THE METEORITE

M-17
NGC 6618
The Omega Nebula
The Swawn Nebula
In Sagittarius

Newsletter of the Mahoning Valley Astronomical Society, Inc.

IN THIS ISSUE:

JULY 2014

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THE METEORITE

Newsletter of the Mahoning Valley Astronomical Society, Inc.

JULY 2014

MVAS CALENDAR

JUL	**12-13**	YSU Summer Festival of Arts. Noon - 5:00 PM
JUL	**19**	Business meeting at the MVCO 8:00 PM NOTE: This is one week earlier than usual!
AUG	**16**	Work day. OTAA prep and clean-up 12 Noon
AUG	**23**	MVAS-OTAA meeting at the MVCO, Braceville.
AUG	**30**	Business meeting at the MVCO. 8:00 PM

NATIONAL & REGIONAL EVENTS

Jul 22-27 **Table Mountain Star Party.** The 2014 TMSP will once again be held Eden Valley Ranch about 9 miles east of Oroville, WA. 6 days and 5 nights of great observing with informal talks, workshops, seminars, commercial vendors, door prizes, telescope-makers contest, and a swap meet. http://www.tmspa.com/

Jul 24-27 **Stellafane.** This historic star party is held on Breezy Hill in Springfield, VT. Check the web site for full details. Three nights of observing. http://stellafane.org/stellafane-main/convention/

Jul 27-Aug1 **Nebraska Star Party.** Held at the Merritt Reservoir, Valentine, Nebraska. One of the dark-est sky sites in the Mid-West. It is a Star Party for families. It is friendly for those just beginning in astronomy and provides a Field School for them. http://www.nebraskastarparty.org/

MVAS, P.O. BOX 564 NEWTON FALLS, OH 44444-9998
MVAS Homepage- http://mvobservatory.com

NEWS NOTES

One Year Trek. It had been 687 Earth days since NASA's Mars Curiosity rover landed on Mars. That is one complete Martian year. This very first milestone date occurred on June 24. Curiosity has accomplished its main goal of determining whether Mars once offered environmental conditions favorable for microbial life. Curiosity landed on an ancient riverbed in Gale Crater. Nearby, at an area known as Yellowknife Bay, the mission met its main goal of determining whether Gale Crater ever was habitable for simple life forms.

The answer was a historic "yes". The proof came from two mudstone slabs that the rover sampled with its drill. Analysis of these samples revealed the site was once a lakebed with mild water, the essential elements for life, and a chemical energy source used by some microbes on Earth. If Mars had living organisms, this would have been a good home for them.

Other important findings during the first Martian year include:

The early Martian atmosphere lost its lighter isotopes to space faster than heavier isotopes. Measurements found that the atmosphere now holds very little, if any, methane, a gas that can be produced biologically.

-- Curiosity paused this spring to drill and collect a sample from a sandstone site called Windjana. There is more magnetite than in previous samples. A key question is whether this magnetite is part of the original basalt or resulted from later processes. Water-soaked basaltic sediments is one such process The answer is important to understanding the habitability conditions of the early-Mars environment.

-- Preliminary findings indicate that the Windjana rock contains a more diverse mix of clay minerals than was found in the mudstone targets at Yellowknife Bay. Windjana also contains an unexpectedly high amount of the mineral orthoclase, a potassium-rich feldspar that is one of the most abundant minerals in Earth's crust. It had never before been definitively detected on Mars.

-- Curiosity departed Windjana in mid-May and is advancing westward towards the lower slopes of Mount. Sharp. Scientists expect geological layering will provide answers about ancient Martian environments. Before Curiosity landed, scientists expected the rover would need to reach Mount Sharp to see if meet the ancient environment was favorable for life. They found an answer much closer to the landing site. When at Mount Sharp, the mission team will look for evidence of habitability, and how environments evolved.

Moon Shot! Being July, one often recalls the day of the first moon landing in July 1969. Now the moon will welcome its first tourists as early as 2017. Space Adventures, a US-based space tourism company, has announced that two individuals have agreed to spend 150 million dollars each for a one-day tour around the ISS via a Russian Soyuz spacecraft. Names have not been revealed. Then it's a 17-day flight to orbit the moon and back, as reported in the *MIT Technological Review.* Interestingly, the Soyuz vehicle, which was designed for a Soviet mission to the moon in the late 1960s and early 1970s, has never flown beyond low earth orbit. Currently the U.S. pays Russia 76 million dollars for each astronaut we send to the ISS.

MINUTES OF THE JUNE MEETING

JUNE 28, 2014 at the MVCO

The June meeting was conducted outdoors for space and comfort considerations. President Lou DiNardo started the meeting at 8:01 PM with a Roll Call request. Twenty members gave the password. There were five guests in attendance. They included Tom Terleski, Rich Carrier, Dom and Nicholas Mattuissi and Virginia Bartos. Later in the evening during refreshment, six more guests arrived. There was a call to suspend the reading of the May minutes and accept them as published. Don Cherry moved to do so, Bob Danko seconded the motion. There was no further discussion. By a unanimous voice vote the motion was adopted.

TREASURER'S REPORT: The Report was read by Steve Bartos. Chris asked if the insurance was an annual expense. It is. Bob Danko moved to accept the Report. Chris Stephan seconded. By unanimous voice vote, the Report was accepted

General Fund	**5/1 thru 5/31 2014**
OPENING BALANCE:	$ 10,226.48
CLOSING BALANCE:	$ 9,737.66
AVAILABLE FUNDS (NON-RESERVED):	$ 5,508.54
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	$ -498.82
INCOME:	
SKY & TELESCOPE RENEWAL	$ 32.95
DONATION (ED & SHEILA BISHOP)	10.00
INTEREST	0.18
TOTAL INCOME	$ 43.13
EXPENSES:	
CK# 2805 INSURANCE (HOLLOWAY)	$ 300.00
2806 SKY & TELESCOPE RENEWAL	32.95
2807 10 FT. LADDER	$ 198.00
TOTAL EXPENSES	$ 531.95
Reserved Funds	
OBERVATORY ACQUISITION & DEVELOPMENT FUND	$ 3,914.12
MVCO KEY DEPOSITS	285.00
SUNSHINE FUND	30.00
TOTAL RESERVED FUNDS	**$ 4,229.12**

2014 Membership dues paid by: NONE THIS MONTH

CORRESPONDENCE: Nothing received at P.O. Box. Bob noted we will soon be getting a notice to renew the box. Phil pointed out that we have not received mail at this box in nearly two years. He wondered if it was worth the expense. Discussion on this was tabled for a future meeting.

