



Roanoke Valley Astronomical Society

Amateur Astronomy News and Views
In Southwestern Virginia



Volume 42—Number 4

April 2025

RVAS March Meeting Notes

Women in Astronomy

By Erin Elliott, Secretary

You can view this month's Zoom recording by [clicking this link](#). The passcode to view the video is: 6\$X3Sfb!

You can find a timestamp for each segment of the meeting next to the corresponding section header and a full list of timestamps below.

- **Program** | 00:21:50
- **What's Up?** | 01:15:18
- **Blue Ridge Kite Festival** | 01:27:32
- **Library Loner Telescopes** | 01:28:16
- **Visual Observing & Astrophotography** | 01:38:14

After wrapping up the Celestial Café, the meeting began at 7:30pm with an introduction from RVAS President, **Michael Good**. He recognized visiting members and guests to the March meeting before going over the agenda.



March Meeting— Michael Good photo

Attendance: There were 29 members and 3 guest in attendance. 15 individuals were in person and 14 attended virtually.

Program | 00:21:50: Kristin is an Astronomer with an undergraduate degree in Physics. She was a Park Ranger for several years, where she interpreted the night sky to park visitors. She has participated in hundreds of hours of astronomy outreach, as a JPL Solar System Ambassador and with her local club, NOVAC. Currently, she is working on becoming a Master Observer through the Astronomical League by star hopping with a 10-inch Dobsonian telescope, affectionately named Galadriel. She has recently entered into Electronic Assisted Astrophotography with a (short) Seestar telescope, appropriately named Gimli.



Women in Astronomy – Kristin Hendershot slide

Kristin Hendershot “the Astro Ranger”

- BS in Physics/Astronomy/Math
- Former Astronomy Park Ranger
- NASA JPL Solar System Ambassador
- Member of NOVAC and AL
- Owner/operator of 10” Dobsonian telescope and SeeStar S50

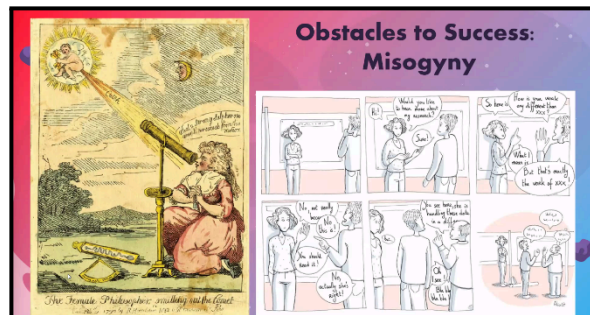
Women’s Contributions to Astronomy

- Nobel Laureate for black hole research
- Discovery of cepheid variable period/luminosity relationship
- Determination of stellar composition
- Current classification system for stellar objects
- Discovery of observational evidence of dark matter
- Comet/stellar object discoveries
- Exoplanet research
- Work on the search for ET

Obstacles to Success: Lack of Opportunity

- Considered a “Dangerous Experiment” to educate women in universities
- Women-only colleges were established in 19th century
- Some colleges created “Sister” schools
- Women not accepted into the Ivy League until 1870-1983

Obstacles to Success: Misogyny



Obstacles to Success Comics – Kristin Hendershot slide

Obstacles to Success: Gender Roles

- 85% of boys are interested in STEM, compared to 63% of girls (born between 1997-2011)
- 74% of middle school girls express interest in STEM topics and careers, but only 0.4% of high school girls pursue them in college
- Girls are more likely to think they won't be good at it, don't know enough about, and don't have time for education in STEM careers

Women in Astronomy Graph

Hypatia (350-415)

- Educated by her mathematician and astronomer father and collaborated with him on work
- Charted celestial bodies related to Ptolemy's Almagest (Earth-centric)
- Invented the Hydrometer – to measure the density of liquids
- First woman to pave the way for women in science

Maria Cunitz (1610-1664)

- German/Polish astronomer
- Wrote *Urania Propitia* a book where she interpreted, corrected and simplified Kepler's work on orbital physics
- Her work contributed to the development of a German scientific language and was a reference for other astronomers
- Statue can be found of her in Swidnica, Poland

Maria Winckelmann Kirch (1670-1720)

- German astronomer who married Gottfried Kirch, Royal Astronomer in Berlin

- In 1702 became the first woman to discover a comet, though her husband took the credit for some time
- Published observations on the aurora and planetary conjunctions and made astronomical calendars
- Stayed with the Royal Observatory after her husband's death in 1710
- Career ended when it was determined that she was too prominent in observatory life, especially at public functions



Caroline Herschel – Kristin Hendershot slide

Caroline Herschel (1750-1848)

