

# THE METEORITE



*Globular Cluster M-10  
in Ophiuchus*



NOAO PHOTO

Newsletter of the Mahoning Valley Astronomical Society, Inc.

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**NEWS NOTES**

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**MVAS CALENDAR**

- JUN 23** Public Night at Scenic Vista. 7:00 PM
- JUN 30** Business meeting at the MVCO 8:00 PM
- JUL 7-8** YSU Festival of Arts: solar observing, Noon - 5PM
- JUL 28** Business meeting at the MVCO. 8:00 PM

**NATIONAL & REGIONAL EVENTS**

- JUN 16** **Observatory Park Grand Opening.** 10610 Clay St., Montville, OH (near CVAS). 7pm to midnight. Concert, star party. No registration. Free. <http://www.geaugaparkdistrict.org/special-events.shtml>
- JUL 4 - 6** **Midwest Astro-Imaging Conference.** To be held at the Marriott Lincolnshire Resort near Chicago. Sessions are in the afternoons. Registration for the imaging conference is \$100 in addition to the \$50 ALCON registration. **The ALCON and ALPO** morning meetings run July 5 thru July 7th at the Marriott as well. <http://www.mwaic.com/>
- JUL 18-22** **Mason Dixon Star Party.** At Shreveport Airport, Wellsville, PA. About four miles south of Dillsburg, PA. The site offers a level 360 degree horizon with relatively dark skies. Starts at noon on the 18th, ends at noon the 22nd. <http://masondixonstarparty.org>
- JUL 21** **Cuyahoga Astronomical Association OTAA Convention.** The CAA will conduct its annual OTAA meeting at Letha House Park. Details to be announced. [cuyastro.org/about/](http://cuyastro.org/about/)

**Tilt-a-Whirl?** NASA officials report that the Cassini spacecraft made its closest-ever flyby of the tiny moon Methone on May 20. It came within 1,200 miles of the 2-mile-wide Methone. Cassini discovered Methone and two other small moons, Pallene and Anthe, between the orbits of Saturn satellites Mimas and Enceladus between 2004 to 2007. The three tiny moons are embedded in Saturn's E ring, and their surfaces are bathed in particles of water ice, water vapor and organic compounds that blast from geysers at Enceladus' South Pole. Cassini also trained its cameras on the Saturn moon Tethys on that day. It imaged the heavily cratered moon from about 34,000 miles away. Tethys is much larger than Methone, measuring roughly 660 miles in diameter.

Besides taking dazzling new photos of the two Saturn moons, Cassini began tilting its orbit in preparation for a more detailed study of the giant planet's poles and rings. Over the next few months, several more Titan flybys will shift the angle of Cassini's orbit further. It is planned to be orbiting Saturn at about 62 degrees relative to Saturn's equator by 2013. The probe's onboard thrusters aren't capable of shifting Cassini's orbit so dramatically, so researchers are relying on orbit shifting gravity assists from Titan. Such heavily inclined orbits should provide great views of Saturn's poles and rings. But further in-depth studies of Saturn's other moons will have to wait until 2015 or so, when Cassini returns to an equatorial orbit.

**Naked-eye eclipser- good data.** A research group from the University Of Helsinki, Finland has made a study of ancient Egyptian observations of the variable star Algol: the Demon Star. It is based on the Egyptian papyrus *Cairo 86637*. This document contains a calendar that is probably the oldest preserved historical document of naked-eye observations of a variable star. A modern period analysis has revealed that two statistically significant periods of 29.6 and 2.850 days that have been recorded. The former is clearly the period of the Moon. The second period differs slightly from the current period of Algol. In this eclipsing binary, the dimmer star partially covers (eclipses) the brighter star every 2.867 days. The eclipse last about ten hours and is easily observed without optical aid. The eclipsing nature of Algol's variability was worked out by John Goodricke and announced in the year 1784.

It can be explained why the period of Algol seems to have undergone a period increase of about 0.017 days. This period increase over the last 3,000 years could be caused by the observed mass transfer between the two members of this binary. If true, this would be the first observation that confirms the period increase of Algol and it also gives an estimate of the mass transfer rate. The ancient Egyptians have made accurate measurements that provide useful constraints for modern astronomers. Thus it seems that the first observation of a variable star was made 3,000 years earlier than was previously thought. It should be noted that this type of research and result can raise a lot of controversy before it is accepted.

**Rise and Shine.** Now with abundant sunshine for power, Mars rover Opportunity has awakened from winter hibernation. It drove to an undisturbed dusty patch to investigate the chemical origin of Martian dust on Sol 2957 (May 19).

**MVAS BOARD OF TRUSTEES**

President	Sam DiRocco
Vice President	Harry Harker
Treasurer	Steve Bartos
Secretary	Phil Plante
Appointed Trustee (2012 & 2013)	Rosemary Chomos
Appointed Trustee (2011 & 2012)	Bob Danko
Elected Trustee (2012)	Dan Schneider

**OBSERVATORY STAFF**

Observatory Director	Larry Plante
Assistant Observatory Director	Dave Ruck
Librarian	Rosemary Chomos

**PUBLICATIONS STAFF**

Meteorite Editor	Phil Plante
Assistant Editor	Steve Bartos
MVAS Webmaster	Harry Harker
MVAS Webmaster	Bill Pearce

**MVAS REPRESENTATIVES**

OTAA Representative	Harry Harker
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 MVAS Homepage- <http://mvobservatory.com>

## MINUTES OF THE MAY MEETING

MAY 26, 2012 at the MVCO

President Sam DiRocco called the meeting to order at 8:09 PM. This meeting was held out doors due to the warm but nice weather and the extra space that was needed to accommodate the group. Picnic supplies in the meeting room also used up the officer's table. Roll Call showed that 26 members were on hand. Two of these arrived after official Roll Call was taken. Eight guests were also present. These included Alan and Jane Avnet, Mike Heim, Karin DiNardo. Ellen Prewitt, Virginia and Stephen Bartos (and Jim-? Usually at the Planetarium). In all 34 people came out for the meeting and BBQ/ picnic.