COMMITTEE REPORTS: *IMAGING COMMITTEE:* Lou reported that there has been little activity. Jodi and Roy may have some work for him when they return from Colorado. *VISUAL COMMITTEE:* Phil turned in one report form from 2012

OFFICER REPORTS: *OBSERVATORY DIRECTOR:* Larry said things look to be in good shape. The outhouse needs cleaned up (bird droppings again). He noted that Phil had been working on the MVCO, mainly on the 12" building. There is a section of panel next to the deck that needs replaced as it is rotting at the top and bottom. Phil has stained/sealed the deck and roof trestle, cleared the west wall for painting and has painted the 12" pier (blue like the 16"). He also cleared out and organized the shed. He may paint the exterior of the 12" building very soon. Larry collected Homework- Phil's, about 8 months worth. Going back to 2012. [it would be nice to see a few more folks turn in a report now and then]

LIBRARIAN: Rosemary had nothing new to report, but added that it may be time to bring all the new books to the library. It seems safe now (no roof leaks). She hoped top do this soon.

OLD BUSINESS: We were reminded of YSU's Summer festival of arts on July 12 & 13. It is held outside the Planetarium. We need members to attend solar telescopes. Phil will be there both days, Rosemary can do one, Jodi and Roy mentioned they would be available as well. The discussion diverted to concerns about the group email list, with several members being informed they were being removed from the list due to too many bounces. This may be due to there being too many invalid email addresses on the list. There had been attempts to clean-up the list. Sam and Harry recently had a look at the situation.

Discussion of the OTAA followed. Start time for the Aug 16 work day was set for noon. OTAA set-up crew will also start at noon Main telescope attendants will be: 8" Dynamax- Bob Danko; 8" Draper-Hoynos Refractor- Chris Stephan and Don Cherry; 12" Meade- Rich Mattuissi and Rosemary Chomos; 25" Titan- Phil Plante. The 16" is available. Emcee- Bob Danko has volunteered. Speaker will be Sharon Shanks. Traffic Control- Rosemary Chomos; Coffee- Rosemary Chomos. Registration- Steve Bartos; Set-up Crew- Don Cherry, Larry and Phil, Rich. We usually have someone designated for electric lines. We also need night watch people and clean-up crew. We will order a tent as well as chairs. There was a discussion about tables. We now have 15 white tables at the MVCO (just got 6 more). We will need several more for food and prizes. Chris may be able to loan 4 tables which may lower the number of rental tables needed. There are several door prizes left from last year. Chris Stephan has donated 2 laser collimators and a small telescope. Please start gathering items that we can use for this.

NEW BUSINESS: Chris Stephan had a Celestron 2" eyepiece kit for sale and a 10x42 Zhumell roof prism binocular. He asked $325 for both. Tony and Phil had decided to purchase these items to donate as main raffle prizes. The Trustees had already approved of the donation; the membership was next. Bob Danko moved to accept the items as raffle prizes. Larry Plante seconded the motion. All in favor, motion accepted. At the last Trustee meeting it was pointed out that there was no snack host for the July meeting. It was decided to have our annual BBQ at this meeting. The Baker's will still bring desserts while the DiNardo's will bring drinks. Everyone else bring what you want to grill or sides to share. If you would like to help with desserts or drinks, contact the afore mentioned to coordinate these efforts. Remember the July meeting is a week early this year.

Steve said that it will cost about $170 to pump out the out house. Bob will inquire about the service from a company in Bristolville (lower cost). It was agreed to wait until a few weeks before the OTAA do this. Chris will be conducting a star gaze at Wooster Memorial Park on July 26th. This was being done as an MVAS affiliation. Thus he asked for any help that might be available. The CAA-OTAA is also on that night. Members are encouraged to attend this as well. Rosemary reported that the 75th Committee (via Sharon Shanks) has been in contact with Jerry Ehman in Columbus. He was the one that wrote "WOW" on strip chart with a strong ET signal coming from Ohio State's Big Ear radio telescope. (in the late 60's). Phil has been in the loop and added there will at least be compensation for his travel expense and likely a speaker fee. Understandable. There was a potential issue with the time of the talk being too early involving his Sunday morning schedule and the drive back to Columbus. But a 7:00 PM talk was found to be acceptable.

GOOD OF THE SOCIETY: Via email to Phil, Allen Heasley reports that Bette's health had taken a turn for the worse. As Allen states, she had become more agitated and unresponsive. She was admitted to the hospital for evaluation. There was no new diagnosis as to the latest condition. Once home they will receive nursing care, helping Allen to care for Bette. Phil suggests you send a card or email to lend support. Keep them both in your thoughts and prayers. Pandian had been out to visit them. Jodi and Roy had plans to visit as well.

Earlier this June your editor received a returned Meteorite from Walter Mackey. "Not able to forward". Rich checked with his phone and confirmed the worst fear. Apparently Walter had passed away on June 17th 2013. We had missed this by a year. Most members these days never met Walter. He was a good guy and was an active member in the MVAS during the 1970's. He was the last person to have worked on the 50" mirror. Thel lack of MVAS support left the mirror in his garage until we got to the MVCO in 2008. Walter was 81 years old.

Our guest Tom Terleski introduce himself and was interested in membership. Tom hails from Canfield, OH. He has several telescopes and enjoys restoring Cave Optical and Unitron telescopes. He currently uses an 11" Edge HD telescope and images with may different cameras. He is looking to salvage a and restore a universities 16" Cave Cassegrain. His day job is land developing. Chris Stephan nominated him for membership. Phil Plante seconded. By unanimous vote Tom was accepted as a member. Welcome to the MVAS Tom.

