THE METEORITE

Globular Cluster M-10 in Ophiuchus

NOAO PHOTO

Newsletter of the Mahoning Valley Astronomical Society, Inc.

IN THIS ISSUE:

JUNE 2010

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THE METEORITE

Newsletter of the Mahoning Valley Astronomical Society, Inc.

JUNE 2010

MVAS CALENDAR

JUN 19	MVAS Business Meeting at the MVCO. 8:00 PM **NOTE: This is one week early!**
JUL10/11	Festival of Arts at YSU. Noon - 5pm: solar viewing.
JUL 10	Chris Stephan talk and bbq. MVCO at 8:00 PM
JUL 17	Scenic Vista Public Star Party. Sunset 8:58 PM.
JUL 31	MVAS Business Meeting at the MVCO. 8:00 PM

NATIONAL & REGIONAL EVENTS

JUN 11-12 Apollo Rendezvous, Boonshoft Museum of Discovery in Dayton, OH 45414
http://www.mvas.org/

JUL 7-10 Green Bank Starquest 7. At Green Bank National Radio Astronomy Observatory, WV
http://www.greenbankstarquest.org/

JUL 15-19 Mt. Bachelor Star Party at Sunriver. Sunriver Nature Center & Observatory Sunriver, OR http://www.mbsp.org/

OTAA MEETINGS 2010

JUN 12 Chagrin OTAA, Indian Hill Observatory 8PM

JUL 10 Cuyahoga OTAA, Letha House, 6 PM

YSU WARD BEECHER PLANETARIUM

JUL 10/11 Summer Festival of Arts. MVAS scopes needed.

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

NEWS NOTES

Observing a WHIM. The very distant gas clouds and galaxies are seen when they were young (far back in time). Measurements of them have given us a good estimate of how much "normal matter" was present when the universe was only a few billion years old. However, when we look at the nearby universe (older universe) it seems to only have about half as much normal matter as expected. This missing matter is different from invisible dark matter. Dark matter is detected only by its gravitational influence on stars and galaxies. Normal matter however should be visible; it is composed of baryons such as protons and electrons. The stuff we are made of.

The big mystery then is where is this missing normal matter in the nearby universe? Predictions say that it should be found in a web of hot, diffuse gas known as the Warm-Hot Intergalactic Medium (WHIM). Scientists think the WHIM is material left over after the formation of galaxies, which was later enriched by elements blown out of galaxies. Finding evidence for WHIM is difficult because it is so diffuse and easy to see right through. Using observations and simulations, scientists calculate the WHIM has a density equivalent to only 6 protons per cubic meter. For comparison, the interstellar medium- the gas between stars in our galaxy - typically has about a million hydrogen atoms per cubic meter.

To look for the WHIM, the researchers used X-ray observations of a supermassive black hole known as an active galactic nucleus, or AGN. This AGN is about two billion light years away, generating immense amounts of X-rays as it pulls matter inwards. About 400 million light years away and along the line of sight to this AGN, is the so-called Sculptor Wall. This "wall", is a large diffuse structure stretching across tens of millions of light years. It contains thousands of galaxies and is potentially a significant reservoir for the WHIM. Theoretical simulations indicate that the WHIM should absorb some of the X-rays from the AGN, as they make their way to Earth. Using observations with NASA's *Chandra X-ray Observatory* and ESA's *XMM-Newton*, astronomers have now clearly detected absorption of X-rays by oxygen atoms in the WHIM. The characteristics of the absorption are consistent with the distance of the Sculptor Wall as well as the predicted temperature and density of the WHIM. This result gives scientists confidence that the WHIM will also be found in other large-scale structures.

A Solar Constant. A group of astronomers led by the University of Hawaii's Dr. Jeff Kuhn has found that the Sun's size has been remarkably constant. Its diameter has changed by less than one part in a million over the last 12 years. Kuhn and his colleagues (Dr. Rock Bush from Stanford, Dr. Marcelo Emilio from Brazil, and Dr. Isabelle Scholl at IFA) used NASA's long-lived *Solar and Heliospheric Observatory* (SOHO) satellite to monitor the Sun's diameter, and they will soon repeat the experiment with much greater accuracy using NASA's new *Solar Dynamics Observatory* (SDO), which was launched on February 11. Kuhn's work is part of worldwide efforts to understand the influence of the Sun on Earth's climate. "We can't predict the climate on Earth until we understand these changes on the Sun," he said. A final answer could come by observing these smallest scales of the solar surface with the *Advanced Technology Solar Telescope* (ATST), which is scheduled for completion on Haleakala in Hawaii in 2017.

MINUTES OF THE APRIL MEETING

MAY 29, 2010 at the MVCO

The meeting was held outdoors due to the nice weather. President Sam DiRocco presided; calling the meeting to order at 8:03 PM. Roll call was answered by 21 members with three arriving after roll call. A total of six guests attended; from the Bartos and Mattuissi families. A call to read the minutes was made. On a motion by Bob Danko and a second from Rosemary Chomos, the reading was suspended and the minutes were accepted as published, by voice vote.

TREASURER'S REPORT: The Report was read by Steve Bartos. A motion to accept the report was made by Bob Danko. Dan Schneider seconded this and by voice vote, the report was accepted as read. Joanne Bartos passed out coupons for a free Italian Ice from Rita's to members present. These were obtained from former MVAS President Greg Klocek, who along with his wife, operate the Rita's store in North Lima, OH. It was a special gift to MVAS members.

