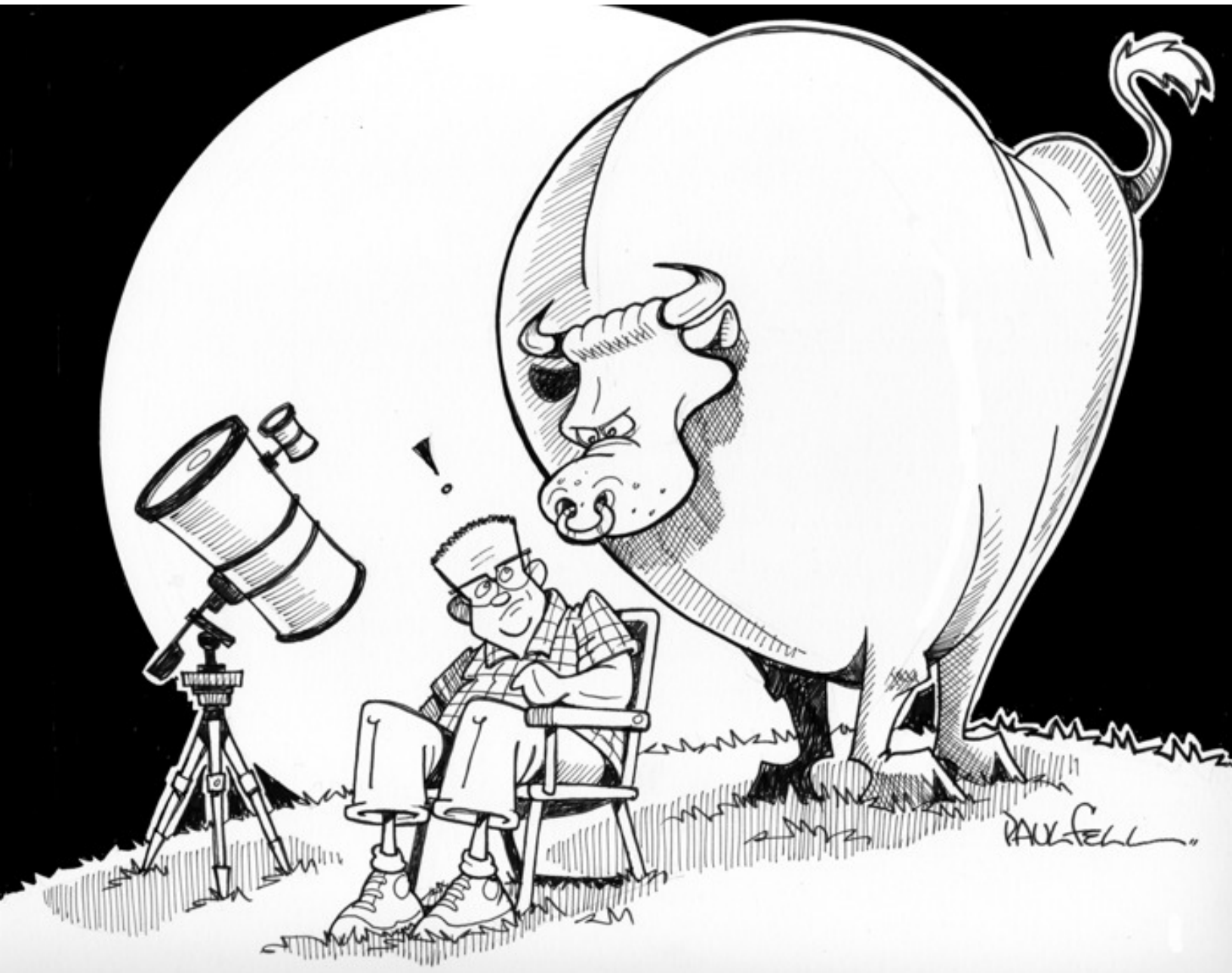
heard Pete breathing hard right behind my chair. He didn't say anything. Just breathed heavily. I finally asked what he was doing. Pete's voice came, not from right behind me but from over the hill that he was still guiding an exposure. Now I don't believe in ghosts, especially those that breathe so I turned away from my meteor counting to see who was behind me. No one. At least I didn't see anyone but the breathing came from only a foot or so behind the chair. I jumped up to see what the heck was going on. My face went right into the snotty nose of a very large animal of the bovine clan. My glasses were a mess but I somehow recovered and while I only saw the barest outline of the animal I decided if Earl could

shoo a cow without a problem so could I.

I tried to imitate Earl's earlier action but to no avail. It just stood there breathing deeply. I started to try again when from far down the hill I heard Earl's panicked scream "NO! NO!" Seems he was walking back rather than risk running over something again. How he knew

what was happening I don't know but his urgency stopped me instantly. He came running up at a sprinter's speed. Seems he knew this bovine was a very nasty bull and it would likely shoo me into the hospital, or worse, if I continued in my Quixotic cause. Earl quickly grabbed its nose ring and led it back to

the pen from which it had escaped. After I restarted my heart I also had to restart my meteor count from the beginning. Pete continued his astrophotography without missing a beat. My heart missed many however.



Upon hearing that Rick Johnson had passed away, I got several emails through Rick's website. One was from Eric Koester, asking me about Rick's DOS SkyView program, which he said would not run on recent versions of Windows.

Rick wrote it in the 1980s and I think it first ran on a TRS-80. Given your location, time and date, it will compute the coordinates for the Sun, Moon and Planets, plus a list of about 240 stars.

