Roanoke Valley Astronomical Society

Amateur Astronomy News and Views
In Southwestern Virginia

Volume 42—Number 7 **July 2025**

RVAS June Meeting Summary

Doing Wall Time: Voids and Finite Infinities in a Lumpy Universe

You can view this month's Zoom recording by clicking this link. The passcode to view the video is: **n0RTx3&k**

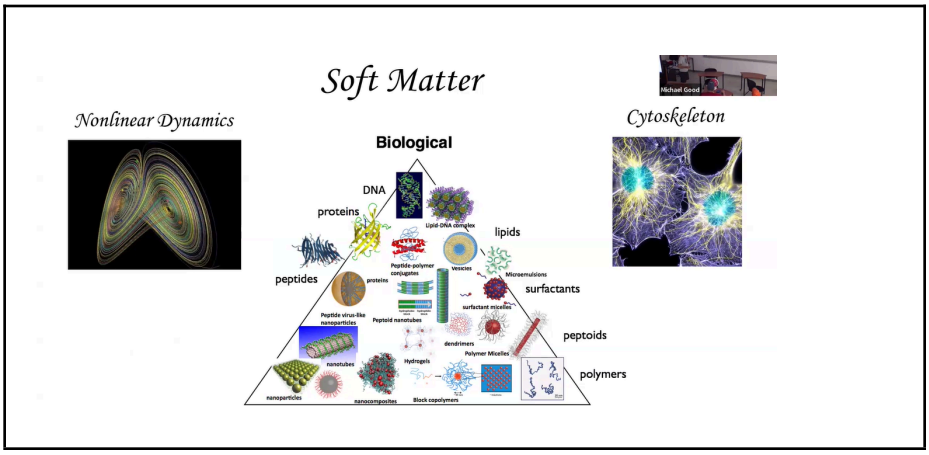
After wrapping up the Celestial Café, the meeting began at 7:30pm with an introduction from RVAS President, **Michael Good**. He recognized visiting members and guests to the June meeting before going over the agenda, which included:

- 7:00 Gathering VWCC room ST312
- 7:30 Visitor / Guest / Member recognition
- 7:32 Vote on Brian Bone for RVAS Treasurer (in person)
- 7:36 Leadership Review
- 7:38 Next month speaker
- 7:39 RVAS Dues
- 7:40 Today's Featured Speaker: Dr. Brian Gentry:
  "Doing Wall Time: Voids and Finite Infinities in a Lumpy Universe"
- 8:15 What's Up July (Dr. John Wenskovitch)
- 8:45 Astro-photos

Attendance: Total Attendance: 27. In person: 14. Online: 13.

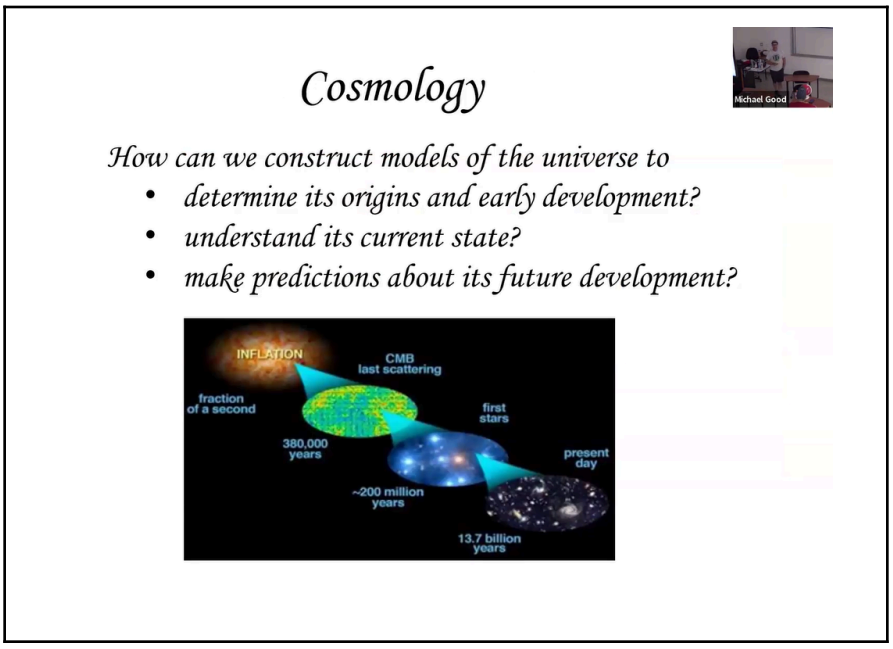
Program. RVAS Vice President William Krause introduced Brian Gentry for his presentation. . Brian's academic study began in 1984 at NC State as a physics major and later finished his undergraduate degree at Temple University. He continued at the University of Texas at Austin and later received his PhD 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.

