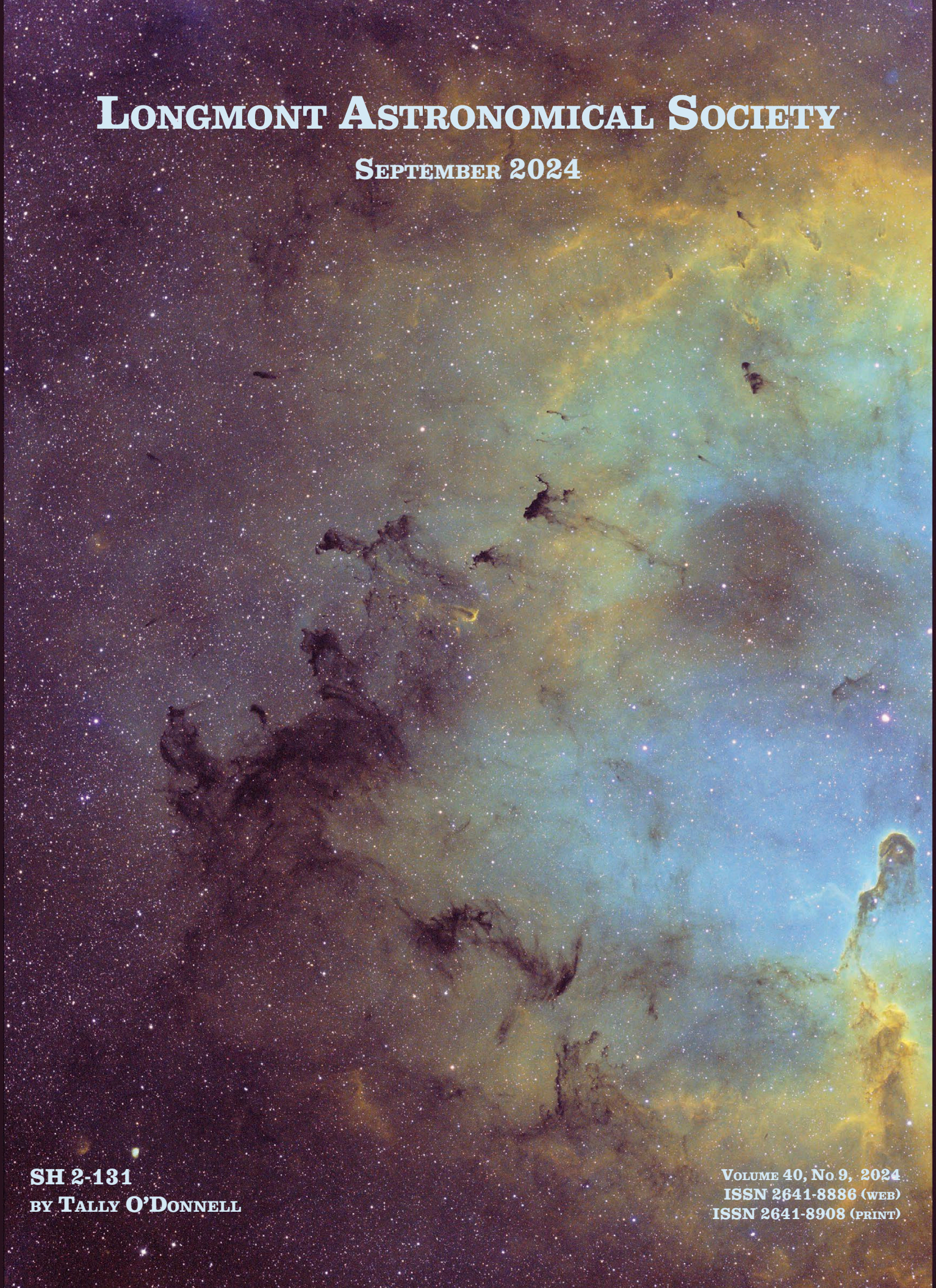
Longmont Astronomical Society

September 2024



SH 2-131
by Tally O'Donnell

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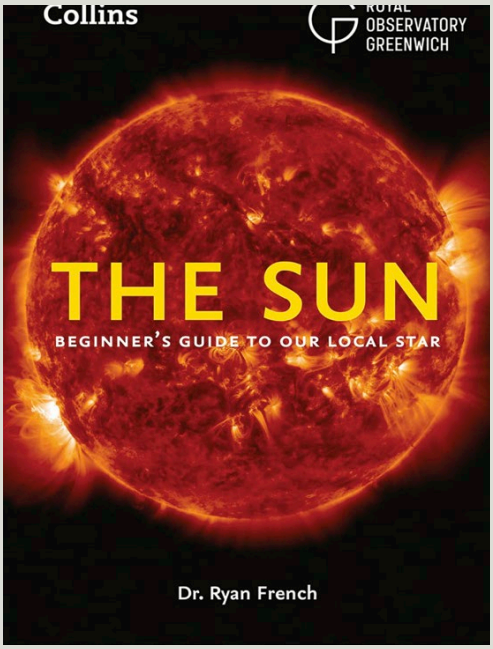
Next LAS Meeting September 19 at 7 pm
"Earth at Sun's Mercy" by Dr. Ryan French



Despite its seemingly unchanging appearance in the daytime sky, the Sun is incredibly dynamic and shrouded in mystery. Descended from ancestors who hailed the Sun as a deity, the way we observe the Sun has come a long way. Our scientific journey to understand the Sun has included many intriguing and humorous stories from over the centuries, including tales of 11th century monks, feuds of 17th century astronomers, and a part-time brewery owner who discovered the link between the Sun and northern lights. The influence of the Sun's activity on the near-Earth environment is known as space weather, which has the ability to damage satellites, disrupt power grids, and deliver harmful levels of radiation to astronauts. In this talk, we'll explore how humanity is adapting to living under a star, and how our understanding of the Sun has helped unlock the wider secrets of the universe.

If there is demand for it, Ryan will also be selling personalized signed copies of his book, 'The Sun: Beginner's guide to our local star'. ($15, cash or Venmo)

Biography

Dr. Ryan French is a solar physicist at the National Science Foundation's National Solar Observatory, science communicator, and author. Since completing his PhD in 2022, he is pursuing the mysteries of the Sun at the forefront of modern solar physics research, using cutting edge telescopes on the ground and in space. Ryan also works to share the wonders of the Sun and space with the public, through social media, public talks, and on television and radio.
Website: www.ryanjfrench.com
Twitter & TikTok: @ryanjfrench

The meeting will be at the First Evangelical Lutheran Church, 803 Third Avenue, Longmont, CO 80501. If you cannot attend the in-person meeting, it will be available on Zoom. Ryan will present in person.

About LAS

The Longmont Astronomical Society Newsletter ISSN 2641-8886 (web) and ISSN 2641-8908 (print) is published monthly by the Longmont Astronomical Society, P. O. Box 806, Longmont, Colorado. Newsletter Editor is Vern Raben. Our website URL is https://www.longmontastro.org and the webmaster is Sarah Davis. The Longmont Astronomical Society is a 501 c(3), non-profit corporation which was established in 1987.

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.

Contents

Front Cover	SH 2-131 by Tally O'Donnell
2	LAS Meeting Sept 19 at 7 pm "Earth at Sun's Mercy" by Dr. Ryan French
3	Contents / About LAS
4	Planets and Lunar Phases in September
5	Showpiece Object in September Moon on Aug 16 by Brian Kimball
6	Comet 13P/Olbers in September
7	Navigating the September Night Sky by John Goss
8	A Lunar Eclipse that is a Nibble not a Bite; Other Suns: Eta Cassiopeiae
9 - 16	August 15 Meeting Notes by Eileen Hall-McKim
16	Planetary nebulas in SH 2-176 in SHO (star and starless) by David Elmore SH 2-176 by David Elmore
17	M16 Eagle Nebula by Eddie Hunnell Comet 13P/Olbers by Gary Garzone
18	M16 Eagle Nebula and M13 Globular Cluster by Gary Garzone
19	Cave Nebula and M11 Wild Duck Cluster by Jim Pollock
20	M27 Dumbbell Nebula and Comet 13P/Olbers by Jim Pollock
21	NGC 6834 by MJ Post M27 Dumbell Nebula by Paul Kirkpatrick
22	NGC 6871 by MJ Post
23	M22 Globular Cluster and NGC 7380 by Rolando Garcia
24	NGC 6846 Fireworks Galaxy by Rolando Garcia LBN 488Area by Stephen Garretson
25	Propeller Nebula and NGC 281 Southeast by Stephen Garretson
26 - 27	Elephant Trunk East by Stephen Garretson
28	Sun in CaK and H-Alpha by Brian Kimball
29 - 31	Newsletter Archives for September 1994, 2004, and 2014 by Eileen Hall-McKim
Back Cover	M8 and M20 by Rolando Garcia

LAS 2024 Execs

Vern Raben, President
Hunter Morrison, Vice President
Eileen Hall-McKim, Secretary
Bruce Lamoreaux, Treasurer

LAS 2024 Board Members

David Elmore, Gary Garzone,
Mike Hotka, Brian Kimball, and Tally O'Donnell

Appointed Positions 2024

Sarah Detty, Webmaster
Bruce Lamoreaux, Library Telescope Coordinator
Bill Tschumy, Public Outreach Coordinator

Vern Raben, Newsletter Editor
Eileen Hall-McKim, Newsletter Archives

Planets in September

Mercury

Mercury is visible for the first couple weeks this month. Look for it very low in the east sky about 5:30 am. It increases in brightness from +0.3 to -1.1 magnitude by the 14th. Its waning disk decreases from 7.8 arc sec to 5.6.

Venus

Venus is visible very low in the west half an hour after sunset. It -3.9 magnitude in apparent brightness and the disk is 11 arc sec across.

Mars

Mars is best viewed around 5 to 5:30 am in the ESE, It increases in magnitude slightly from +0.7 to +0.5 magnitude; the disk increases from 6.6 arc sec across to 7.7 arc sec across this month.

Jupiter

Jupiter is best viewed around 5 am as well. It increases in brightness slightly from -2.3 to -2.5 magnitude. Its disk size increases from 39 to 42 arc sec across this month. The following is a list of best times times to observe its Great Red Spot at mid disk this month:

- Sept 1 at 5:07 am altitude (alt) 57°
- Sept 4 at 2:37 am alt 30°
- Sept 6 at 4:15 am alt 50°
- Sept 8 at 5:54 am alt 68°
- Sept 9 at 1:45 am alt 24°
- Sept 11 at 3:24 am alt 44°
- Sept 13 at 5:02 am alt 63°
- Sept 16 at 2:32 am alt 38°
- Sept 18 at 4:11 am alt 57°
- Sept 20 at 5:49 am alt 73°
- Sept 21 at 1:41 am alt 31°
- Sept 23 at 3:19 am alt 51°
- Sept 25 at 4:57 am alt 69°
- Sept 26 at 12:49 am alt 25°
- Sept 27 at 6:36 am alt 72°
- Sept 30 at 4:06 am alt 64°

Saturn

Saturn is at opposition on Sept. 7 at 10:20 pm MDT. It is magnitude +0.6 in brightness and its disk is 19 arc sec across.

Uranus

Uranus is magnitude 5.8 in brightness and disk is 3.4 arc sec across. Best time to view around 5 am when it transits high up in the south.

Neptune

Neptune is visible in constellation Pisces in the early morning sky, It is magnitude 7.8 magnitude in brightness and the disk is 2.3 arc sec across.

