

THE METEORITE



The Orion Nebula

M-42



Newsletter of the Mahoning Valley Astronomical Society, Inc.

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JANUARY 2012

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JANUARY 2012

NEWS NOTES

Newsletter of the Mahoning Valley Astronomical Society, Inc.

MVAS CALENDAR

- JAN 28** Meeting at YSU. Show at 8:00 PM.
Vote on Elected Trustee (the membership rep.)
- FEB 25** Meeting at YSU. Show at 8:00 PM.
- MAR 24** Binocular Marathon at the MVCO, 7:00 PM
- MAR 31** Meeting at YSU. Show at 8:00 PM

NATIONAL & REGIONAL EVENTS

- FEB 22-26 Orange Blossom Special Star Party.**
Withlacoochee River County Park, Dade City. It's 35 miles NE of Tampa, FL. *Registration fees:* 2 or more days- Adult \$50, Spouse \$30, Youth(7-17) \$10. Single Days - Adult \$30, w/spouse \$40. All registrations must be postmarked by February 10.
<http://www.stpeteastronomyclub.org/>
- MAR 22-25 MidAtlantic Mirror Making #12 (Seminar).**
Held at the Mallard Lodge, 4876 Haypoint Landing Road, Smyrna, DE 19977. The purpose of the Seminar is to introduce successful mirror making techniques. <http://delmarvastargazers.org/>

WARD BEECHER PLANETARIUM at YSU

- JAN 14** 8:00 PM Skywatch
- JAN 28** 8:00 PM **What Are Constellations?** (meeting nite)
- FEB 4** 8:00 PM What Are Constellations?
- FEB 11** 8:00 PM Oasis In Space

MVAS BOARD OF TRUSTEES

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

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Observatory Director	(2011 & 2012)*	Larry Plante
Assistant O. D.	(2011 & 2012)	Dave Ruck
Librarian	(2011 & 2012)*	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>

* indicates MVAS Officers

Winter haven. Mars Rover *Opportunity* is positioned at one of the candidate sites selected for its 2012 winter stay. This is on the north end rim of the crater named "Cape York". There are two candidate sites for a winter haven that should provide the needed northerly tilt to keep the solar panels facing the Sun. *Opportunity* is at one of those spots with the rover tilted about 16 degrees to the north. *Opportunity* is continuing the in-situ (contact) investigation of the outcrop at this location. On Sols 2798 (Dec. 7, 2011), and 2800 (Dec. 9, 2011), *Opportunity* conducted a set of investigations using the Microscopic Imager, Alpha-particle X-ray Spectrometer and the Rock Abrasion Tool instruments at the end of the robotic arm. This rock outcrop is called "Boesmankop." Wanting to investigate a rock clast on this outcrop, the rover performed a small 9-degree counter-clockwise turn on Sol 2803 (Dec. 12, 2011). This positions that rock clast within reach of *Opportunity's* robotic arm. The plan ahead is an investigation of the rock clast with the same instruments on the end of the robotic arm.

Now you see it, then you didn't. Type Ia supernovae are bright enough to be visible across huge cosmic distances. Astronomers now use these as "standard candles" to measure distance in the universe. In 1998, studies of Type Ia supernovae revealed that the expansion of the universe is accelerating. This invoked the need for the presence of a mysterious "dark energy" to account for the expansion. Meanwhile, the origins of a Type Ia supernova remained mysterious. Current theory has a white dwarf star exploding as it accretes material from a luminous red giant companion or other "helium" type giants.

On August 24, 2012 supernova SN 2011fe (in M101) gained attention as the nearest such supernova in the past 25 years. Its brightness was 40 times too faint for the naked human eye to see, but for a month the supernova could be seen easily through binoculars, a rare treat for amateur astronomers and the general public. Professional astronomers focused on their regular observations. Meanwhile University of California, Berkeley, research astronomer Weidong Li focused instead on what could not be seen. Li pulled up images of the northern sky taken over the past nine years by the Hubble Space telescope in hopes of seeing the supernova's "progenitor" star.

Using images from the 10 meter Keck Telescope, Li's team located the exact location of SN 2011fe. Comparing this spot to the Hubble data, they found no progenitor star. At least bright enough for Hubble to detect. This eliminated a red giant as the progenitor star companion. The only options consistent with the derived Hubble imaging limits were a faint white dwarf, which would make for the progenitor to be part of a double-degenerate binary star system. Or it may be a main-sequence (sun-like) or subgiant companion star.

The next step is to detect the surviving companion star. That will give us another opportunity to reveal more secrets about this supernova which also helps us understand the physics of Type Ia supernovae and refine their use as "standard candles".

WANTED: Candidates for MVAS Trustee positions

We need two members to fill Appointed Trustee (2 yrs.) and Elected Trustee (1 yr.) positions. Please contact anyone on the *Board of Trustees* with your wish to be considered and which spot you seek. Please let us know by Jan. 20, 2012. Thanks!