A Call for the Reading of the Minutes was made by the president. Bob Danko moved to suspend the reading; this motion was seconded by Greg Higgins. There were no corrections or questions. With no further discussion, the Minutes are accepted as published, a voice vote was taken.

**TREASURER'S REPORT:** The Report was read by Steve Bartos. No corrections or questions were brought up. Bob Danko moved to accept the Report as read. The motion was seconded by Greg Higgins. A voice vote was taken, all in favor. The Report is hereby accepted. Phil Plante reminded the members that around \$3,900 of the closing balance is considered Reserved Funding, specified as the OAD Fund.

### General Fund 4/1 thru 4/30 2012

OPENING BALANCE:	\$	8,277.83
CLOSING BALANCE:	\$	8,574.79
AVAILABLE FUNDS (NON-RESERVED):	\$	4,410.67
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	\$	+296.96

#### INCOME:

DUES	\$	330.00
50/50 RAFFLE AT CHILI-FEST		23.00
MVAS CLOTHING SALES		42.00
DONATION (ROSEMARY CHOMOS- PAST DUES)		30.00
DONATION (MIKE SPRAGUE)		20.00
INTEREST		0.33
<b>TOTAL INCOME</b>	\$	<b>445.33</b>

#### EXPENSES:

CK# 2774 LAMINATE & BIND BOPP PHOTOS (KINKOS)	\$	148.37
<b>TOTAL EXPENSES</b>	\$	<b>148.37</b>

#### Reserved Funds

KEY DEPOSITS (MVCO)	\$	250.00
CASH FROM ORIGINAL OAD FUND (FOR LAND)		3,914.12
<b>TOTAL RESERVED FUNDS</b>	\$	<b>4,164.12</b>

2012 dues paid by: F. Boyer, M. Boyer, P. Durrell, J. Haklar, G. Higgins, M. Hoffman, K. Kalna, Carol Oiesen, Chuck Oiesen, B. Pearce. Thanks to all members that have paid their dues.

**CORRESPONDENCE:** There was a nice packet from NASA that had a cool 3-D postcard of the x-ray Sun. Bob Danko also reported that no other mail was in the P.O. Box that morning.

**COMMITTEE/OFFICER REPORTS: COMMITTEE/OFFICER REPORTS: IMAGING COMMITTEE: VISUAL COMMITTEE: LIBRARIAN:** No reports given.

**OBSERVATORY DIRECTOR'S REPORT:** Larry Plante has repaired the electrical outlet on the deck. He has also installed an outlet in the Woman's side of the rest room. It is now possible to use a heater, a fan or other electrical-electronic devices that the ladies may need. Larry has also turned the well pump on. Water is now available for cleaning chores, etc. He

had looked at the cable for the dome shutters but wasn't able to get his ladder to the MVCO to reach the top of the dome. He also noted that Allen Heasley sent an e-mail saying that they when they built the dome, they used a chain rather than cable because the chain had more friction. A cable would slip in the pulley system. Allen also wanted to know if the stage cables for the elevator floor have been greased lately. Bob Danko said he remembers greasing the dome pulley some time ago, perhaps in the 2004 time frame. Phil thought the stage cable was last greased in the early 90's when Jerry Jackson was OD. Even though the stage is rarely used these days, grease can thin out over time and drip-off the cable. Sam indicated that we should be sure to get a new coating applied. The dome shutters are still on the to-do-list, with more investigation on chain vs. cable.

**OLD BUSINESS:** The door on the 12" building was discussed. There has been no action on this. An inspection of the door would be done after the meeting (it looked like a sold core with surface damage- Editor). Next was a discussion about the Christian Home School group than wants to visit the MVCO. Harry Harker has been in contact with the group leader. He explained that the large size of the group would not be feasible and splitting into smaller groups would be the only way to do this. The lady understood and said they are used to this situation. Jodi and Roy said such a large number of children would be tough to handle. We will need many members to help. First it was decided this would be best done during the daytime featuring solar observing. Then at Greg's suggestion it was decided we would do this on a meeting day. This would be either June 30 or July 28. Harry would relay this to the group to see what worked for them. Group sizes not yet determined.

Rosemary asked about the Chagrin OTAA. Phil said all he could find was the Grand Opening of Telescope Park on June 16th. That would have been CVAS's OTAA date. They do a lot of work at Telescope Park so it is assumed that the event is their OTAA. It is really worth seeing this place, so attend it if you can. It was reminded to all that there is no longer a password needed to access the members page on the MVAS website. You may freely download the Meteorite from there, as Bill posts them. Meanwhile, Phil will continue to send PDF versions to all members that he has an email address for. When asked, everyone seemed to be good with the last two issues sent in this way. Harry suggested an e-mail account he could set-up that would mail these individually, keeping everyone's' email addresses separate. All of this is a new way to get the newsletter to you promptly and eventually eliminate the expense of paper issues. Lastly, Steve had an invoice for our insurance policy, with possible changes- increase coverage, etc. In quick discussion, it was decided to maintain the current level of coverage and premium payment.

**NEW BUSINESS:** Bob Danko took the floor and expressed his frustration and anger in that Rosemary got stuck once again, cleaning-up the pavilion at the OTAA Scenic Vista Stargaze. He said it was a good night except for this. We are all adults and we need to clean-up after our selves or at least lend a hand with the clean-up chores. All agreed that this was not acceptable membership behavior, as this happens at regular meetings all too often. Harry suggested that at some point in the night when at Scenic Vista, a time-out in observing will be called and everyone goes to clean-up the place- or finish off the food (midnight-buffet style). It was agreed to do this next time. The next Scenic Vista event is June 23rd.