Brian spoke about his university history and people he met and worked with there over the years. He completed his PhD in soft matter physics at the University of Leipzig.



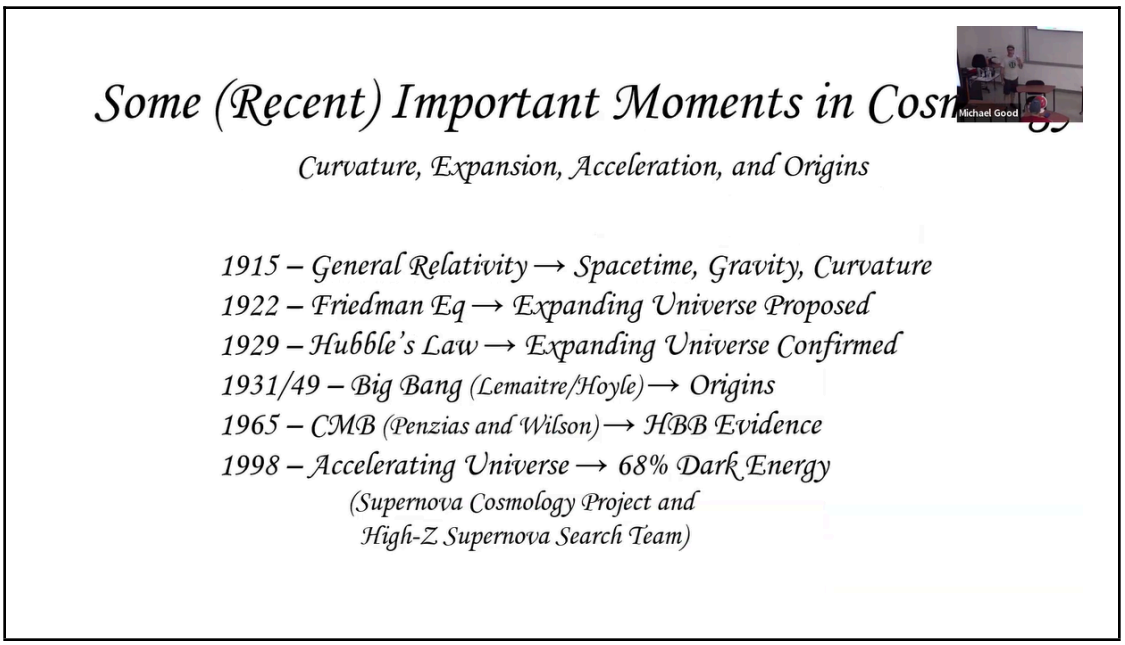
Part of his discussion deals with cosmology and a potential new model on how we think about this subject.

Many areas of physics deal with time…how we measure it, how it changes, and how it fits into various models of the universe.



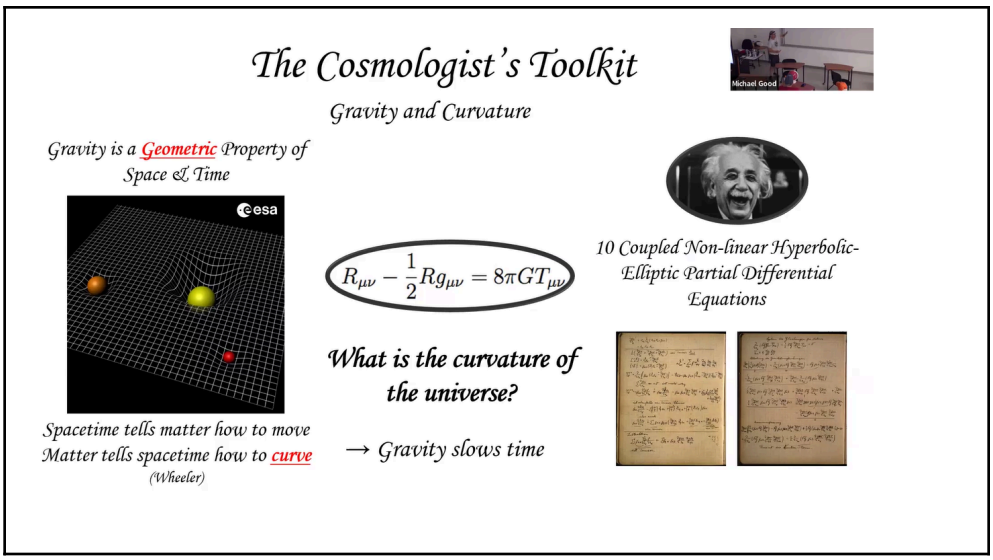
When we use a telescope to view objects in the sky, we are basically looking back into time. The further away they are, the further back in time we are seeing.