Lunar Phases in July

New Moon:
Sept 2 at 7:57 pm

First quarter:
Sept 11 at 12:07 am

Full Moon:
Sept 17 at 8:36 pm

Third quarter:
Sept 24 at 12:51 pm

Images created with NASA Scientific Visual Studio's Moon Phase and Libration Tool.
See https://svs.gsfc.nasa.gov/5187/

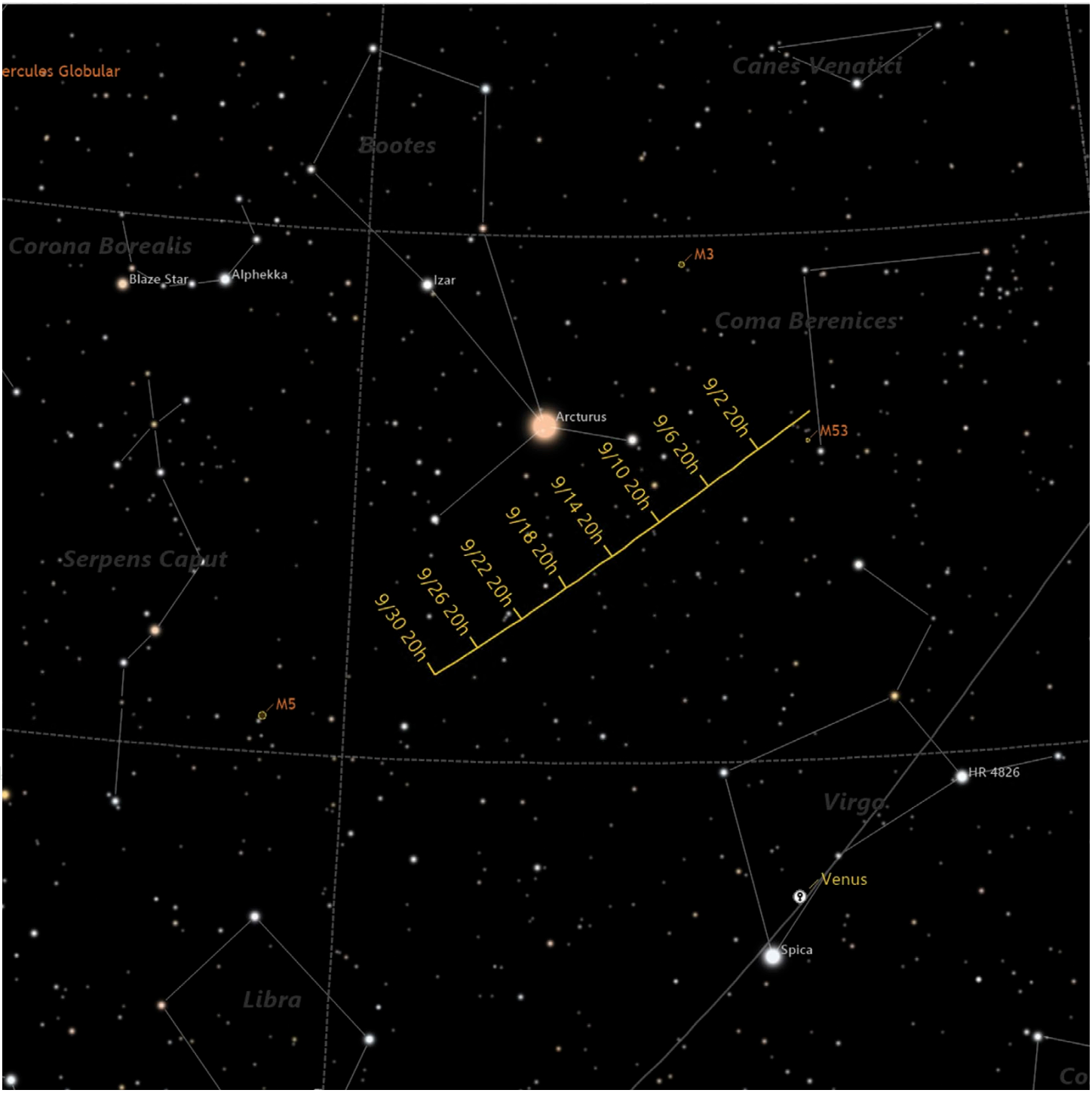
Showpiece Objects in September

Some early evening objects for mid July:

- M 5 globular cluster in Serpens, mag 5.7+
- M 3 globular cluster in Canes Venatici, mag 7.7
- M 81 "Bodes" spiral galaxy in Ursa Major, mag. 7.8+
- M 101 "Pinwheel" spiral galaxy in Ursa Major, mag 8.4+
- M 51 "Whirlpool" spiral galaxy in Ursa Major, mag 8.7
- M 82 "Cigar" irregular galaxy in Ursa Major, mag 9.0
- NGC 5053 globular cluster in Coma Berenices, mag 9.0
- M 106 spiral galaxy in Canes Venatici, mag 9.1
- M 104 "Sombrero" galaxy in Virgo, mag 9.1
- NGC 5466 globular cluster in Bootes mag 9.2
- M 63 "Sunflower" galaxy in Canes Venatici, mag 9.2
- M57 "Ring" Nebula in Lyra, mag 9.4
- NGC 5634 globular cluster in Virgo mag 9.5
- M87elliptical galaxy in Virgo mag 9.6
- M 97 "Owl" nebula in Ursa Major, mag. 9.7
- NGC 4490, "Cocoon" galaxy in Canes Venatici, mag 9.8
- M 86 "Makarian's chain of galaxies" in Virgo, mag 9.8
- NGC 2683 spiral galaxy in Lynx, mag 10
- NGC 3115, "Spindle" galaxy in Sextans, mag 10.0
- NGC 4565, "Hockey stick" galaxy in Coma Berenices, mag 10.1
- M 96 spiral galaxy in Leo, mag 10.1
- M 88 spiral galaxy in Coma Berenices, mag 10.2
- NGC 4244 "Silver Needle" galaxy in Canes Venatici, mag 10.4

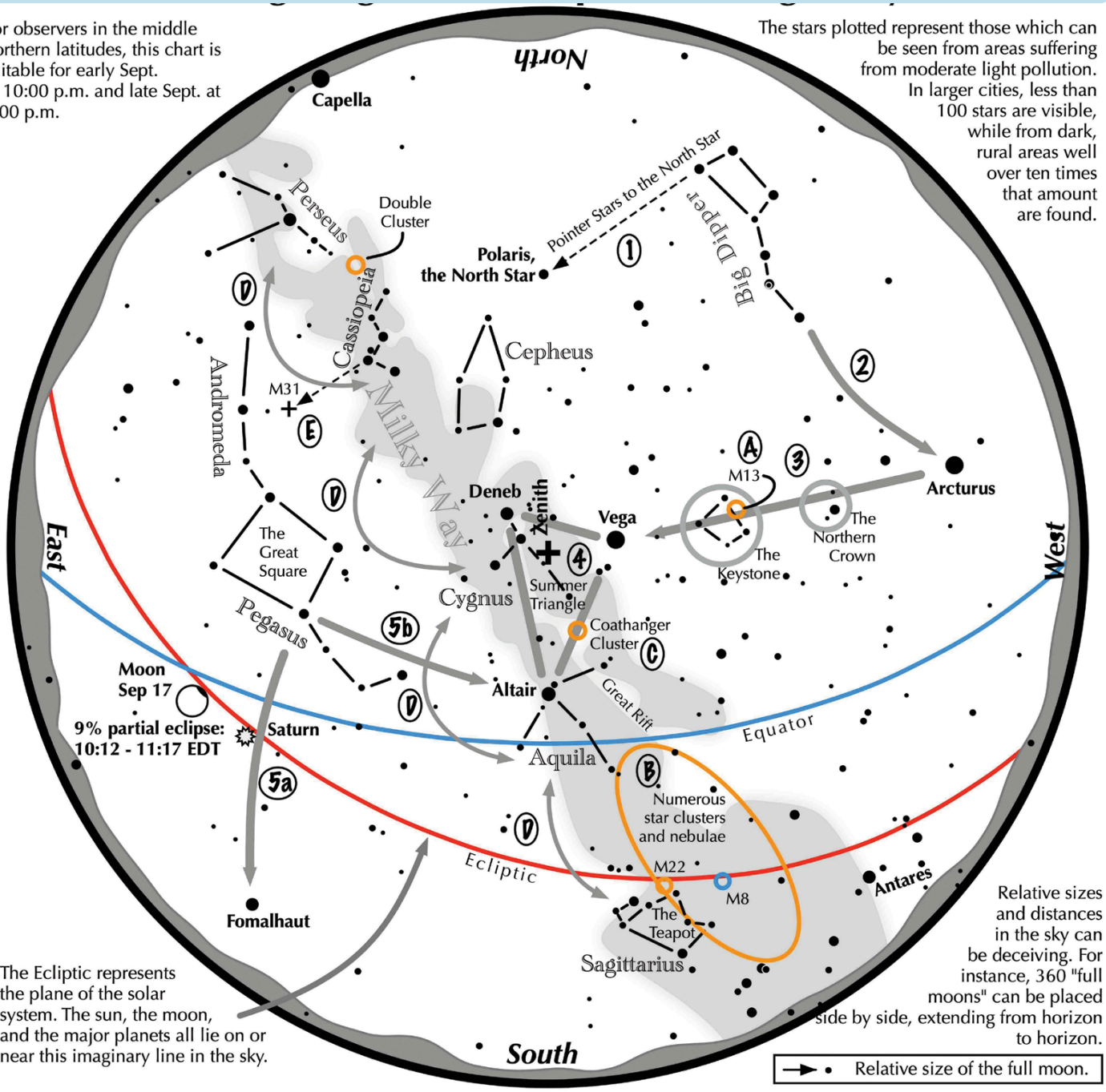
Moon on August 16 by Brian Kimball

Comet 13P/Olbers in September



Date	Optimal time	RA	Dec	Constellation	Magnitude	Size (arc min)
Sept 1	8:47 pm	13h22m53.6s	+18°07'42"	Coma Berenices	8.3	3.7
Sept 7	8:36 pm	13h41m01.1s	+15°04'29"	Bootes	8.5	3.6
Sept 13	8:23 pm	13h57m59.2s	+12°09'29"	Bootes	8.3	3.5
Sept 19	8:12 pm	14h13m57.1s	+09°23'56"	Bootes	9.1	3.4
Sept 25	8:01 pm	14h29m03.2s	+06°48'30"	Virgo	9.4	3.3
Sept 30	7:52 pm	14h41m03.8s	+04°46'53"	Virgo	9.6	3.2

Navigating the September Night Sky by John Goss



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

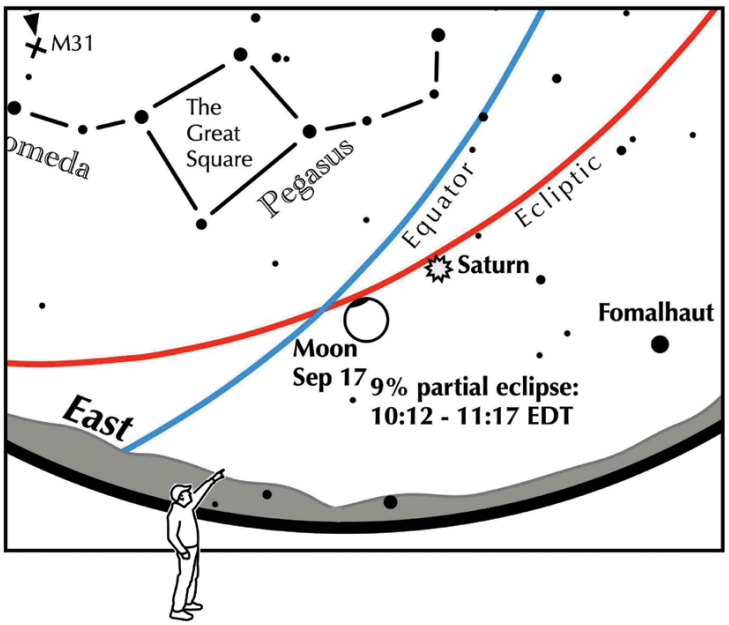
1. Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the September evening sky.
3. Nearly overhead shines a star of similar brightness as Arcturus, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
4. The stars of the summer triangle, Vega, Altair, and Deneb, shine overhead.
5. The westernmost two stars of the Great Square, which lies high in the east, point south to Fomalhaut. The southernmost two stars point west to Altair.

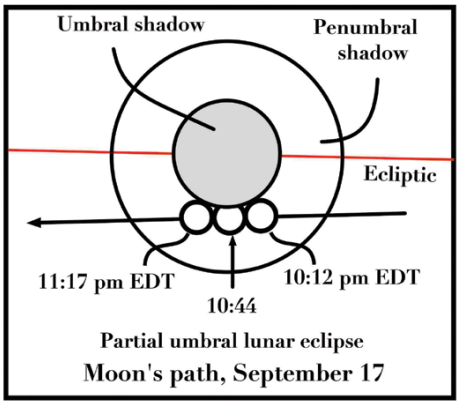
Binocular Highlights

A: On the western side of the Keystone glows the Great Hercules Cluster.
B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
D: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.
E: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.

Astronomical League *www.astroleague.org/outreach; duplication is allowed and encouraged for all free distribution.*

A partial lunar eclipse that is a nibble, not a bite!





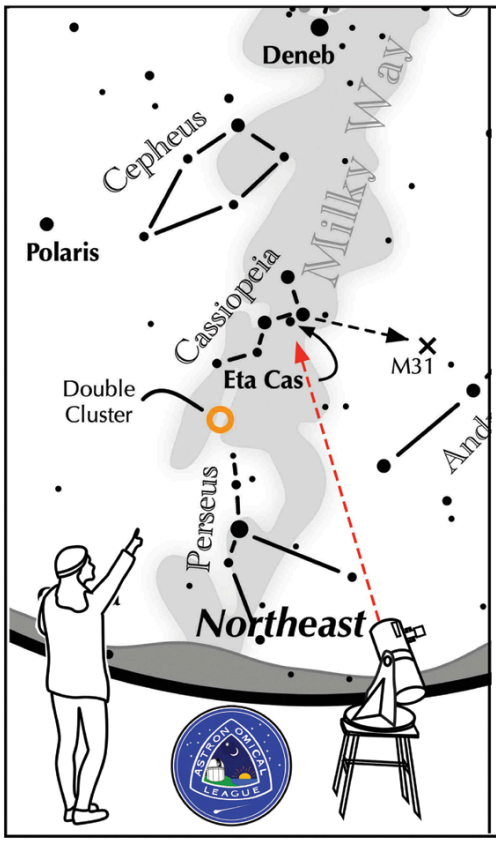
View to the southeast on September 17 from 10:12 through 11:17 pm EDT. Mid eclipse lands at 10:44 pm

The Moon slides through a partial umbral eclipse

A very partial umbral lunar eclipse occurs on the night of September 17. Bring out the binoculars for a better look at Earth's shadow taking a nibble out of the moon. Only about 9% of the surface will be in umbral shadow. The event will be slight enough that the casual observer might not notice it.