Several guests expressed interest in membership. First in

line, Mike Heim introduced himself as an astronomer since the 1980's. He has been imaging for the last 1- ½ years. He has a 6" Newtonian. Mike has been to several MVAS meetings. Harry nominated him for membership, Lou DiNardo seconded the nomination, by unanimous voice vote Mike was granted membership. Next, Karin DiNardo said she always enjoyed looking at the heavens and has become more interested, encouraged by her husband Lou. Harry Harker nominated her, Dan Schneider seconded this. Again, a unanimous voice vote granted Karin a membership in the Society. We welcome all of you into the MVAS and we look forward to your companionship. Harry was given the Okay to contact the NASA speaker we had set-up last year for the OTAA meeting, but he cancelled out at the last minute. He could talk about the Cassini mission or Asteroids. Harry will see what he can speak about this year.

**GOOD OF THE SOCIETY:** Harry noted a good deal of activity with email inquiry about MVAS membership. A Don Cherry from Warren definitely wants to join. Another fellow from Finland was originally from the area and wants to bring his daughters back to show them the area. The MVCO was one stop he has planned. Alan Avnet had a Meade ETX model 114EG for sale. It is used with no eyepiece. He would consider any offer (best offer). See Alan if interested. Before the meeting had started, Jodi and Roy had supplies on hand to construct funnel scopes to be used for the Venus Transit.

**VISUAL REPORTS:** To save time, no reports were given. Sam spoke briefly about the Stargaze at Scenic Vista. There were about 15 scopes and 20-30 public observers in addition to a Cub Scout group that Rich Mattuissi had invited.

**ADJOURNMENT:** Adjournment came at 9:15 PM. The BBQ commenced shortly after adjournment. We thank the many members that supplied the goodies for the BBQ. Larry and Dan brought hot dogs, Jodi & Roy brought bean salad, Bill P. brought cucumber salad, Harry had baked beans, Don had home-made Cole slaw, Margie had a few pizzas, Rosemary had the good water melon, and many brought chips of various flavors or snack cakes.

**IMAGING CLASS:** With the second installment of the imaging sessions, Bill Pearce gave a demonstration in image processing, once the food fest settled down. Bill explained Registax 5.1 and gave a demonstration on how one aligns and stacks multiple frames extracted from a video file. He used a solar image file and optimized the results. There was discussion on webcam use and advice on hard drive space requirements. It was a well attended class, with many novice imagers and veteran imagers active in the discussions.

**The next meeting will be at the MVCO on June 30, 2012.** Meeting begins at 8:00 PM. Scheduled host is Dennis Marko. **PASSWORD:** Name an unmanned space probe either from the past (defunct), one currently active or one planned for future launch. Choose from Earth reconnaissance. Solar system landers, rovers, orbiters or flyby missions. Please avoid space telescopes.... And no sci-fi craft! Thank you.

**ADDENDUM:** Shortly after adjournment, guests Alan and Jane Avnet decided they wanted to become members. They have been to most of the MVAS meetings since the 2011 Christmas Meeting. Many of our members know them from the HAM Radio Club. President DiRocco called the Trustees together along with a few general members and voted them into membership. Welcome to the MVAS Alan and Jane. *-minutes by Phil Plante*

## IN LOVING MEMORY

The MVAS sends its deepest condolences to our Treasurer Steve Bartos and to his family. Steve's mother Josephine passed away May 22, resting peacefully at Park Vista. She was 93. Funeral services were held Saturday morning May 26, 2012.

## MVAS REMINDERS

On June 16th you may look forward to the Grand Opening of Telescope Park in Monteville, OH. This is a fantastic facility and MVAS members and all OTTA clubs for that matter, should make a visit. This event occurs during the normal Chagrin OTAA event. Since they help at the Park, consider this their OTAA event. Last year when MVAS members went it was mentioned that this was a good place for a super-OTAA meeting, sometime down the road. Food for thought?

We have our second public night at Scenic Vista on June 23rd. This is a regular evening affair with stargazing. Remember that the HAM event has been moved back to the September 8th Scenic Vista event. If it's clear for this June event please try to participate. Get a scope down to the Park. It gets dark late so plan accordingly if you have next day activities scheduled.

At the June 30 meeting we'll round-up volunteers to help out at the YSU Festival of Arts. Please help the planetarium staff show the public the Sun. They will have white light and h-alpha scopes- they need bodies! It is always lots of fun and the more folks helping mean more breaks in the AC or trips to the food vendors (food? Imagine that). Stay tuned to the e-mail group for details on the Home School visit that may happen the day of the June meeting.

This is also that time of year that we start thinking about door prizes for our August OTAA meeting. No Grand Prize has been discussed yet and the Trustees need to start work on this as soon as possible.

## MVAS ACTIVITIES

Many MVAS members gathered at Scenic Vista for the annual OTAA Star gaze. The food fare was the standard assortment of snacks and fruit. Bill Pearce had his Lunt h-alpha scope set up for some good prominence viewing. There was some HAM Radio action going on as well. At least 15 telescopes were set up by night fall. Perhaps 2 dozen folks from the general public showed up for observing. Rich Mattuissi had his Scout troop on hand to earn Merit badges in Astronomy. It was a good night with views of the planets. The little bit of haze seemed to wash-out galaxy views until midnight when the skies cleared out nicely. Just as everyone headed home.

Meanwhile, two MVAS eclipse chasers went to Albuquerque, NM for a "ring-side" (no pun intended) view of the annular eclipse on May 20, 2012. Jim Haklar and Phil Plante got decent photos of the eclipse. The MVAS'ers met with several other friends for lunch early in the afternoon the day of this sunset eclipse. They all observed from the comfort of their hotel rooms, using the balcony or balcony window. Jim from the 14th floor of the Sheridan and Phil from the 12th floor of the Crowne Plaza. Meanwhile back home, Bill Pearce got the beginning phase just before the sun set. He did this from the Transit viewing location on the Experimental Farm in Canfield. Things looked good for this Transit location. With some luck we'll have clear skies. Look for Transit reports in the next issue.