General Fund **4/1 thru 4/30 2010**

OPENING BALANCE:	$ 12,247.11	
CLOSING BALANCE:	$ 11,504.44	
AVAILABLE FUNDS:	$ 11,254.44	
INCOME:		
DUES		$ 140.00
SKY & TELESCOPE RENEWAL		32.95
INTEREST		1.54
TOTAL INCOME		$ 174.49
EXPENSES:		
CK# 2719	GUTTERS FOR THE 16" BUILDING	$ 377.75
2720	THREE 6FT. FOLDING TABLES	108.00
2721	SIX (MORE) 6FT. FOLDING TABLES	228.96
2722	CORRUGATED DRAIN PIPE	50.26
2723	SPOUTING FOR 16" BUILDING	152.19
	TOTAL EXPENSES	$ 917.16
Reserved Funds		
	KEY DEPOSITS	$ 250.00

DUES PAID BY: F. BOYER, M. BOYER, J. BURDETTE, C. HARRIS, D. HARRIS, B. PREWITT. THANKS GUYS.

CORRESPONDENCE: The only mail at the P.O. Box were some NASA/JPL posters from the Night Sky program.

COMMITTEE/OFFICER REPORTS: No active committees to submit a report, or officer reports aside from the O.D. Report.

OBSERVATORY DIRECTOR'S REPORT: Larry Plante reported that all of the building foundation repair has been done. The contractor completed the work in three days; including work in the rain. The back window was knocked out and the wall fall removed. The same contractors blocked all of this in for an additional fee. It was decided by the Trustee to have this done while the crew was available. Drain tiles have been installed and a concrete fill/patch was poured along the damaged foundation. The back porch has been replaced as well. The main thing is to not put dirt over the areas of gravel since this is part of the "French drain" system. Painting the outside of the building and the inside with a new color scheme is next on the agenda.

Grass seed will need to be planted over the drain ditch from the building to the lower level parking area. A painting session was scheduled for the following weekend. Inside or out, depended on weather. Outside sealing was deemed top priority. Dan Schneider was to purchase the paint supplies and would be reimbursed. A vent pipe has been installed in the outhouse. It is reported that the "aromatic charm" of the privy is greatly diminished now.

OLD BUSINESS: With the needed excavation around the 16" building, all of the shrubbery had to be removed. Rosemary transplanted some at her home but two clumps of special grass (Japanese?) sat next to the 12" building. She said these could be taken by any one that wanted them. The old wall fan was also offered away. Dick Klecsh said he could use it in his garage and hopefully he will take it.

Don Durbin announced that all business with Burgess is officially over. If you had ordered something it will not arrive. This is due to the inability to contact Burgess and his failure to produce items offered for sale. This seems to be a problem with many other Burgess customers this year. Don has decided it is not worth the effort to pursue any purchase orders with Burgess. Re-imbursements to members that ordered tents, etc. were to be made. Don noted that he at least got his 8" refractor lens for a decent price. He needs to look for someone else to make the tube. Jodi McCullough will have *Astronomy Technology Magazine* send the promised supply of magazines for our OTAA meeting, sent to Sam's house.

NEW BUSINESS: It has been decided to use up the remaining Christmas raffle tickets from last year. They will still be $5 per ticket with the same prizes: $1,000, $500 and $250. They will be distributed at the August meeting. We will sell them at the OTAA meeting as well. A ticket sale event later in the fall, at Wal-mart, will be pursued. We will revisit this raffle venue next year to make any changes that may be desired. Don Durbin had a supply of 2" eyepiece plastic caps/plugs for 25 cents each. Rosemary donated a lunar landing DVD set for use as an OTAA door prize. The main prize for the OTAA will be an Astro-Tec 72mm ED refractor. This black tube model was purchased by, and is being evaluated by Phil Plante.

All were reminded that we have the Chagrin OTAA coming up on June 12. We will be helping YSU with their Festival of Arts July 10th and 11th. We will need a few volunteers to set up for solar observing (noon to 5PM) next to the planetarium. On the 10th, Honorary member Chris Stephan will stop at the MVCO during his visit from Florida. Chris will give a Power Point presentation at 8:00 PM. A BBQ afterward would be standard procedure. It should be possible for someone to do the YSU event and then attend the talk and BBQ that evening.

GOOD OF THE SOCIETY: Please note that the June business meeting has been moved up one weekend to June 19. The lock at Scenic Vista has been changed. Since she is there in Lisbon, Jodi planned to contact the Scenic Vista Park Board to see about getting new keys for the officers.

VISUAL REPORTS: Eric Klesch reported spotting a few sunspots. Roy McCullough and Bill Pearce have continued with their solar imaging. Jodi and Roy are planning to get images of Jupiter with the missing South Equatorial Belt (SEB). Lou DiNardo has been imaging Venus and is trying for Mercury. Phil Plante had 16 variables and some MVAS homework done along with observing, M81, 82, M49, M51, M87, M104 with a 120mm scope, from the light polluted Boardman area.

ADJOURNMENT: Adjournment came at 8:31PM. We thank our hosts Rich and Lisa Mattuissi. Lisa did a fantastic job cooking up the spinach tortellini, pepperoni and zucchini squares and sliced kielbasa. Not to mention the various cakes for dessert. It

was a delicious and wonderful treat to close out the meeting with. The next meeting will be at the MVCO on June 19, 2010. Meeting begins at 8:00 PM. Scheduled hosts Keith Janeco and Bill Patch. PASSWORD: Name your favorite double star.

