

# LONGMONT ASTRONOMICAL SOCIETY

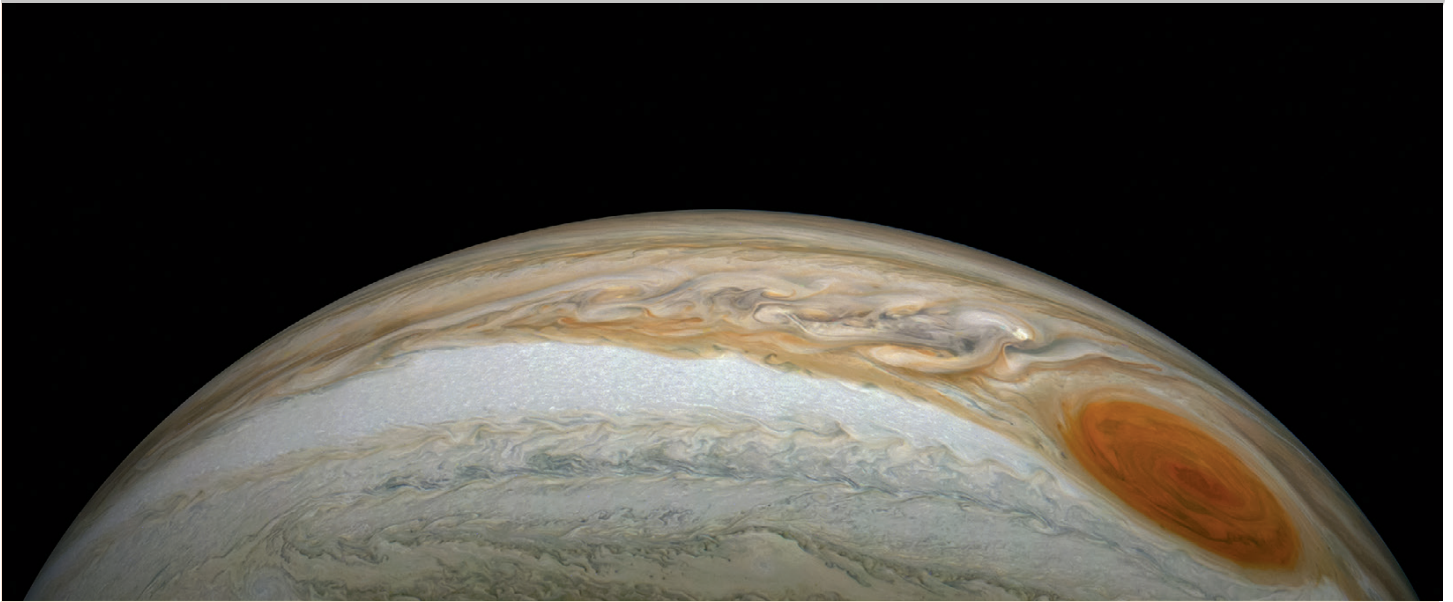
MAY 2021



**NGC 2903 BARRED SPIRAL IN LEO**  
**BY M. J. POST**

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**LAS Meeting May 20 at 7 pm**  
**“Juno update at Jupiter: What’s happening to the Great Red Spot?”**  
**by Dr. Fran Bagenal**



The giant planet Jupiter is recognized by its orange and white stripes—and its Great Red Spot (GRS). A large red storm in Jupiter’s atmosphere has been observed by modest Earth-based telescopes for centuries. In 1979 the Voyager spacecraft made movies of the GRS which showed that it is about the size of two Earth diameters and had hurricane-scale wind speeds that circulated in six days. Since July 4, 2016, NASA’s Juno spacecraft has been in orbit around Jupiter and made more than 30 orbits over Jupiter’s poles. Fortuitously, in the past year, Juno made some passes close to the GRS, providing new measurements of the depth of the storm and its turbulent atmospheric structures. In this talk, LASP scientist Fran Bagenal will show how Jupiter’s Great Red Spot has been observed by telescopes on Earth as well as from spacecraft near Jupiter. The storm has noticeably shrunk in size over the past 40 years...Will it disappear? Will it grow back to the size it was during the Voyager epoch?



Dr Fran Bagenal was born and grew up in England. In 1976, inspired by NASA’s missions to Mars and the prospect of the Voyager mission, she moved to the US for graduate study at MIT. After Voyager flybys of Jupiter, Saturn, Uranus and Neptune she joined the faculty at the University of Colorado, Boulder in 1989. She was professor of Astrophysical and Planetary Sciences until 2015 when she chose to focus on NASA’s New Horizons mission to Pluto (flyby July 14, 2015) and Juno mission to Jupiter. Juno went into orbit over the poles of Jupiter on July 4, 2016 and has since made 33 passes over Jupiter’s swirling clouds. She remains a Research Scientist at CU’s Laboratory for Atmospheric & Space Physics in Boulder.

### **About LAS**

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The Longmont Astronomical Society is affiliated with the Astronomical League (<https://www.astroleague.org>). The Astronomical League is an umbrella organization of amateur astronomy societies in the United States.



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### LAS Officers and Board Members in 2021



- Stephen Garretson, President
- M. J. Post, Vice President
- Sven Schmidt, Secretary
- Bruce Lamoreaux, Treasurer

- Board Members:
- David Elmore, Gary Garzone,
  - Mike Hotka, Brian Kimball,
  - Vern Raben

### Appointed Positions 2021

- Paul Kammermeier, Webmaster
- Bruce Lamoreaux, Library Telescope Coordinator
- Vern Raben, Newsletter Editor

# Secretary Notes for Thurs. April 15 Meeting by Sven Schmidt

## I. Call to Order

Stephen calls the Zoom meeting to order at 6:59 PM.