### Plotting Pluto.

Pluto is currently passing through the dense star fields of the summer Milky Way. It will leave this area in a few years. Until then, you'll have a rough time picking out the 14th magnitude dwarf planet. There are many background stars surrounding it that are at the same brightness. This July we have a little help in that Pluto will pass just below the open cluster M-25 in Sagittarius. If you can find M-25 you have a chance at spotting Pluto. You'll need good skies.

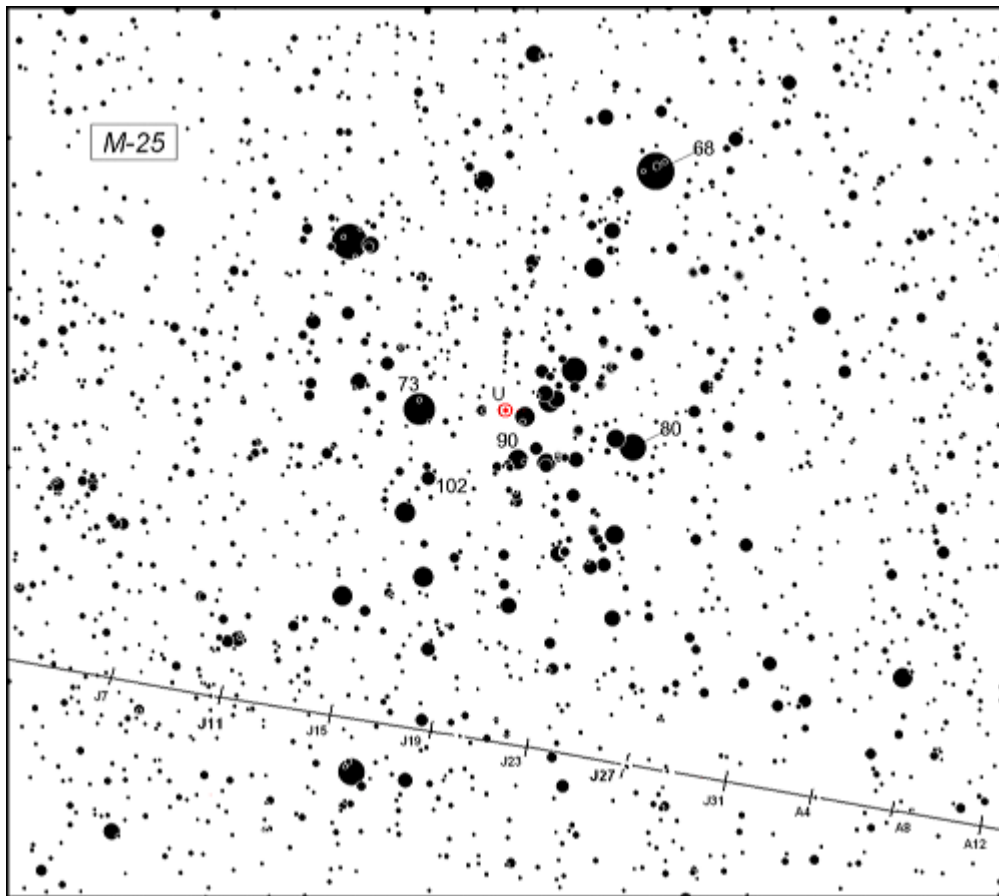
Using the chart at the right, you can practice on any clear "moonless" night with M-25 well above the horizon. Print out this chart (whole page) or make a photocopy. At the eyepiece, see if you can spot the faintest stars plotted. Remember Pluto will be just a "tick" brighter. The faintest stars plotted on this chart are around magnitude 14.5. If you can see them, you should be able to see Pluto. The key will be to detect its motion from one day to the next. Visual observers will need at least a 10 inch scope under very dark and clear skies. Perhaps a good 12 inch scope under MVCO type skies will nab it. A few years back a half dozen members became members of the "Pluto Club", using the 25" to spot it. It was tough even with the big scope, but we got it!

Imagers can have a go at it as well. In either case you'll need to make an observation a day or two apart. Visual observers should mark the track at the place they think Pluto is, and then check back the next night or as soon as you can, to see if your candidate Pluto has moved. Likewise with imaging- take photos a night or two apart to detect any movement. If you saw it change position you found Pluto! The evenings of dark, moon-free sky runs from last quarter on July 11 thru the setting 1st quarter moon July 27th. This starts at the second from left tick mark on the charted path. My apologies for the small dates that may be hard to read. Had to fit them between stars. Ticks are at 0hr UTC and are 4 days apart. The Moon will start to interfere after July 27th. Full moon is August 2nd.

Several of the stars in M-25 have their magnitudes labeled (102, etc.) Decimal points are eliminated so that they aren't mistaken as a faint star. The variable star U Sgr is indicated near these stars. It will be the variable star of the month in July. It ranges from 6.3 to 7.2 every 6.7 days. You could start tracking it now. So if you miss Pluto, you have something else to shoot for near M-25. Search for Pluto when M-25 is highest in the south, near its time of transit. This will provide the best sky conditions regarding atmospheric extinction (and less haze).

Transit Times of M-25 and Pluto:

July 8	12:50 AM	July 15	12:23 AM
July 22	11:51 PM	July 29	11:24 PM



**MVAS Homework: M-10**

Messier 10 was discovered by Charles Messier on May 29, 1764. This year it is 248 years old- as an M-object. Interestingly, Pluto completes an orbit of the Sun in 246 years. In 2012 Pluto is close to where it was when Messier made the discovery, although no one would know Pluto existed until 1930. Messier cataloged it as number 10 in his famous list, describing it as a "nebula without stars". Likewise, in 1774, German astronomer Johann Elert Bode called it a "nebulous patch without stars; very pale". William Herschel was able to resolve the cluster into its individual stars using a larger scope. He described it as a "beautiful cluster of extremely compressed stars. William Parsons, 3rd Earl of Rosse thought he could distinguish a dark lane through part of the cluster.