Mid eclipse and the best view occurs at 10:44 pm EDT. West Coast observers will find it low above the southeastern horizon.

ASTRONOMICAL LEAGUE Double Star Activity



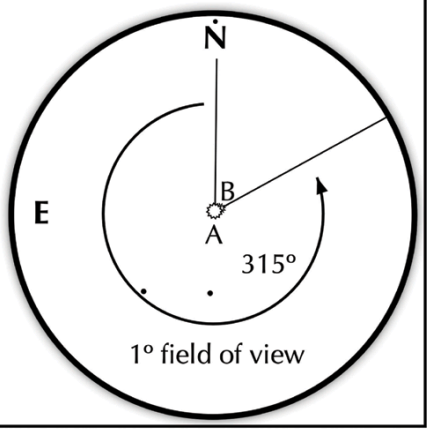
Other Suns: Eta Cassiopeiae

How to find Eta Cassiopeiae on a September evening

High in the northeast are the five moderately bright stars forming the "W" of Cassiopeia. The second star moving east along the W is Alpha Cassiopeiae. Eta is the dimmer star immediately to Alpha's northeast.

Suggested magnification: >30x
Suggested aperture: >2 inches

Beta Cassiopeiae
A-B separation: 13 sec
A magnitude: 3.5
B magnitude: 7.4
Position Angle: 319°
A & B colors:
yellow, purple?



August 15 LAS Meeting Notes by Eileen Hall-McKim

I. Introduction

The August LAS monthly meeting was held in-person and by zoom on August 15th at the Longmont Lutheran Church, 803 Third Ave. President Vern Raben began the meeting with self-introduction of members. Fifteen members attended in person, 15 attended on-line.

II. Main Presentation

Our guest speaker for the August meeting was Dustin Dickens. Dustin is the Director for the Colorado Center for Meteoric Studies and manages the analysis and analysis services including sample prep, micro probe analysis, classification, and write up for submission to the nomenclature committee.

Meteorites: What are they? Where do they come from?
How do they relate to the rest of the Solar System?
By Dustin Dickens

Dustin presents a discussion covering the types and classification of meteorites, the original parent body where they may possibly have come from and how we know this; and what kinds of information analyses may reveal. A meteorite is a rock that originated in interplanetary space and has fallen to the surface of a planet or moon. When the original object enters the atmosphere, various factors such as friction, pressure, and chemical reaction with atmospheric gases cause it to heat up and radiate energy, it then becomes a meteor. Once it settles on the larger body's surface, the meteor becomes a meteorite.

Meteorites have traditionally been divided into three broad categories: stony meteorites, iron meteorites and stony iron meteorites on the basis of the proportions of rock-forming mineral and nickel-iron metal alloy they contain. There is considerable diversity within each category, leading to numerous subdivisions of classes and groups based on variations in chemistry, mineralogy, and structure.

Meteorites come from different types of parent bodies: Differentiated and Undifferentiated

Scientists have identified groups of meteorites with the same composition- and have concluded that members of the same group were probably once part of the same "parent body". As parent bodies formed in the early solar system, some incorporated more of certain ingredients than others and these differences allow the ability to trace origins among groups of meteorites.

- Differentiated Parent Bodies = Core-Mantel-Crust
  Differentiated parent bodies are bigger and layered. Heavier elements such as nickel and iron are drawn into the center and form a metal core. The lighter silicates will float essentially to top and create a mantel and likely a crust- although not all may form a crust, there is an argument as to whether all these bodies have crusts or not.

  Earth, Mars, Venus, Mercury, Vesta and other larger asteroids have gone through this differentiation process. They have formed a metal core and have a silicate or a lighter rocky mantel: that is why they are bigger and layered; the layer being Core-Mantel-Crust.

- Undifferentiated Parent Bodies = Contain Chondrules
  Undifferentiated parent bodies are smaller and all are chondrites. None of them have gravitational differentiation. Chondrites are named after glassy, spherical inclusions found in their matrices known as chondrules; small round grains that formed as molten or partially molten droplets in space before being accreted to their parent asteroids.

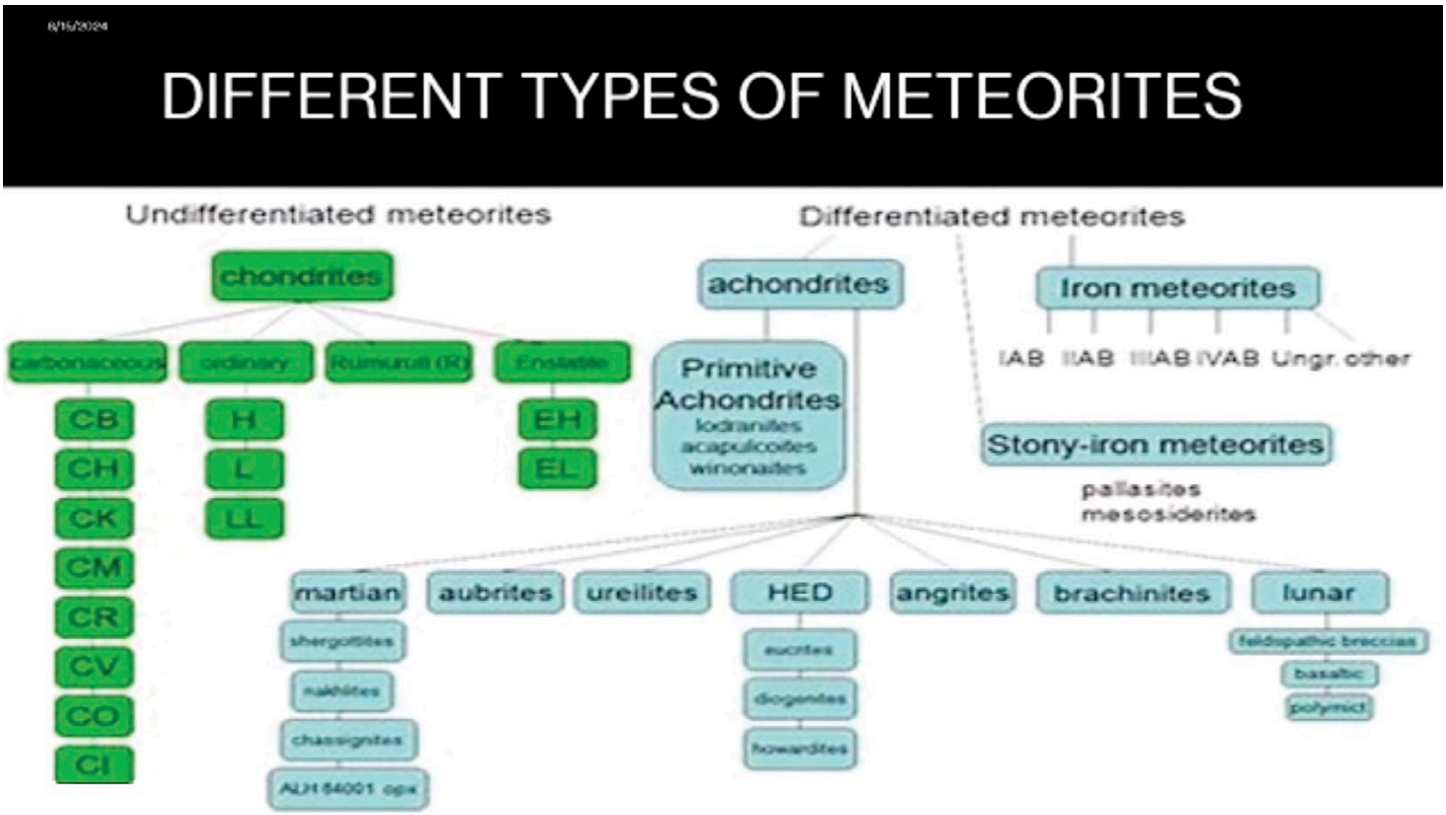


Chart listing different types of meteorites

All undifferentiated meteorites are chondrites – all have chondrules

- Ordinary Chondrites make up about 80-85% of all chondrites we find on Earth. Common meteorites tend to be classified by how much metal they have. Most of these are made from same material with differing content of high metal, low metal and very, very low metal
- Carbonaceous Chondrite – The most exciting chondrites – that contain water (or hydroxides) are the carbonaceous chondrites, the same type just brought back on return mission from the Asteroid Bennu. CB, CV, CH, CK - all the meteorites with a C in front of a letter are Carbonaceous. These contain more carbon than any other meteorite. It is an important chondrite as it is one of most primitive, earliest forming type of chondrite. Before planetary differentiation

occurs it must start out as chondrites. Earth, Mars, Moon were thought to be chondritic parent bodies before they got so big and turned into planets, planetesimals or large asteroids

- Carbonaceous Chondrites also contain lots of water; helps us try to figure out where our water came from; maybe came early on from hydrous minerals; recently lot of conjecture that perhaps heavy bombardment period of carbonaceous chondrites that contained 30-50% water brought water to Earth. It is known that extraterrestrial water exists and have found that some carbonaceous chondrites contain this much water
- Rumuruti Chondrite - rare
- Enstatite Chondrite - ordinary chondrite with less iron, has been oxidized. Two types EH (high metal), EL (low metal) enstatite is a mineral that these are made up of. Another type of meteorite called Aubrite (achondrite) thought to be related to these. Earth, Venus, possibly Mercury and the Moon all likely formed in the inner solar system from the same reservoir of enstatite chondrites and Aubrites

Differentiated Meteorites – mostly igneous, went through process of being melted and then recrystallized – without chondrules

Iron Meteorites

- These are metal cores, as mentioned earlier, but also technically achondrites
- Dr. John Wasson created in depth complex classification system for the iron meteorites
- We have a deep understanding of iron meteorites even though they tend to be at the core of these planets, which tells us that there was really big collisions going on; it takes a lot to liberate large hunk of metal and turn it into a bunch of pieces when you have 50-100 kilometers of rock surrounding it!

Stony Iron Meteorites

- Pallasites
- Mesosiderites

Primitive Achondrites - transitional meteorites, basically in-between chondrites and achondrites (Ureilites, Brachinites)

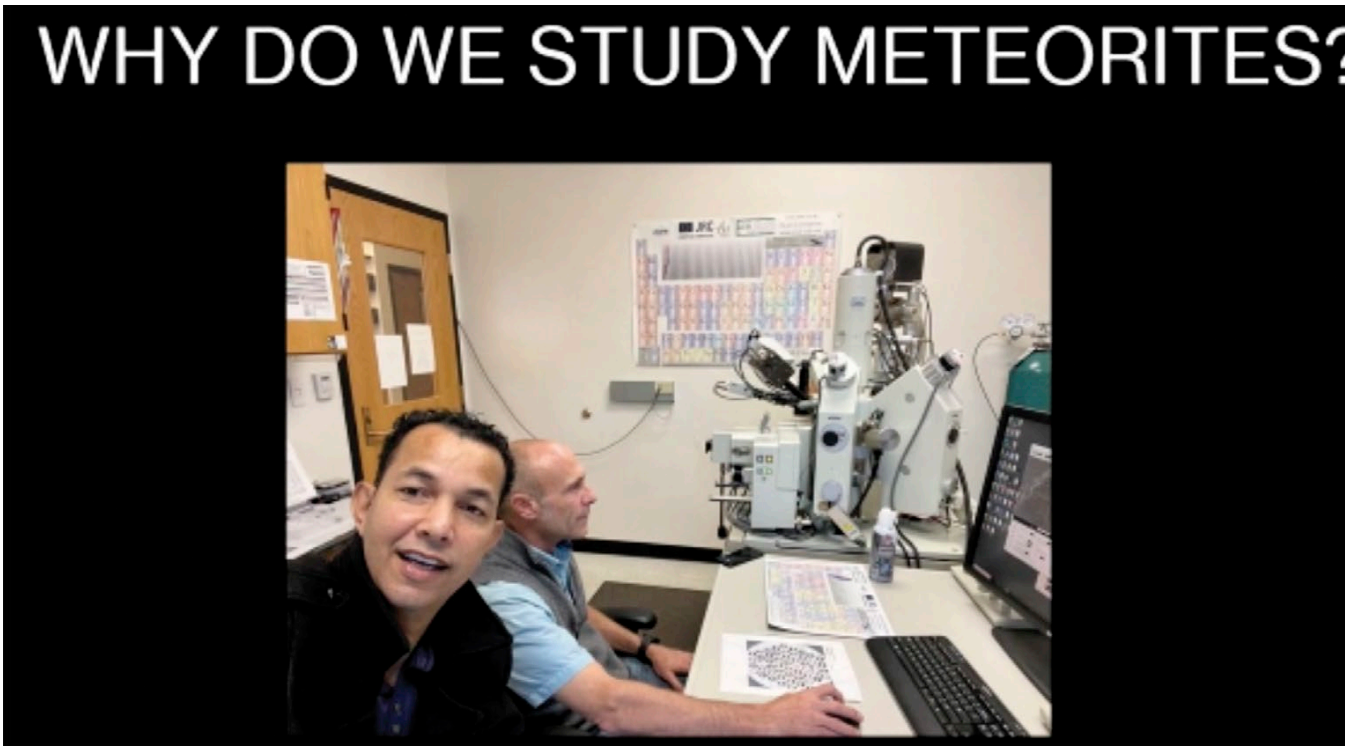
Achondrites – Meteorites without chondrules – igneous processes- contain little or no iron

- Martian
- Aubrites – Inner solar system meteorites, originally thought to come from Mercury, age dating showed they were too old for that process to happen
- HED - meteorites believed to be from Vesta (Howardite- Eucrite- Diogenite) really only two types of meteorites that come from this; the eucrites are coming from the mantel or the crust; the diogenites are coming from deeper down in the crust or maybe the mantel; Howardites are breccias; mixes of the two different types; indicates bigger fragments nested inside a fine matrix or a fine ground mass
- Aubrites – there has been some conjecture Aubrites may come from Mercury
- Angrites – We know they come from a very large parent body, but don't really know where they came from, these parent bodies are gone
- Lunar; two primary types:
  - Feldspathic breccias or the fragmental breccias which are coming from the highlands; the lighter parts of the Moon. Even though can see dark spaces, this is because they have been darkened by shock and not indicative of actual colors of minerals before they were shocked and excavated
  - True mare basalts, come from much farther down, in darker mare ocean areas. There are a lot more rare, most common type the feldspathic breccia, or fragmental breccias and we also have regolith breccias – from the top layers of Moon, already loose not from deep down, not excavating deep down
- These are of interest because they give an indication of some of the space weathering happening on the Moon for so long, a lot of research going on in this area now

- It is difficult because we don't have very many of these, but a lot of the Apollo samples that created baseline for these lunar meteorites are regolith breccias so where we have a dearth of them in the meteorite record the actual return samples are a little more representative of these regolith breccias

Where do they come from? Or how do they end up on Earth?