Officers: Stephen Garretson (President), M.J. Post (Vice President), Bruce Lamoreaux (Treasurer), Sven Schmidt (Secretary).

Board Members-at-large: Mike Hotka, Gary Garzone, Brian Kimball, Tally O'Donnell, Vern Raben.

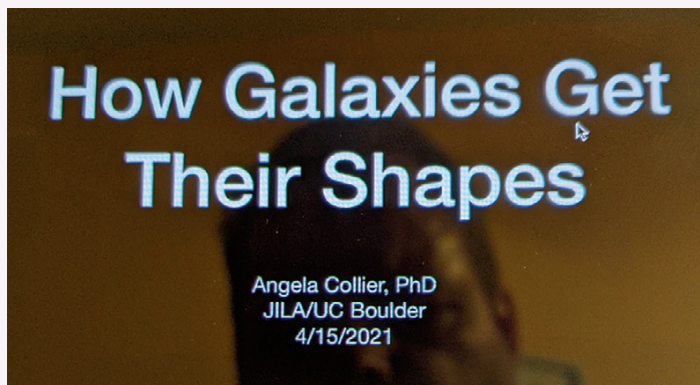
## II. New Members and Visitors

We have one new member, Steve Odendahl. No visitors.



## IV. Main Presentation

Dr. Angela Collier, How Galaxies Get Their Shapes



## V. Financial Report by Bruce Lamoreaux

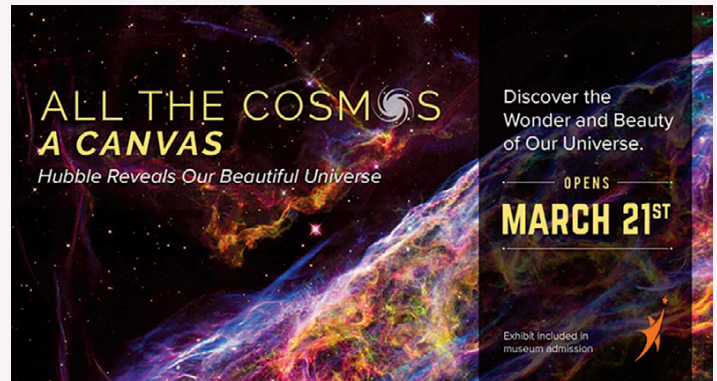
Main Checking Account - \$7,400  
2-Year Savings Account - \$8,100  
Telescope Fund - \$1,100  
Petty Cash - \$50  
Total Assets - \$16,600  
Paid Membership: 89  
Student Membership: 1

## VI. Old Business

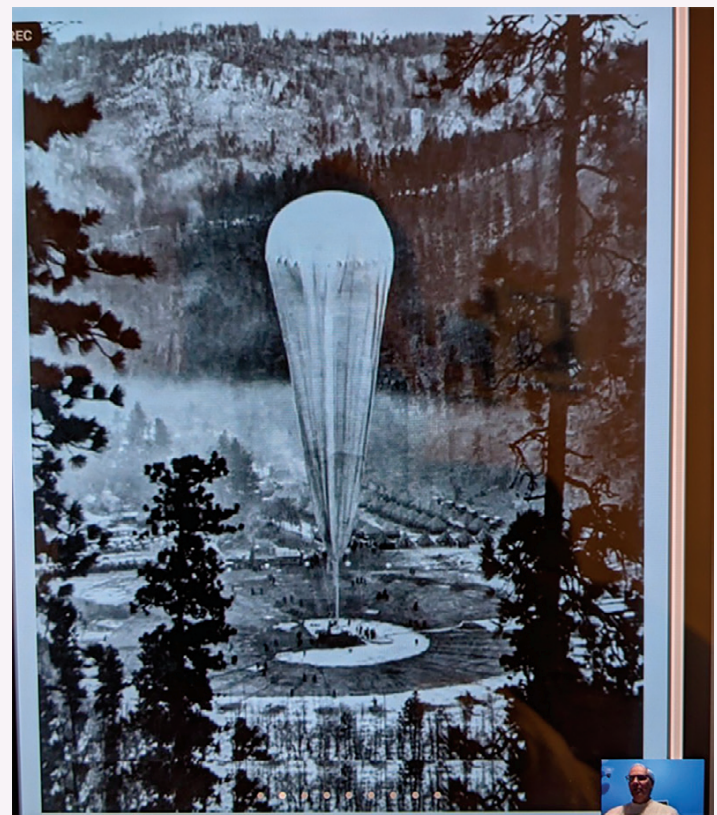
None

## VII. New Business

Wings over the Rockies Museum exhibit:



The launch of the space age 1930: Stratobowl:



## VIII. Adjournment

Stephen adjourns meeting at 8:15 pm.

## The Planets in May by Vern Raben

### Mercury

Mercury is visible low the evening sky in the west, northwest. It becomes more challenging to view as the month progresses. It begins the month at -0.9 magnitude in brightness and decreases to +1.4 by the end of the month. Its disk increases in size from 6 arc sec to 9.5 arc sec.

### Venus

Venus is visible in the evening sky after the 11th. It is magnitude -3.9 in brightness and the disk is 10 arc sec across. It is visible very low in the west, north-west after sunset.

### Mars

Mars continues to get slightly smaller and dimmer; it decreases in brightness from +1.6 to +1.7 and the disc decreases from 4.6 arc sec to 4.2 arc sec across. Mars is visible in the west after sunset in constellation Gemini.

### Jupiter

Jupiter may be easily viewed in the southeast around 5 am in the constellation Aquarius. It increases in magnitude from -2.3 in brightness to -2.5 this month. The disc increases in apparent size from 38 arc sec across to 41 arc sec across. It is getting up high enough now that we can view the Great Red Spot (GRS) crossing the disk.