VISUAL REPORTS: Don Cherry saw many M-objects at Scenic Vista as did others. Lou DiNardo noted that he had the steadiest views of Mars during the Bar Mitzvah event. Dick Klesch also had great views of Mars at 200x with a 23A filter. Paul Baker had helped Mike Heim image M81/82 during the Cam meteor shower watch at Scenic Vista. Bob Danko plugged Observatory Park again stating that M-97 was visible in his 4" scope from there. Great dark skies. Chris Stephan had 36 variable estimates in May while Phil Plante had 18 in June.

ADJOURNMENT: Adjournment came at 9:13 PM. We thank our hosts Keith Janeco for the pizza, Larry Plante for the Amish donuts, Phil Plante brought drinks. Thanks to R.J. Pandian for the tasty chicken and for the extra pop. Someone brought pies. Missed the name. Thanks to them as well! The next meeting will be **at the MVCO on July 19 2014. Do note that this is a week early.** Meeting begins at 8:00 PM. Scheduled hosts are Jan & Paul Baker with dessert and Lou and Karin DiNardo with drinks. The main meal will be the annual bbq. Bring your stuff to grill or sides to share. You may also help with dessert or drinks. PASSWORD: name a Apollo astronaut. *-minutes by Phil Plante*

A Remembrance ....

Walter Leon Mackey, 81 of Mecca Township died on Monday, June 17, 2013, at his home. He was born August 9, 1931 in Warren, OH. Walter was a 1949 graduate of Vienna High School and served in the Air force from 1951-54 during the Korean War. He worked for 31 years at Republic Steel Corp./ WCI in the electronic instrument repair dept., retiring in 1994. Walter was a member of Payne's Corner Christian Church in Brookfield. Walter joined the MVAS in 1968 and was active in MVO activities and maintenance. He retired from active participation in 1984. He took over the 50" project from Merle Cook in 1975. He continued work on the project for several years until waning MVAS support compelled him to stop. He had always wanted to return to the MVCO for a visit. Sadly it never happened. May you rest in peace Walter.

MVAS REMINDERS

CAA- OTAA MEETING

The Cuyahoga Astronomical Association is slated to hold their annual OTAA meeting on **Saturday, July 26, 2014**. The CAA observatory is located at **Medina County's Letha House Park,** due east of Spencer, Ohio. It houses several member-built telescopes. No program information was available at press time. Visit their website as the date nears. http://cuyastro.org/

Letha House is on Richman Road – Just North of Spencer Lake Road. For GPS, use Spencer, OH 44275.
Or: **LATITUDE:** 41° 06.805 N **LONGITUDE:** 82° 03.644 W

Google Map to CAA Observatory

Driving in from points East:

★Take your best route to Rt. 83. Turn onto Rt. 83.

★ Follow Rt. 83 to Spencer Lake Road (see map for directions).

★ Turn onto Spencer Lake Road (West).

★ Take Spencer Lake Road to Richman Road and turn right. Up the rise and on the left (west) side of the road is the entry drive to the parking lot serving the Observatory and lake area. The drive and entry were newly created in 2009

MVAS ACTIVITIES

Bill Pearce Memorial Star Gaze. On June 7th, about a half dozen scopes were set up at Austintown Park. Very few public attended as cloudy skies slowly rolled in soon after sunset. It was a comfortable evening with fine views of Saturn. Elaine Pearce stopped by to say hello to the MVAS folks.

Scenic Vista Public Night. On June 21st, weather for the event was marginal. Imagine that! Cloudy up north with passing clouds at the park. Early arrivals had a BBQ around 7:00 PM. Other members began to arrive- with sunset. The sky had cleared out rather well. Six telescopes and two large binoculars were set-up on the circular drive in front of the pavilion. The regular field location was too soggy in some spots to risk a drive there. Getting stuck was not an option. Several scouts showed up. Only three from the public came out. One had a 10" Schmitd-Newtonian. He is a regular attendee at these events. Splendid views of Saturn and all those fantastic Milky Way objects along the western edge were had.

Around 10 PM a passing band of clouds gave pause to the sight seeing. This was a recurring event from then on. Observing continued well after midnight as the sky opened up every 15 minutes or so. By 1:30 AM all had to leave except the fellow (John) with the 10" and your scribe. By 4:00 AM the last two packed up. Solid clouds prevailed and the Moon was on the rise. All in all it was a very pleasant night. We have one more night at Scenic Vista on September 6th. Hope to see you there!

A Notable Scope. In May, member Chris Stephan acquired a Dynamax 8" SCT from the AAVSO. It once belonged to famous astronomer George Van Biesbroeck (1880-1974). He discovered 3 comets, 16 asteroids. He published a star catalog in 1961. He did work with double stars and was a member of the AAVSO. There is a crater on the Moon named after him as

well as a mountain near the McDonald Observatory. Van Biesbroeck continued to make observations and contributions up until his death at the age of 94. He received the Dynamax in the early 70's. But that scope has a close tie to a rather significant legacy of astronomical prowess.

Observer's Notes: R Crb and the Crown

The star R Coronae Borealis is one of the most interesting and peculiar variable stars. It has been a favorite target for MVAS variable star observers over the last 50 years, and an observer favorite ever since it was discovered by the English amateur, Edward Pigott in 1795. Its times of minimum light occur at random- seemingly by the laws of pure chance. With steady observations, you will eventually catch it dropping out of sight. R CrB is located inside the bright circlet of stars; the constellation Corona Borealis, also know as the Northern Crown R CrB is usually shining at 6th magnitude.