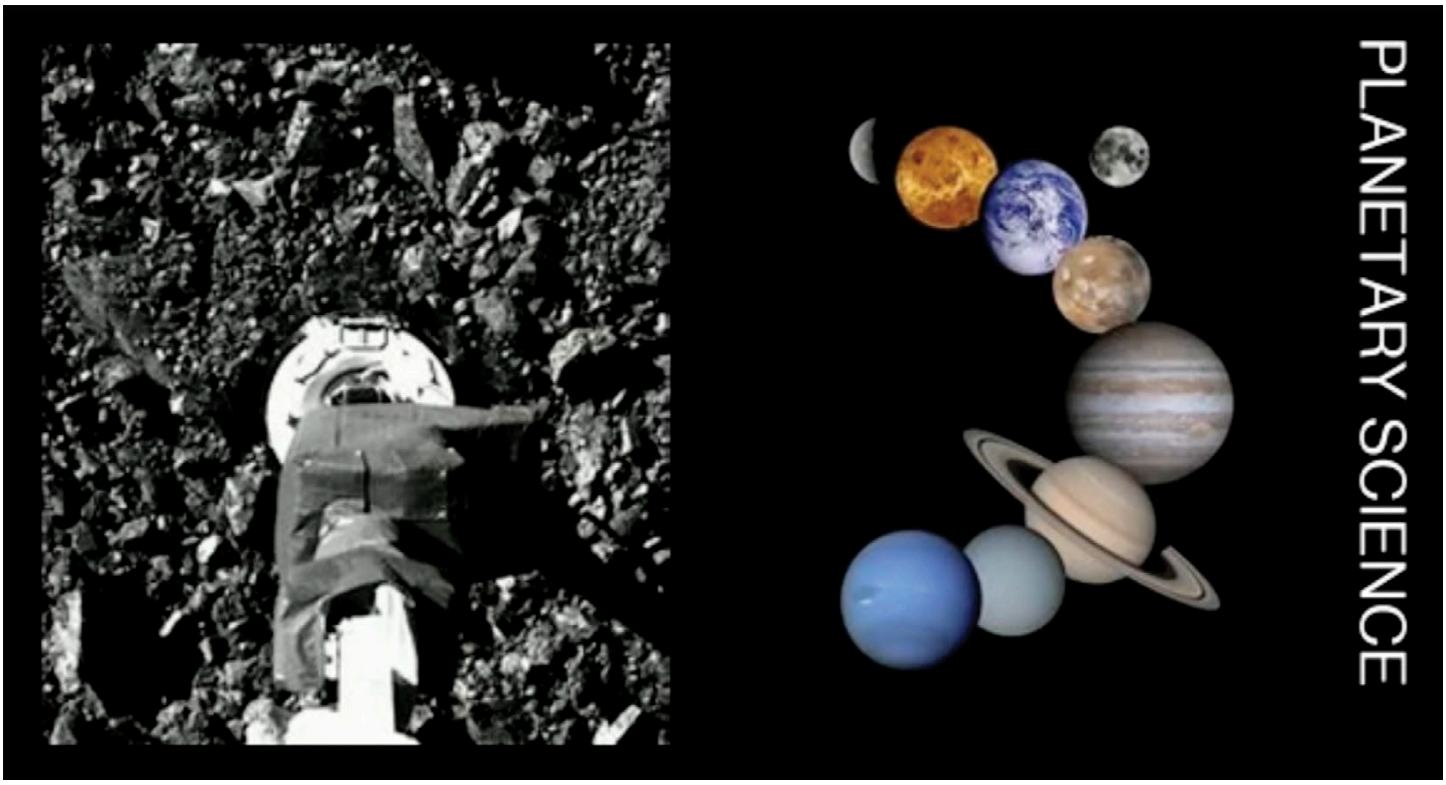
- Collisions – many, many collisions of different sizes, they are all distal ejecta, a lot of shock, transformation, a lot of heating, a few survive without much shock
- Most of the meteorites are breccias; have material, pieces of others
- There are Earth meteorites out there, have found Earth meteorites on the Moon
- Have target material, the impactor, occasionally can find pieces of impactor within meteorite, can be a complex mixture and difficult to unravel



Dustin and Colleague at Electron Micro probe Lab

This is how we figure these things out – by looking at very specific elemental ratios within very specific minerals. This is the machine we use to classify meteorites, using geochemical analysis to determine where it fits into our taxonomy. Others are using isotopic analysis and x-ray diffraction. We argue that return missions bring a lot of materials back to Earth but missions are very expensive whereas meteorites come to us.

- Downside: we don't know where exactly where it came from, but we're pretty good at figuring out, also may be a little terrestrially contaminated but can usually back that out
- Almost all that we know about the geology, geochemistry and cosmochemistry of the solar system comes from meteorites; certainly meteorites play a significant role in planetary science



Collecting samples on asteroid Bennu

Why do we study meteorites? There are many question we are looking for answer:

- How did the Earth form?
- What is the Moon made of?
- Where did the water come from?
- Is there life on Mars?
- Will another giant meteorite kill us all off someday?
- Where did all the stuff to make the solar system come from?
- And the questions never end…

Are there any meteorites on Earth from the Planet Mercury?

This is the question Dustin started out to investigate. He is currently studying an achondrite – an ungrouped meteorite (doesn't fit into any of the previous) so is a ungrouped achondrite. There is a handful of ungrouped meteorites that don't fit into the taxonomical chart, we don't know what the parent body is, so special reason to study, the mineralogy is really important. We know it is definitely from the inner solar system.

- These contain certain sulfides (sulfur mineral) that only form in very low or no oxygen environments (reducing) the only place that happens in the solar system is very close to the Sun because it has all been burned off
- There is a relationship between the amount of iron in a mineral and the amount of oxygen available when the mineral

was forming, so iron is a proxy for the amount of oxygen that was available at the time of formation – for example the amount of iron in Olivine is very low, means low oxygen environment, so formed in inner solar system

- Enstatite Chondrites are also low oxygen. From the 1960s-1990s, an enstatite chondrite, Aubrite, was thought to come from Mercury, after some age dating, it was determined to be too old for this to happen, the Aubrites were put aside
- Then came this ungrouped (pair) of meteorites with no iron + all magnesium. This is very important finding, tells us a lot, inner solar system only place these could form, tells us it definitely could only form very close to where Mercury is now

We now have two missions to Mercury; Mariner Mission and BepiColombo. We also have spectral data of surface of Mercury, matches up exactly to the sulfides we find in these meteorites, is not solid proof, but more evidence it could be. This ungrouped achondrite is the meteorite Dustin continues to research. Dustin brought some meteorites to meeting for all to see: Lunar; Ungrouped Achondrite he studies, a piece of Aubrite parent body, Enstatite Chondrites, EH & EL Enstatite Chondrites.

In Summary: A meteorite is a rock that originated in interplanetary space and has fallen to the surface of a planet or moon. Types of meteorites are primarily characterized by their metal content and there are two basic types of meteorites: differentiated and undifferentiated. The undifferentiated are chondrites, and contain chondrules-small spherical grains; differentiated are mostly igneous, have melted and recrystallized, do not contain chondrules and have little or no iron. Carbonaceous Chondrites are of special interest because of their higher carbon and water content. Meteorites are formed from collisions with other objects. Geochemical analysis, Oxygen Isotope analysis and X-Ray Diffraction are some tools used to identify where a meteorite came from and analyze its history. Almost all that we know about the geology, geochemistry and cosmochemistry of the solar system comes from meteorites; certainly meteorites play a significant role in planetary science.

Dustin's presentation was followed by questions and comments from members:

How large does an asteroid need to be to become undifferentiated? The Pallasite meteorite is a mixture of olivine crystals in the iron-nickel matrix so do those form after a collision occurs and there are all these pieces and it comes back together or is there an actual layer that has this mixture in it in the parent body? How can they differential without gravity making more round?

As an example of this differentiation, went to the Denver Gem and Mineral Show and there was a ~2 meter long piece meteorite, a pallasite, mostly iron on one end and rocky on the other and it transitioned across.

In regards to your point earlier that much of the information about the solar system we know comes from meteorites; many of these come from Antarctica; read recently with current melting of the surface on which the meteorites are found, the meteorites are sinking and there is an urgency over this with planned program launched to collect as many as possible, as the information in these could be lost forever.

A recent fall is probably more important to scientists than an older one, but there seems to be competition between people who hunt them and scientists who want them to study. Piece of Moon on table you brought, but at same time you said the Moon formed from Earth material, so how do we know you really have a piece of the Moon?

III. Business Meeting – Treasurers Report by Bruce Lamoreaux

Longmont
Astronomical Society

P.O. Box 806
Longmont, CO 80502-0806

LAS Treasurer's Report - Bruce Lamoreaux **8/15/2024**

Main Checking Account (xxx-1587)

Begin Balance:	$ 8,305.00	**7/2/2024**
Deposits:	$ 115.00	Membership
Expenses:	$ (410.00)	Bank Charges, Library Telescopes, S&T
Current Balance:	**$ 8,010.00**	**8/6/2024**

2-Year Savings Account (xxx-1478) (matures 10/23/23)

Past Balance:	$ 8,215.00	**3/29/2024**
Interest:	$ 15.00	
Balance:	**$ 8,230.00**	**6/28/2024**

Telescope Fund (xxx-0165)

Past Balance:	$ 1,100.00	**6/27/2024**
Deposits:	$ -	
Expenses:	$ -	
Balance	**$ 1,100.00**	**7/30/2024**

Petty Cash

Past Balance:	$ 50.00
Deposits:	$ -
Expenses:	$ -
Balance	**$ 50.00**

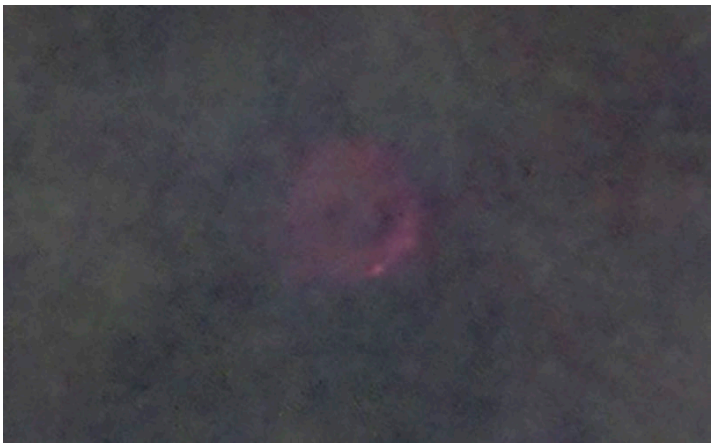
Total Assets	**$ 17,390.00**	$ (295.00) Down from July