It will be high up enough for viewing the GRS at mid transit at the following times:

- May 9 at 5:12 am (altitude 26°)
- May 14 at 4:20 am (altitude 22°)
- May 21 at 5:07 am (altitude 32°)
- May 26 at 4:16 am (altitude 27°)
- May 31 at 3:24 am (altitude 23°)

### Saturn

Saturn is visible in the SSE before sunrise in the constellation Capricornus. It is magnitude +0.6 in brightness and the disk is about 17 arc sec across this month.

### Uranus

Uranus is not visible this month.

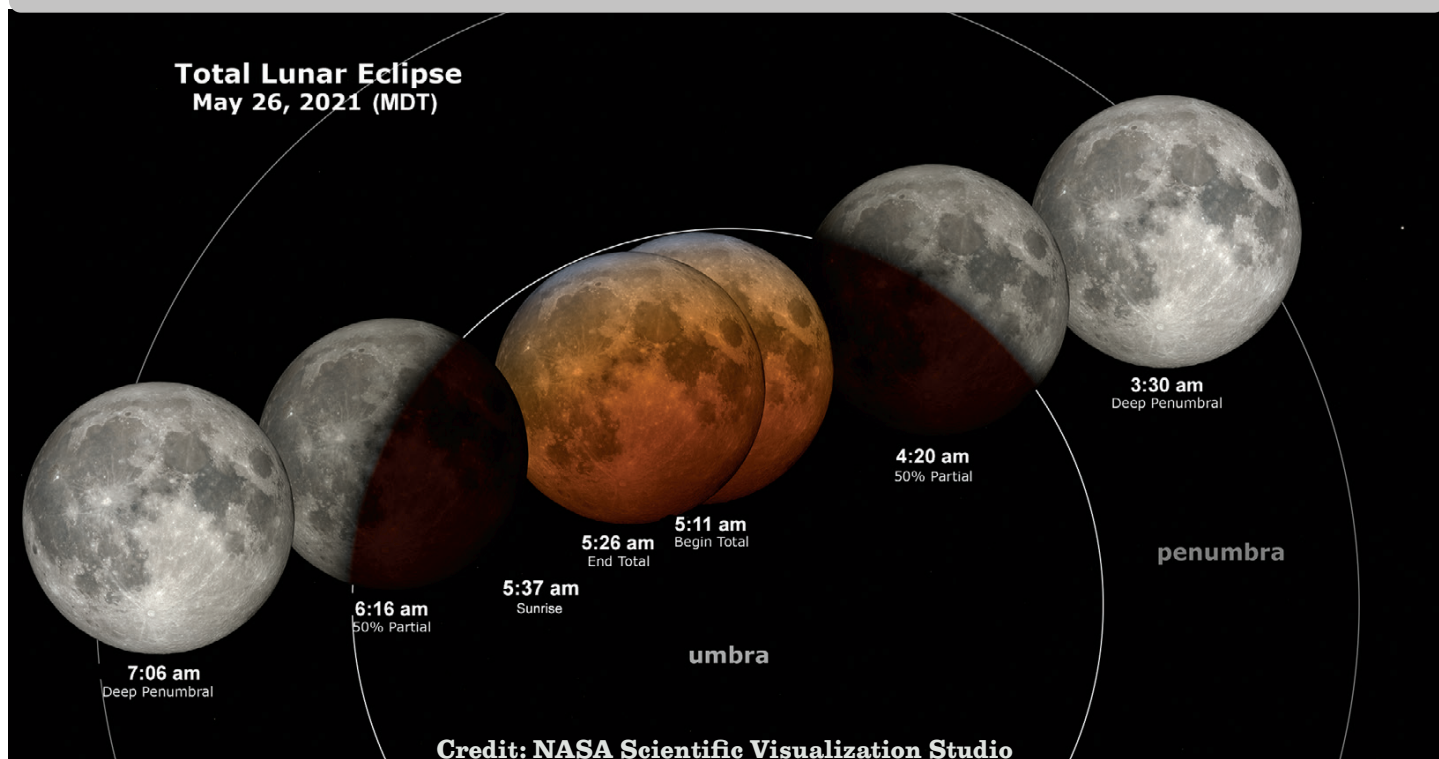
### Neptune

Neptune is visible in the ESE around 5 am in constellation Aquarius. It magnitude 7.9 and its disk is 2.2 arc sec across.

### Meteor Showers

The Eta Aquariad meteor shower peaks the evening of May 4-5. They are best seen in the early morning of the 5th. The moon will interfere somewhat this year. Expect to see only 5 per hour at best.

## The Moon - Total Lunar Eclipse May 26



## Lunar Phases this May

Third Quarter  
May 3 at 1:51 pm



New Moon  
May 11 at 1:01 pm



First Quarter  
May 19 at 1:14 pm



Full Moon  
May 26 at 5:15 am



## Early Evening Star Party Targets for Fri. May 21

On Fri. May 21 sunset is at 8:15 pm; it will fairly dark by 9 pm.