Viewed through medium-sized scopes, it appears about 8-9 arc minutes in diameter. Its bright core is about 35 light-years across, appearing to us with radius of around 48 arc seconds. M10 has a real diameter of 83 light years and is estimated to be 14,300 light-years away from Earth. Of the seven Messier globulars in Ophiuchus, M-10 is the brightest and largest. It could serve as a starting point in finding the others.

Transit Times for M-10 (and Ophiuchus)

July 8	11:12 PM	July 15	10:44 PM
July 22	10:17 PM	July 29	9:49 PM

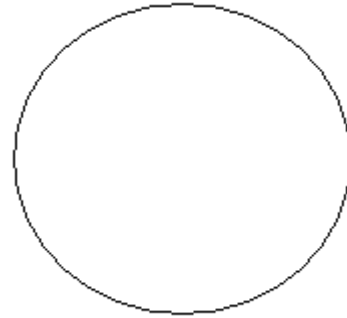
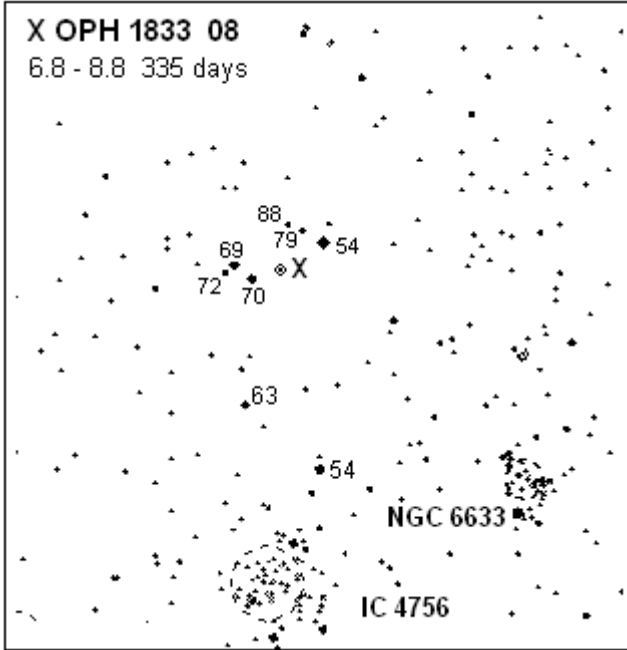
**MVAS OBSERVER CHARTS**

**MVAS OBSERVATIONS - DUE JULY 2012**

Variable star of the month: **X Ophiuchi** (*abbrev: X Oph*). This star was also one of the four variables in the MVAS Observing Program in the early 90s. It is really easy to follow with binoculars. A bonus- and hopping off point- are two nice open clusters south of it; NGC6633 and IC4756. X Oph is hovering near minimum light (~8th mag.) this month. Maximum light is expected in early September. Will you watch it get brighter?

OBSERVER \_\_\_\_\_

**Featured object: M-10** . Please try a sketch. Draw points to represent field stars first; in proper relation to each other. Next lightly trace a circular outline where M-10 is located. Fill in with pencil graphite- fading to match the glow. Smudge with your finger to blend. The trace should blend in to the smudge. Remember darker graphite represents brighter areas or stars. You are making a negative image. Place any resolved stars on the cluster's glow. Good luck.... Let's see some Homework!



**M-10 Observation:**

Date: \_\_\_\_\_ Time(EDT) \_\_\_\_\_ Scope \_\_\_\_\_

**X Oph magnitude estimates:**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ estimate: \_\_\_\_\_ Instrument: \_\_\_\_\_

_____	_____	_____	_____
_____	_____	_____	_____

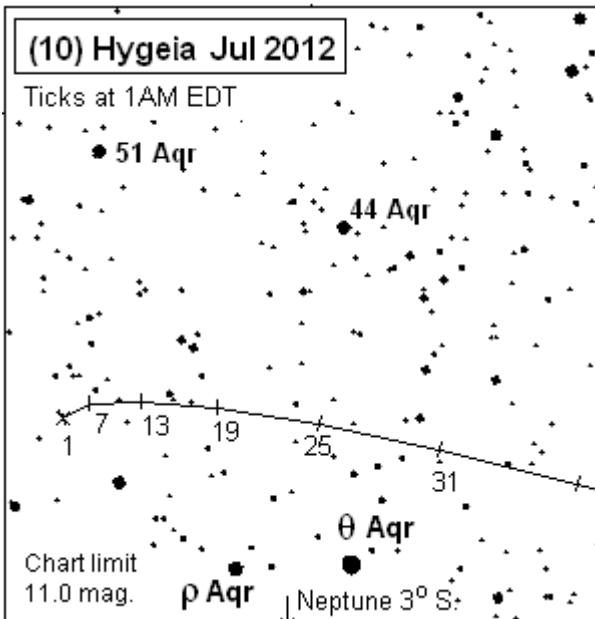
**(10) Hygeia Observations:**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Instrument: \_\_\_\_\_ magnification: \_\_\_\_\_

_____	_____	_____	_____
_____	_____	_____	_____

Asteroid of the month: **(10) Hygeia**. This asteroid is traversing Aquarius, over in the southeastern sky. Neptune is 3° south. This is an after midnight hunt to be sure. The best July observing conditions often occur at this time of night. It's cooler, and the haze has diminished. It's a good time to take on this challenge. Hygeia rises from 10.8 to 10.1 magnitude during July. Wow- a whole half magnitude. Get your scope out!