Active Membership:	**98**
Student Membership:	**1**
Total	**99**

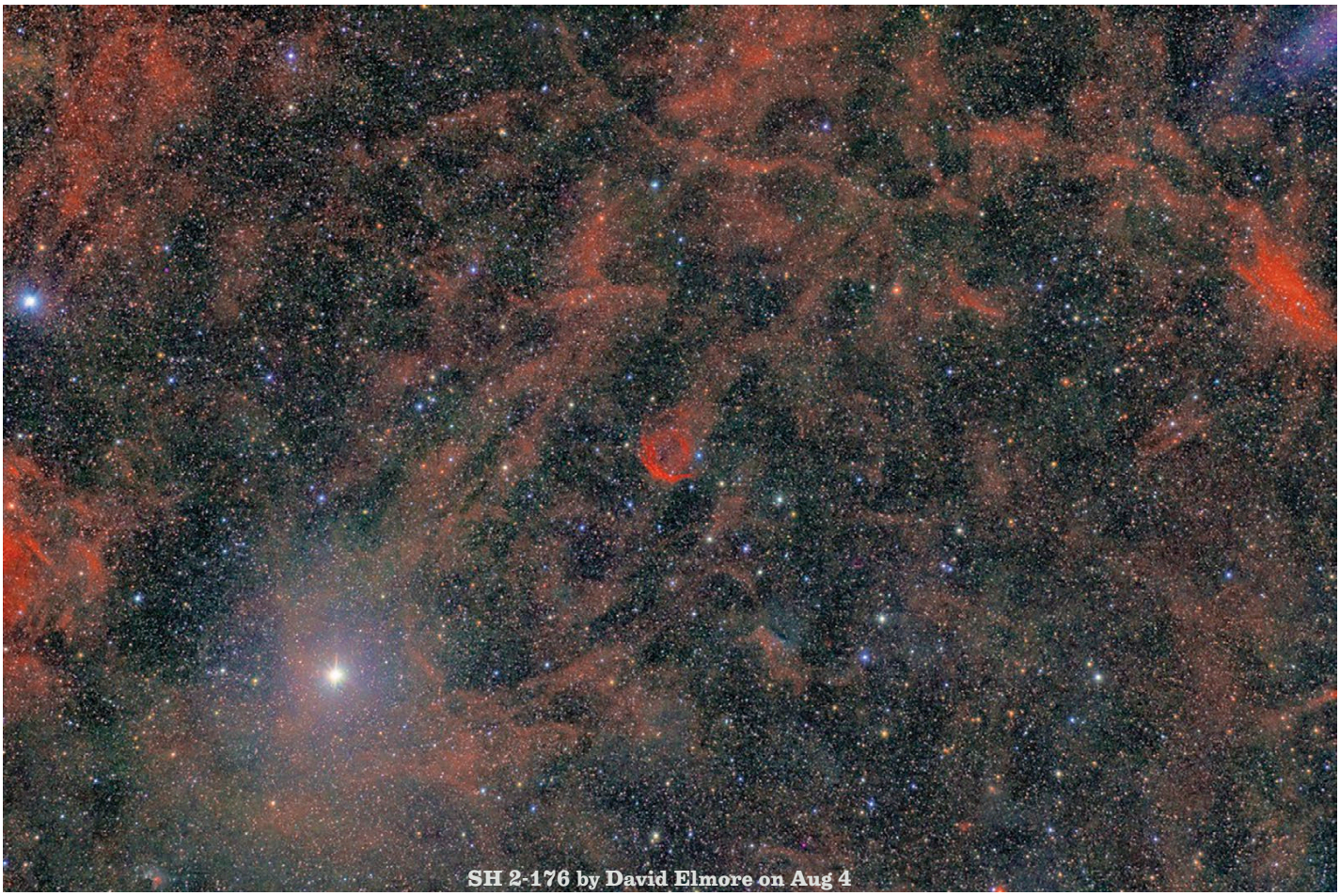
IV. Upcoming Events

- Star party for Boulder County Parks and Recreation; Friday, September 6th starting at 8 pm at Ron Steward Preserve at Rabbit Mountain. If you want to help out with a telescope go to website Events Calendar and register, you do not need to register to come out.
  – September 6th @ 8:00 PM - Crescent Moon
  – October 4th @ 7:00 PM – Two day old Crescent Moon
  – November 1st @6:30 – New Moon
- Next LAS Monthly Meeting – Thursday, September 19th at 7:00pm at First Evangelical Lutheran Church, 803 Third Ave., Longmont

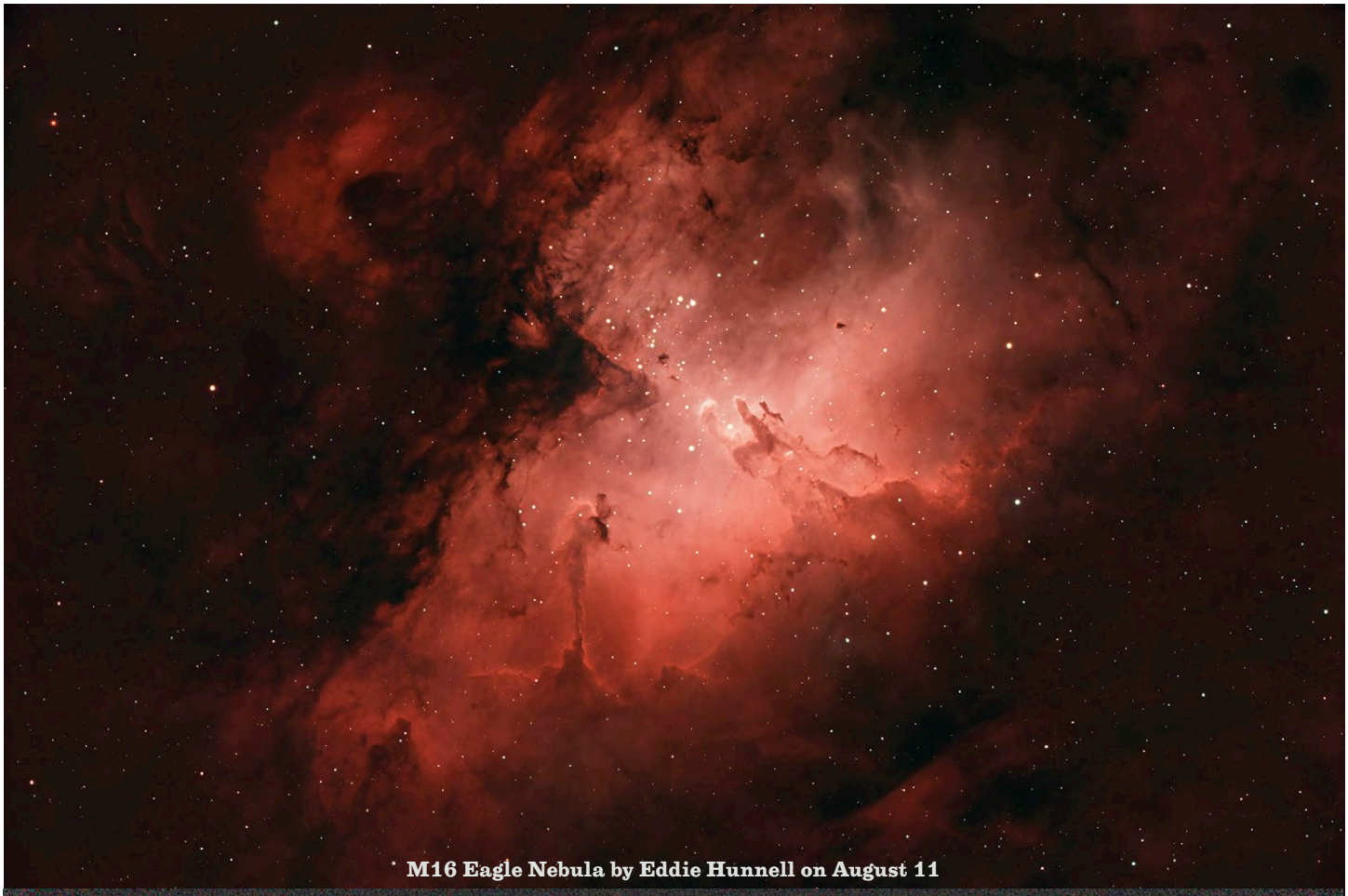
Videos of our meeting are available to members only at the LAS portal website https://members.longmontastro.org



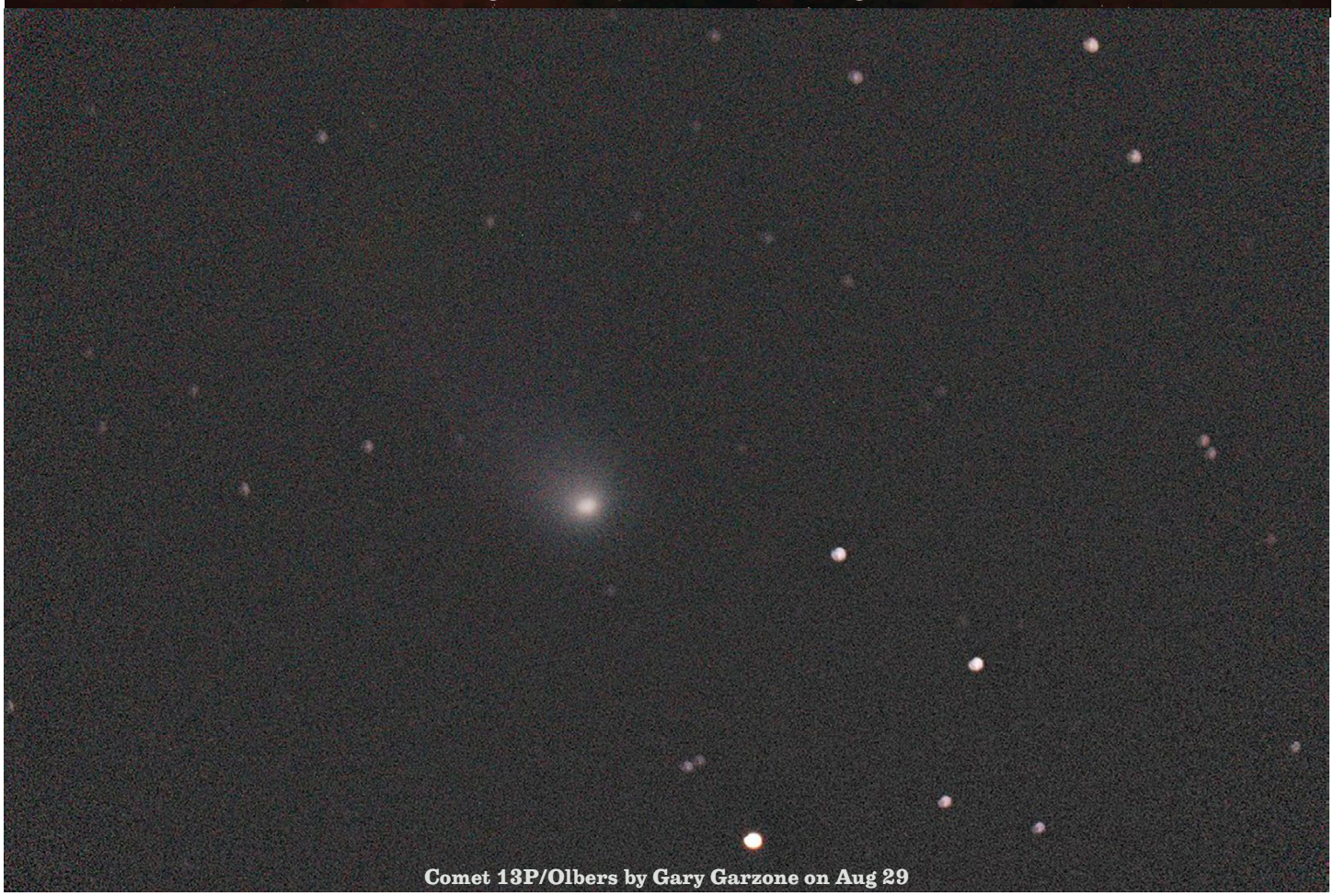
Planetary Nebula in SH 2-176 David Elmore



SH 2-176 by David Elmore on Aug 4



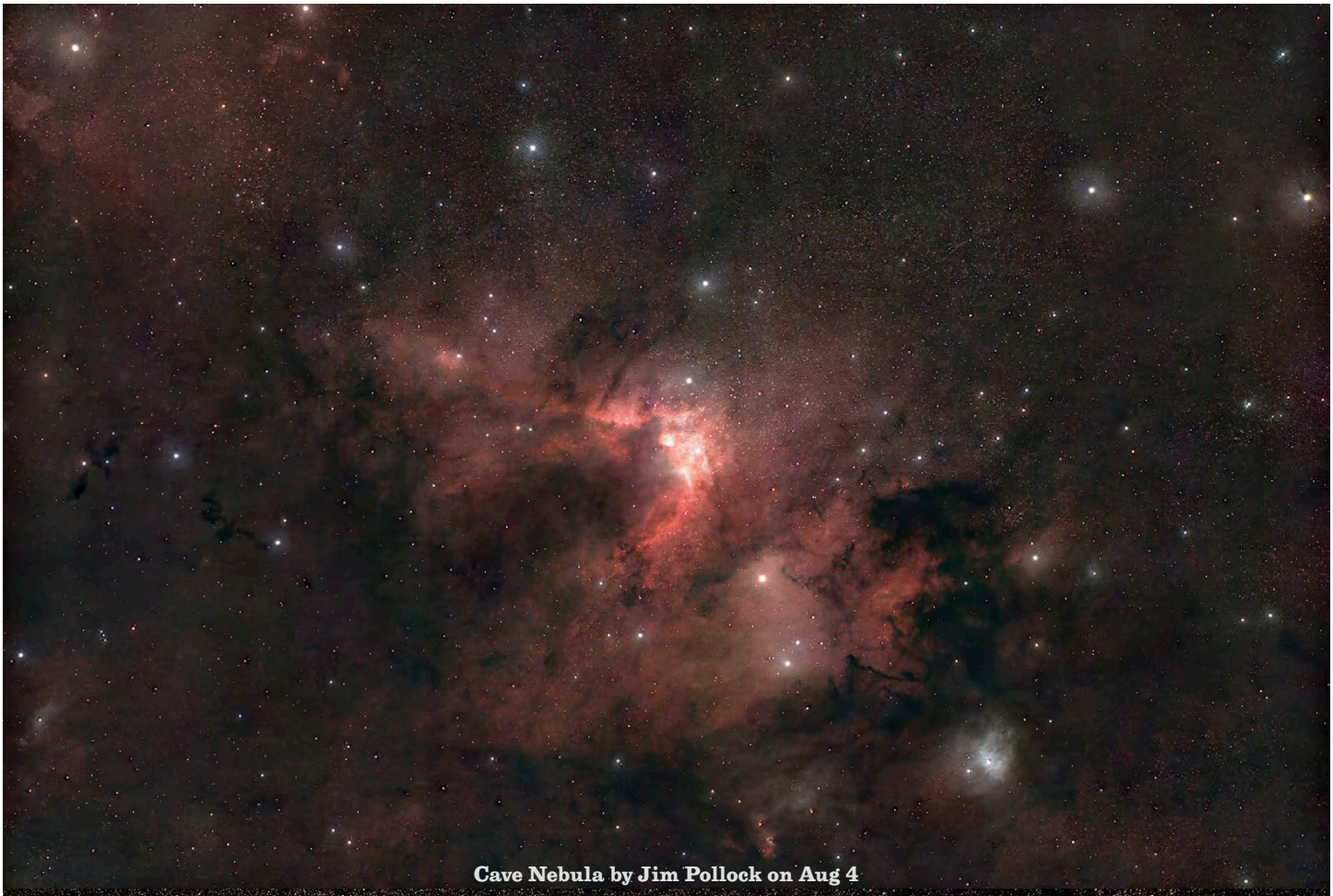
M16 Eagle Nebula by Eddie Hunnell on August 11