### Moon at Lunation 10

- Sinus Iridum - the bay of rainbows
- Kepler - 20 mile wide with terraced wall crater
- Buillialdus and Buillialdus Causeway
- Gassendi floor fractured crater

### Galaxies

- M64, "Black Eyed Galaxy" in Coma Berenices mag 8.4
- M87 "Virgo A" in Virgo mag 8.7
- M63 SunFlower in Canes Venatici mag 8.5
- M51 Whirlpool Galaxy in Canes Venatici mag 7.9
- M65, M66, NGC3628, Leo Triplet mag 9
- M101 Pin Wheel in Ursa Major mag 7.8
- M81 and M82 Bodes Galaxy in Ursa Major mag 6.7
- M58 in Virgo mag 9.5
- M84 & 86 Makarian's Chain - 6++ galaxies in FOV

### Planetary Nebula

- M97 in Ursa Major mag 9.8
- M57 Ring Nebula in Lyra mag 9.8
- NGC6210 in Hercules mag 8.8

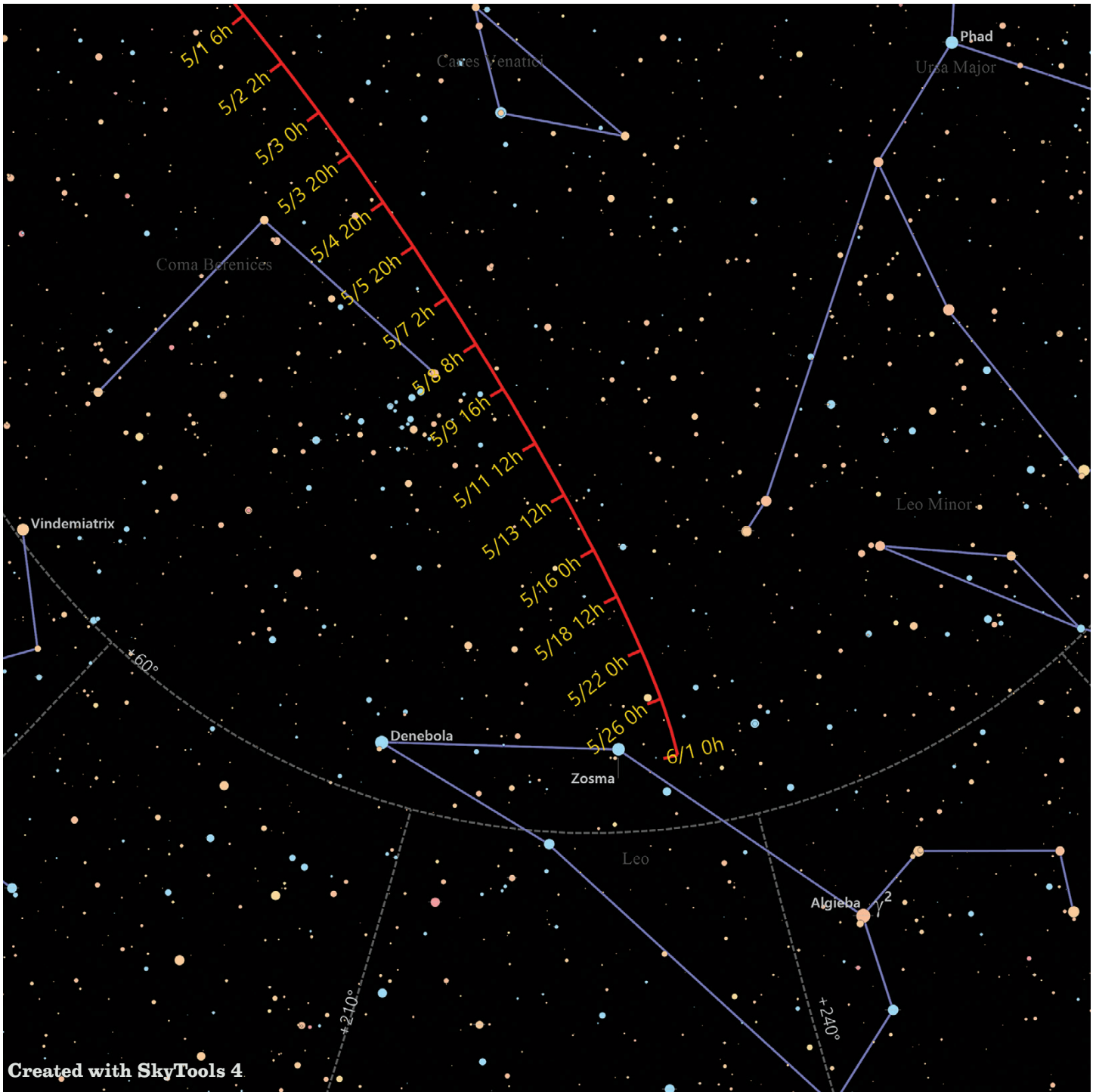
### Globular Clusters

- M3 in Canes Venatici mag 6.2
- M13 in Hercules mag 5.8
- M5 in Serpens mag 5.7
- M92 in Hercules mag 6.4
- M53 in Coma Berenices mag 7.6