-minutes by Phil Plante

MVAS REMINDERS

Remember that our June Business Meeting has been moved up one week to June 19. Listed below are a few OTAA Club events that may interest you. Be sure to make an effort to get to the Chagrin OTAA on June 12th.

UPCOMING OTAA CLUB EVENTS

JUN 12, 9:00PM Astronomy Club of Akron (ACA). Public Event at the ACA Observatory. Program: A Beginner's Guide to Finding Celestial Objects. We'll show you how to follow a map to the stars! http://www.acaoh.org/Yearly_Calendar.htm

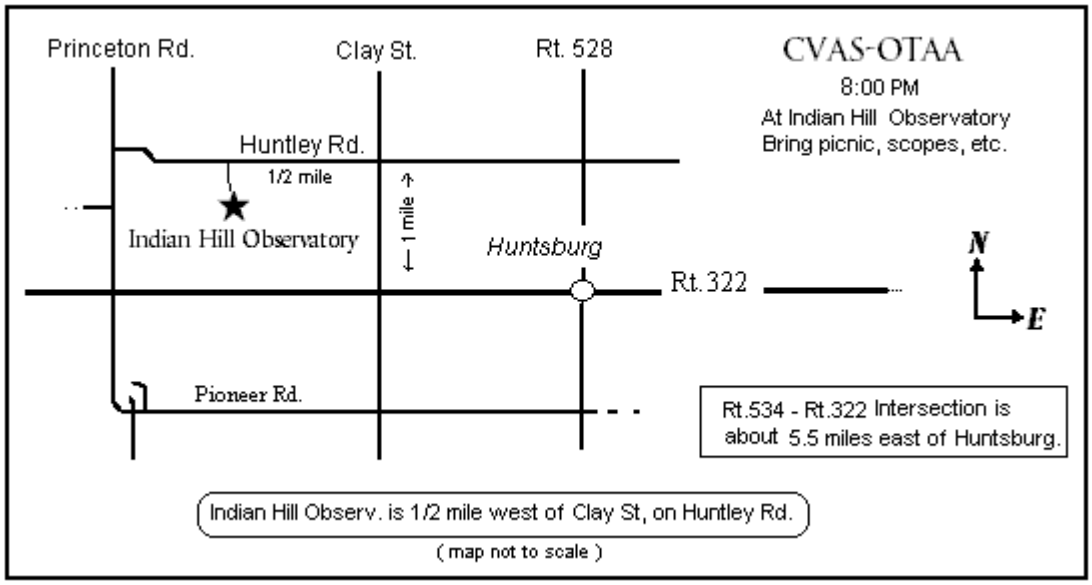
JUN 12, 9:00PM Chagrin Valley Astronomical Society (CVAS) **2010 OTAA Convention** at Indian Hill Observatory, Huntsburg, Ohio. Google Map: 15735 Huntley Road, Huntsburg Oh 44046 (see map below)

JUN 19, 8:00PM Cuyahoga Astronomical Association (CAA). Observatory Open House at Letha Park starting at 8:00 p.m. There is no talk or presentation for this event. House Location: On Richman Road, North of Lake Rd. Spencer, OH 44275

JUN 19, 6:00PM Astronomy Club of Akron (ACA). Public Event at the ACA Observatory. Solar & Lunar Event / Hotdog Roast! View sunspots, solar flares, and prominences on the sun and craters, mountains, and maria on the Moon and enjoy a hotdog for a small fee. ACA Observatory: Portage Lakes State Park 5031 Manchester Rd. Akron, OH 44319-3999

CHAGRIN OTAA:

Starts at 8PM with a traditional hot dog roast. Bring a covered dish and or drinks to share. Bring a lawn chair and your telescope. Set up on the observing field or share views with the CVAS 16" scope and other telescopes. This is a nice laid-back event and a chance to chat with many OTAA friends that we haven't seen since last year.



MVAS ACTIVITIES

During May, three members were available to oversee the contractor work being done at the MVCO. We thank Larry Plante, Steve Bartos and Bob Danko for being on hand to allow access to the work crew. We thank Steve for all of the trench digging he has done. A major repair job is now completed. While the crew was there, it was decided to knock out the back window and remove the wall fan. This was closed in with blocks. We now have a solid back wall with no openings. It was reported that the wood frame of the back window was badly rotted away. It may have been a good move to do this now rather than wait for a critical condition to force the issue. The cost of the block work was about $350 over the cost of the foundation work. Total expenses will be reflected in the next Treasurer's Report.

True to form, the OTAA Scenic Vista Stargaze began with a promising weather forecast a day before. Even early morning forecasts were looking acceptable. But by noon, the weather prospects deteriorated rapidly. Increasing clouds killed any hope of solar or nighttime observing. The temperatures were very pleasant and some rockets took flight around 2 PM. There was plenty of food for all. We thank Virginia Bartos for the tasty pepper and egg sandwiches. Amazingly they hit the spot in late afternoon. Thanks to Lisa Boyer for the grilled hotdogs, macaroni salad, fresh strawberries and blue berries. Rosemary did a good job with the coffee which was a hit around sunset and into the night. One new member from ACA stopped by.