R CrB is the prototype of RCB variables stars. Just over 40 such stars are known so far. These stars are hydrogen-deficient but carbon-rich F or G supergiant stars. Unlike other eruptive variables that go into "outburst", RCB stars get dimmer. They spend most of the time at maximum light. At random intervals they go into deep declines of up to 8 magnitudes. The decline is usually sharp, dropping several magnitudes in a few weeks. It may remain faint for an extended period of time or have several recoveries and declines in succession. Often the final rise back to maximum light is slow, taking several months to a year. It's believed that RCB stars are either in the final stages of helium-shell flash burning, or they are the coalescence of a binary white-dwarf system. Production of carbon-rich dust clouds is believed to be the cause of the star's dimming.

There are different explanations for how the dust clouds block the light. One theory has been called the *Orbiting Dust Cloud Theory*. In this model, clouds of dust orbit the star and periodically pass along our line of sight of the star, blocking out the photosphere. But this model is inconsistent with observational data (light curves). Dust ejection from a companion star could make this model viable, however, there is no evidence of binarity in RCB stars.

Another theory has dust material ejected from the RCB star. This material moves away from the star until it cools enough for carbon dust to condense. This occurs at about 20 stellar radii. The carbon dust then blocks the photosphere. The star goes into minimum. Eventually radiation pressure blows the dust away. The star then heads toward maximum light. Named the *Dust Puff Theory*, it appears to be a good fit model.

There are only about 45 known RCB type stars known (confirmed spectroscopically). It's believed that we see these stars in the last stages of helium shell burning; providing a rare glimpse of stars ready to shed stellar dust shells. Most RCB stars have maxima at or below 11th magnitude. R CrB happens to be the brightest and most easily observed.

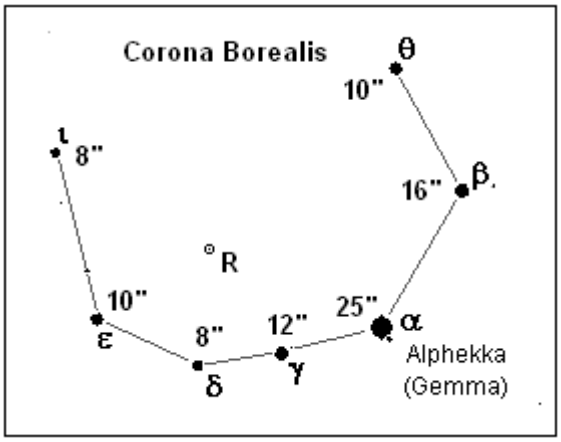
After 200 years of observations the mystery remains. By making regular magnitude estimates of R CrB, you can contribute to solving the mystery.. R Crb has been around 12th to 14th magnitude since May 2007. A rather long spell for this star. Will you catcth it rising? Go to the AAVSO website and print a chart with their Variable Star Plotter. Just type in R CrB and set chart parameters to match your scope's mag. limit. AAVSO chart plotter at: http://www.aavso.org/vsp

Corona Borealis - Our Crown?

Since we are speaking about R CrB, we should step back and consider the constellation that it resides in. Corona Borialis is known as the Northern Crown. Of the seven main stars that make up the arc, the brightest star shines at magnitude 2.2. It is named Alphekka, also aptly referred to as Gemma. This star is 75 light years away. If one likes to search for reflections of human events in nature, we can use Coronal Borealis.

For example, the MVCO has been called a "gem" of the region. Also a crowning achievement by dedicated astronomers. Thus, if we dare, we might project Corona Borealis as symbolic of the MVCO, immortalized in the sky. It has seven stars making up the crown. One each for our seven telescopes. Going from the brightest for the 25" to dimmer stars for each smaller telescope. It mimics the stellar brightness seen in progressively smaller telescopes at the MVCO. Finally, Gemma is 75 light years away. This is a significant number.

Corona Borealis rides high on summer evenings. The light that left Gemma 75 years ago reaches our eyes now. That light was produced during that summer of 1939 when Jack Draper and the others were contemplating the formation of the MVAS. In a sense we experience a part of that time by absorbing those photons today. If you get a chance this summer, have look. Binoculars work well. Perhaps on our celebration night in October, we'll be blessed with a clear sky. We can then look at Gemma. We'll see the light from when this all started.