MINUTES OF THE DECEMBER MEETING

DECEMBER 10, 2011 at Boardman Park

The Annual Christmas dinner began shortly after 6:00 PM in the Stambaugh Room, Lariccia Center in Boardman Park. The appetizers and Lariccia's catered entrée's was superb. President Sam DiRocco called the meeting to order at 8:28 PM. Before Roll Call, Sam extended our deepest thanks to Tony and Irene Mehele who not only provided the food, but also served to set the room and serving tables. There was a well deserved round of applause. In all, 40 people attended the dinner.

Roll Call (ho ho ho) was answered by 25 members. One member and his guests had to leave before the meeting. The remaining guests for the meeting included (alphabetical order): Jane Avnet, Allan Avnet, Lori Baker, Virginia Bartos, Joanne Bartos, Stephen Bartos, Karin DiNardo, Gretchen DiRocco, Rose Marko, Jill McFarland-Klocek, Irene Mehle and one name was illegible on the sign-in sheet.

There was a call for the reading of the minutes. Greg Higgins moved to suspend the reading. A second was made by Bob Danko. With no further discussion, the Minutes were accepted as published by a unanimous voice vote.

TREASURER'S REPORT: The Report was read by Steve Bartos. Phil Plante noted that the balance given includes reserved funds of the OAD Fund and the true working balance is reduced by that amount. Bill Pearce moved to accept the Report as given. Greg Higgins seconded the motion. Without further question or discussion, the Report was accepted as read, by a unanimous voice vote.

General Fund 11/1 thru 11/30 2011

OPENING BALANCE:	\$	6,889.83
CLOSING BALANCE:	\$	6,122.41
AVAILABLE FUNDS (NON-RESERVED):	\$	1,958.29
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	\$	-767.42

INCOME:

INTEREST	\$	0.28
TOTAL INCOME	\$	0.28

EXPENSES:

CK# 2767 16 RASC HANDBOOKS	\$	337.62
2768 WIRING SUPPLIES FOR 16' BLD.		67.93
2769 METEORITE POSTAGE AND COPIES (2011)		312.15
2770 HOSPICE MEMORIAL DONATION (MATTUSSI)		50.00
TOTAL EXPENSES	\$	767.70

Reserved Funds

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

CORRESPONDENCE: Bob Danko reported no new mail since a NASA mailing last month.

COMMITTEE/OFFICER REPORTS: *IMAGING COMMITTEE:* *VISUAL COMMITTEE:* *LIBRARIAN:* (No reports from any.)

OBSERVATORY DIRECTOR'S REPORT: The O.D. reported that he has had the propane tanks filled and are ready to use with heater or grill. Greg reminded folks to be sure to turn off any tanks they use before leaving. Larry Plante next reported that he planned to get the spouting braced for winter in the coming week. The weather forecast looked promising. Everything else seemed to be in good shape. Rosemary reported that the refrigerators are cleaned out and closed down

for winter. She also noted that the small microwave oven seems to have bit the dust. Harry said he would look at it (a simple fix?)

OLD BUSINESS: Regarding the schedule for next year, Phil Plante asked for a consensus on next year's Christmas Party. If we are to have it in the same place we needed to decide in time to make a reservation for the room in the next month, before it's taken by some other party. By a show of hands, all were in favor of repeating the venue. Next was to pick a date: Dec. 8th or 15th. A show of hands had Dec. 8th as the prime choice. Tony said he could email the reservation shortly. These rooms go pretty fast, hence the urgency to make a reservation.

All were reminded that 2012 dues are now being accepted. Sam noted that they are now at \$40 per year, for a regular membership. It's still \$10 for Junior and family membership.

NEW BUSINESS: Dennis Marko would like to see about spicing up the *Meteorite* with cartoons. He could supply them from the internet. Harry noted that there may not be room except in the PDF version. Dennis thought this would be ok. Phil was concerned with copyright issues. In any case, Dennis will send a few to Phil and we'd go from there.

Over dinner, Lou, Jodi, Roy, and Bill discussed the imaging training talks that had been suggested by Rosemary (via the email group). They decided that this would best be done once we get back to meetings at the MVCO. This would also give them time to come up with a program. These seminars would take place after the meetings.

Larry reported that he didn't really know who was doing what observing-wise. There has been limited homework and Visual reports turned. Thus he tallied the MVCO log book to see who was the most active observer. It turns out that one person was there four times as much as anyone, and that was Bob Danko. Based on this, Bob Danko has been named Observer of the Year in 2011. A round of applause followed the announcement.

GOOD OF THE SOCIETY: Bob wanted to thank Rosemary for the excellent job she did cleaning up the 16" building for winter "shut-down". He also noted that the gate lock will work fine if you warm it with your hands first. It seems to stick when it's frozen. Larry is still looking for a replacement lock.

Phil presented a book: *Meteors and How To Observe Them*, by Robert Lundsford. This was donated by member Chris Stephan for addition to the Terry Biltz Library. It is a used paperback with orange hi-lighted text but otherwise in great condition. We thank you Chris. Phil next reported that former member Chuck and Debbie Iliff have move back to the area, now in Sharon, PA. They sent him an email expressing their plan to re-join the MVAS at the January meeting. It will be great to see old friends again.