- World's first professional female astronomer
- While born in Germany, she worked with her brother – William – in England
- Built telescopes with William and contributed to his calculations based on observation of celestial objects
- Discovered 8 comets
- Discovered 10 deep sky objects
- First woman to receive the Gold Medal of the Royal Astronomical Society (the next one was in 1996)

Mary Somerville (1780-1872)

- Taught herself astronomy and math
- Wrote multiple astronomical publications including translating work of Laplace
- In 1836, she wrote that difficulties in calculating the position of Uranus may point to an undiscovered planet, which led to the discovery of Neptune
- First person labeled as “Scientist”
- Somerville College named after her (sister school of Oxford)
- Her image is on Scotland's 10-pound note

Maria Mitchell (1818-1889)

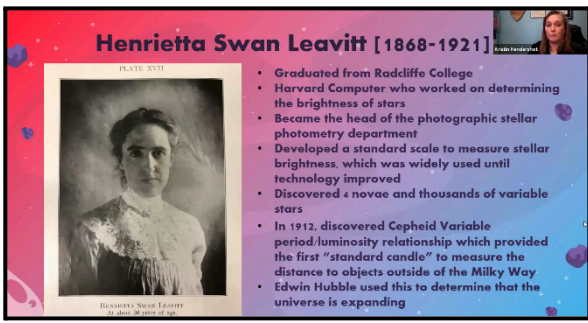
- First professional female astronomer in the US
- In 1847, third woman to discover a comet
- In 1848, became the first woman elected to the American Academy of Arts and Sciences
- In 1865, was the first faculty member of Vassar College where she became professor of astronomy and observatory director
- Pioneer in solar photography
- Was the first to find that sunspots weren't just “clouds”
- Educated many women in astronomy

Williamina Fleming (1857-1911)

- Scottish-American Astronomer
- Harvard Computer
- For 30 years, worked on stellar spectral analysis
- Developed classification system for stellar spectrum called the Pickering-Fleming system
- Established the first photographic standards of magnitude used to measure the brightness of stars
- Discovered 59 nebulae, over 300 variable stars and 10 novae
- In 1888 - discovered the Horsehead Nebula
- In 1898 - appointed curator of Harvard astronomical photographs

Annie Jump Cannon (1863-1941)

- American Astronomer
- Graduated from Wellesley College Harvard Computer
- In 1901 – simplified previous stellar spectral classifications by temperature into classes O, B, A, F, G, K, and M
- In 1922 – IAU adopted her classification into universal use, still used today
- Discovered over 300 variable stars and 5 novae
- Received first honorary doctorate from Oxford for a woman



Swan Leavitt – Kristin Hendershot slide

Henrietta Swan Leavitt (1868-1921)

- Graduated from Radcliffe College
- Harvard Computer who worked on determining the brightness of stars
- Became the head of the photographic stellar photometry department
- Developed a standard scale to measure stellar brightness, which was widely used until technology improved
- Discovered 4 novae and thousands of variable stars
- In 1912 – discovered Cepheid Variable period/luminosity relationship which provided the first “standard candle” to measure the distance to objects outside of the Milky Way
- Edwin Hubble used this to determine that the universe is expanding

Cecilia Payne-Gaposchkin (1900-1979)

- English Astronomer
- Attended Cambridge University
- First person to earn a PhD in astronomy at Radcliffe College
- Studied stellar spectra
- In her 1925 thesis, first to discover that stars are made mostly of hydrogen, with some helium
- She was dissuaded from this conclusion at first, but ended up being right
- Observed millions of variable stars: data was used to determine paths of stellar evolution
- Became a full professor at Harvard and later, the first woman to chair a department (astronomy)

Nancy Grace Roman (1925-2018)

- American Astronomer

- Earned Astronomy PhD from University of Chicago in 1949
- Discovered that stars made of hydrogen and helium move faster than those made of heavier elements
- Discovered that not all stars that are common are the same age
- Her “UV excess” methods became widely used by astronomers to find heavy element stars
- First female executive at NASA where she created their space astronomy program
- “Mother” of the Hubble Space Telescope
- Next major space telescope is named after her. Roman Space Telescope

Vera Rubin (1928-2016)

- American Astronomer
- In 1948 – only astronomy major to graduate from Vassar College
- Earned master’s degree from Cornell, took courses from Bethe and Feynman
- PhD from Georgetown, where she became a professor
- First woman astronomer to observe at Palomar Observatory
- With Kent Ford, discovered that outer stars in spiral galaxies rotate as quickly as those at the center, the first observational evidence for Dark Matter
- National Medal of Science recipient in 1993
- Dark Matter/Energy telescope in Chile named after her