### Open Clusters

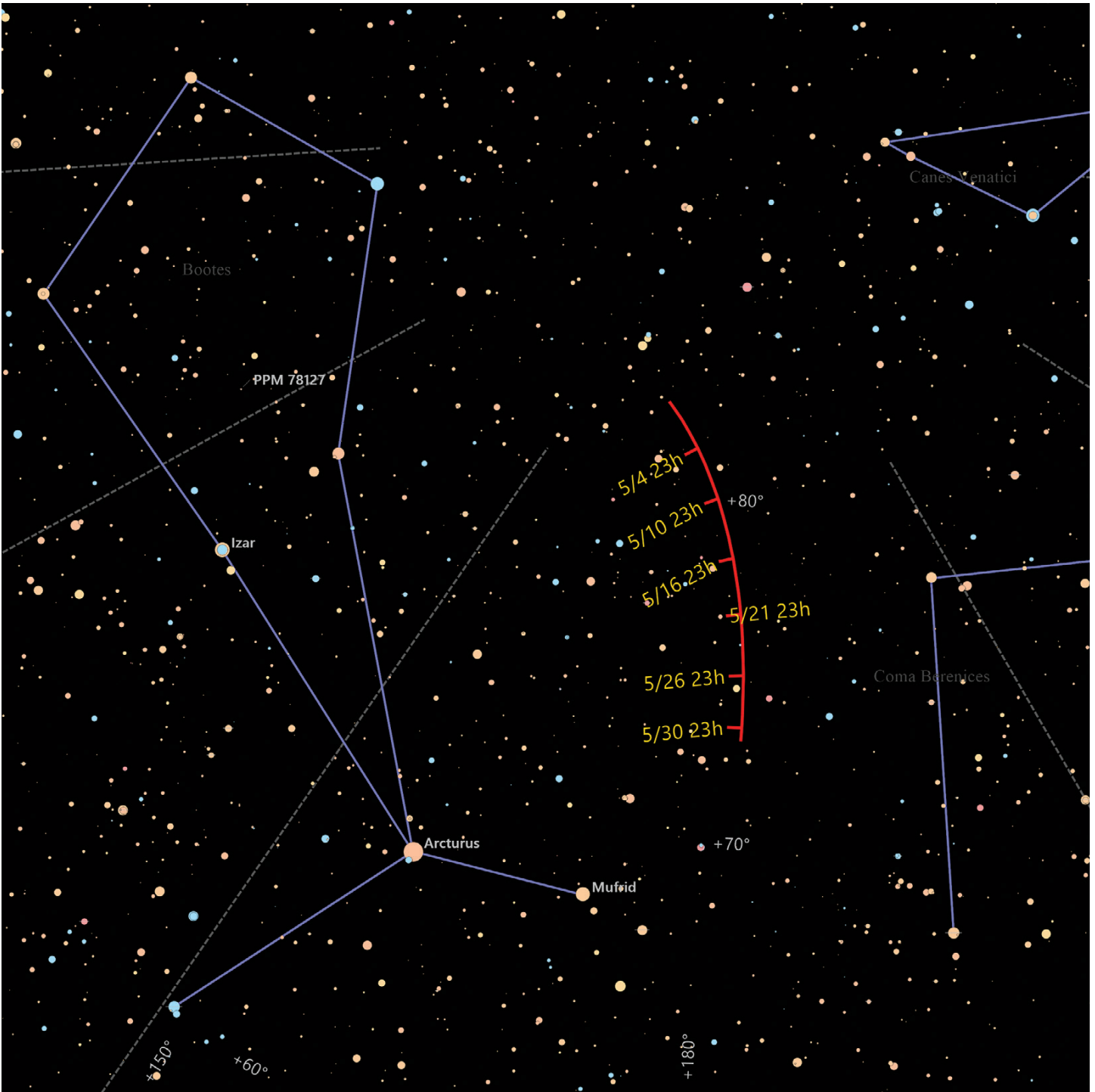
- Melotte 111, Coma Cluster in Coma Berenices mag 1.8

## Comet C/2020 R4 (ATLAS) in May 2021



Date	Optimal time	RA	Dec	Constellation	Magnitude	Size (arc min)
May 1	11:50 pm	13h35m34.4s	+32°54'58"	Canes Venatici	10.6	3.9
May 7	10:22 pm	12h29m16.3s	+30°30'28"	Coma Berenices	11.3	3.0
May 13	10:02 pm	11h50m48.2s	+27°40'03"	Leo	12.0	2.4
May 19	10:07 pm	11h28m07.2s	+25°14'55"	Leo	12.6	2.0
May 25	10:06 pm	11h14m16.7s	+23°17'20"	Leo	13.2	1.7
May 31	10:14 pm	11h05m38.7s	+21°40'45"	Leo	13.7	1.4