Tony suggested that the people at each table determine who wins the gift basket. Someone suggested that the person with the highest ticket number at their table be the winner. No report on how this went. Next the door prize drawing was held using the aforementioned tickets. A pair of Nikon 10x50mm binoculars were donated by Phil as the main prize. Rose Marko won these. Three other prizes were awarded: flashlight (Jill McFarland-Klocek) retrieved by Larry, stapler set (Harry) and calculator (Linda). Congrats to all the winners.

The Host List for 2012 had been filled up prior to dinner. A full listing will be in the January Meteorite.

VISUAL REPORTS: It was agreed that we would continue with the Visual Committee reports in 2012. Phil did squeeze in a report that he had done 40 vso's in November and 10 so far in

December. There was a brief discussion of his observation of the Helix Nebula (a homework report) from Boardman, OH.

ADJOURNMENT: Adjournment came at 8:54 PM. We thank our hosts Tony and Irene Mehle for the wonderful job they did and selecting the most delicious food in town. And thanks goes to Larry Plante for bringing the shrimp cocktail and lending hand setting things up. The next meeting will be at YSU's Ward Beecher Planetarium on January 28, 2012. Meeting begins at 8:00 PM. Scheduled hosts; The Bartos family, Larry and Phil Plante. **PASSWORD:** name an asteroid. *-minutes by P. Plante*

A Special Thanks to:

Lariccia's Italian Store, 7438 Southern Blvd. Located in Boardman. 330-729-0222. They did an outstanding job with their food service at the Christmas Dinner. Please don't hesitate to consider them for your next social or business event. Astronomers know: *"It's food from heaven"*

MVAS REMINDERS

Dues for 2012 are now being accepted. It is preferred they be paid by or at the January meeting, according to traditional practice. It is to be by cash payment only- no barter or reimbursement arrangements. Make checks payable to "MVAS" or pay in cash, in person, to the Treasurer. Members that have not paid by or at the April meeting will be dropped from the Roster. Membership rates: Regular- \$40 per year, Family (addition to regular member) \$10 each per year, living in the same household, Junior members \$10 per year. Thank in advance.

We have MVAS apparel and a few 2012 RASC Handbooks left for sale (\$25 ea.). Maybe a few Astronomy Calendars as well (\$10 ea.). Inquire with Steve on current supplies available.

We need two members to fill Trustee seats. One will be the Appointed Trustee and is appointed by the Board for a 2 year term. The other is the Elected trustee which is elected by a simple majority vote, cast by the general membership, so assembled for and at the January meeting. This trustee serves as the representative of the non-Board membership. Term is 1 year. Contact any of the Officers or Trustees listed in the box under "Board of Trustees", page 1 of the Meteorite. Tell them you'd like be a candidate- and which position you wish to serve. Please do this at least one week before the January meeting.

MVAS ACTIVITIES

The 2011 Annual Christmas Party was a huge success, once again. Appetizers were consumed during the social hour. Meanwhile members paid dues, dinner fees and purchased merchandise. The food prepared by Lariccia's was excellent as always. The Mocha House cheesecakes hit the spot- if you had room! We thank Tony and Irene Mehle for providing such a feast and wonderful settings. We now have the same room booked and paid for, next year on December 8th. Presumably we will have the same menu and activities as this past year. The room was already booked for December 15, which was our back-up date. It seems to be a good thing that we acted fast on this reservation.

Congratulations to Bob Danko on being selected **Observer Of The Year for 2011**. Bob is now a three time winner. It would be nice to see a few new names on the plaque.

Looking Ahead 2012

MVAS EVENTS FOR 2012

Jan	7	Sat	Telescope Seminar at YSU 12 to 3pm
Jan	28	Sat	Meeting YSU. Show at 8:00 PM
Feb	25	Sat	Meeting YSU. Show at 8:00 PM
Mar	24	Sat	Binocular Messier Marathon MVCO 7:00pm
Mar	31	Sat	Meeting YSU. Show at 8:00 PM
Apr	21	Sat	Chili Galaxy Quest at MVCO. 6:00 PM
Apr	26	Sat	Meeting at MVCO. 8:00 PM
May	19	Sat	OTAA Scenic Vista Stargaze, at sunset.
May	26	Sat	Meeting at MVCO. 8:00 PM
Jun	5	Tue	Venus transit 6:00 PM til sunset-- TBA ?
Jun	23	Sat	Scenic Vista "Astro-HAM" radio and Public Stargaze -- time TBA for Ham fest activity.
Jun	30	Sat	Meeting at MVCO. 8:00 PM
Jul	7-8	Sat	Festival of Arts at YSU 12-5pm (Sat & Sun)
Jul	28	Sat	Meeting at MVCO. 8:00 PM
Aug	18	Sat	MVAS-OTAA MVCO 5:00 PM
Aug	25	Sat	meeting MVCO. 8:00 PM
Sep	8	Sat	Public night at Scenic Vista. At sunset
Sep	29	Sat	Meeting at MVCO. 8:00 PM
Oct	20	Sat	Meeting at MVCO. 8:00 PM
Oct	27	Sat	Halloween Party at MVCO. 7:00.PM
Nov	17	Sat	Meeting YSU. Show at 8:00 PM
Dec	8	Sat	Christmas Party. 6:00 PM, Lariccia Center.