Over the decades starting with the early Einstein years, many changes have occurred in how we view the timeline of the universe.

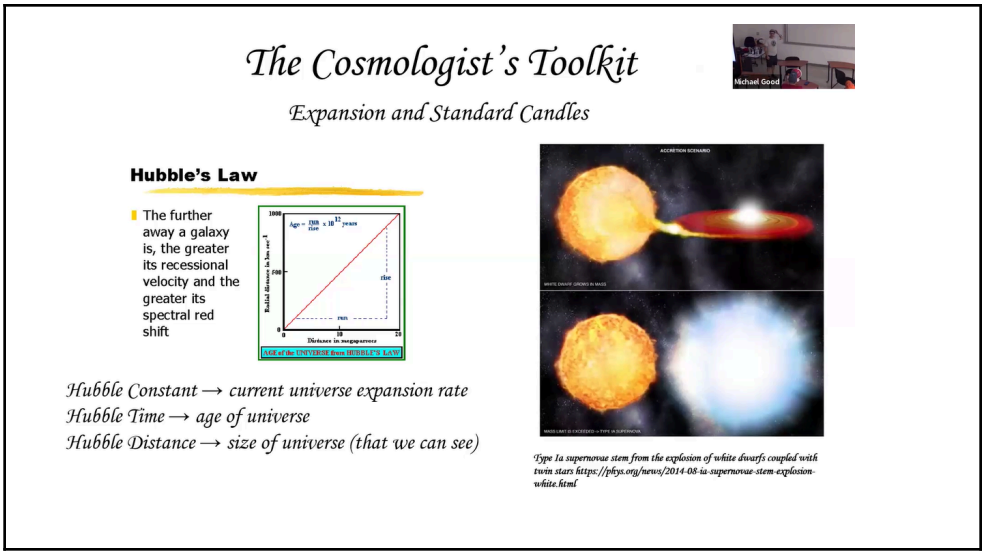


What began as spacetime with Einstein, then evolved into an expanding universe concept. In the 30s and 40s, the Big Bang viewpoint became the prime focus, which was about 13.7 billion years ago. That was followed by the view of an accelerating universe, and what might cause that to happen. That in turn, led to the concepts of dark energy and dark matter as possible means of that result.

As the expansion rate that was seen implied that the energy required was huge, even in comparison to the total mass already known. Lots of research programs are currently underway to understand each concept. However so far, none of these experiments has successfully detected dark energy or dark matter.