Jocelyn Bell Burnell (1943-)

- British Astronomer
- PhD from Cambridge in Radio Astronomy
- In 1967 – while monitoring quasars, discovered a series of extremely regular radio pulses
- Brought data to her advisor, they joked by calling it LGM-1
- Instead, she had discovered pulsars
- Hewish and Ryle won Nobel Prize for the discovery
- Served as president of the Royal Astronomical Society (2002-2004)
- Received the Copley Medal in 2021 (second female recipient)

Jill Tarter (1944-)

- American Astronomer
- Graduated in 1966 from Cornell with degree in engineering physics; even through fierce misogyny
- In 1975 – earned PhD from University of California in Astronomy
- Coined the term “brown dwarf” in her PhD dissertation
- Joined and helped establish the SETI Institute in 1983, becoming the first director
- Leader in the search for extraterrestrial life
- Main inspiration for *Contact* character, Dr. Eleanor Arroway



Sara Seager – Kristin Hendershot slide

Sara Seager (1971-)

- Canadian-American
- Astrophysicist and Professor at MIT
- Exoplanet pioneer
- Deputy Science Director of NASA mission TESS
- Her work led to the first detection of an exoplanet atmosphere
- Created Seager Equation: parallel to Drake equation except based on the chance to detect alien life from Earth
- NASA calls her the “astronomical Indiana Jones”
- Among many awards, she earned MacArthur “genius grant” in 2013

Andrea Ghez (1965-)

- American Astronomer
- PhD from CIT in 1992
- Professor at University of California, LA
- MacArthur “genius grant” in 2008
- Nobel Prize Laureate in 2020; 4th woman in physics, first in astronomy

- With Genzel, discovered observational evidence of the black hole in the center of the Milky Way
- Used Keck Observatory at infrared wavelengths to follow orbits of stars around Sgr A*
- Calculated Sgr A* to be about 4 million solar masses, a supermassive black hole

What’s Up? | 01:15:18: John Wenskovitch gave his “What’s Up?” program on what the skies of April have in store for us. John’s “What’s Up? Highlights” in this issue provide a summary of the program. You can watch a recording of his program by clicking the link at the beginning of the newsletter and following the timestamp listed for this segment.

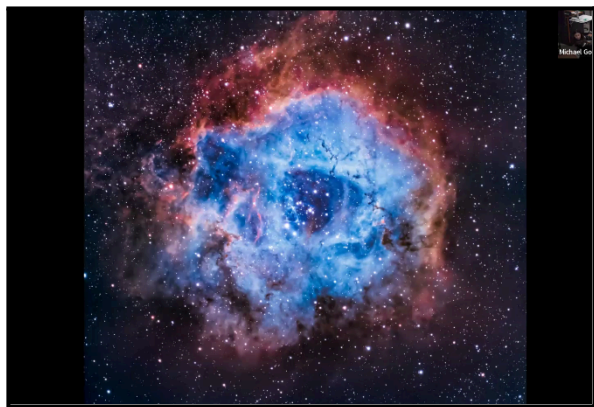
John gave a shout out to the Astronomical League Program: Binocular Messier. You can find more information about this program by [following this link](#).

Blue Ridge Kite Festival | 01:27:32: It’s a call for volunteers! On Saturday, April 19 from 10am-3:30pm we are looking for volunteers to help at the Blue Ridge Kite Festival. It’s a great time to meet people and share astronomy with them! If you would like to volunteer, please reach out to [Nancy Vogelaar](#).

Library Loaner Telescope | 01:28:16: We have a few loaner telescopes available at Roanoke Valley Libraries. You can check out the telescope just like you can check out a book. It is easy to travel with and comes with a manual for easy sky navigating. These telescopes are great for making astronomy accessible to our community! RVAS is searching for volunteers to help maintain this telescope outreach program. If you are interested in helping, please contact [John Goss](#).

Visual Observation Reports | 01:38:14: Many members observed the Lunar Eclipse over the March 13-14th weekend. With her own eyes, Genieve Goss saw the following items: Alpha & Beta Centauri, Vegas Centauri, Canopus, Southern

Cross, and False Cross.



Zoom Screenshot – Ben Hartman Photo

Astrophotography: We thank **Ed Dixon, Michael Good, Ben Hartman, Mark Hodges, Dave Thomas, Tara Wu, and Noah Winslow** for providing their work this month. We had a variety of images focusing on near and deep sky objects.

To provide each image with the focus it deserves, we are sharing the submissions in a separate article in this newsletter. Do not miss checking out the rest of these images.

You can also visit our [RVAS Facebook Group](#) to see photos posted throughout the month.