As darkness fell a handful of public observers showed up, despite the cloudy skies. It's funny in that when it's clear, we hardly get anyone, but they show up under cloudy skies. One guy had a Meade 8" SCT he had bought used for a good price. It was horribly out of collimation. Instead of out of focus donuts, there were highly exaggerated coma shaped blobs of light. Using the distant radio tower lights, this scribe managed to get the collimation pretty much centered. The Bob's Knobs collimation screws made the job easy but they seemed to be too loose to hold collimation. I hadn't collimated an SCT since the late 80's and was surprised I could get this done. All of us were gone by 11 PM. A light drizzle was falling. We'll try this again for sure. Here's wishing us better luck next near.

Observer's Notes

TEN YEARS GONE

It was sometime during the recent 2010 Galaxy Quest at the MVCO that I centered the globular cluster M-3 in the 25" scope. It was a spectacular sight. Like a ball of sparkling sugar grains, resolved against the dark sky background. The cluster was resolved to the core, itself appearing as a bright stellar blob. Hundreds of cluster stars faded away from the center. This was a sight rivaling any view of M-13, which gets all the attention. Many consider M-13 the most spectacular globular for northern observers. But here we have humble M-3. It turns out to be one of the best globulars as well. Without fanfare, it waits to inspire, amaze and comfort any observer that stops by. Climbing down the ladder at the 25", I called a few others over for a look. They all enjoyed the view. While they looked, I thought of one of my own first looks at M-3.

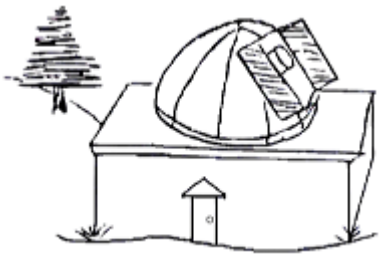
It was during spring in either 1992 or 1993 (can't remember) and I was on the Draper-Prather 16" Cassegrain at the MVO. I always go for the big scope and the 16" was it back then. I was splitting doubles in Bootes when I decided to try for M-3. I had only seen it in scopes no bigger than 8". Try as I might, I couldn't even get it in the finder scope. Anyone that has wrestled with the 16" mount knows of the work and frustration that was beginning to take its toll on me. Just about the time I was thinking of something else to try, a voice rang out into the darkened dome. "Hey Phil… what'cha lookin' at?". It was Bob Clyde. I told him I was having trouble getting M-3 in the 16". He said that was a "good one" and took over. In less than a minute we were looking at it with one of the old 3" eyepieces. It turned out to be the best thing I saw that night.

Bob was the *Meteorite* editor at that time and my mentor for eventually taking over the job. Being in his early 80's with failing eyesight, I was surprised and happy to see him there that night. His night vision was too far gone and made driving at night a risky proposition. So he had hitched a ride to the MVO with someone (Jerry Jackson?). Soon, his ride had to leave meaning Bob had go too, cutting short our observing time. Turned out to be the last time I observed with Bob. But it was etched in my memory. Over the years I came to realize that M-3 and Bob had similar traits. Humble and faithful, always ready to amaze and comfort any MVAS member. Anyone that knew Bob would agree that "everyone's granddad" was an apt description. When I first joined MVAS, to me, he embodied what MVAS was all about. Eventually, I found out that many great individuals had preceded him. He was just one of the giants.

By 1995, Bob had serious health issues and could no longer walk. Having been the main contributor since 1989, I took over his duties as newsletter editor in 1996. Having swapped newsletter material by postal mail every month for seven years, we maintained correspondence with frequent letters now. He continued to give me advice and encouragement on the *Meteorite*. Several of us made visits to his home in Streetsboro. Even Chris Stephan came up from Florida to visit him near the end. Bob passed away on June 30, 2000, just 12 days short of his 90th birthday. Earlier in the month, we had lost another MVAS giant on June 10 when Bernie Cortese passed away. Bernie had been a key player in the construction of the observatory. His name is now part of the observatory name.

That June was a very sad time for the MVAS. But the memories are not lost. When I look at M-3 now, it evokes the memory of that night on the 16" observing with Bob. The main point of this, is that If you stay at it this astronomy stuff long enough, you'll make a celestial connection to a special person or time in your life. Observing can often become a visit with the past- like looking through an old photo album. Linking object to memory. This June 2010, both Bernie and Bob will have been gone for ten years. We all still miss them. Fortunately, their memory and spirit lives on, in that great photo album in the sky.

….Once everyone had their looks at M-3 with the 25", I went back to Galaxy Quest work in Ursa Major. At one point I realized that Bob was an expert optician and had actually worked on figuring the 25" mirror. His optical work on the mirror allows us to use and enjoy the 25" telescope many years later. It was in those figuring efforts that Bob once again helped me view M-3. It was the best thing I saw that night. *-P. Plante*