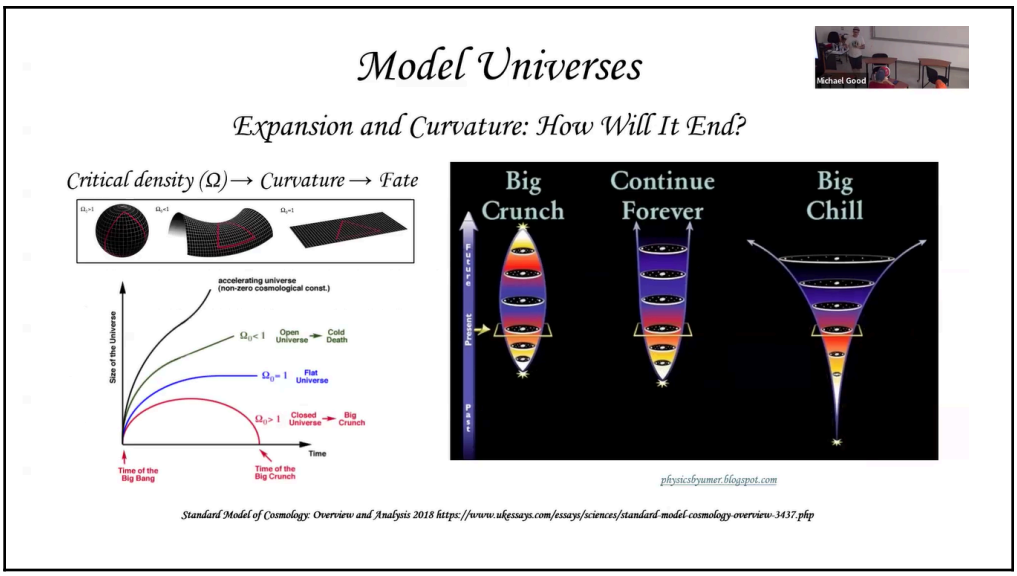


Gravity has been around for a long time. In simple terms, it explains how things like planets and stars move. However it can also be viewed in spacetime with curvature based on mass.

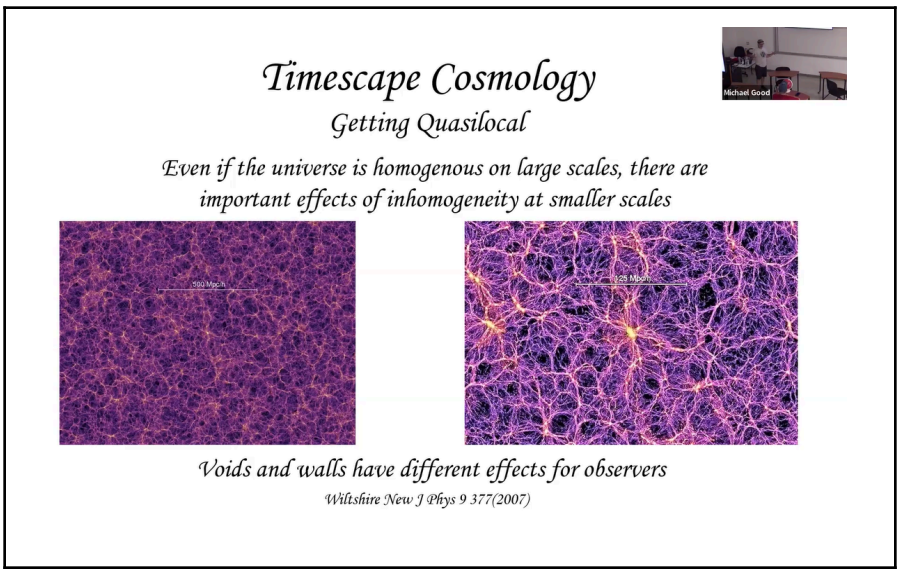


As one delves further in this area, things get complicated quickly. There are lots of views on how this may work out and it may be some time before the dust settles on these new concepts.

One big question is what happens as time goes on. Does the expansion continue, or does it stop. Depending on the mass and energy involved, maybe it stops and then shrinks. On the other hand it might just continue for forever and eventually just burn out…kinda.



As we look out at distant objects, we find that things are not consistent. Instead, many parts of the universe appear to be more lumpy in nature. Most of the current models do not predict this, so it's something yet to be completely explained.



When we look at a wider view, things appear more homogeneous, but at closer views, less so. Then the walls and voids become much more visible. At very close views, things are even stranger…and completely unexplained with current models.

It seems clear that some adjustments in models of the universe are needed. Lots of things fit, but lots of other things just don't. The lumpy parts with voids and walls, just really bring this to the forefront.

Following Brian's presentation, Dr. John discussed what we can expect in the sky in July. The details of his presentation are included later in the newsletter.

The meeting then continued with a review of some of the astrophotography photos published during the month. These included David Thomas, Noah Winslow, Ed Dixon, Ben Hartman, Kevin Vaught, and Roy LeNeave II.

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.

Our speaker at next month's meeting on July 21 will be Cole Greg. He will talk about the possible presence of debris from the Alpha Centauri system in our solar system.

Cole Gregg is an astronomer specializing in small-body dynamics, interstellar objects, and planetary defense. He is currently completing a PhD at the University of Western Ontario under the supervision of Dr. Paul Wiegert, focusing on simulations of interstellar material traveling through the Milky Way. Passionate about astronomical simulations, small-body surveys, and education, he also enjoys teaching and engaging with students in the classroom. Outside of academia, he spends his time outdoors, enjoying nature and pursuing wildlife photography.