Next month: The presentation for next month will be by Brian Gentry: **Doing Wall Time: Voids and Finite Infinities in a Lumpy Universe.**

Brian's academic study began in 1984 at NC State as a physics major and later finished his undergraduate degree at Temple University. He continued at the University of Texas at Austin and later received his PhD in soft matter physics at the University of Leipzig, Germany. Returning to the U.S., he taught undergraduate physics at Roanoke College and Hollins University for 12 years.

We look forward to next month's program and meeting on Monday, April 21st.

The meeting was adjourned at 9:00pm.

What's Up? Highlights

April 1 to 30, 2025

This Month:

After a crowd of planets dominated the evening sky in February, a number of them are becoming better morning sky objects in April. Venus, Saturn, and Neptune rise before astronomical twilight begins at the end of the month. Mercury appears a bit later, but still long enough before dawn to provide a nice view. In the evening sky, Mars and Jupiter are still the main planetary sights, though Jupiter begins to set before midnight by the end of the month. Mars is still visible throughout much of the night, setting at 3:45am on the 1st and 2:25 AM on the 30th. Uranus is still lingering in western Taurus, setting earlier and earlier each night. Unless T CrB erupts and steals the show, it's likely that the best non-planetary night sky event will be the peak of the April Lyrid meteor show, predict for the morning of April 22nd. Though it isn't quite as productive at burning up space debris as the Perseids or the Geminids, it does have the claim to fame of being the oldest currently active meteor shower, first identified over 2700 years ago. The spring constellations are beginning to take over the evening sky, though the planets visible in the evening remain in the winter constellations until Mars hops from Gemini to Cancer on the 12th.

Celestial Events:

- April 2: Great views of Jupiter, the Moon, M45, and the Hyades in Taurus
- April 5: The Moon and Mars start to assemble a third Gemini twin (triplet?)
- April 16: Saturn and Mercury join Venus in the pre-dawn sky
- April 20: The Lucy spacecraft passes by asteroid (52246) Donaldjohnson
- April 22: Peak of the Lyrid meteor shower
- April 24: Venus reaches peak brightness in the morning sky at magnitude -4.78
- April 28: The Moon joins the pre-dawn planet group
- April 30: The time around 3pm is good for using the Moon to try to spot Jupiter in the daylight

Sunset and Twilight:

- Sunset ranges from 7:42pm (1st) to 8:08pm (30th)
- Evening twilight ends from 9:11pm (1st) to 9:46pm (30th)

Lunar Phases and Apsides:

- First Quarter: April 4, 10:16pm
- Full Moon: April 12, 8:23pm
- Apogee: April 13, 6:48pm (252,460 miles)
- Last Quarter: April 20, 9:37pm
- Perigee: April 27, 12:17pm (221,903 miles)
- New Moon: April 27, 3:33pm

The Roanoke Valley Astronomical Society is a membership organization of amateur astronomers dedicated to the pursuit of observational and photographic astronomical activities. **Meetings are held at 7:30 p.m. on the third Monday of each month. We meet at the VWCC STEM building ST312. Directions are below.** Meetings are open to the public. Observing sessions may be held, weather and sky conditions permitting, at a dark-sky site. For information regarding joining RVAS, including annual dues, [click here](#). Articles, quotes, etc. published in the newsletter do not necessarily reflect the views of the RVAS or its editor.