Bob Art

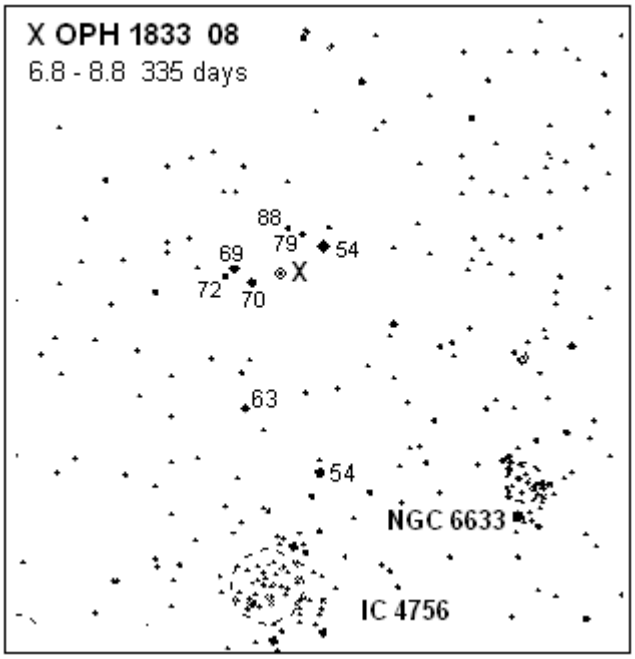
Back when Bob Clyde was editor, he used typewriters and grocery store Zerox machines to publish the *Meteorite*. Art work was at a premium then. There was the standard round MVAS logo drawn by then YSU student Mike DiMuzio. We still use it on MVAS hats and jackets. There was also the meteor streak of unknown origin. I recall Bob telling me that I could do what ever I thought appropriate with the *Meteorite* but that it was important to him to keep the meteor streak logo. He never elaborated on why. To that end both of these art works remain on the front page and cover of the Meteorite, in tribute to Bob's wishes. The little drawing above was Bob's own and it also appeared on his editions. It is simple enough and may be outdated, but over the years it seems to have gained a nostalgic charm to it. For me anyway. It speaks of a time when trees were on the hill and if you look closely, it shows the pesky shrubbery along the building. Long standing members may recall this sketch. I've added it here for both old and newer members to relive those simpler times and the memory of Bob. Somehow the message got through back then and the MVAS survived. Without slick computer software, the internet and PDF documents. But I bet Bob would have enjoyed using these modern tools too. We need to keep these past art forms in use. They serve as one of the threads that connect the past to the future. Weaving a rich tapestry of MVAS history. *-P. Plante*

MVAS Homework:

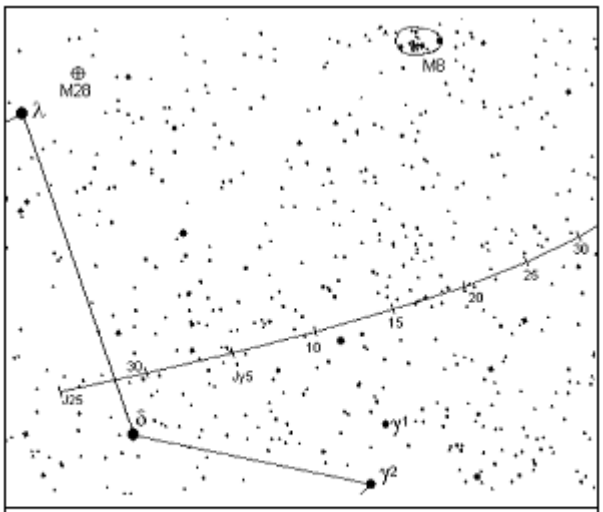
Charles Messier discovered M-10 on May 29, 1764. That's 246 years ago- almost a Pluto year (248 yrs.). There are two Messier globulars within the confines of Ophiuchus' body. At 6.7 magnitude, M-10 lies about 3° SW of M-12 which is about 0.1 magnitude dimmer. It's also smaller than M-10 by about an arcminute. So then…M-10 is king of Ophiuchus! It is a rich cluster while M-12 is a bit more sparsely populated. M-10 lies at a distance of 14,300 light years from your telescope and is about 83 light years wide. But through a medium telescope we only see the bright core which is only around 35 light years wide. This works out to be around 8 to 9 arc minutes wide in an eyepiece. Just think, it takes a human lifetime (83 yrs) for light to go from one side to the other of M-10. But it should only take you about 10 minutes to sketch this cotton ball in the night sky. Please! Do some homework; it's not that hard and is kind'a fun.

MVAS OBSERVER CHARTS

Variable star of the month: **X Ophiuchi** (*abbrev:* X Oph). Located east of the main bidy of Ophiuchus, X Oph is fairly easy to pick-up if you can find NGC 6633 and then IC 4756. Both nice clusters in their own right. A few degrees north of 4756, X Oph is surrounded by a few comp stars that make it easy in binoculars. It never seems to dip to minimum but it does if you keep tabs on it. Why not start now?



Asteroid of the month: (**15) Eunomia.** After watching Ceres approach the Lagoon Nebula (M8) last month, we'll drop southward in Sagittarius to pick up Eunomia. It is a faint one and a challenge late this month, and on into July. Moonlight may be a problem at the end of June. A GoTo scope would help but you might be able to get by with the chart given here.

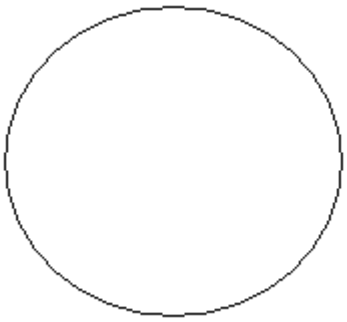


15 Eunomia June 25 to July 30
Tick marks at 1:30AM EDT. Faintest stars shown are 9.5 magnitude. Eunomia goes from 9.0 to 9.5 by the 30th.

MVAS OBSERVATIONS - DUE JULY 2010

OBSERVER_____

Featured object: M-10 . Please try a sketch. Draw in as accurately as you can, any field stars. Then place a graphite smudge where M-10 is supposed to be. Rub this with your finger to replicate the glow of the cluster- fading it away from the core. Dot randomly across the glow to represent cluster stars you may see. Turn in your homework to the OD. Thanks!