NOTES: These are the dates and times known as of the January meeting. The Scenic Vista dates will likely be phoned in to the park office before the January meeting and essentially be set, as they begin to prepare their Park Schedule by then. The Chili Cook-off and Galaxy Quest have been combined this year. There is a series of imaging seminar/classes in the works, which will be given after the meetings, once we get back to the MVCO in April. A possible joint venture between MVAS and YSU is in the discussion stages. This would be for public viewing of the Venus Transit on June 5, 2012. A clear view of the setting Sun is required, as the transit is in still progress at sunset. Solar-safe visual and video techniques will be needed for viewing this. We have reserved the Stambaugh Room in Boardman Park for a December 8th Christmas Meeting, as in 2011. Other events may pop-up such as at Boardman Park. The other OTAA convention dates are not known at this time.

HOSTS FOR 2012 MEETINGS

JAN	Steve Bartos, Plante brothers.
FEB	Mark Baker
MAR	Ed and Sheila Bishop
APR	Keith Janeco and Larry Plante
MAY	Memorial Day weekend, MVAS BBQ. Bring your own.
JUN	Dennis Marko
JUL	Greg Higgins and Rosemary Chomos
AUG	Bill Pearce
SEP	Daniel Schneider
OCT	Harry Harker and Sam DiRocco
NOV	Jodi and Roy McCullough
DEC	Tony Mehle (Christmas Dinner)

If you would like to help out, let the hosts know what you can bring. Inform the Secretary of other changes or need to swap meetings. Thanks to all of you for volunteering for this duty.

Close Encounters

As we begin the year of 2012, let's take a peek at some celestial events coming down the road. These involve close encounters of celestial objects with other objects as they move around in the night sky. (no-- none of 'em are colliding with each other) We'll skip the obvious eclipses and the Venus transit this time around...as they are encounters of a different kind.

We will start with a rare close approach of the small asteroid **433 Eros**. It was discovered on August 13, 1898 by Carl Gustav Witt. It will make a close approach to Earth of 16,639,090 miles (0.179 AU) on January 31, 2012. It's closest passage in 27 years. Eros was visited by the NEAR spacecraft in the year 2000, so its physical characteristics are exceptionally well known. It has a rotation period of 5.27 hours, with dimensions of 34 x 11 x 11 km. Close approach is at 11hr UT (6:02 AM EST). Sunrise will be at 7:37 AM so the sky will soon begin to brighten. The moon will be at first quarter and will have set by then. Eros should be at magnitude 8.1 and visible in binoculars. At that time it will be moving about 3 arcminutes per hour. You should be able to detect its motion in that time.

A more appealing visual and imaging opportunity occurs the evenings of January 15 and 16 when Eros passes about 1° degree west of M105, M96 and M95 in Leo. It will be 1.1° NW of these galaxies at midnite on January 15, and 0.6° SW the next night. A gibbous moon rises just before midnite on the 15th but is still 10° below the horizon the next night at 12AM. Observe or image earlier in the evening. Another encounter occurs on February 14 as Eros passes 2.5° west of the planetary nebula NGC3242 (The Ghost of Jupiter). The moon is near last quarter rising around 1:00 AM, so do your work before midnight. Use the chart at right to get an idea of how fast Eros dives southward in two months. Good luck.

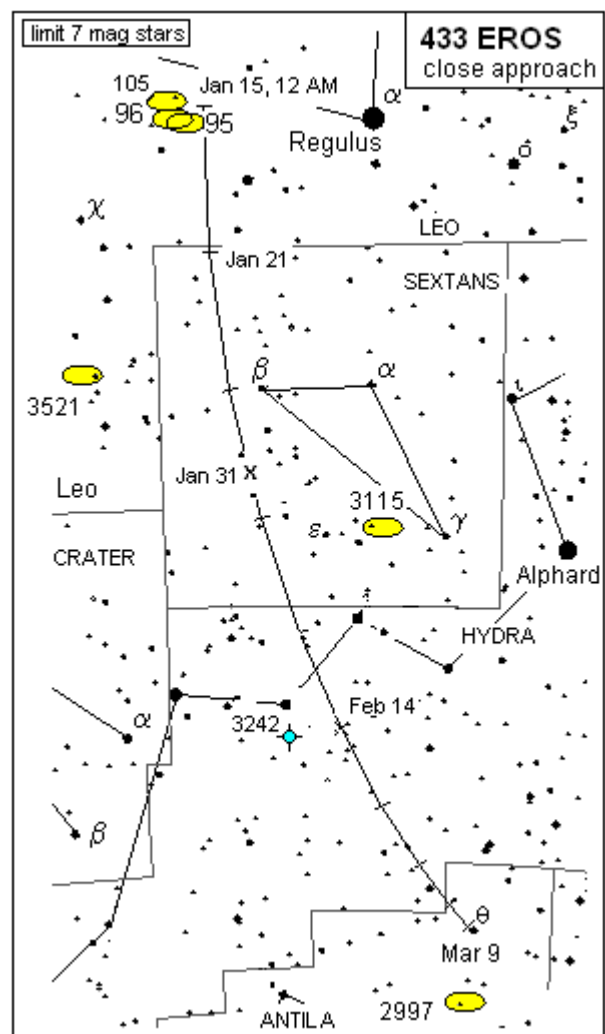
Mars is the next close encounter- but no aliens are expected. Between March 10th and 20th, Mars will pass between M105 and M96. The same galaxies that Eros passed in January. The Moon is up in a fat gibbous phase on the 10th. But darker skies prevail, reaching New Moon on the 21st. The best grouping occurs March 15 to 18. Thus the best grouping is about a week before our Binocular Marathon on March 24. A path chart for Mars will be in the February Meteorite.