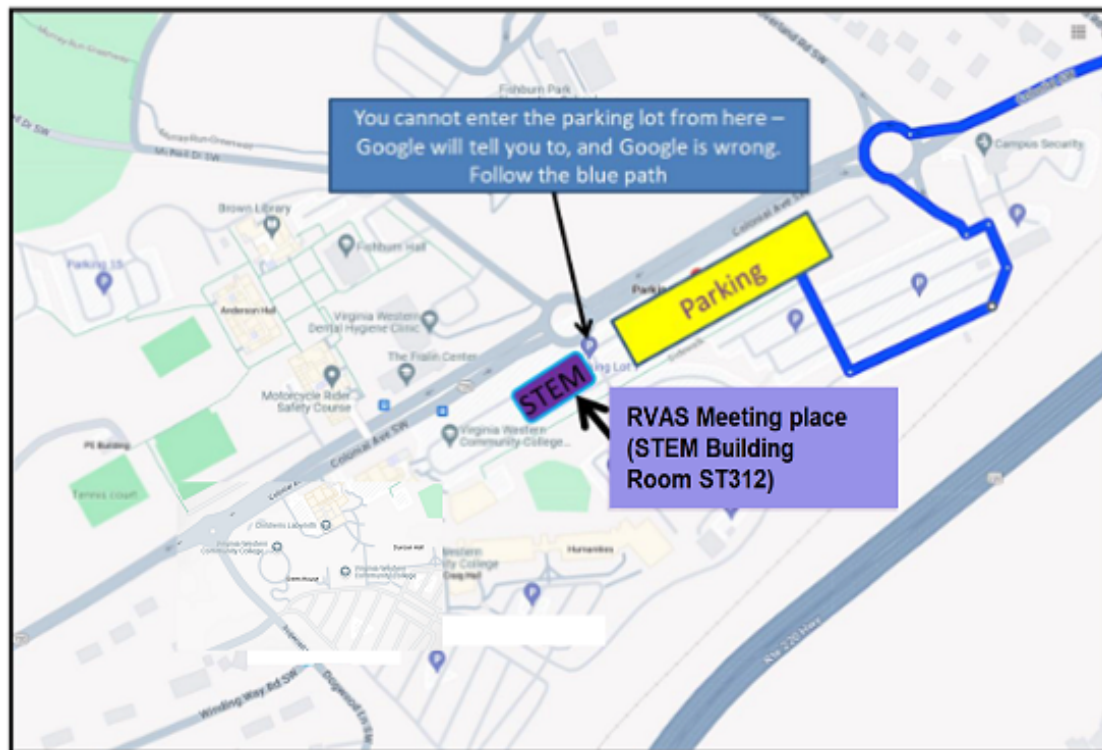
Officers/Executive Committee/Editor/Webmaster

Michael Good, President (president@rvasclub.org)
William Krause, Vice President (vicepresident@rvasclub.org)
Erin Elliott, Secretary (secretary@rvasclub.org)
John Sheffey, Treasurer (treasurer@rvasclub.org)
Nancy Vogelaar, Officer at Large #1 (officeratlarge1@rvasclub.org)
Caleb White, Officer at Large #2 (officeratlarge2@rvasclub.org)
Michael Hutkin, Past President (pastpresident@rvasclub.org)
Ed Dixon, Newsletter Editor (editor@rvasclub.org)
Erin Elliott, Webmaster (webmaster@rvasclub.org)

Directions to RVAS Meeting Location

Virginia Western Community College STEM Building, Room ST312
3094 Colonial Ave SW, Roanoke, VA 24015

VWCC is located in the southwestern area of the City of Roanoke. The STEM Building is accessed via the roundabout at Overland Drive and Colonial Avenue, near Campus Security at the top right of the map. The STEM Building is at the opposite end of the Colonial parking lot from Campus Security. Follow the darker blue path from the roundabout and park anywhere in the lot.



Note: Google provides incorrect guidance to access the parking lot from the roundabout at McNeill Drive. That roundabout **does not** provide an entrance to the parking lot.

Blue Ridge Kite Festival: Call for Volunteers!

Saturday, April 19th

10 AM -3:30 PM (volunteer shifts from 8:30 – 12, 12 – 3:30)

Green Hill Park in Salem

FREE!! FAMILY-FRIENDLY

<https://www.roanokecountyparks.com/365/Kite-Festival>

To volunteer or for more information, contact Nancy Vogelaar:

540-239-5962 n.vogelaar@verizon.net



Unknown Object Found on Moon By Apryl Frst

The most recent lunar lander has located an unusual object on the Moon. While surviving the area an unexpected object appeared. While the first image was less than great, a second image was ordered with higher resolution. Dr. Kiljoy W. Hare, the imaging lead for the project, suggested they use the Fast Asymptotic Kinect Energy Reciprocity imaging system for the better image. After some time delays dealing within time and distance, the second image from the F.A.K.E.R system was received at the Alfred Edward Newman ground based receiving station on Bikini Island. The result was bombastic! The second image showed that the object had changed the Lunar Geodesic coordinates and somehow was closer. A third image was immediately ordered and the third F.A.K.E.R system image was even more monumental. It showed a small object next to what appeared to be etchings in the Moon dust. Dr. Whipplesnapper, the tech lead for the “Lets Land Over There” mission, quickly arranged for the King Tut Hieroglyphics Society to try and decode the etchings. The object analysis team, headed by Dr. What T. H. Isthath, determined that the object appeared similar to a member of the family Sciuridae species. After careful work by Drs. S. Martin and I. Jones the message was decoded to show: “Can somebody refill the feeder, the birds wanted me to ask?”.

Image the Big Lick Galaxy Cluster!

by John Goss

Twenty years ago, Clark Thomas and I talked about recognizing astronomy in the Roanoke Valley by naming a galaxy cluster in its honor. We hoped that the cluster would eventually receive national attention.