M-10 Observation:

Date:_____ Time(EDT)_____ Scope_____

X OPH magnitude estimates:

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

(15) Eunomia Observations:

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

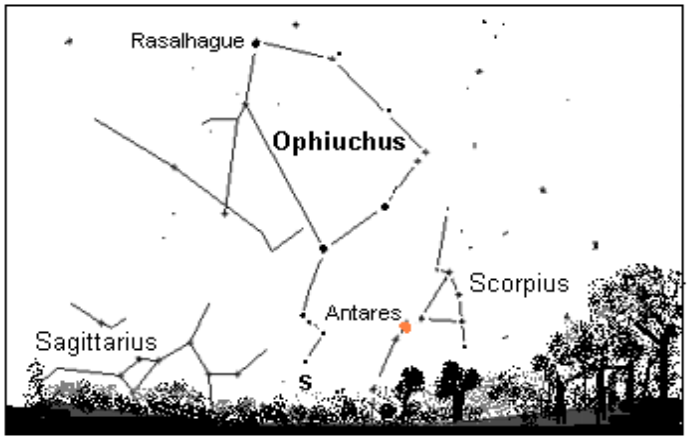
Other Objects in Ophiuchus to observe

Object	Date	Scope	Object	Date	Scope	Split? SEP.	
M- 12	_____	_____	61 Oph	_____	____	20.6"	Y / N
IC 4665	_____	_____	67 Oph	_____	____	54.3"	Y / N
N 6633	_____	_____	70 Oph	_____	____	4.7"	Y / N

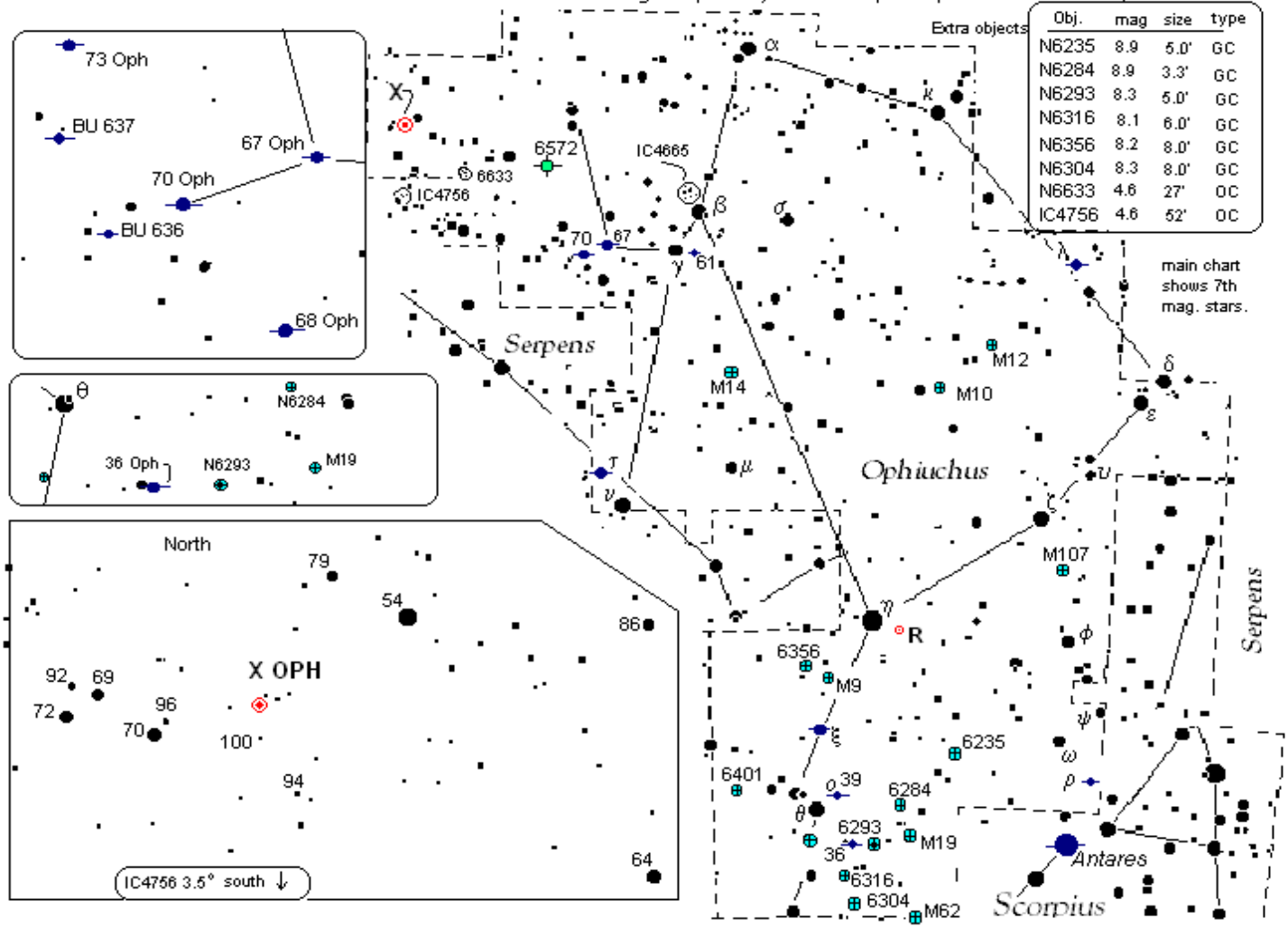
Lunar Occultations (see Sky Almanac):

Date (UT):	Time(UT):	Scope/magx	Phenom (circle)
_____	_____	_____	____x R D
_____	_____	_____	____x R D
_____	_____	_____	____x R D

Constellation of the Month — Ophiuchus



In mid June around 11pm, you can find Ophiuchus about mid-way up in the southeast. With binoculars 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. 4756 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!