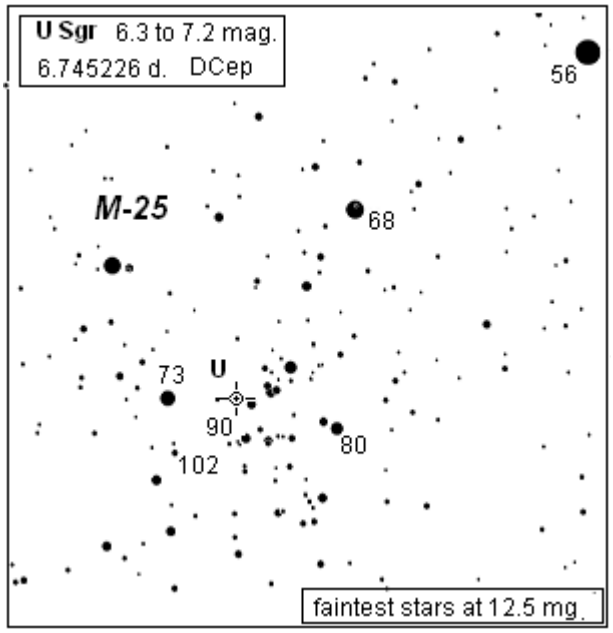


MVAS Homework: M-17

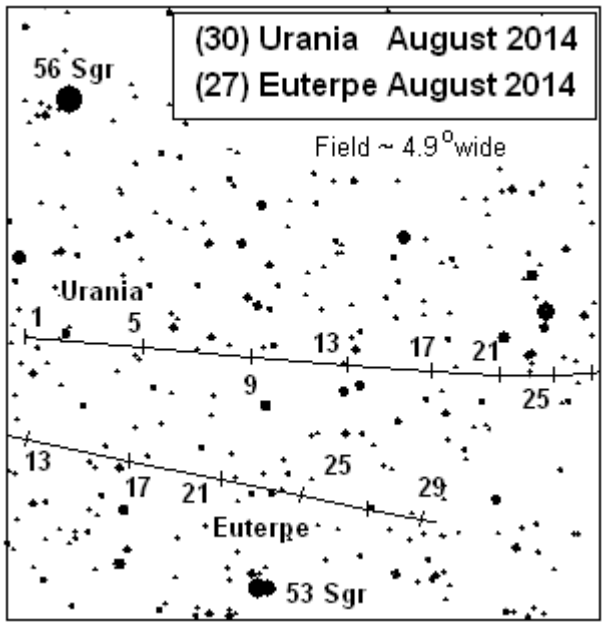
The Omega Nebula (M17, NGC 6618), is also called the Swan Nebula, or the Horseshoe Nebula. In the southern hemisphere, it is often called the Lobster Nebula. M-17 is a region of star formation and shines by ionized gas emission, produced by high energy radiation emitted from young stars. Unlike other emission nebulae, these stars are hidden in the nebula. It is easy to locate under dark skies. Pump up the magnification as high as practical. 200x should allow you detect the smaller details. M-17 is one nebula that seems to handle light pollution filters rather well. The nebula's contrast with the sky background is improved. Try an UHC or OIII filter for best results. Bigger scopes are recommended as well. Be patient and spend some time enjoying the view. Memorize those fine details as you go from eyepiece to paper, to place them in your homework sketch. Build-up your sketch, part by part. Detail by detail. Master the graphite in the pencil. Blend and smudge with your finger. Take your time. Enjoy the process. Your observing skills will grow.

MVAS OBSERVER'S CHARTS

Variable star of the month: **U Sagittarii** (*abbrev:* U Sgr). As you hunt down the object-rich constellation of Sagittarius, stop at open cluster M-25. Near its center is the yellow-giant Cepheid variable star U Sgr. It ranges from 6.3 to 7.2 magnitude. It takes about 4 days to drop to minimum, then two days to rise back to maximum light. Binoculars will work for this. Plus you get to enjoy a nice open cluster.



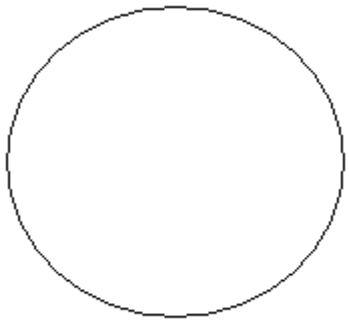
Asteroid of the month: (**30) Urania** Passing through Sagittarius in August is Urania. It begins August at magnitude 10.5 and then gets dimmer. It is 11.2 by the end of the month. Joining Urania is (27) Euterpe as they both pass between 56 Sgr and 54 Sgr. Euterpe starts off dim around 10.9 and drops to 11.3 by the 29th. You'll need a scope for this pair. Be brave and give them a try. You won't know what you can see until you give it a try. The chart magnitude. limit is about 10.5. Good luck!



MVAS OBSERVATIONS (Homework)

OBSERVER_____

Featured object: M-17 . Please try a sketch. Combine all the image information you gather with your brain, using various magnifications and nebula filters. Place stars as accurately as you can, first. These will be your reference points for drawing outlines of the nebula itself. Smudge and blend the graphite with finger, as needed. Just get it to look like what you see.



M-17 (Swan) Observation:

Date:_____ Time(EDT)_____ Scope_____

U Sgr magnitude estimates:

Date:	Time:	estimate:	Instrument:
_____	_____	_____	_____
_____	_____	_____	_____

(30) Urania Observations:

Date:	Time:	Instrument:	magnification:
_____	_____	_____	_____
_____	_____	_____	_____

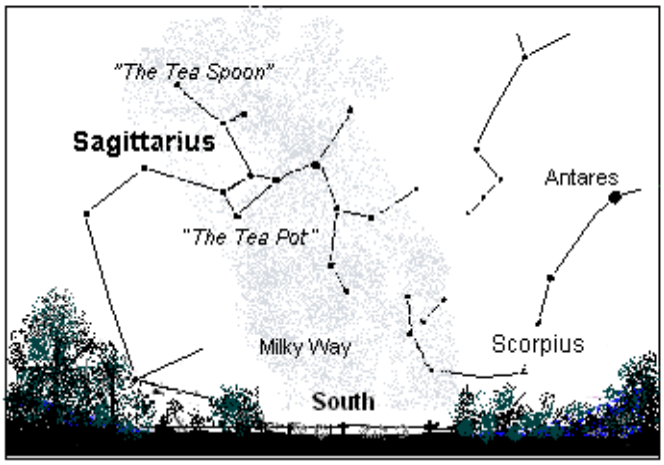
Other Objects in Sagittarius to observe

D. Sky	Date	Scope	**Dbl.**	Date	Scope	SEP	MAG	SPLIT?
M- 8	_____	_____	μ Sgr	_____	____		16.8"	Y / N
M- 22	_____	_____	21 Sgr	_____	____		1.5"	Y / N
M- 25	_____	_____	54 Sgr	_____	____		44.7"	Y / N