# Comet C/2020 T2 (PALOMAR) in May 2021



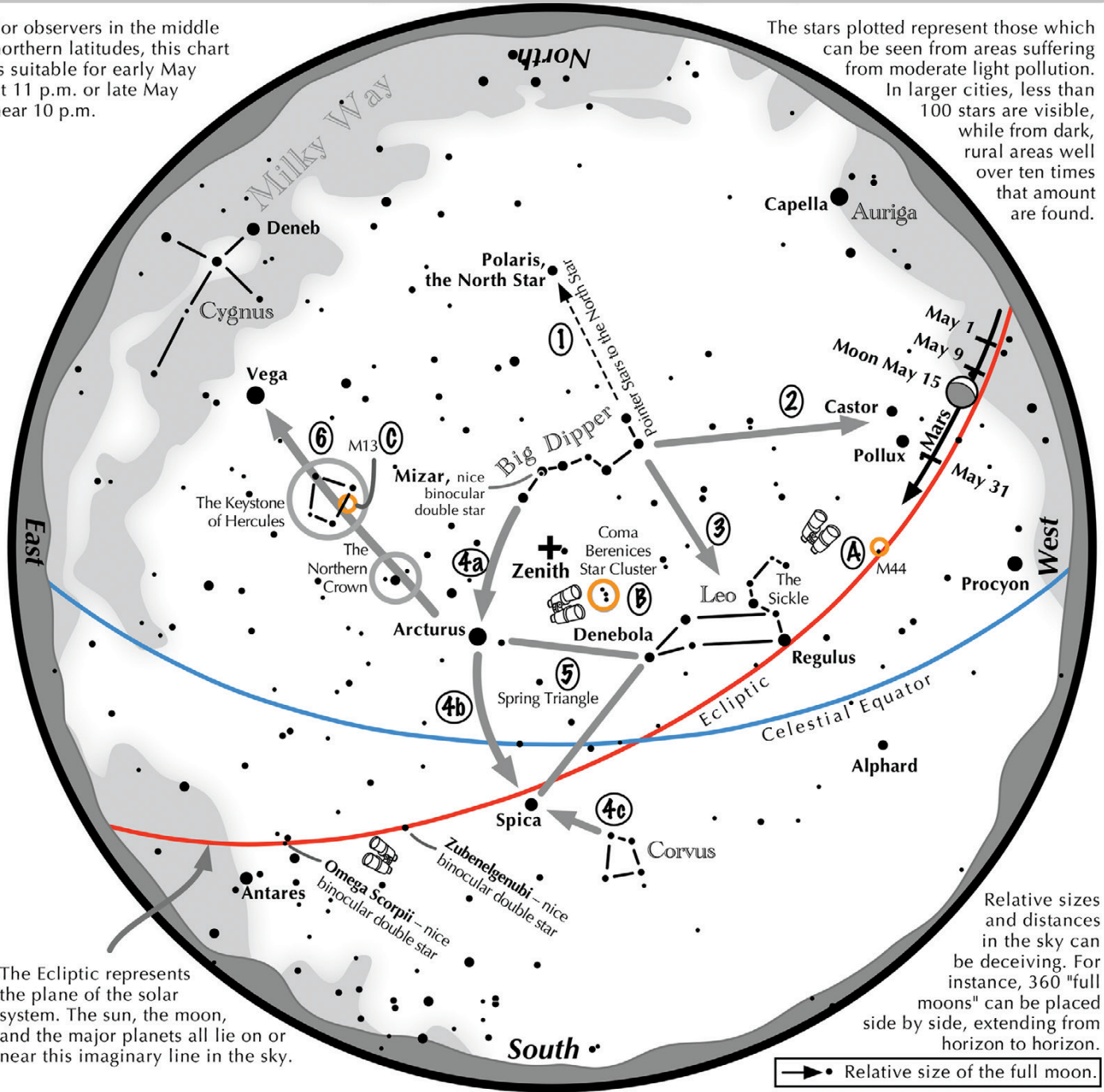
Date	Optimal time	RA	Dec	Constellation	Magnitude	Size (arc min)
May 1	12:06 am	13h46m04.4s	+32°02'53"	Canes Venatici	12.2	2.9
May 7	11:30 pm	13h41m46.1s	+30°15'06"	Canes Venatici	12.1	2.9
May 13	11:12 pm	13h40m03.3s	+29°09'59"	Canes Venatici	12.1	2.9
May 19	10:59 pm	13h38m10.4s	+27°19'16"	Bootes	12.0	2.9
May 25	10:03 pm	13h37m13.1s	+25°15'22"	Bootes	12.0	2.9
May 31	9:49 pm	13h37m13.9s	+22°58'30"	Bootes	12.0	2.9



# Navigating the mid May Night Sky by John Goss

For observers in the middle northern latitudes, this chart is suitable for early May at 11 p.m. or late May near 10 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→• Relative size of the full moon.

## Navigating the May night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line northward from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
- 3 Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
- 4 Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.  
Confirm Spica by noting that two moderately bright stars just to its southwest form a straight line with it.
- 5 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 6 Draw a line from Arcturus to Vega. One-third of the way sits "The Northern Crown." Two-thirds of the way hides the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.

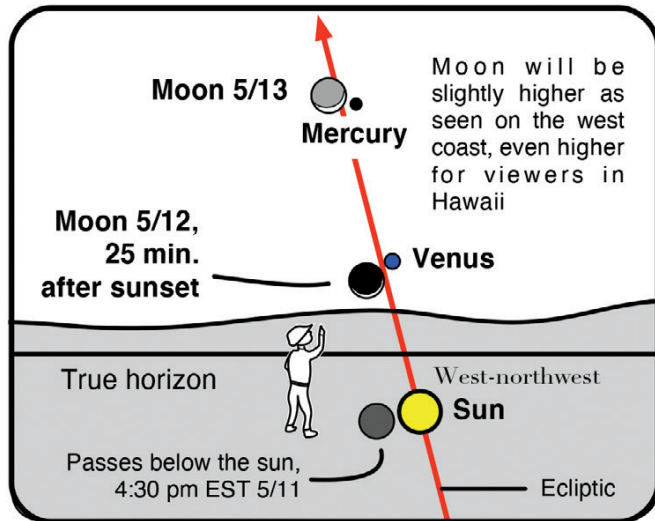
### Binocular Highlights

A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. B: Look near the zenith for the loose star cluster of Coma Berenices. C: M13, a round glow from a cluster of over 500,000 stars.

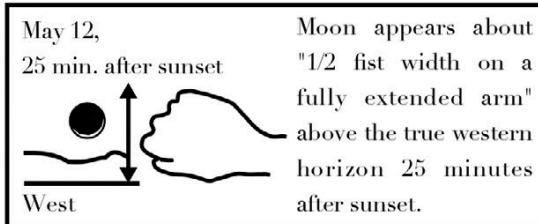


Astronomical League [www.astroleague.org/outreach](http://www.astroleague.org/outreach); duplication is allowed and encouraged for all free distribution.

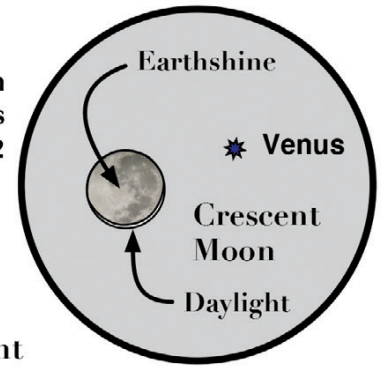
If you can observe only one celestial event this month,  
see this one:



**May 12 & 13, 2021:**  
**Young Moon 25 minutes after sunset**  
**very low in the west. Tough to see.**



View through  
10x50 binoculars  
on May 12



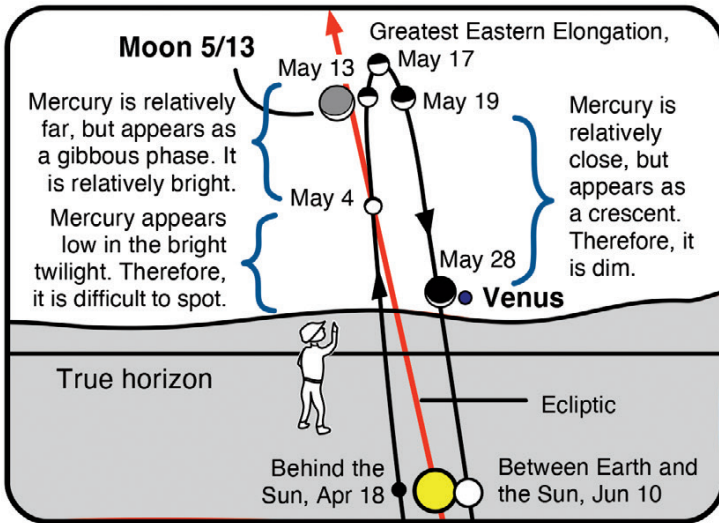
**Young, thin Moon**  
**in the evening twilight**

Crescent moons, sporting Earthshine, are always pretty to view. How thin of a crescent have you seen? May 12 and 13 present a good opportunity to catch a very thin moon, but binoculars may be needed. Look low into the western twilight 25 minutes after sunset on May 12 when the moon is just 1.25 days old, i.e., 1.25 days after it passed below the sun.

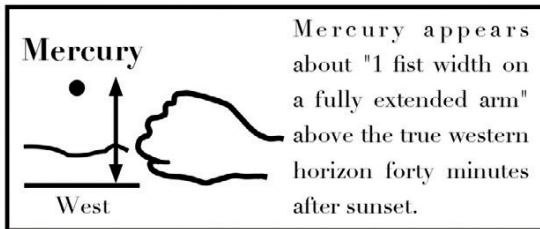
Its thin sliver should be a tad easier to spot for west coast observers than east coasters. Venus will lie just to its right which may aid in discerning the moon. If you are unable to find the crescent, try again the following evening when the moon is a little higher in the sky and shows a slightly thicker slice. It is then 2.25 days old and lies next to Mercury.

- Very clear skies and an unobstructed western horizon are needed.
- Use binoculars. The bright twilight will likely prevent Earthshine from being seen on May 12. A much better chance occurs on May 13. On May 13, the moon lies higher in the sky next to Mercury. Again, bring out the binoculars.

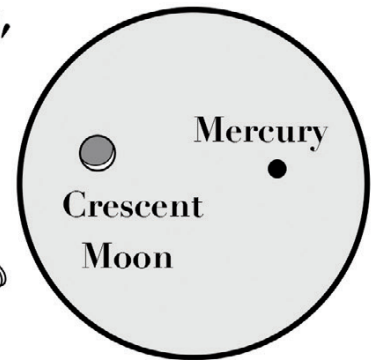
**If you can observe only one celestial event this month, see this one:**



**May 2021:  
Mercury forty minutes after sunset  
in the west-northwest**



**View through  
10x50 binoculars  
on May 13**



**Mercury in the evening twilight**

Have you ever spotted Mercury? Many stargazers have not. From early through mid May presents a good opportunity to catch the elusive little planet. Look low into the west-northwestern twilight forty minutes after sunset.

Mercury comes between the Sun and Earth on April 18, then two weeks later, it is found climbing higher above the western horizon each evening as it moves away from the Sun. Between May 4 and 19, it is bright enough and high enough in the twilight sky that it can be seen rather easily – if the sky is clear and if the horizon is unobstructed. After May 19, it dims significantly, making it again difficult to spot.

- Using binoculars, look on May 13 for the crescent Moon entering the scene to the left of Mercury. Can you see Earthshine on the Moon's dark side?
- Bright Venus shines immediately above the horizon on May 28 and lies to the right of Mercury. Binoculars might be able to reveal this pairing, but the sky may prove to be too bright.

10 Years Ago - May 2011



Pictures of Globular Cluster M5 and galaxies M65 & M66 by LAS member Iwan Kambali  
Longmont Astronomy Society Newsletter  
May 2011

The speaker at the May 19 meeting will be Bill Tschumy who will talk about “Milky Way rising: Seeing the Forest and the Trees”.

Bill has been active in amateur astronomy for 26 years and loves to share his knowledge of the sky with others. He is developer of outstanding astronomical software, including the iPhone app Sky Safari. The Sky Safari app was winner of the Best-of-Show award at MacWorld in 2010.

At the business meeting we will discuss the treasurer report and planning for a “Beginning Astronomy Class” for the City of Longmont Recreation in the fall.



Saturn by Gary Garzone  
April 2011

20 Years Ago - May 2001



Steve Lynch and David Dunn arrived at the Crow Valley campground at sunset. There was a strong northeast window blowing making them

grateful for the trees that surround the campground. The Skies were total clear and transparent. A troupe of 8 boy scouts was camping nearby so we invited them over to have an awesome tour of the night sky,

Andrew Planck drove through rain, wind, sleet, and snow on his way to Sterling State Park. The few families that made it were treated to some wonderful views of Jupiter’s moon and shadow bands, Saturn’s rings and moons, the great Orion Nebula, the Whirlpool Galaxy, and a cluster of 3 tight galaxies each containing a 100 billion stars in the same view. We were also able to see the space station and a few minutes later the equally bright space shuttle Endeavour. The grandest sight of all was the look of astonishment and wonder on the faces of the children as they scrambled from one telescope to another.

30 Years Ago - May 1991



Astronomy Day this year will be at the Crossroads Mall in Boulder in conjunction with the Boulder Valley Astronomy Association.

Star party will be at Dawson Pak in Longmont weather permitting. There will be mirror grinding new member opportunities, and a telescope clinic.

Steve Albers talked about grazing occultations; the profile should be forthcoming.