Pluto is getting harder to spot as it meanders through the band of Milky Way in Sagittarius. Being dimmer than 14.2 magnitude, it needs a really big scope to ferret it out from all of the faint background stars. We have a little help this year as Pluto will cross east-west through the southern flanks of open cluster M25. This begins around July 10, but a last quarter moon interferes after midnight. Opportunities improve through new moon up until the 5 day moon of July 22. But Pluto is leaving M-25 by then. A close-up chart of M-25 will be in the June Meteorite. The July Meteorite will then feature U Sgr as variable star of the month. It is located within M25. Sagittarius is constellation of the month in July as well. Be advised you'll need a super clear night for Pluto. On an average night, Titan can just barely nab 14th magnitude stars. And those are much higher in the sky, above horizon haze and sky glow at the MVCO. Pluto might be a good project for imagers to tackle.

Can you see **Uranus**? Make your own jokes, but this encounter will be splendid. Around the time of opposition on September 29, Uranus will pass near the star 44 Psc. Both will

be at 5.7 magnitude. At closest approach they will be separated by about 41 arcseconds. That is about how wide Jupiter usually appears. Uranus will be moving 6"/hr so its motion should become noticeable in an hour or so at moderate power. With both objects the same brightness and so close, they will appear as a tight double star in finders and lower magnifications. Look for the color difference. 44 Psc has a color index of 0.86 which makes it about as yellowish as Capella. Uranus has a pale blue-green color. What color contrast will we see? Time will tell.

In November asteroid **4 Vesta** will pass east to west along a path south of variable star CE Tau, normally around 5th magnitude. CE Tau is also the variable star of the month. Just north of CE is the Crab Nebula (M1). This just happens to be the Homework object for November. Talk about one-stop shopping! Charts will be provided in the October issue. So...we have some nice celestial encounters to look forward to in 2012. Most of these make for great imaging projects, but visual reports will be most welcome. *-P. Plante*



MVAS Homework: M-42

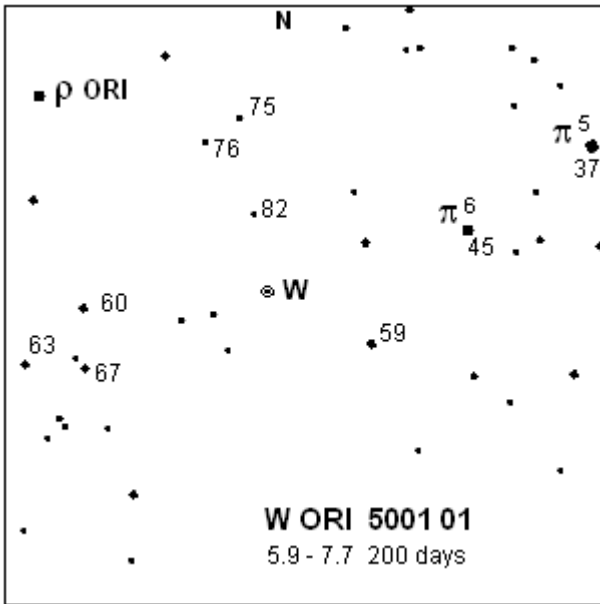
Yes. It's cold out. M-42 is an easy one for a quick catch with binoculars. Try a binocular view sketch. Get the stars placed correctly then make the smudge that is the Orion nebula. It need not be pretty. Try to get a feel for sketching this month.

MVAS OBSERVER CHARTS

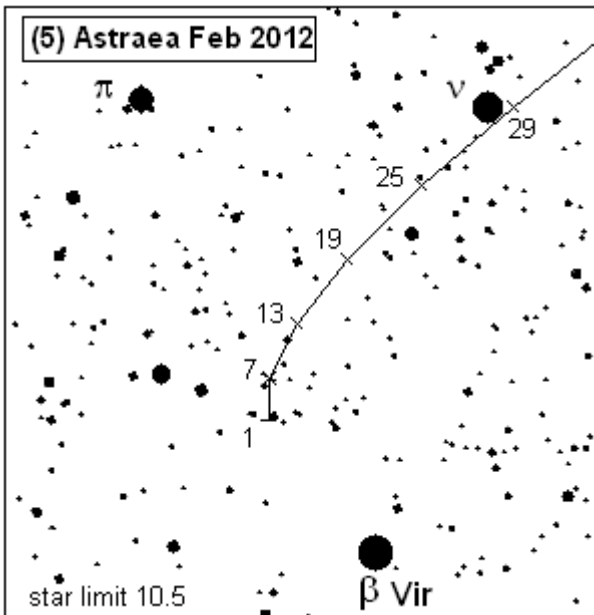
MVAS OBSERVATIONS - DUE FEBRUARY 2012

Variable star of the month: **W Orionis** (*abbrev.*: W Ori).