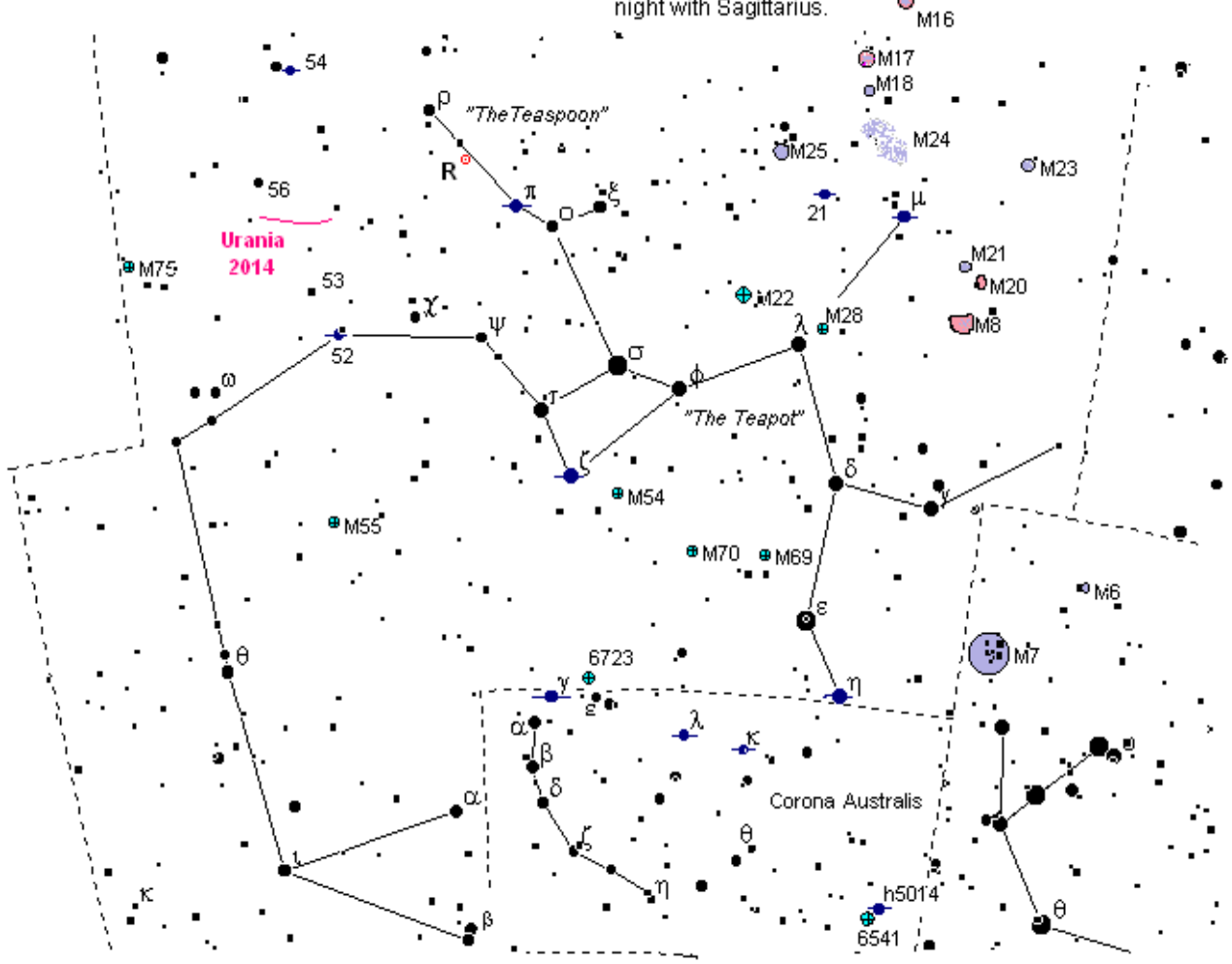
Lunar Occultations (see Sky Almanac):

Star	(UT) Date	Time	Scope	magx.	Event(circle)
_____	_____	_____	_____	____x	R D
_____	_____	_____	_____	____x	R D
_____	_____	_____	_____	____x	R D

Constellation of the Month — Sagittarius



By the end of July, Sagittarius is south by 11PM. It is highest in the sky now. And this is the best time of night to observe this constellation. As July / August progress, the day's heat and haze linger and often spoil the earlier evening views of the deep sky stuff. These night-mornings can still be cool and haze free. And there is a treasure trove of M-objects to be found in Sagittarius. Just sweep along the Milky Way if you are lucky to be in a dark sky site. Even with binoculars or a finder scope, they will stand out, calling for closer inspection with a telescope. Sagittarius is an archer, but many see it as a Teapot. It's easy to make out the spout, handle, and teaspoon. The Milky Way serves as the steam coming out of the spout. In the steam, you'll find favorites like The Lagoon (M8). Trifid (M20), The Horseshoe (M17) And M16 in Serpens. The Great Star Cloud (M24) and one of the finest globulars- M22. Indulge yourself with the tea steam- and perhaps a glass of iced tea, to keep you going on a warm night with Sagittarius.



DEEP SKY

	mag.	size	type	"name"
M8	- -	50' x 40'	Neb.	"Lagoon"
M16	6.0	6'	Open Cl.	"Eagle"
M17	- -	11 'x 6'	Neb.	"Omega Neb"
M18	6.9	9'	Open Cluster	
M20	- -	17' x 12'	Neb.	"Trifid Neb."
M21	5.9	13'	Open Cluster	
M22	5.2	33'	Globular	

	mag.	size	type
M23	5.5	27'	Open Cluster
M24	- -	95' x 35'	star cloud
M25	4.6	32'	Open Cluster
M28	6.9	10'	Globular Cluster
M54	7.7	12'	Globular Cluster
M55	6.3	19'	Globular Cluster
M69	7.7	10'	Globular Cluster
M70	7.8	8'	Globular Cluster
M75	8.6	7'	Globular Cluster

Check list

____ M8
____ M16
____ M17
____ M18
____ M20
____ M21
____ M22
____ M23
____ M24
____ M25
____ M28
____ M54
____ M55
____ M69
____ M70
____ M75

Instruments used:

_____ on _____
_____ on _____
_____ on _____
_____ on _____

2014 AUGUST SKY ALMANAC

Solar and Lunar (EDT).