What's Up? Highlights

July 1 to 31, 2025

This Month:

Within the solar system, Mercury and Mars are the only planets that remain in the evening sky as the month begins. By the end of July, Mercury has already disappeared in the solar glare, and Mars sets only 26 minutes after the end of astronomical twilight. The remainder of the planets are found in the morning sky, though Jupiter begins the month rising only 24 minutes before sunrise. Venus rises before 3:30am every morning of the month, and Saturn and Neptune end the month rising before 11pm. The summer constellations and the center of the Milky Way are visible throughout most of the night, with the galactic core setting in the morning twilight. Make sure to explore the nebulae, clusters, and dens star fields in Scorpius, Sagittarius, and Scutum. We get two opportunities to view Titan's shadow on Saturn in the morning sky on the 2nd and 18th, and we get the first of three close approaches between Saturn and Neptune on the 6th. For the 56th anniversary of the Apollo 11 landing on the 20th, the Moon is both at perigee and entering the Pleiades in the morning. The Southern Delta-Aquariid meteor shower is the best for this month, peaking at around 25/hour on the 29th but with meteors beginning to appear on the 12th. The first of the Perseids arrives on the 17th, so start looking early because the Moon phase won't be favorable near the peak!

Celestial Events:

- July 2: First morning Titan shadow on Saturn (starting around 4am)
- July 3: Earth reaches aphelion, 94,502,936 miles from the Sun
- July 6: Closest distance in the (first) Saturn/Neptune conjunction
- July 17: First Perseid meteors
- July 18: Second morning Titan shadow on Saturn (starting around 3:30am)
- July 20: Moon approaching M45 at sunrise
- July 25: Pluto reaches opposition, peak magnitude +14.67
- July 29: Peak of the Southern Delta-Aquariid meteors (~25/hour)

Sunset and Twilight:

- Sunset ranges from 8:44pm (1st) to 8:47pm (31st)
- Evening twilight ends from 10:36pm (1st) to 10:09pm (31st)

Lunar Phases and Apsides:

- First Quarter: July 2, 3:30pm
- Apogee: July 4, 10:27pm (251,423 miles)
- Full Moon: July 10, 4:38pm
- Last Quarter: July 17, 8:30pm
- Perigee: July 20, 9:39am (228,689 miles)
- New Moon: July 24, 3:12pm

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.

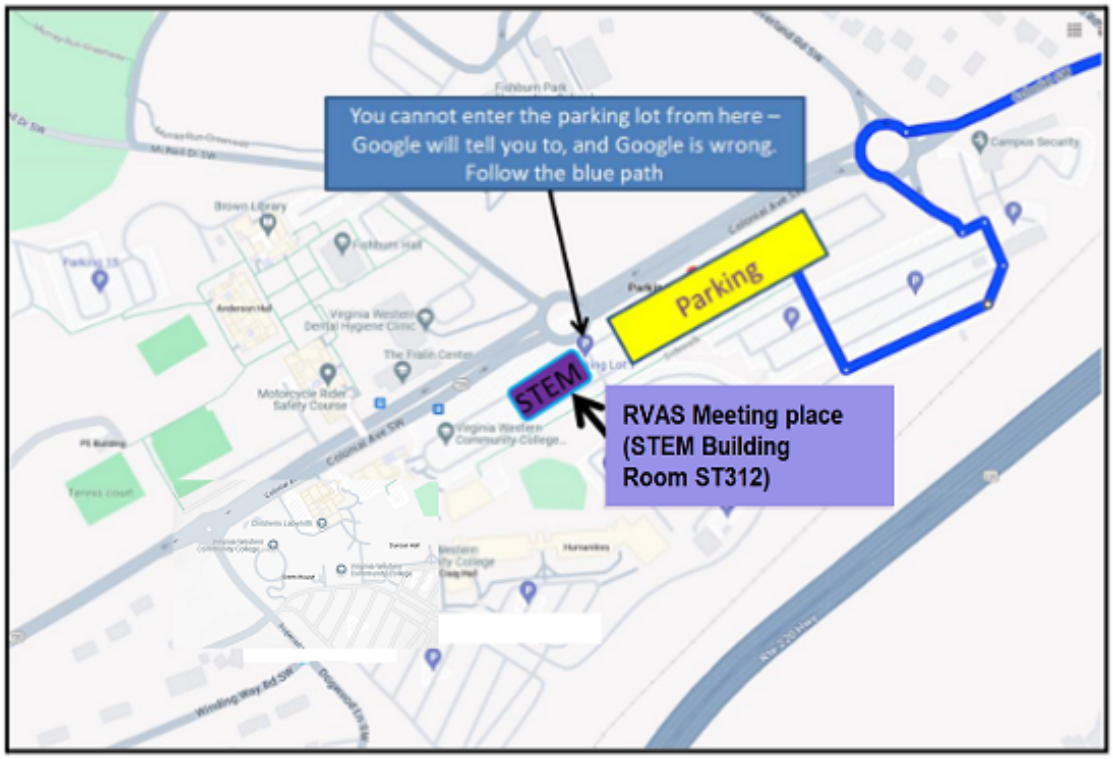
Officers/Executive Committee/Editor/Webmaster