Obj.	mag	size	type
N6235	8.9	5.0'	GC
N6284	8.9	3.3'	GC
N6293	8.3	5.0'	GC
N6316	8.1	6.0'	GC
N6356	8.2	8.0'	GC
N6304	8.3	8.0'	GC
N6633	4.6	27'	OC
IC4756	4.6	52'	OC

DEEP SKY

M9	7.3mag	11' dia.	globular cluster
M10	6.6	19'	" "
M12	6.1	14"	" "
M14	7.6	11'	" "
M19	6.8	14'	" "
M62	6.4	11'	" "
M107	7.8	11'	" "
IC4665	4.2	40'	open cluster
N6572	9.0	10.8"	planetary nebula
N6401	7.4	4.4'	globular cluster

STARS	mags.	sep.	colors
ρ	5.2, 5.8	3.1"	yell./ rose
λ	3.9, 6.0	0.5"	yell. / blue
τ	5.3, 5.8	1.9"	yellowish
ο (39)	5.2, 6.8	10"	org./ blue
36 Oph	5.3, 5.3	4.6"	gold
61 Oph	6.2, 6.6	21"	white/grey
70 Oph	4.0, 6.0	4"	yellow,/ purp.
X Oph	5.9 to 9.2 mag.		328 day per.

Check list

- ____ M9
- ____ M10
- ____ M12
- ____ M14
- ____ M19
- ____ M62
- ____ M107
- ____ IC4665
- ____ N6572
- ____ N6401
- ____ ρ
- ____ λ
- ____ τ
- ____ ο (39)
- ____ 36 Oph
- ____ 61 Oph
- ____ 70 Oph

X Oph was ____ mag. on ___/___/___

Instruments used:

____ on ____

____ on ____

____ on ____

____ on ____

2010 JULY SKY ALMANAC

Solar and Lunar (EDT).

Date	Sunset	Moonrise		Moonset
1	9 : 01	11 : 43P		x : xx
5	9 : 00	12 : 52A		x : xx
9	8 : 59	3 : 27A		x : xx
13	8 : 57	x : xx		10 : 10P
17	8 : 54	x : xx	*18th*	12 : 04A
21	8 : 51	x : xx		1 : 58A
25	8 : 48	x : xx		5 : 44A
29	8 : 44	10 : 10P		x : xx

PLANET WATCH

	SATURN	JUPITER	Pluto
	Sets	*Rises*	*Transits*
1	12:59A	12:56A	1:04A
5	12:43A	12:41A	12:48A
9	12:28A	12:26A	12:32A
13	12:13A	12:11A	12:16A
17	11:54P	11:52P	11:55P
21	11:39P	11:36P	11:39P
25	11:24P	11:21P	11:23P
29	11:09P	11:05P	11:07P

July 2010

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 2010 (15) Eunomia

Date	*Rises*	*RA hr. min*	*Dec. deg.*	*Alt.*	*Azm*	*Magnitude*
		topocentric				
1	8 : 55 PM	18 : 19.9	−28.9	20º	178	9.0
7	8 : 23 PM	18 : 13.5	−28.6	20	185	9.1
13	7 : 52 PM	18 : 07.5	−28.2	20	192	9.2
19	7 : 20 PM	18 : 02.1	−27.7	19	199	9.3
25	6 : 50 PM	17 : 57.5	−27.2	17	205	9.4
31	6 : 21 PM	17 : 53.8	−26.8	15	211	9.5
	EDT	*(at 1:00 am)*		*(at 1:00 am)*		

Variable Star of the Month: **X OPH** 6.8 - 8.8mag 335 day period

Celestial Highlights

Date	hr. *UT*	
2	00	SS Vir at max. 6.8mag.
4	15.6	**LAST QUARTER MOON**
8	7.0	Moon 1.3º S. of Pleiades
11	2.3	Venus 1.0º N. of Regulus
11	4.0	Sgr. Milky Way on CM
11	6.5	Cyg Milky Way at Zenith
11	20.7	**NEW MOON**
18	10.2	**FIRST QUARTER MOON**
26	1.6	**FULL MOON**
29	9.0	S.delta Aquarid meteors
30	2.0	Saturn 1.8º N. of Mars

LUNAR OCCULTATIONS FOR: JULY 2010

Civil (24hr) EDT				***UT***					*Moon*	*Moon*	*Moon*	*Star*	*Star*	*event*	*dbl./*
date	hr	min	sec	date	hr	min	sec	*Ph*	*% illum.*	*alt*	*azimuth*	*name*	*Mag.*	*PA*	*sep.*
2	3	49	00	***2***	07	49	00	**R**	71-	40º	142º	ZC 3370	6.2	206º	0.30"
4	3	46	49	***4***	07	46	49	**R**	53-	36	114	ZC 51	6.8	229º	0.100"
5	3	35	30	***5***	07	35	30	**R**	43-	29	99	ZC 177	6.9	182º	NA
7	4	23	37	***7***	08	23	37	**R**	23-	25	84	ZC 425	7.1	280º	NA
7	4	31	50	***7***	08	31	50	**R**	23-	27	86	SAO 75633	7.0	229º	NA
20	22	33	41	***21***	02	33	41	**D**	77+	22	197	ZC 2269	5.4	070º	0.100"
27	4	18	58	***27***	08	18	58	**R**	99-	29	213	ZC 3109	6.6	256º	NA
27	4	46	53	***27***	08	46	53	**R**	99-	26	220	ZC 3112	6.4	200º	NA
29	23	46	24	***30***	03	46	24	**R**	85-	17	105	ZC 3444	6.3	172º	42.0"
30	3	17	07	***30***	07	17	07	**R**	84-	48	156	kappa Psc	5.0	264º	163.0"
30	3	20	18	***30***	07	20	18	**R**	84-	48	157	ZC 3455	6.3	228º	0.050"

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.