LAS is the host for the FRASC star party to be held at Pawnee Grasslands on Sept. 6 -8. Site will accommodate about 150 people with paid reservations.

Jim Getson reported he had cost to rejoin the Astronomical League.

Judy Cunningham talked about time, place, and observing in Wyoming. She also talked about the Texas Star Party.

Bob Spohn spoke about the obscure constellation Canes Venatici. Bob Ross spoke about 3 interacting galaxies: the Ringtail, Whirlpool, and Siamese Twins.

Tony Ayling talked about life on other planets or are we alone?



**“Thor’s Helmet” by Tally O’Donnell**



**“M65 and M66” by Tally O’Donnell**



**“IC 443” by Stephen Garretson**



**“M100” by Eddie Hunnell**





**“Eskimo Nebula” by M. J. Post**



**“Thor’s Helmet” by M. J. Post**



**“Messier 81 and 82” by Kyle O’Neill**



**“Messier 82” by Jim Pollock**



**“Comet C/2020 R4 (ATLAS) on April 29” by Jim Pollock**



**“NGC 4565, Needle Galaxy” by Eddie Hunnell**



**“Messier 3” by Eddie Hunnell**



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**“IC 2177 in H-Alpha” by Stephen Garretson**





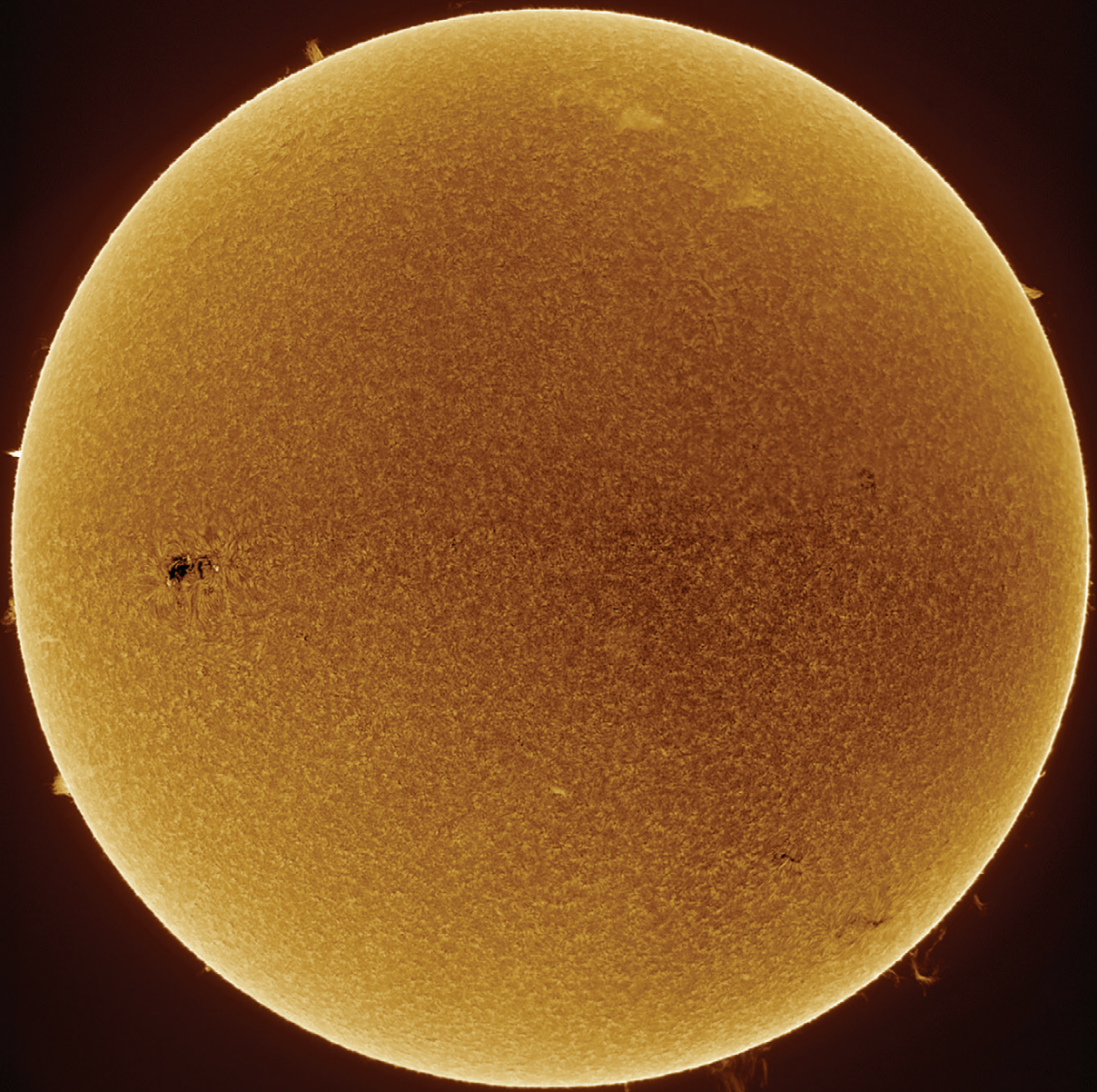
**“NGC 2244, Rosette in H-Alpha” by Stephen Garretson**



**“Blue Horse” by David Elmore**



**“Gas and dust in vicinity of M81 and M82” by David Elmore**



**Sun in H-Alpha on April 18 by Brian Kimball**



**AR 2816 on April 23**



**Large prominences on April 23**

**LONGMONT ASTRONOMICAL SOCIETY**  
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**[HTTPS://WWW.LONGMONTASTRO.ORG](https://www.longmontastro.org)**



**"HEADPHONE NEBULA" BY MARTY BUTLEY**