**Other Objects in Ophiuchus to observe**

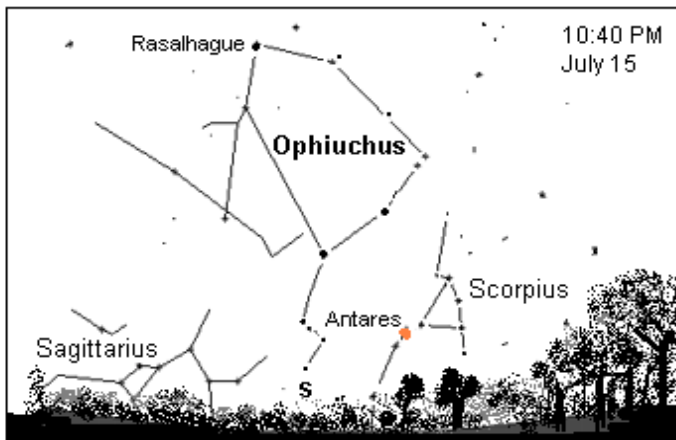


D. Sky	Date	Scope	Dbl.	Date	Scope	SEP	MAG	SPLIT?
M- 12	_____	_____	ρ Oph	_____	_____	2.9"	5.1 - 5.7	Y / N
N- 6633	_____	_____	36 Oph	_____	_____	4.7"	5.1 - 5.1	Y / N
IC4665	_____	_____	39 Oph	_____	_____	10.0"	5.2 - 6.6	Y / N

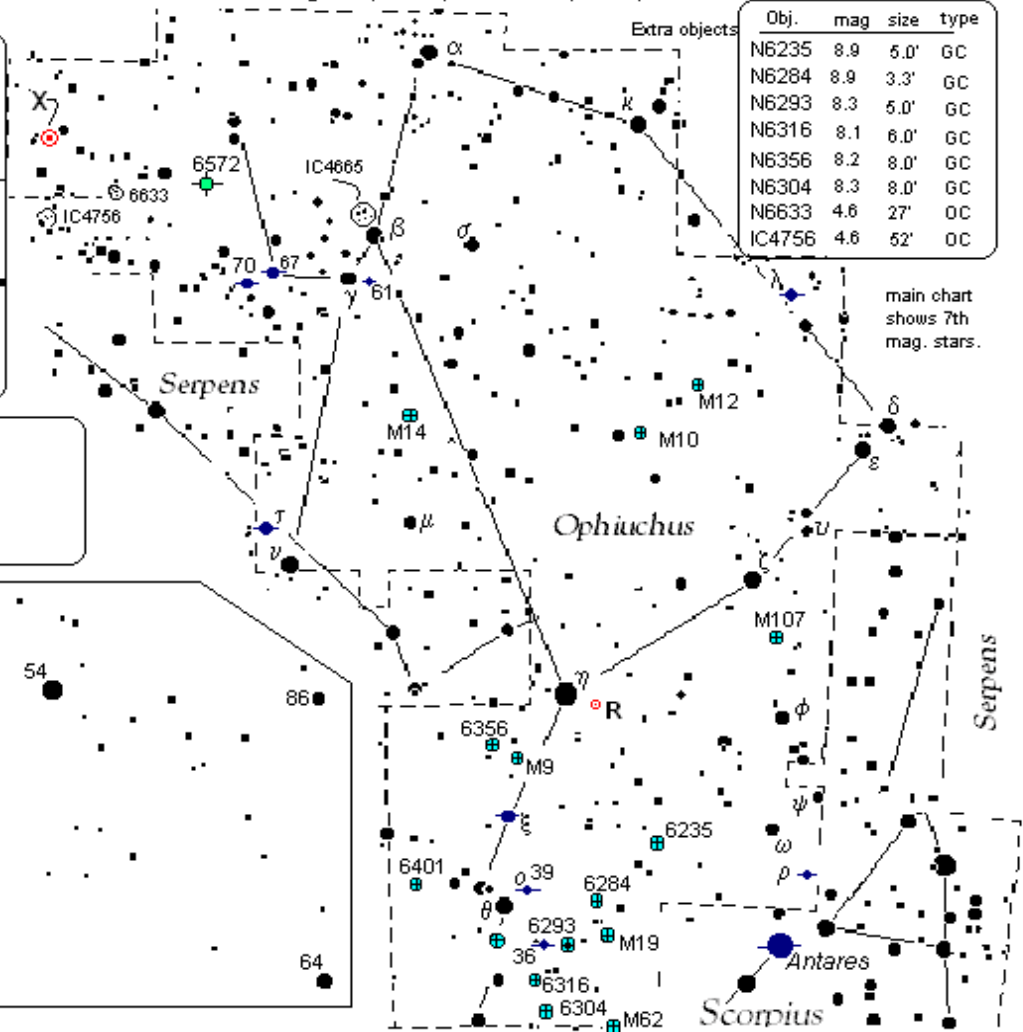
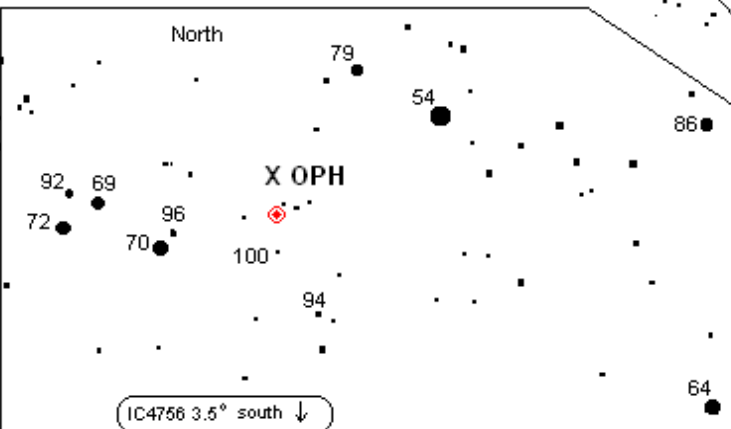
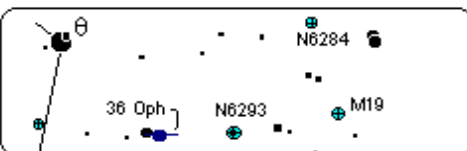
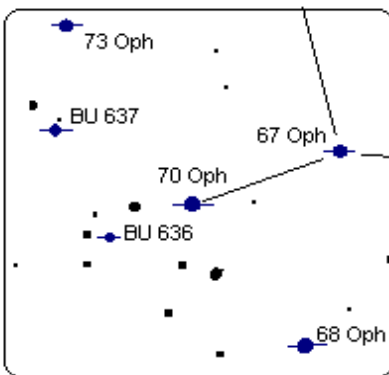
**Lunar Occultations (see Sky Almanac):**