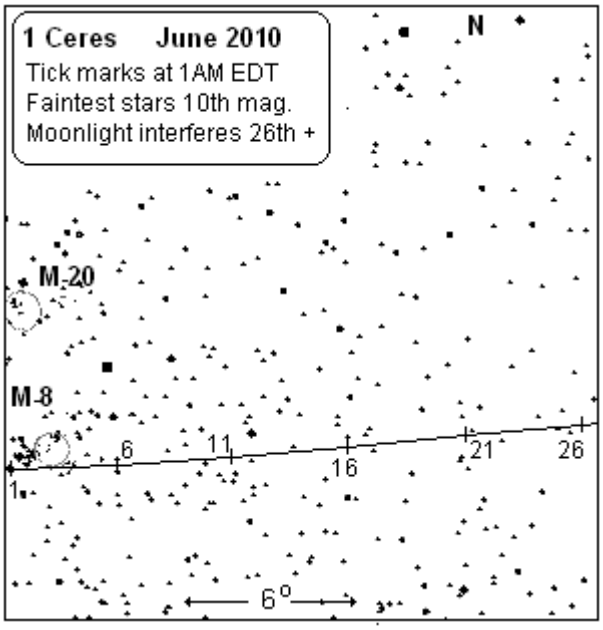
PA is referenced to celestial north: North=0º East=90º South=180º West=270º

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…..

Better Late Than Never… in the April issue, there was an asteroid chart for Ceres as it approached the Lagoon Nebula during May. Then the May issue was to have a follow-up chart showing Ceres departing the Lagoon area during June. This editor mistakenly used the first "May" chart again. Given at right is the Ceres chart meant for the May issue. You can still try for it if you like, this June. The Ceres data for June can be found in the June Almanac that was correctly published in the May issue. If you're confused- welcome to my universe. With luck, the charts should now be on schedule. Let's just hope my schedule was right! Meanwhile, you can also try for Eunomia, south of M8. The Eunomia chart is on the usual homework page (pg.5) of this issue. Happy hunting.



OTAA SCENIC VISTA STARGAZE: May 15, 2010

The usual MVAS observers showed up for rocket launches after 2:00 PM. Earlier in the morning, the weather forecasts looked like there was a chance for observing that night. But conditions got worse by the hour. We all arrived with cloudy skies on the increase. A few rockets went up while the food was gobbled-up. Some public observers showed up at dusk but the clouds sent them away shortly. One fellow's newly acquired, used Meade SCT got collimated-- so the night wasn't a complete bust. Heck, MVAS can even make a rainy night a fun time for all. So. No stars tonight. But being relegated to spending a quite day, in a country park- it's a good thing.

The food table was ready to go by 1:00 PM. Between snacks, the Three Amigo's would ponder on how to remove clouds.

Some sat with telescopes in their eyes, waiting for the skies to clear. But we have to do with what nature gives us. Imagination works wonders. Those dandelion seeds (called parachute balls) that dotted the field seemed to serve as fake globular clusters- taken from the night sky…. Sometime soon, new dandelion flowers will bloom in their glorious solar-yellow colors. Tell-tale signs of clearer days and nights ahead.

An Old Friend Remembered:

A few months ago, Honorary Member Chris Stephan sent the editor some old photos of Bob Clyde that he had just scanned into electronic format. Bob was a very important mentor for many of us. But especially regarding Chris, in getting occultation timing observations done. Lunar total and grazing occultations took to Bob's fancy during the 70's and 80's. Bob made observations and timings for David Dunham of the International Occultation Timing Association (IOTA). Chris would get involved then and still tries for grazes and asteroid occulations from Florida to this day. These are still important observing projects that MVAS members should consider trying.

Most of us that knew Bob thought of him as an optician. He polished prisms for periscopes during WW2. He made telescopes too. He tried his best to figure the 25" mirror now installed in Titan. Some members made regular trips to his home for work sessions on the mirror. He had trouble getting rid of a turned-down edge. Bob Aley, another member managed to accomplish this. The MVAS is indebted to Bob's many contributions, from being Meteorite editor, to helping with the 25" mirror, to guiding all of us young guns in the ways of visual astronomical observing and research.

September 1976: Bob in front of his garage with his famous El Nav rooftop observatory in the background.

January 1986: Bob with his homemade 12" reflector. Waiting for Halley's Comet is my guess, before it went behind the Sun.

July 1990: Bob assembling another telescope.

April 1994: Bob sends a photo message to Chris' son Andrew. Chris lived in Florida, at that time.

Sometime in 1997: Bob still tinkered in his little home optics shop. Within a year, he would be sidelined to a wheel chair until he passed away in 2000 at the age of 89.