Located down at the eastern end of Orion's Shield we find the variable W Ori, which is a fairly bright red to pinkish star. Usually the brightest star in its area. I trace down the shield stars to look for the triangle W Ori makes with the north-south pair of 5.9 stars to its west. The southern one is the 5.9 mag. comp star on the chart. Well suited for binocular observations when doing the M-42 homework this month. Give it a try-- anytime in fact.

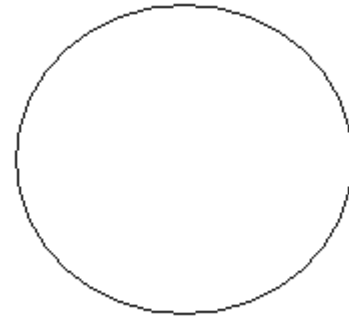


Asteroid of the month: **(5) Astraea**. Around the midnight hour, look in the SE to find 5 Astraea cruising north of beta Virginis. It gains in brightness from 10th mag. to 9.3 at the end of the month. A small grab-n-go scope would probably be your best to spot this. The weather is usually not conducive to comfy viewing during February nights. If you can deal with this observation, the rest of the year should be a piece of cheesecake.



OBSERVER _____

Featured object: M-42. Please try a sketch. Place the stars as accurately as possible. Next draw the outline of the nebula then fill-in with pencil shading and smudges. The brighter a section is, the darker you make the pencil mark. Smudge and blend with your finger. Yes- you could call his CCD imaging (Controlling Carbon Deposits). ahem...ok, so the pencil is only a 10 cent device, not up to real CCD images. But it can be fun to use.



M-42 Observation:

Date: _____ Time(EDT) _____ Scope _____

W ORI magnitude estimates:

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

_____	_____	_____	_____
_____	_____	_____	_____

(5) Astraea Observations:

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

_____	_____	_____	_____
_____	_____	_____	_____

Other Objects in Orion to observe

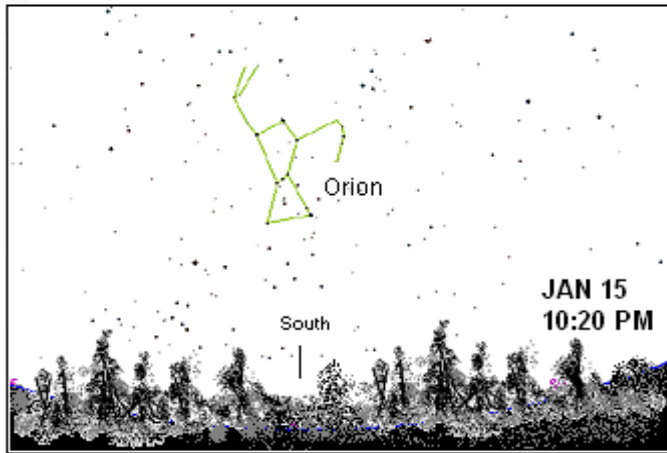
D. Sky	Date	Scope	Dbl.	Date	Scope	SEP	MAG	SPLIT?
M- 43	_____	_____	λ Ori	_____	_____	4.3"	3.5 - 5.5	Y / N
M- 78	_____	_____	σ (AB-E)	_____	_____	41"	3.8 - 6.3	Y / N
N- 2112	_____	_____	ι Ori	_____	_____	11.3"	2.9 - 7.0	Y / N

Lunar Occultations (see Sky Almanac):

Star (UT) Date Time Scope magx. Event(circle)