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

# Constellation of the Month — Ophiuchus



In mid July around 10:30pm you can find Ophiuchus approaching the meridian. With binoculars or small RFT you'll easily find the Messier globular clusters, with a dark sky. There is a nice open cluster just above beta Oph. Can you make it out? In smaller scopes and low power, you should be able to find the nice clusters IC4756 and NGC6633. IC4756 is the fainter dusting of stars, while 6633 has an arrowhead shape. In the southern part of the constellation there is a bunch of globulars that you could spend an evening working on. How many can you find? Don't forget to try the double stars that are shown too. 70 Oph is a close one but is nice to split. Sometimes the colors are vivid, other times not nearly so. Go back to IC4756. Move north about 3 1/2 degrees to find the variable star X Oph. It is an easy one to follow, once you become familiar with the field. You may even be able to follow it with larger binoculars. Remember you have to keep at it. Don't give up until you find X Oph. Ophiuchus is waiting!



DEEP SKY				STARS			Check list		Instruments used:	
M9	7.3mag	11' dia.	globular cluster	ρ	5.2, 5.8	3.1"	yell. / rose	___ M9	___ N6401	___ on ___
M10	6.6	19'	...	λ	3.9, 6.0	0.5"	yell. / blue	___ M10	___ ρ	___ on ___
M12	6.1	14"	...	τ	5.3, 5.8	1.9"	yellowish	___ M12	___ λ	___ on ___
M14	7.6	11'	...	ο (39)	5.2, 6.8	10"	org. / silver	___ M14	___ τ	___ on ___
M19	6.8	14'	...	36 Oph	5.1, 5.1	4.6"	red / yellow	___ M19	___ ο (39)	___ on ___
M62	6.4	11'	...	61 Oph	6.2, 6.6	21"	white / grey	___ M62	___ 36 Oph	___ on ___
M107	7.8	11'	...	70 Oph	4.0, 6.0	4"	yellow / purp.	___ M107	___ 61 Oph	___ on ___
IC4665	4.2	40'	open cluster	X Oph	5.9 to 9.2 mag.	328 day per.		___ IC4665	___ 70 Oph	
N6572	9.0	10.8"	planetary nebula					___ N6572		X Oph was ___ mag. on ___ / ___ / ___
N6401	7.4	4.4'	globular cluster							

**Solar and Lunar (EDT).**

Date	Sunset	Moonrise	Moonset
1	9 : 01	7 : 02p	3 : 41a
5	9 : 00	10 : 13	8 : 09
9	8 : 58	— : —	12 : 30p
13	8 : 56	1 : 40a	4 : 24
17	8 : 54	4 : 42	7 : 43
21	8 : 51	8 : 51	9 : 59
25	8 : 47	1 : 21p	— : —
29	8 : 43	5 : 49	2 : 28a

**PLANET WATCH**

Pluto Transits	Saturn Sets	Jupiter Rises
1:20a	1:54a	3:36a
1:04a	1:38a	3:23a
12:48a	1:22a	3:10a
12:32a	1:07a	2:57a
12:16a	12:51a	2:44a
11:55p	12:36a	2:31a
11:39p	12:20a	2:18a
11:23p	12:05a	2:05a

**July 2012**

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	24	25	26 ☽	27	28
29	30	31				

**Asteroid for July 2012 (10) Hygeia**

Date	Rises	RA		Alt.	Azm	Magnitude
		hr.	min deg.			
1	11 : 28 pm	22 : 25	- 06.7	15°	114°	10.6
7	11 : 03 pm	22 : 24	- 06.7	20	118	10.5
13	10 : 38 pm	22 : 23	- 06.6	24	123	10.4
19	10 : 12 pm	22 : 21	- 06.7	28	129	10.3
25	9 : 46 pm	22 : 18	- 06.8	31	135	10.2
31	9 : 20 pm	22 : 14	- 07.0	34	142	10.1

*topocentric*  
*(at 1:00 AM)*

**Celestial Highlights**

1	02	Mercury greatest E. 26°
3	19	<b>FULL MOON</b>
11	02	<b>LAST QUARTER MOON</b>
12	04	Venus greatest brilliancy
14	00	T Uma maximum 7.7m
15	02	Jupiter 0.5° S. of Moon
19	04	<b>NEW MOON</b>
26	09	<b>FIRST QUARTER MOON</b>
30	04	delta Aquarid meteors

Variable Star of the Month: **X OPH** 5.9 - 9.2mag 329 day period

**LUNAR OCCULTATIONS FOR: JULY 2012**

Civil (24hr)			UT			Moon			Moon			Moon			Star		Star event		db./sep.
date	hr	min sec	date	hr	min sec	Ph	% illum.	alt	azimuth	name	Mag.	PA	Mag.	PA	Mag.	PA	Mag.	PA	
2	23	: 50 : 53	3	03	: 50 : 53	<b>D</b>	99+	26°	164°	14 SGR	5.5	068°						NA	
4	4	: 01 : 12	4	08	: 01 : 12	<b>r</b>	100-	23	212	ZC 2825	6.3	242°						3.30"	
13	1	: 53 : 00	13	05	: 53 : 00	<b>r</b>	30-	2	066	pi ARI	5.3	315°						NA	
13	4	: 58 : 04	13	08	: 58 : 04	<b>R</b>	28-	35	097	ZC 429	7.0	263°						NA	
13	5	: 49 : 55	13	09	: 49 : 55	<b>R</b>	28-	44	106	rho ARI	5.6	302°						0.24"	
14	3	: 45 : 40	14	07	: 45 : 40	<b>R</b>	21-	14	076	13 TAU	5.7	288°						0.05"	
14	4	: 30 : 41	14	08	: 30 : 41	<b>R</b>	20-	23	083	ZC 533	6.1	073°						0.05"	
24	22	: 45 : 29	25	02	: 45 : 29	<b>D</b>	36+	7	249	ZC 1845	6.5	073°						29.0"	
29	23	: 08 : 14	30	03	: 08 : 14	<b>m</b>	88+	26	187	ZC 2557	6.2	174°						NA	