Date	Sunset	Moonrise	Moonset
1	8 : 41	— : —	11 : 20p
5	8 : 36	— : —	1 : 10a
9	8 : 31	— : —	5 : 06a
13	8 : 26	10 : 08p	— : —
17	8 : 20	12 : 00a	— : —
21	8 : 14	3 : 07a	— : —
25	8 : 08	6 : 48	— : —
29	8 : 02	— : — a	9 : 55p

PLANET WATCH

Saturn *Sets*	Neptune *Transits*	Uranus *Transits*
12:55 AM	3:20 AM	5:46 AM
12:39	3:04	5:30
12:24	2:48	5:14
12:08	2:32	4:58
11:49 PM	2:16	4:42
11:34	2:00	4:26
11:19	1:44	4:10
11:04	1:28	3:54

August 2014

S	M	T	W	T	F	S
					1	2
3	4 ☽	5	6	7	8	9
10 ○	11	12	13	14	15	16
17 ☾	18	19	20	21	22	23 OTAA
24	25 ●	26	27	28	29	30
31					Neptune	

Asteroid for August 2014 (30) Urania

Date	Transits	RA hr.	RA min	Dec. deg.	at 10:00PM EDT Alt.	Azm	Magnitude
1	12 : 33 AM	19	47	-21	18°	143°	10.6
5	12 : 13 AM	19	43	-21	20	147	10.7
9	11 : 54 PM	19	40	-21	22	151	10.7
13	11 : 35 PM	19	37	-21	23	156	10.8
17	11 : 17 PM	19	34	-21	24	160	10.9
21	10 : 59 PM	19	32	-21	25	165	11.0
25	10 : 42 PM	19	30	-21	26	169	11.1
29	10 : 25 PM	19	29	-21	27	173	11.2

Variable Star of the Month: **U SGR** 6.3 - 7.2 mag 6.745226 day period

Celestial Highlights

Date	UT hr	
4	00	**FIRST QUARTER**
6	04	Algol at minimum
10	18	**FULL MOON**
17	12	**LAST QUARTER**
18	04	Venus 0.2° N. of Jupiter
18	13	Venus 1.0° S. of Beehive
20	09	Jupiter 1.2° S. of Beehive
25	14	**NEW MOON**
27	02	Mercury 3.3° N. of Moon
29	14	**Neptune at opposition**
31	17	Saturn occulted by Moon in daylight

LUNAR OCCULTATIONS FOR AUGUST 2014

Civil date	hr	min	sec	UT date	hr	min	sec	Ph	Moon % illum.	Moon alt	Moon azimuth	Star name	Star Mg	event PA	dbl./ sep.
7	21 : 36 :	06		*8*	01	36 :	06	D	89+	27°	160°	U Sgr	6.6	071°	66.0"
7	22 : 10 :	24		*8*	02	10 :	24	d	89+	29	169	SAO 161582	7.0	035°	69.0"
7	23 : 38 :	09		*8*	03	38 :	09	D	90+	29	192	XZ 2699	6.8	121°	NA
12	22 : 38 :	20		*13*	02	38 :	20	r	92-	11	102	14 Psc	5.9	242°	NA
15	0 : 22 :	54		*15*	04	22 :	54	R	74-	17	94	XZ 214	6.2	208°	.001"
18	1 : 43 :	04		*18*	05	43 :	04	r	42-	10	76	SAO 93805	7.0	216°	NA
30	21 : 40 :	56		*31*	01	40 :	56	D	26+	8	245	XZ 2066	6.5	074°	43.0"
31	13	18	15	*31*	17	18	15	D*	33+	6	116	SATURN	0.6	059°	NA
31	14	01	32	*31*	18	01	32	R*	33+	13	124	SATURN	0.6	338°	NA

* Daytime event. Disk occultation duration: ~25 sec.

D= disappearance. Good occultation event.
d= disappearance, the star's magnitude approaches the observing limits of 200mm objective
R= reappearance. Good occultation event
r= reappearance, the star's magnitude approaches the observing limits of 200mm objective
All disappearances (D) occur on the eastern limb (left side in the sky). Reappearances (R) always occur on the western limb.
Position Angle (PA): tells where along the west limb to watch for a reappearance.
PA is referenced to celestial north: North=0° East=90° South=180° West=270°
Occultations computed using Occult v3.6 (I.O.T.A.)
Variable star data from AAVSO. All other data computed with MICA 1800-2050 (Willman-Bell)

GALLERY…..

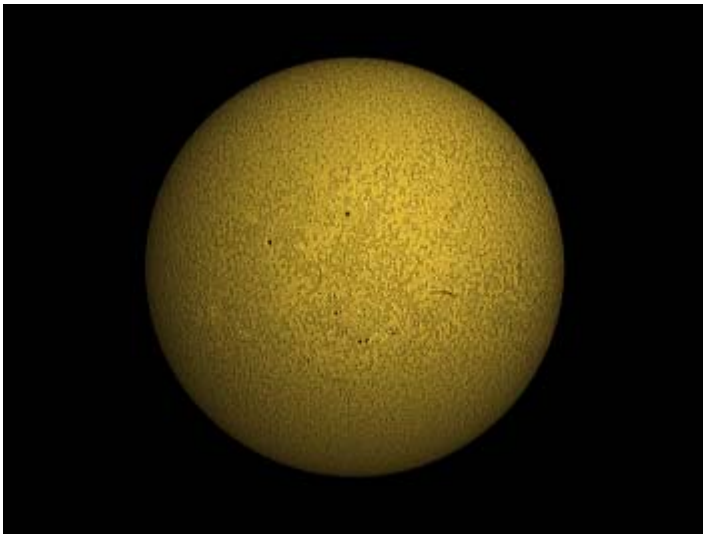
MVAS Imagers:

The Imaging crew has not been very active this year. Here are a few that the editor has received. Not many, but they are outstanding efforts. Please enjoy.

Jodi and Roy captured M-20, the Trifid Nebula, on June 2, 2014. The scope used was a TEC 180 and the camera was a Canon 60 Da. The image was processed using Image Plus.