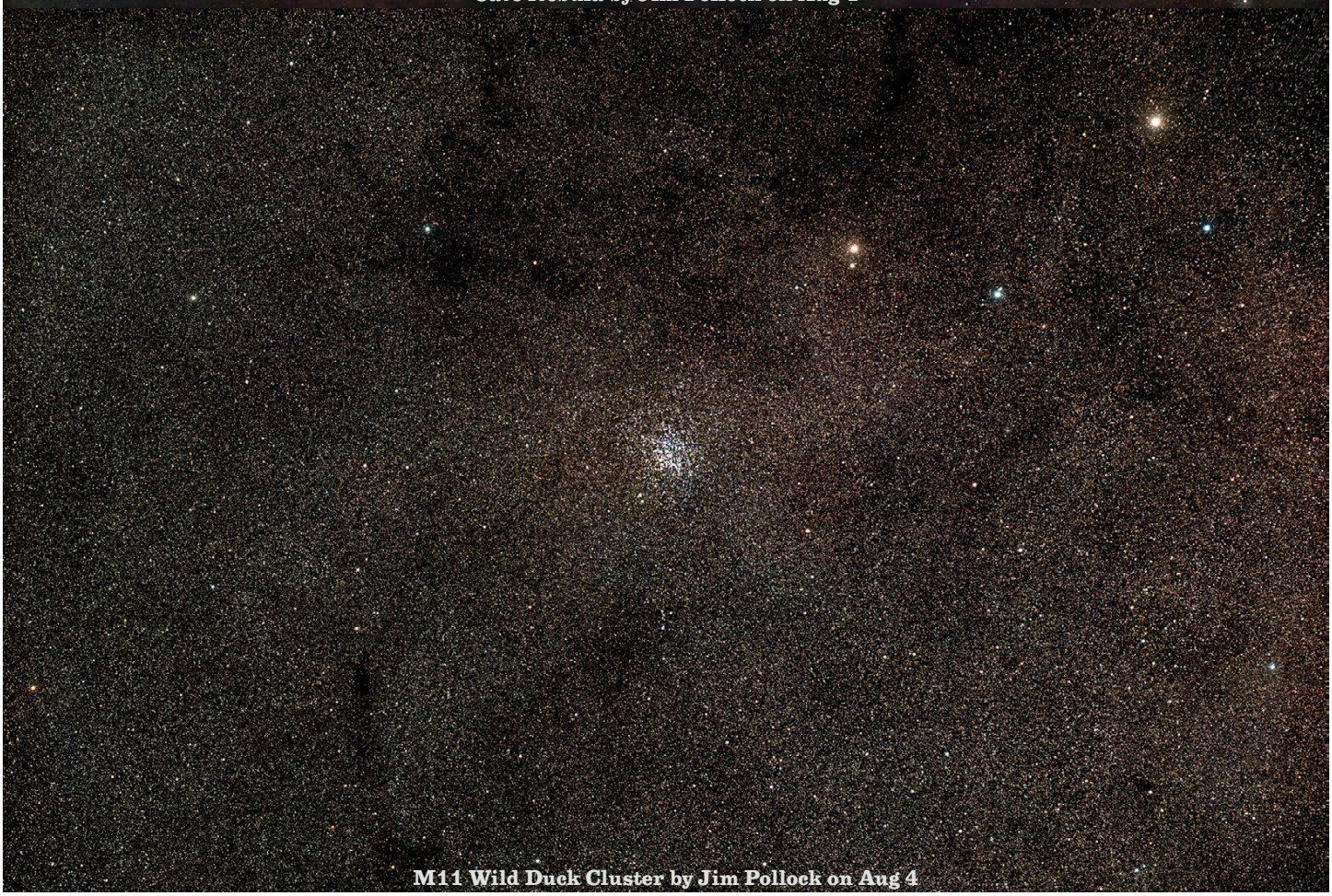
Comet 13P/Olbers by Gary Garzone on Aug 29

M16 Eagle Nebula by Gary Garzone on Aug 5

M13 Globular Cluster in Hercules by Gary Garzone on Aug 29



Cave Nebula by Jim Pollock on Aug 4



M11 Wild Duck Cluster by Jim Pollock on Aug 4

M 27 Dumbbell Nebula by Jim Pollock on Aug 4

Comet 13P/Olbers by Jim Pollock on Aug 5

NGC 6834 by MJ Post on Aug 15

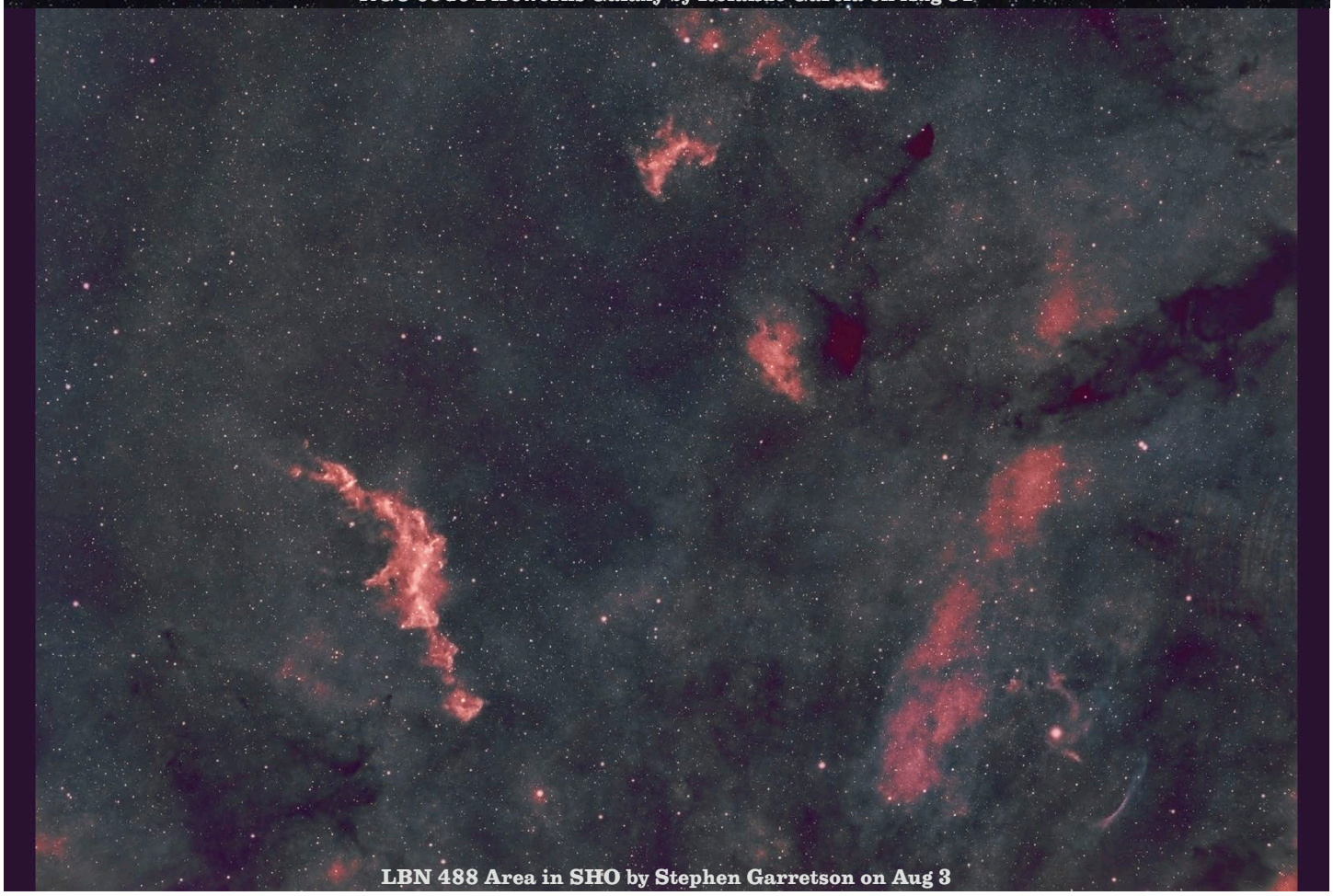
M27 Dumbbell Nebula by Paul Kirkpatrick on Aug 2

NGC 6871 Snow Globe Nebula by MJ Post on Aug 31

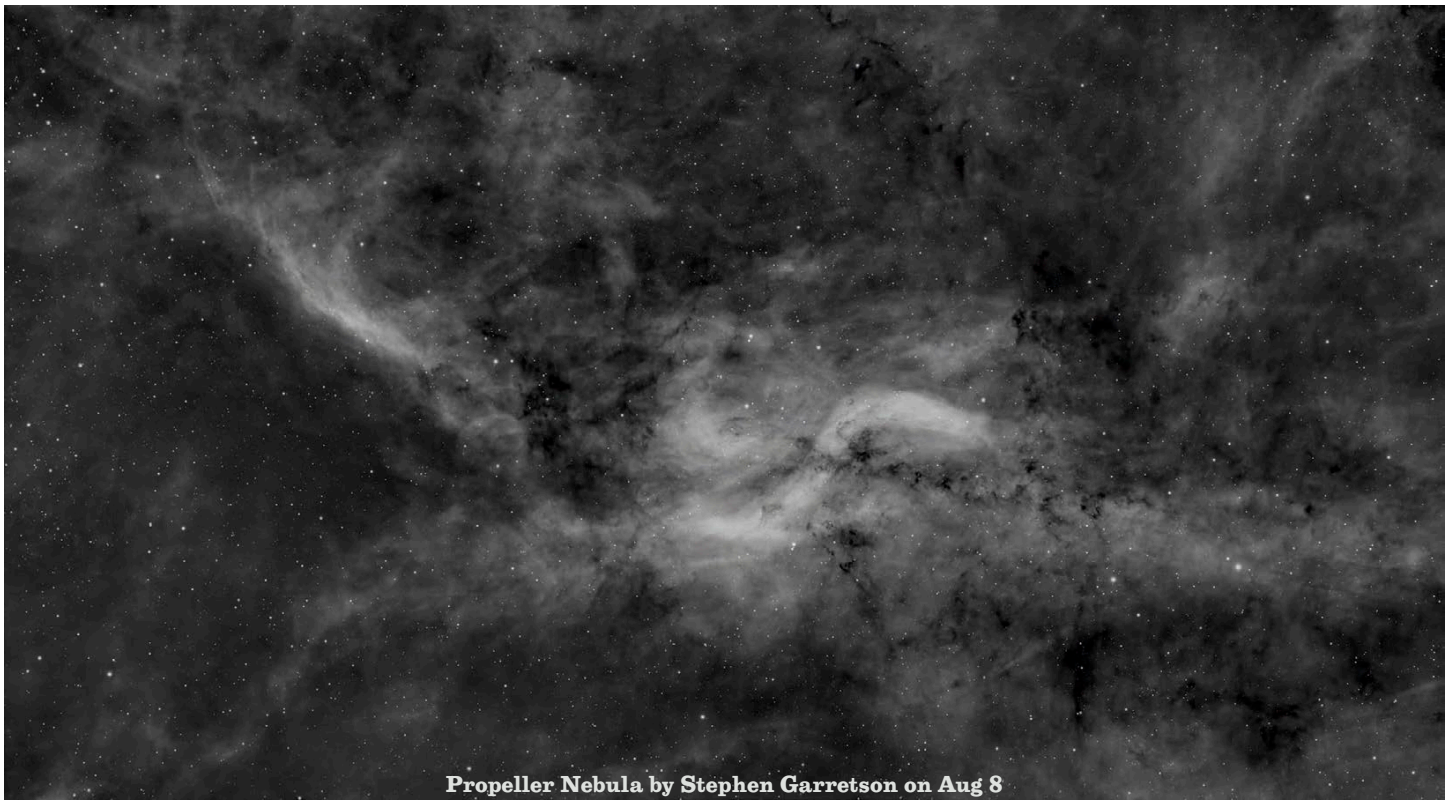
M22 Globular Cluster by Rolando Garcia on Aug 2