m= misses sunlit peak by 1.0"

at MVCO

**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.....

## OTAA Stargaze at Scenic Vista, May 19, 2012

This year's event was a success with clear skies for a change. Bill Prewitt snapped a few photos, two are given below. At right, Jodi and Roy are seen setting up their 25" Dob. Below is a shot of the telescope line early on. They say 15 scopes made it. Thanks for the pics Bill.



Jim Haklar grabbed a thin crescent Venus on May 28, just days before it would transit the Sun. Shot was a stack of 20 frames, that was taken through an infrared pass filter.



Jodi and Roy have been busy at their observatory. Above is a shot of M81 and M82 taken with their old Canon D5. Below is their stunning first light image of M8 and M20 using a new Canon D5a - special edition dsLR modified for astrophotography.



Bill Pearce showed his determination when he got this image of the very beginning of the May 20th annular eclipse, as seen from Canfield, OH. Only a small notch was visible from here...and he got it! Check the bottom limb of the Sun.

# ANNULAR ECLIPSE FROM ALBUQUERQUE

May 20, 2012

Two members of the MVAS traveled to Albuquerque, NM to watch this eclipse. Phil's eclipse chasing friend Juan, suggested Albuquerque as the place since center line passed right over it. Juan was also familiar with the city. Phil began looking at hotels. His plan was to observe from the hotel balcony since the eclipse happened just before sunset. Should be a nice easy eclipse this way. Over a year in planning resulted in the selection of the Crowne Plaza Hotel (it was Hilton when booked). This hotel featured balconies with doors that opened. Something rare these days. It is also advertised to have sunset facing rooms. Perfect! Checking Google satellite maps confirmed the needed orientation of the building. Phil's friends Isaac and Heidi from California liked the plan and joined the "expedition". Phil reserved two rooms up in the "Executive Level". They actually got the top floor - the 12th.

A month or so before the eclipse, East Coast MVAS Member Jim Haklar learned of the plan. He decided that Albuquerque was the place to be and adopted the plan. He tried for the Crowne but went with the Sheridan Hotel near the airport. He also had a high floor-the 14th. But his balcony doors wouldn't open. He got great shots through the window glass in any case. On eclipse day the views were spectacular and the weather was perfect. The advantage of the hotel room right behind you made set-up and tear-down so nice, with no rushing and travel involved. The cold drinks and comfy chairs were a bonus. Provided here are some of the photos the gang acquired.



Left: The Sun just minutes before 1st contact. A nice span of sunspot groups gave opportunity for dramatic effects.

Photo credit: P. Plante



Partial phase in Hydrogen-alpha. Check-out the prominences and filaments on the solar disk. Photo credit: Isaac Kikawada



Close-up of Third contact with some small Bailey's Beads action. Photo credit: P. Plante



Eclipse sequence assembled by Jim. Note that the first image looks like it was taken very close to the time Bill Pearce took his shots in Ohio. The second from left image, bottom row looks close in time to Phil's 3rd contact image. Photo credit: Jim Haklar



Lunar limb approaches sunspot group. *Photo credit: P. Plante*



Sunset. *Photo credit: P. Plante*



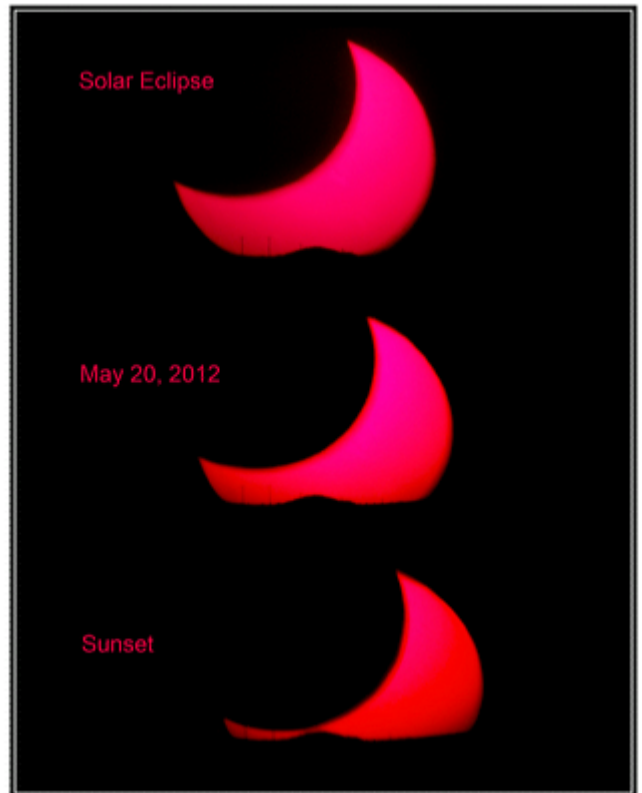
Eclipse Sunset, composite photo. *Photo credit: Jim Haklar*



Caught by surprise, a jet liner crossed the eclipse. Hit the remote release just in time! *Photo credit: P. Plante*



The eclipse group outside Fuddruckers (after lunch).  
L-R: Jim, Phil, Heidi and Isaac. Photo taken by Juan Carbajo



Eclipse Sunset Sequence *Photo credit: Isaac Kikawada*