I looked on SkyAtlas 2000 for the brighter galaxy clusters that pass over the Roanoke area. Hickson 68 and its nearby galaxy, NGC 5371, fit the bill nicely. We termed them "The Big Lick Cluster" in a nod to Roanoke's original name and in keeping with the general form of the moniker "Deer Lick Cluster." (The Deer Lick Cluster is a group of galaxies visible in the autumn sky that is well known to many amateur astronomers. It derives its name from the Deer Lick gap on the Blue Ridge Parkway, where author Tomm Lorenzin and his colleagues often enjoyed observing.) Clark posted details of the Big Lick Cluster and my drawings of it on his "Astronomy Links" website.

An image of this especially beautiful galaxy cluster was featured on the back cover of the December 2012 Journal of the Royal Astronomical Society of Canada. The caption referred to the galaxy group as "The Big Lick Cluster." International exposure!

Roanoke has been immortalized in the heavens, but only a few people know how and why.

To find the Big Lick Cluster:

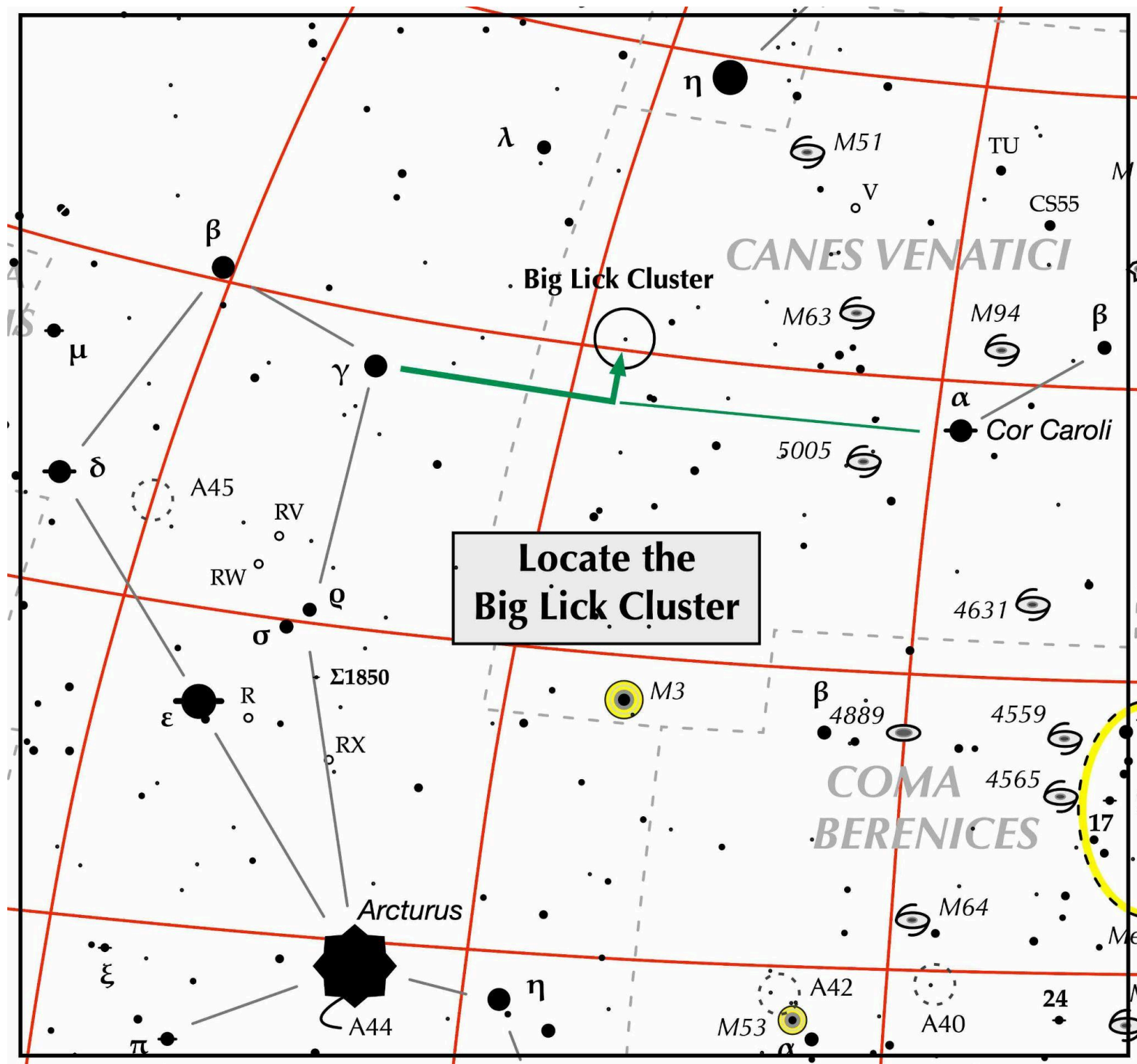
1. Draw an imaginary line 40% of the way between Gamma Bootis and the well spaced double star Cor Caroli, both easily seen stars shining about 2.9 magnitude.
2. Bump the telescope northward about 1°, which will likely be one or two fields of view, if a 24 mm eyepiece is used.
3. Sharing the field is an attractive 6.5 magnitude orange-red star, HIP 67778.