NGC 7380 by Rolando Garcia on Aug 18

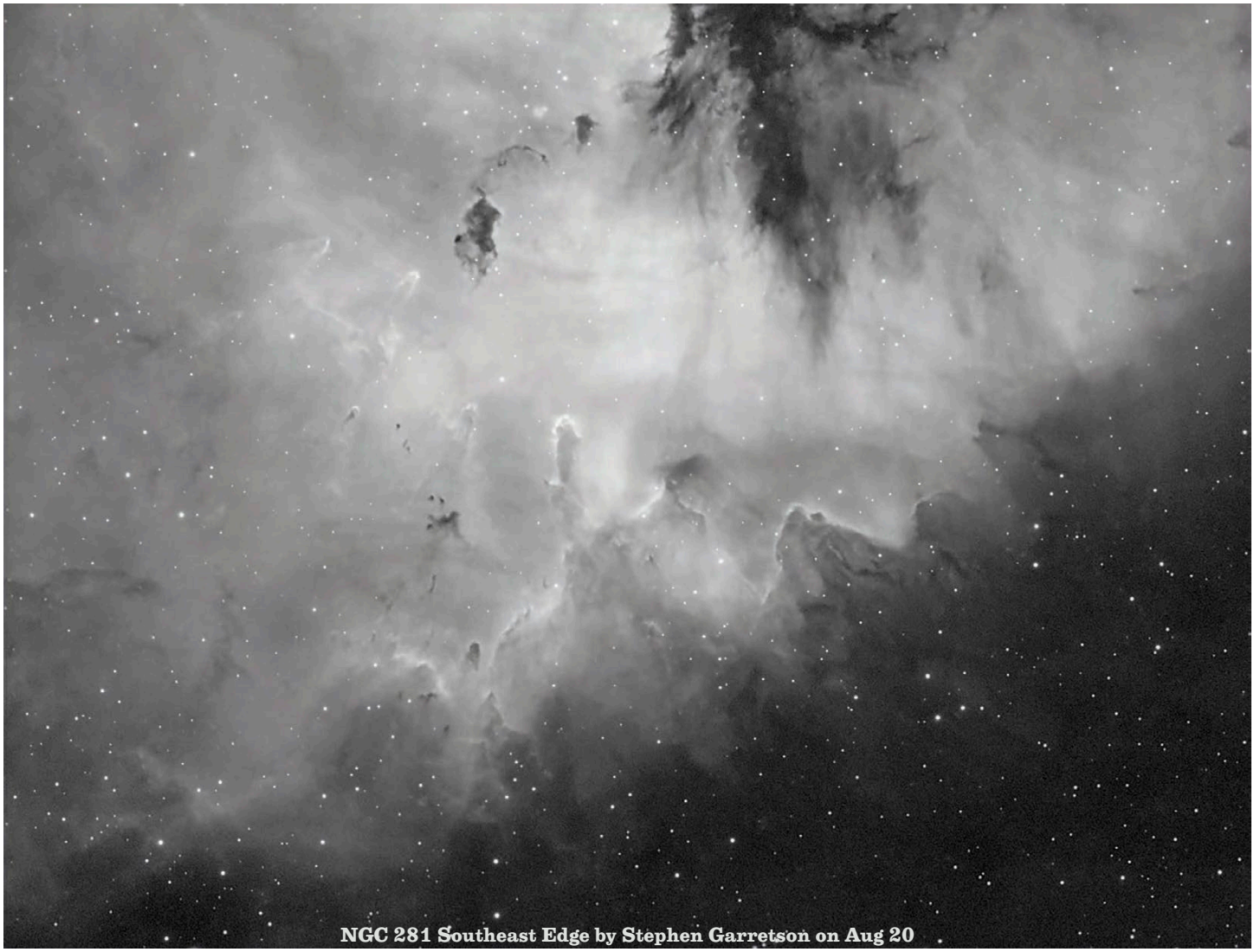
NGC 6946 Fireworks Galaxy by Rolando Garcia on Aug 31



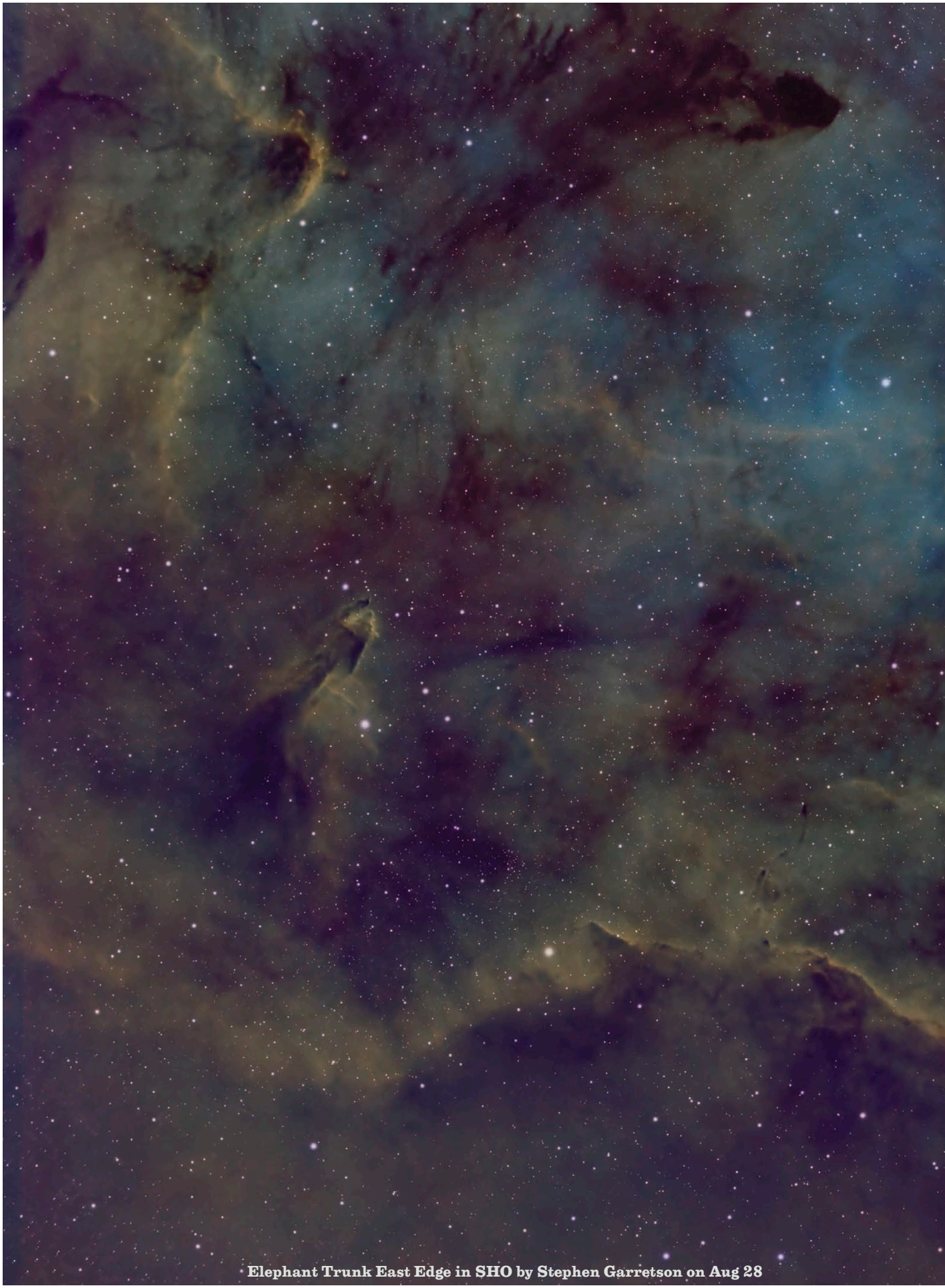
LBN 488 Area in SHO by Stephen Garretson on Aug 3



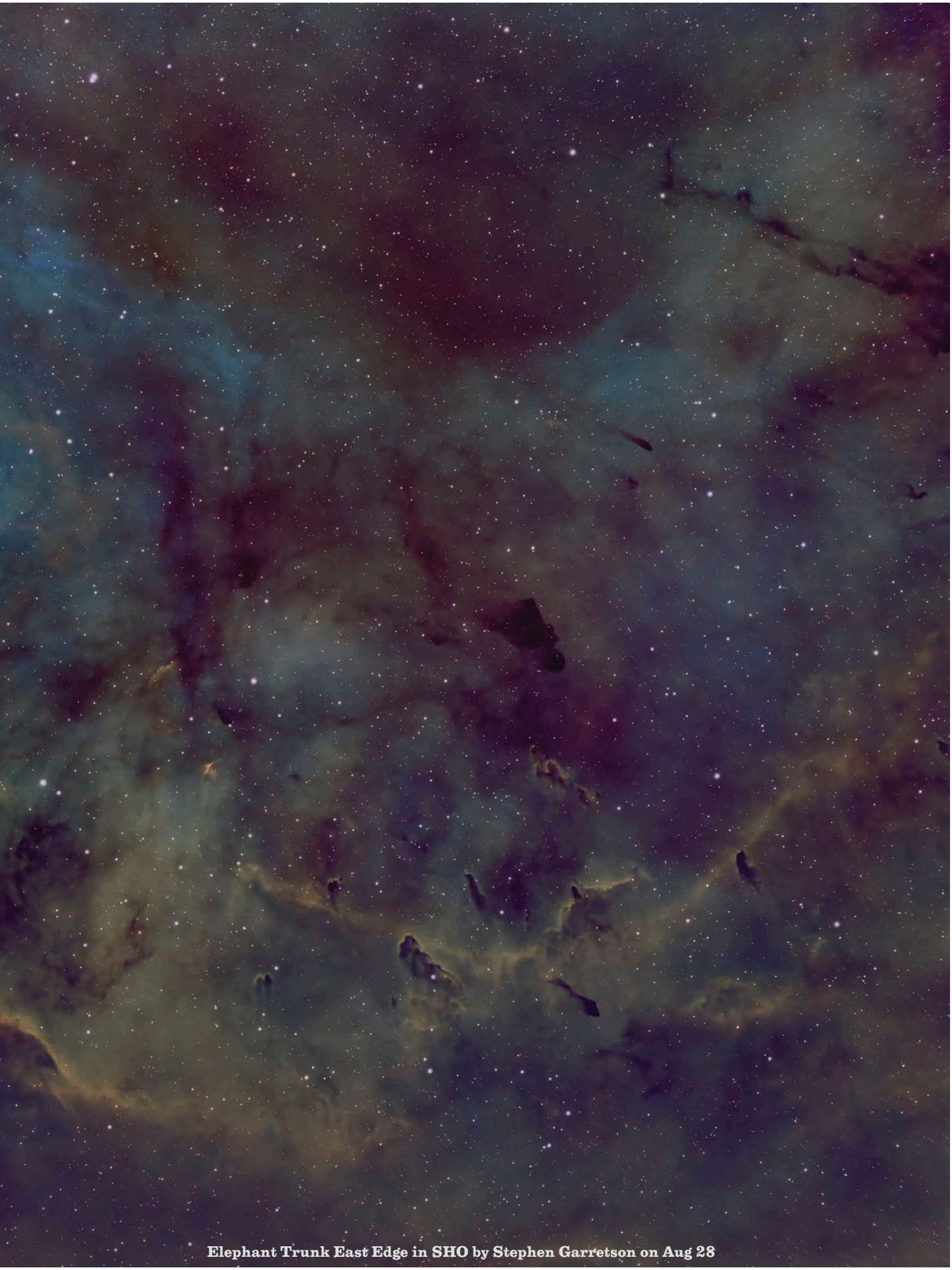
Propeller Nebula by Stephen Garretson on Aug 8