Michael Good, President (president@rvasclub.org)
William Krause, Vice President (vicepresident@rvasclub.org)
Erin Elliott, Secretary (secretary@rvasclub.org)
Michael Good, Treasurer (acting) (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 (newsletter@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.

Green Bank Star Quest 2025

Submitted By John Goss

This is a recap of one of the best star parties in the United States (occurred June 25-28) – if the weather cooperates. Even if it doesn't and little to no serious observing or even casual stargazing occurs, there is still plenty to keep attendees occupied. The day is packed with talks and activities. Each night features a keynote address delivered by someone well versed either educationally or technically in their fields of expertise.
The weather largely did not cooperate, at least it didn't from Wednesday night through Friday morning. But that isn't to say that there was no observing. The overnight on Wednesday did give a couple of hours of satisfactory binocular viewing. The area of Ophiuchus was well studied through 10 x 50 glasses, in particular the historical asterism Taurus Poniatovii and its nearby large open cluster that Messier missed – IC 4665. These targets are highly recommended for casual binocular observing.

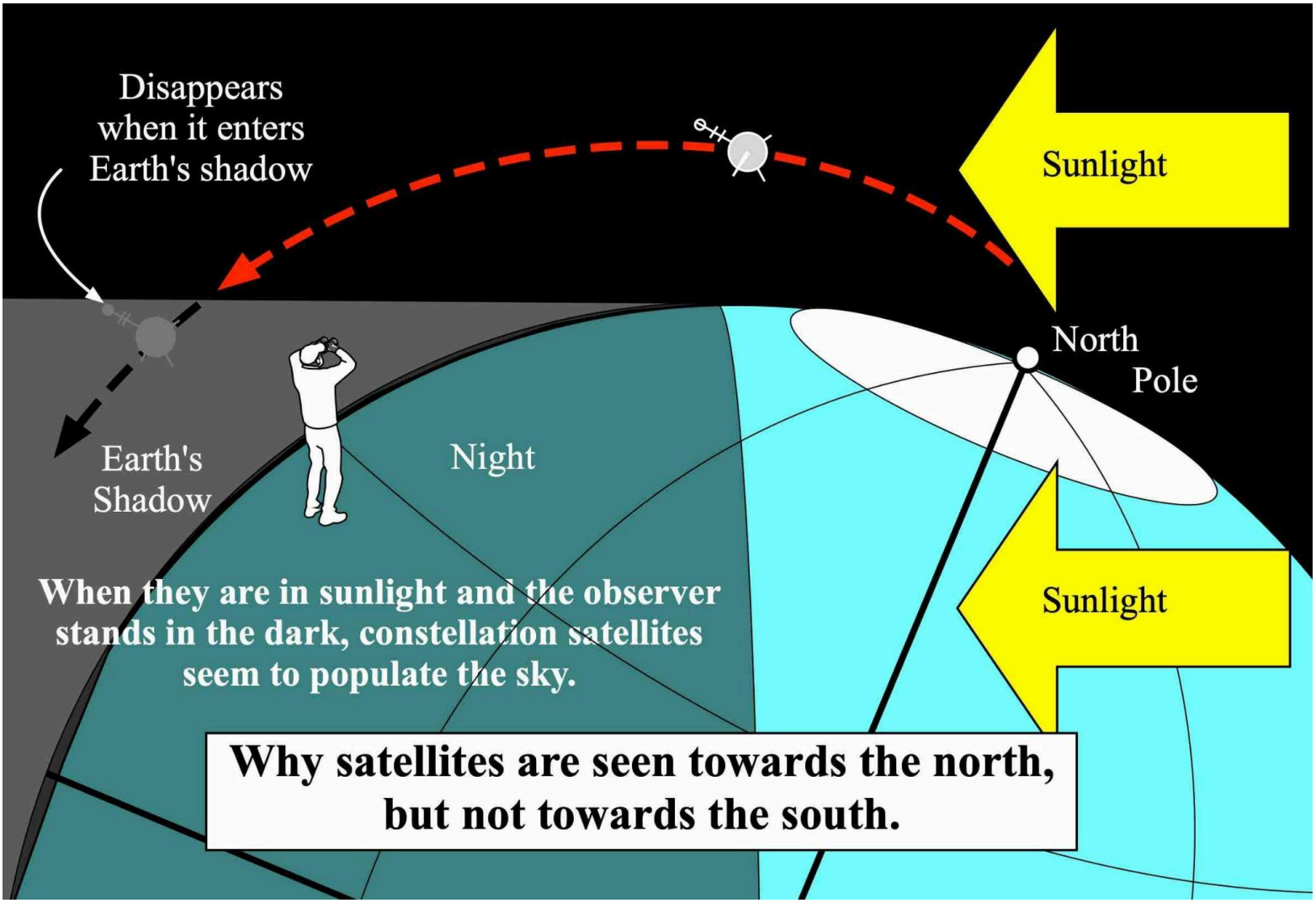
What was not satisfactory, though, were the large number of satellites, with surely the Starlink constellation being the majority of them. In the northern portion of the sky, satellites of 4th, 5th, or 6th magnitude glided across the binocular field, averaging perhaps one every 30 seconds.
With just a small percentage of these constellation satellites having been already deployed, the sky will be populated with them in another few years. On summer evenings, the bowl of the Big Dipper will always have 1-2 dozen slinking their way across it. – just another illustration of "plunder," in which someone takes a resource owned by no one, but, in a sense, is owned by everyone. In this case, the beauty of the night sky is taken from everyone on Earth by a small number of communication companies for their own profit – whether we like it or not.
This all results in the degradation of the night sky, detracting from stargazing, perhaps ending it as we know it.