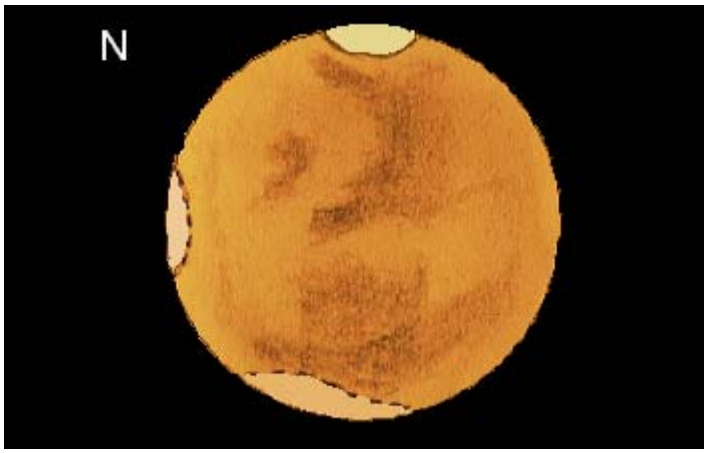
Don Cherry took this shot of old Luna on May 10, 2014. He used a 4" Mak-Cass scope with a 26mm eyepiece. He used his iPad as a camera, shooting through the eyepiece

Mike Heim with assistance from Paul Baker captured M-81 and M-82 on June 23/24, 2014. It was the night of the new Cam Meteor Shower. Those proved to be a dud. Mike's image saved the night. He used his trusty 6" scope for this.

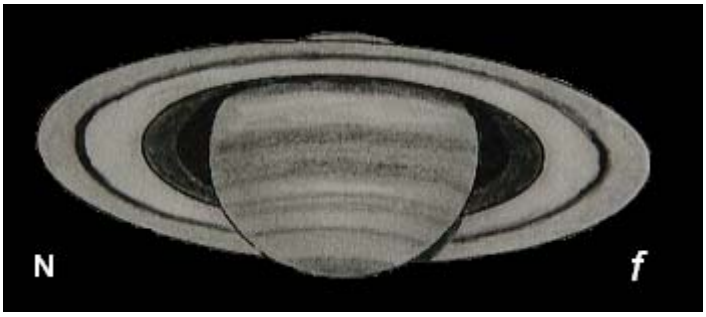


Jim Haklar sent this “grapefruit” solar image on June 10, 2014.

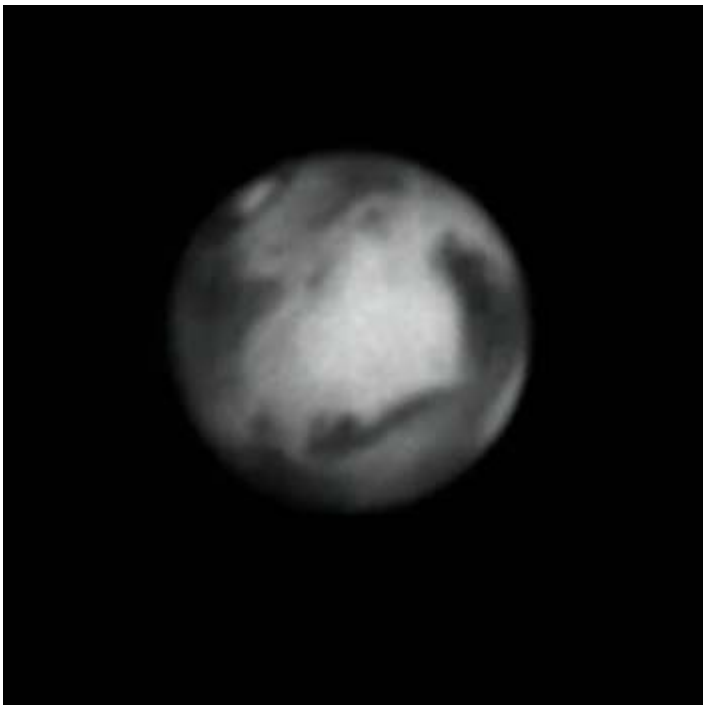
Jodi and Roy used their new webcam (ZWO ASI120MM) and the TEC refractor for this image. It was processed with Images Plus and had around 5,000 frames each of 3 filters (red, green and blue) for a total time of 6 minutes. It was taken around 1:45 AM (5:45 UT) May 17, 2014).



Phil Plante used the 25" (Titan) at the MVCO on May 25, 2014 at 11:10 PM (3:10 UT May 26) to make a sketch of Mars. Magnification was 215x with no filters. Color was added during digital processing to add some pizzazz. Note the North Polar Cap at top. Mare Acidalium, Niliacus Lacus, Chryse Planitia, and Aurorea Sinus are the features going south towards the duller South Polar Hood. Bright limb clouds hover over Olympus Mons on the left. This is the morning (sunrise) side of Mars.



At 10:35 PM May 16 (2:35 UT May 17), Phil Plante made this sketch of Saturn using the 25" scope at the MVCO. Magnification was 215x. The seeing was exceptionally steady. No filters used. This sketch was made a few hours before Jodi and Roy took their image, shown above. There seems to be comparable detail in both images. Interesting!



Jim Haklar took this image Mars on April 21, 2014. Note Syrtis Major on the left, about to set. Jutting westward is Sabeus Sinus. The Tharsis region rides on the central meridian. Can you detect any brighter patches there? Orographic clouds over the volcanoes? How about the clouds over the Hellas basin at the limb, around "4:00" position?

Jim Haklar sent this quick image of Saturn on June 10, 2014.

Scenic Vista June 21, 2014:

A partly cloudy night proved to be a worthwhile endeavor. Early arrivals enjoyed a picnic and conversation from about 6:30 PM until time to set up telescopes.

Greg and Don relax in the pavilion. There were others, hiding?

Hot dogs and kielbasa were on the menu. *Right:* Several archers showed up to use the range at Scenic Vista. Some MVAS folk went over to investigate and have a try.

At sunset, scopes began to appear as the clouds parted; just in time. Eventually six scopes and binoculars were in use.

Cell phones and mp3 players filled the idle moments after chow. There was a good quiz on the oldies music being played....who, what and when.

Looks like Sagittarius showed up early! Not to worry. Targets were in no danger of a hit. As was the Scorpion who was free to sail across the night sky. With the Milky Way following, Sagittarius brought out many fine M- objects for scope targets.

John at work, below Scorpius. When clear, the skies were pretty good. Once It cooled down, the mosquitoes went to sleep. Yea!