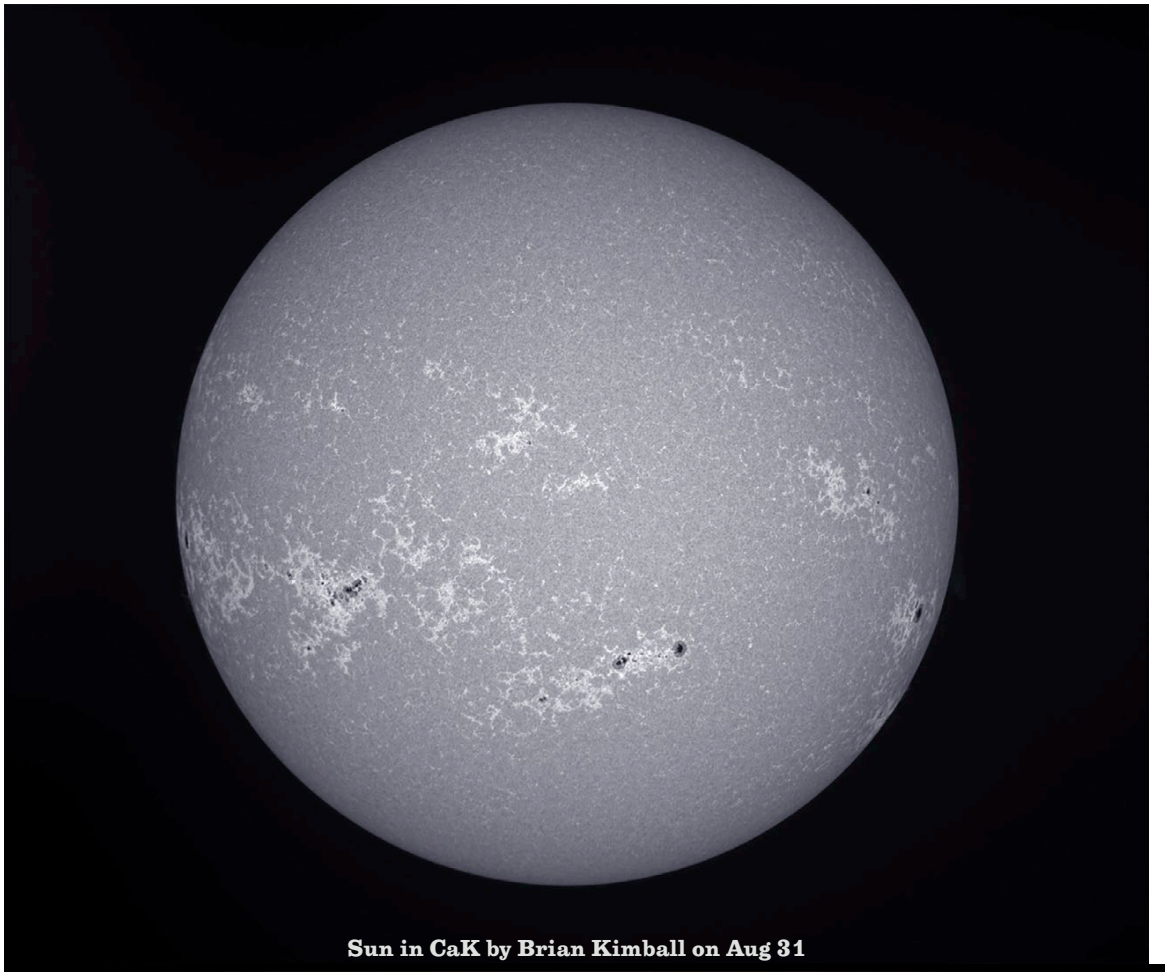
NGC 281 Southeast Edge by Stephen Garretson on Aug 20



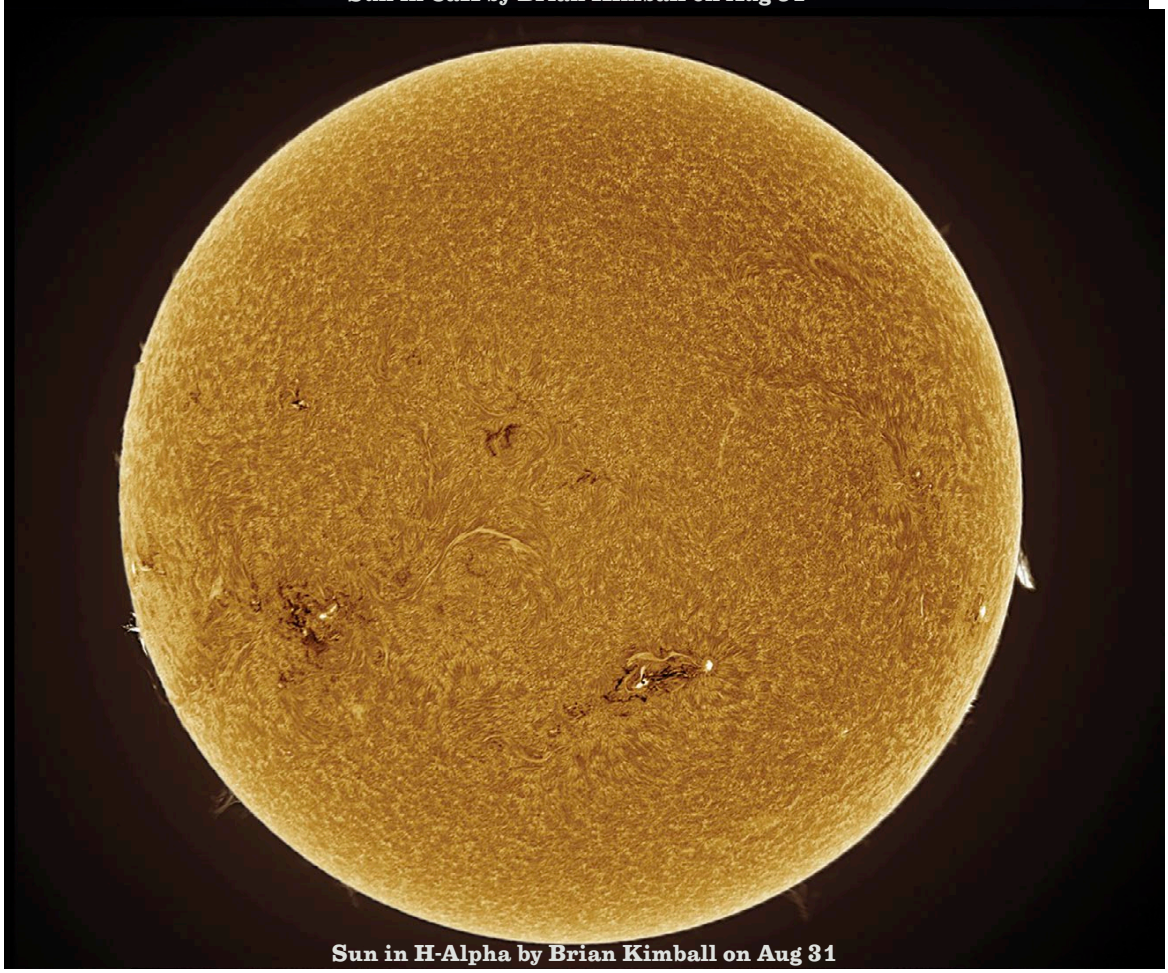
Elephant Trunk East Edge in SHO by Stephen Garretson on Aug 28



Elephant Trunk East Edge in SHO by Stephen Garretson on Aug 28



Sun in CaK by Brian Kimball on Aug 31



Sun in H-Alpha by Brian Kimball on Aug 31

Newsletter Archives by Eileen Hall-McKim

30 Years Ago September 1994

Meeting Notes
We had general discussion about a club field trip in January or February 1995 south to warmer climates. Please contact a club officer regarding ideas, etc.

Bob Spohn discussed the August 29th meeting with the City of Longmont regarding the Carnegie Building status. Detail forthcoming

Randy Cunningham gave a great presentation about the Newtonian telescope and observing conditions. Thanks Randy.

From the President, Jim Sharpe
This year we will be having our annual Astronomy Day activities on Saturday, October 8. During the day we will have a display set up at the Twin Peaks Mall. There will be a number of club and member telescopes there as well as books, photographs, and various other kinds of informational material. We will be passing around a sign-up sheet at the September meeting, but if you are not able to make it, we still encourage you to get in touch with one of the officers and set up a time. Typically people will sign up for a two hour block, with some staying longer. Of course anyone is welcome to simply show up and say hi. We plan to have the booth in operation between approximately 9 am and 5 pm.
We will be promoting the event in several local newspapers, Longmont's Channel 3, perhaps a radio station or two, circulating fliers to local bulletin boards and postings on the internet. With all this publicity it is very important that we get a good turnout of club members!

20 Years Ago September 2004

The View From Up Here – President, Bob Spohn
As this terrestrial orb continues its timeless dance around our nearest star, the wonders of the autumn and winter skies are being moved into prime position for our contemplation and enjoyment. The magnificent splendor of our galaxy's core reluctantly and gracefully relinquishes the cosmic state to the frozen majesty of winter's denizens, who willingly give up their secrets and treasures to the intrepid souls who seek them out.

M27 by Brian Kimball

Front page image of M27 by Brian Kimball
Hello, this is last night's work. The best seeing that we had all week. M27 is 30 minutes in each red, green and blue with 1 hour of unfiltered images added. Images were combined and dark subtracted in MaxIM DL Final processing in PS6.

Astronomical League representative report from Bill Possell: He has the Hershell 500 observing certificate for Mike Hotka.

LAS sponsored new Astronomical League observing program "Globular Clusters". The LAS logo is on the cover of program!

Webmaster report by Steve Albers:
Updates to the website, new link for Cassinni results, and link for "celestia software" very neat software for simulating the solar system, from various perspectives. Used to render moons of Jupiter. It works on multiple platforms, Windows,

20 Years Ago - Continued

Linux, Mac. Bob: thanks to Steve for keeping our website dynamic!

Anyone from LAS want to join BASS? Meetings are scheduled on the 3rd Saturday closest to the new moon. Julie Carmen: Darrell Dodge makes these groovy Messier observing logbooks on his website . Excellent! Fiske: Space Storm show – 6 live professors talking, No dead ones, all live! All on the Calendar.
September 4th, Labor Day weekend, Tri town party organized by Michelle Lavers, in Frederick at lake (check newsletter for details). Some were at last one at Saddleback club, cloudy till late, then cleared up and sprinklers came on! The event is advertised, and the town mayor is on board.

Spectacular night at the CU research station by Gary Garzone
Hi All, Allen Kiplinger, Mike Hotka, Damon Alcorn and I did another spectacular night under the stars Saturday, under pretty dark skies for so close to Boulder, at the CU research station and dome north of Nederland along the Peak to Peak highway, at 9,650 feet, so high and dark it is.
The southern sky, Tea pot, and full Milky Way could easily be seen. East was light domes from Front range cities, but I still had enough dark sky to keep us plenty busy. Mike Hotka got first light on his ST8 ccd camera thru Allen's 12 inch Meade scope in Dome. We slept in rustic cabins on site. We stayed up till 4 am. Allen was trying to do some solar CME ccd images but did not happen for timing reasons. He captures views after the sun goes down with ST8 ccd camera and wide field views thru 0.95 F lens, 30 degree field of view of sky, very awesome. Allen was very nice and very informative, love to hear him talk about his work. Keith Gleason director of SBO in Boulder also showed up for dark sky views. CU college class of kids who were camping in cabins also came by for stellar views.

LAS Newsletter Editor Philippe Bridenne and wife at WUTS

Visitors to WUTS (Wyoming Weekend Under the Stars at Fox Park)

10 Years Ago September 2014

The August meeting was about "Solar Astronomy" presented by Vern Raben. Vern talked about the Sun's properties, structure, and magnetic field. He reviewed some important solar astronomers, the sunspot cycle, aurora, and the upcoming total solar eclipse in Wyoming in 2017.

The topic for our next meeting will be "Daniel K Inouye Solar Telescope and its Instruments" presented by David Elmore, Optical Systems Scientist and Instrument Scientist, DKIST, National Solar Observatory. David Elmore is Optical Systems Scientist for the Daniel K. Inouye Solar Telescope (DKIST) working with international partners to deliver first light instrumentation for DKIST. Mr. Elmore has developed and designed instruments used for research in solar physics at the National Solar Observatory and previously for the High Altitude Observatory of the National Center for Atmospheric Research. His expertise includes design of ground based, balloon born, and spaced based spectro-polarimeters that measure polarized spectral line profiles to infer solar magnetic field strength in the solar photosphere, chromosphere, and corona.

Daniel IK. Inouye Solar Telescope (DKIST)

When operational in 2019 the Daniel K. Inouye Solar Telescope (DKIST), formerly Advanced Technology Solar Telescope, will be by far the largest solar telescope in the world. With its 4 meter diameter mirror, off axis Gregorian design, adaptive optics, and advanced thermal control, DKIST will produce diffraction limited solar images that for the first time will resolve the 'natural' solar image scale of less than 20km. DKIST will be equipped with five first light instruments to provide high spatial, spectral, and polarimetric accuracy observations over the wavelength range of 380nm to 5000nm. The presentation will show slides of the Telescope design, state of the art solar images, and the telescope's instruments that will improve upon those images.

NGC 7331 was discovered by William Herschel in 1784. It is one of the brighter galaxies missed by Charles Messier. It is sometimes compared to our own Milky Way galaxy as it is fairly close in size and once thought to have a similar structure. However, the central bulge of the galaxy rotates in the opposite direction to the outer parts of the galaxy. Nearby galaxies NGC 7340 (center far left in Gary's picture), NGC 7336 (above left), NGC 7335 (just below 7336), and NGC 7337 (lower left) form the Deer Lick Group. The grouping is accidental; the other galaxies are much further distant. The name "deer lick group" was coined by amateur astronomer Tom Lorenzin when he observed them from Deer Lick Gap in North Carolina.

NGC 7331 by Gary Garzone

Longmont Astronomical Society
P. O. Box 806
Longmont, CO 80506

M8 and M20 by Rolando Garcia