A heavy rainstorm drenched the observing field on Thursday afternoon causing some very localized flooding in tents and along low lying pathways. Hopefully all the telescopes were adequately covered!

Thursday night, after the screening of the film "Small Town Universe" which is about how the NRAO facility has changed the Green Bank area, a spectacular lightning show lasted past 2 a.m.

Sadly, after a twenty year run, this may have been the last Star Quest. If proposed National Science Foundation budget reductions come to pass, this facility will be scheduled for closure.

If you want to voice your opinion, see
https://www.gogreenbankobservatory.org
No Green Bank facility, no Star Quest.


Disappears
when it enters
Earth's shadow
Sunlight
North
Pole
Earth's
Shadow
Night
When they are in sunlight and the observer
stands in the dark, constellation satellites
seem to populate the sky.
Sunlight
Why satellites are seen towards the north,
but not towards the south.

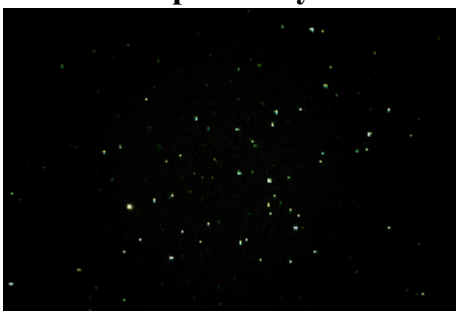
June 2025

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

Ed Dixon

Ed Dixon

Stephan Boyd



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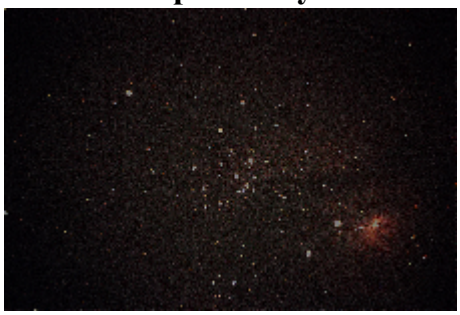

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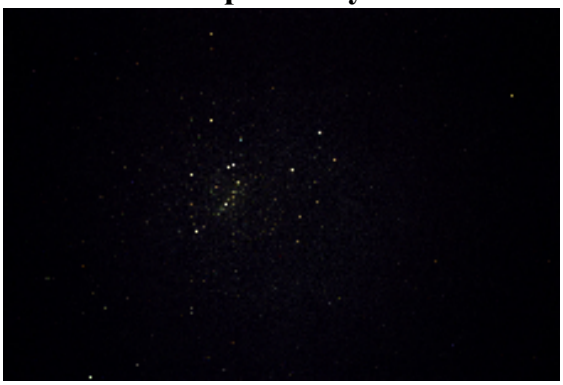