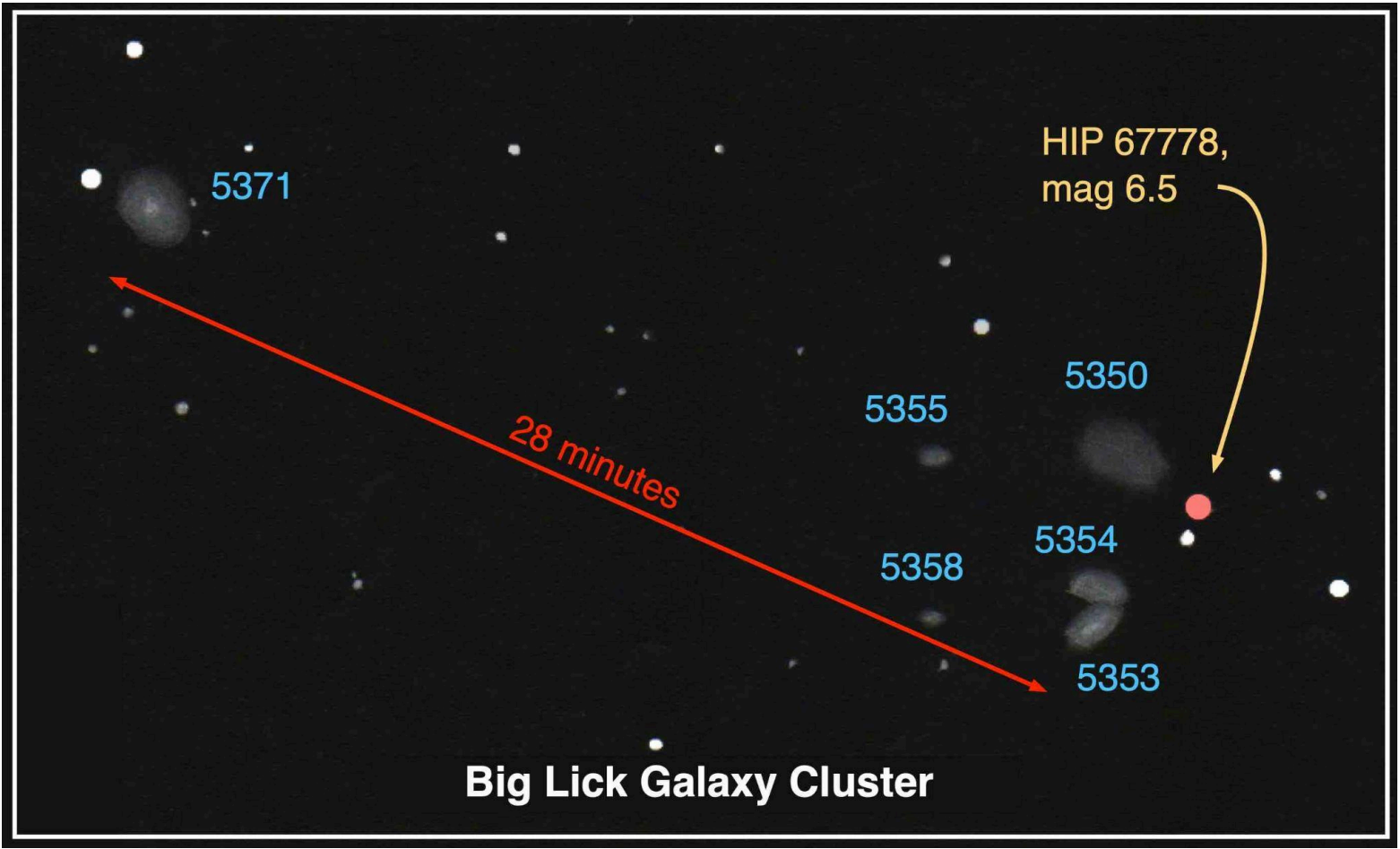
The Big Lick Challenge

Show off your imaging skills and the promote the RVAS at the same time – capture the Big Lick Cluster with its many galaxies. Can you also include its anchor galaxy, NGC 5371, 25 minutes to the east–northeast from the main group, Hickson 68?