I told Eric I'd ask Holly, but then I remembered that Rick gave me the source code in about 1985. I then googled for a way to run old

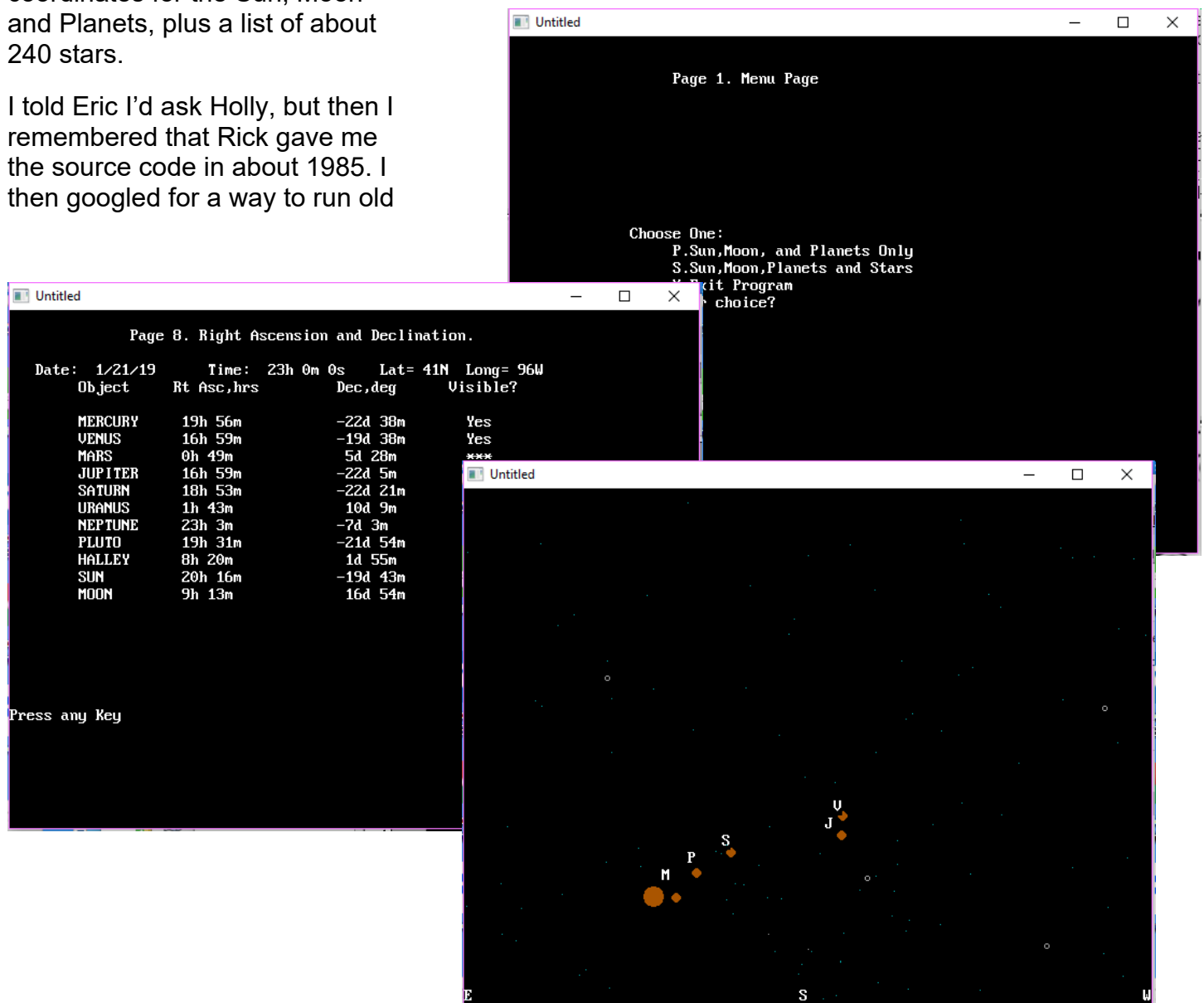
Quick Basic code and found [QB64](#).

I installed it and was surprised that it looks exactly like the Microsoft Quick Basic I worked with over 30 years ago!

There were of course a few differences. It doesn't support DEF for single line functions and the SCREEN options have changed. There were a few

minor syntax problems, but overall it was pretty straightforward to convert. The biggest challenge was to fix the screen coordinates so it would work with in 640x480 VGA mode.

If you want to try it, you can download a [ZIP file here](#). Unzip the EXE file and data files to a folder and run it from the same folder.



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: David Pennington
10 inch Meade Dobsonian: Lee Taylor
13 inch Truss Dobsonian: Available

CLUB APPAREL



Order club apparel from cafepress.com:



Shop through Amazon Smile to automatically donate to PAC:



CLUB OFFICERS

President	Bob Kacvinsky kacvinskyb@yahoo.com
Vice President	Rick Brown rickerbrown2000@gmail.com
2nd VP (Program Chair)	Christine Parkyn cpparky@gmail.com
Secretary	Bill Lohrberg wmlohrberg89@gmail.com
Treasurer	John Reinert jr6@aol.com
Club Observing Chair	Jim Kvasnicka jim.kvasnicka@yahoo.com
Outreach Coordinator	Mike Kearns mkearns@neb.rr.com
Website and Newsletter Editor	Mark Dahmke mark@dahmke.com

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.