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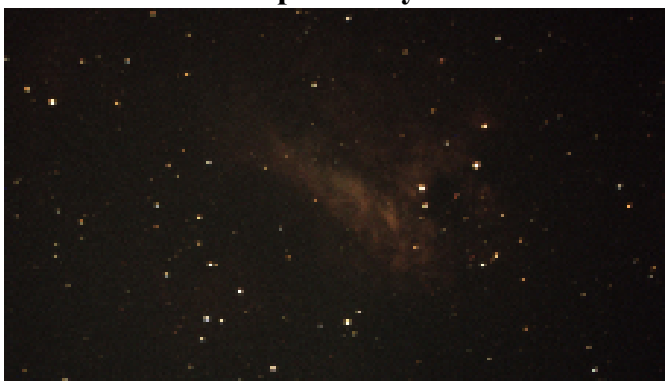

Roy LeNeave II

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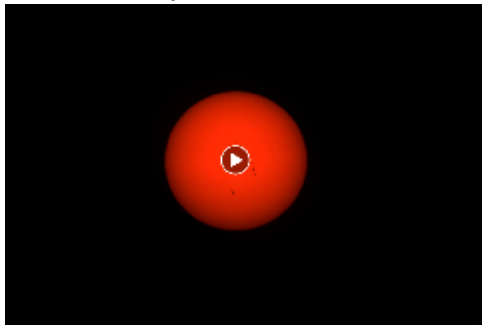
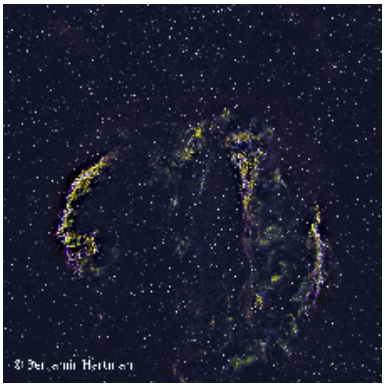


Noah Winslow

Ben Hartman



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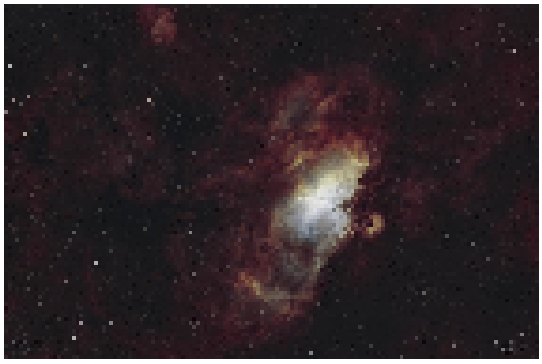

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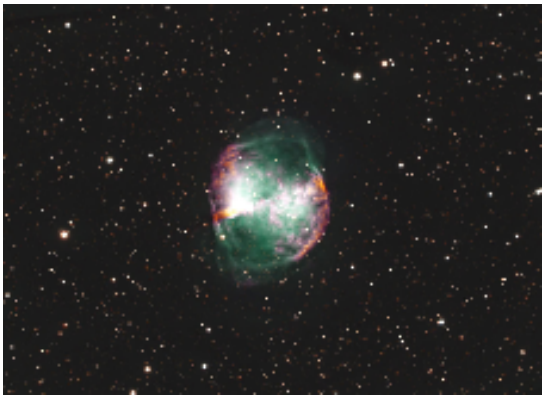

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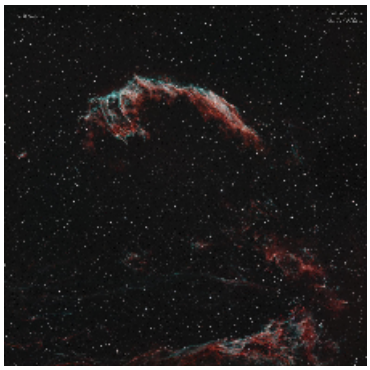

David Thomas

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Note: 6 versions of this on FB

David Thoma

Ed Dixon

Stephan Boyd

Ed Dixon

Stephan Boyd

Ed Dixon

Noah Winslow

TaraWu

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David Thoma

David Thoma