_____	_____	_____	_____	_____x	R	D
_____	_____	_____	_____	_____x	R	D
_____	_____	_____	_____	_____x	R	D

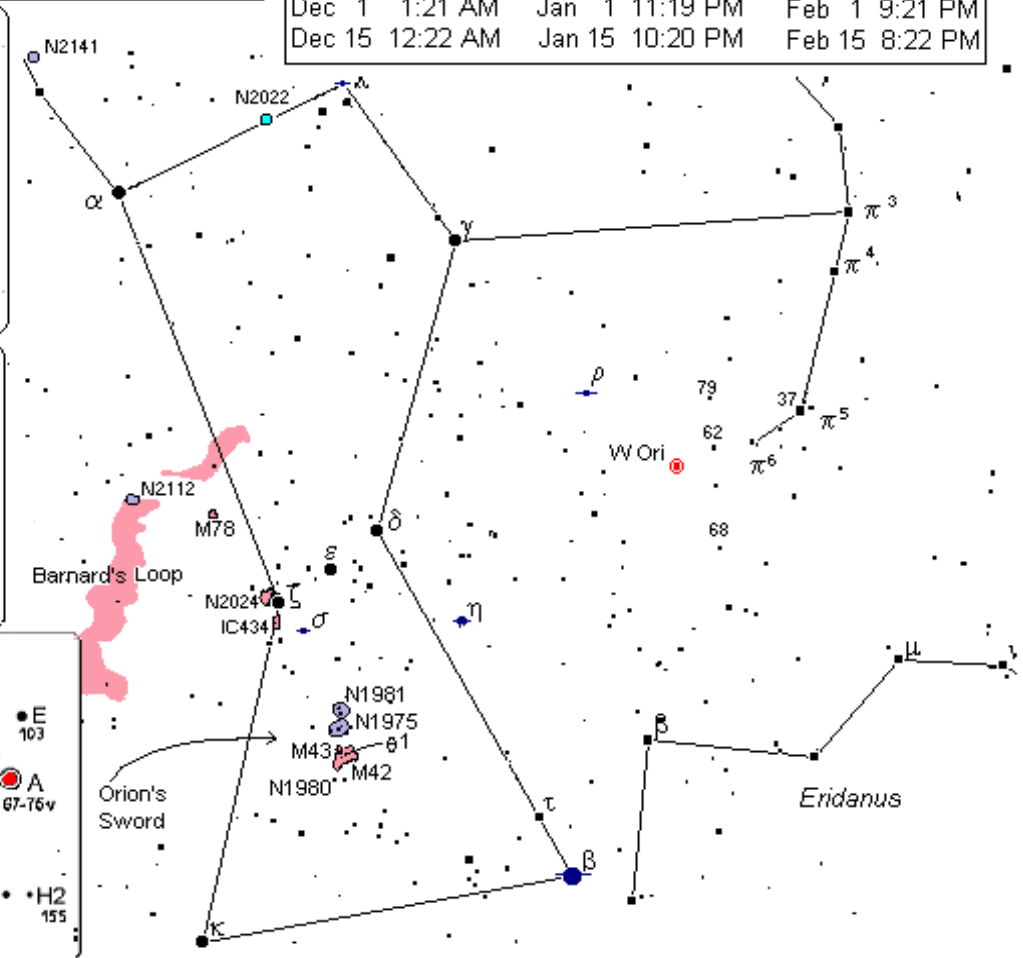
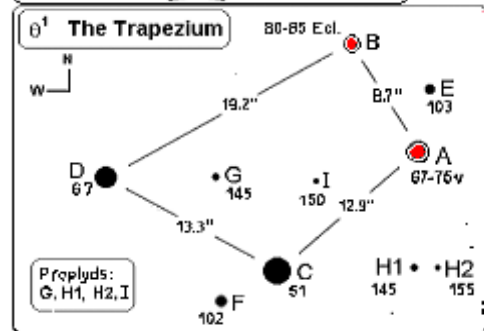
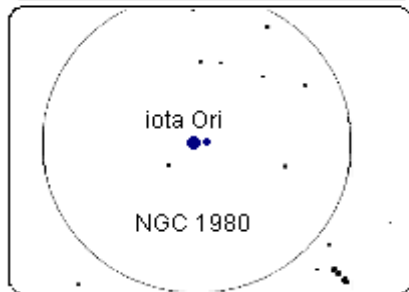
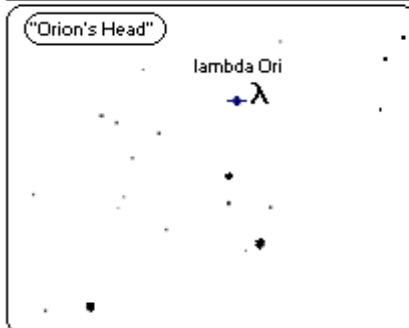
Constellation of the Month — Orion



In late December-early January, around 9:00 PM, you can find Orion high in the southeast. The belt stars are perhaps the most easily recognized asterism. Take binoculars out on those cold evenings for a quick scan of the belt area. It is breathtaking. You will see the great nebula M42 as a bright glowing cloud of light. It's not likely you'll see Barnard's Loop but this is a good "deep" target for imagers. The famed Horsehead nebula needs a big and fast scope with an H-beta filter in place. This might bring you success. Binoculars are all you need for the variable W Ori but you'll need a telescope to split the double stars, spot M78 and the other hidden treasures of Orion. This is the showcase constellation of the winter sky. Enjoy your own celestial hunt that is offered by Orion, the Hunter.