Designation	Size (min)	Mag.	Surface Br.
NGC 5353	2.2 x 1.1	11.0	11.8 magnitude/arc minute ²
NGC 5354	1.4 x 1.3	11.4	11.9
NGC 5350	3.2 x 2.3	11.3	13.3
NGC 5355	1.2 x 0.7	13.1	12.8
NGC 5358	1.1 x 0.3	13.6	12.3
NGC 5371*	4.4 x 3.6	10.8	13.6

*While not a member of Hickson 68, NGC 5371 is the easternmost member of the Big Lick Cluster. It is a face-on spiral, and, like the others, lies some 100 million light-years away from Roanoke.





March 2025

Ctrl- Click on the picture see the source file and additional information

Noah Winslow



Ben Hartman



Noah Winslow



Ed Dixon



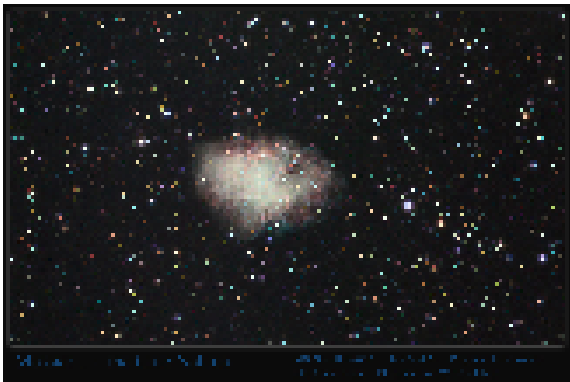
Noah Winslow



Michael Good



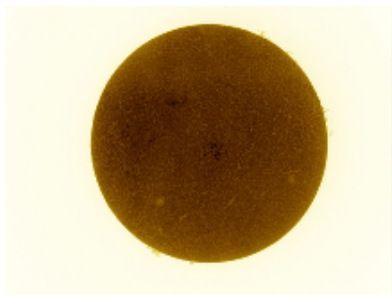
Michael Good



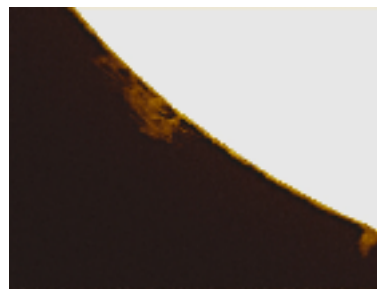
Michael Good



Ben Hartman



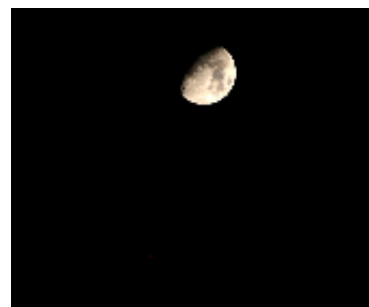
Ben Hartman



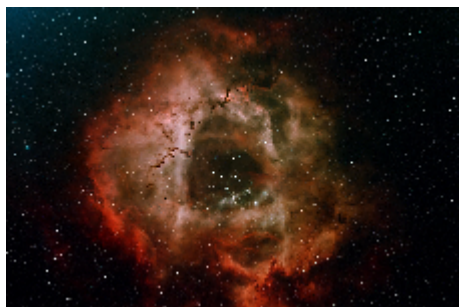
Ed Dixon



David Thomas



Ed Dixon



Ben Hartman



Noah Winslow



Mark Hodges



Tara Wu

Tara W





Tara W



Tara W



Ed Dixon



David Thomas



Michael Good



Ed Dixon



Mark Hodges

David Thomas



David Thomas



Noah Winslow



Noah Winslow



Ben Hartman



David Thomas



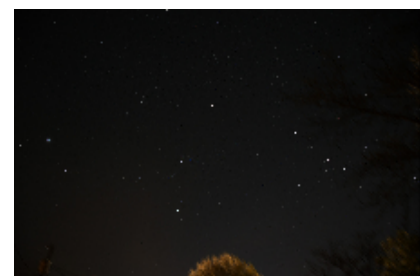
David Thomas

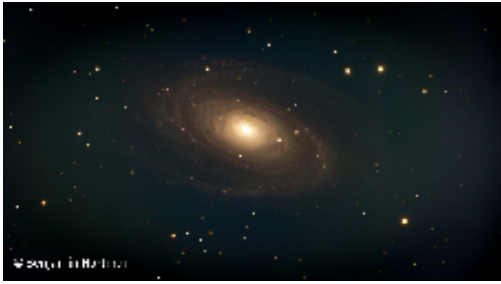


Ben Hartman



David Thomas





Noah Winslow



Ed Dixon