Transit times M42

Dec 1	1:21 AM	Jan 1	11:19 PM	Feb 1	9:21 PM
Dec 15	12:22 AM	Jan 15	10:20 PM	Feb 15	8:22 PM



DEEP SKY	
M42	emission nebula
M43	emission nebula
M78	reflection nebula
NGC 1975	reflection nebula
NGC 1980	open cluster
NGC 1981	open cluster
NGC 2022	planetary nebula (12.5 mag.)
NGC 2024	emission neb. (Flame Nebula)
NGC 2112	open cluster
NGC 2141	open cluster
IC 434	emission nebula

DOUBLE STARS	
λ Ori	3.7, 10.7 mag. 29" sep. lemon, ash
σ Ori	3.7, 8.8 mag. 11" sep. yellow, white
ι Ori	2.8, 6.9 mag. 49" sep. yellow, grey
ρ Ori	4.5, 8.3 mag. 7.0" sep. orange, blue
η Ori	3.8, 4.8 mag. 1.5" sep. yellow, silver
β Ori	0.1, 6.8 mag. 9.5" sep. white, blue
Variable stars:	
W Orionis	5.9 - 7.7 mag. range, 200 days

Check list	
M42	<input type="checkbox"/> λ Ori <input type="checkbox"/>
M43	<input type="checkbox"/> σ Ori <input type="checkbox"/>
M78	<input type="checkbox"/> ι Ori <input type="checkbox"/>
N1975	<input type="checkbox"/> ρ Ori <input type="checkbox"/>
N1980	<input type="checkbox"/> η Ori <input type="checkbox"/>
N1981	<input type="checkbox"/> β Ori <input type="checkbox"/>
N2022	<input type="checkbox"/>
N2024	<input type="checkbox"/>
N2112	<input type="checkbox"/>
N2141	<input type="checkbox"/>

Instruments used	
<input type="checkbox"/>	on _____
<input type="checkbox"/>	on _____
<input type="checkbox"/>	on _____
<input type="checkbox"/>	on _____
W Ori	_____ mag on _____
W Ori	_____ mag on _____

Solar and Lunar (EST).

Date	Sunset	Moonrise	Moonset
1	5 : 40	12 : 06p	2 : 21a
5	5 : 45	3 : 42	5 : 42
9	5 : 50	8 : 19	8 : 00
13	5 : 55	— : —	10 : 15
17	6 : 00	4 : 09a	1 : 50p
21	6 : 05	6 : 39	6 : 11
25	6 : 10	8 : 26	10 : 13
29	6 : 13	10 : 44	1 : 05a

PLANET WATCH

Mars Rises	Jupiter Sets	Saturn Rises
8:50p	12:28a	11:59p
8:31p	12:15a	11:43p
8:11p	11:58p	11:27p
7:51p	11:46p	11:11p
7:29p	11:33p	10:55p
7:06p	11:21p	10:39p
6:43p	11:08p	10:23p
6:20p	10:56p	10:06p

February 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			
			»			

Asteroid for February 2012 (5)Astraea

Date	Rises	RA		Dec.	Alt.	Azm	Magnitude
		hr.	min				
1	9 : 20 pm	11 : 55	+03.2	28°	113°	10.0	
7	8 : 54 pm	11 : 55	+03.7	33	118	9.9	
13	8 : 28 pm	11 : 54	+04.3	37	123	9.7	
19	7 : 59 pm	11 : 52	+04.9	42	129	9.6	
25	7 : 30 pm	11 : 49	+05.6	46	136	9.4	
29	7 : 10 pm	11 : 46	+06.6	49	142	9.3	

EST (at midnight) (at midnight)

Date UT hr Celestial Highlights

7	22	FULL MOON
9	07	(433)Eros at opposition
14	17	LAST QUARTER MOON
15	21	Mars at aphelion
21	22	NEW MOON
25	19	Venus 3° S. of Moon
27	04	Jupiter 4° S. of Moon
27	17.2	Hebe at opposition 9.8m
29	24	FIRST QUARTER MOON
29	03	Moon 3° S. of Pleiades

Variable Star of the Month: W Ori 5.9 - 7.7mag 200 day period

LUNAR OCCULTATIONS FOR: FEBRUARY 2012

Civil (24hr)			UT			Moon			Moon			Moon			Star		Star event		dbl./
date	hr	min	sec	date	hr	min	sec	Ph	% illum.	alt	azimuth	name	Mag.	PA	event	sep.			
0	20	: 56	: 15	1	01	: 56	: 15	D*	58+	56°	240°	delta ARI	4.4	355°		NA			
0	21	: 01	: 10	1	02	: 01	: 10	R	58+	55	243	delta Ari	4.4	345°		NA			
3	21	: 09	: 47	4	02	: 09	: 47	D	84+	70	172	Ber 21	6.0	083°		open cl			
5	19	: 48	: 40	6	00	: 48	: 40	D	96+	43	105	74 GEM	5.0	118°		.030"			
10	3	: 28	: 44	10	08	: 28	: 44	R	92-	45	201	ZC 1655	6.8	322°		NA			
10	6	: 50	: 42	10	11	: 50	: 42	R	91-	17	250	87 Leo	4.8	309°		NA			
15	6	: 02	: 45	15	11	: 02	: 45	R	41-	25	165	ZC 2333	7.4	320°		NA			
18	6	: 01	: 38	18	11	: 01	: 38	R	13-	9	128	SAO 187837	7.8	208°		NA			
23	19	: 59	: 58	24	00	: 59	: 58	D	4+	2	273	TX PSC	5.0	044°		NA			
25	20	: 54	: 13	26	01	: 54	: 13	D	15+	13	275	ZC 194	8.2	038°		0.20"			
26	21	: 52	: 08	27	02	: 52	: 08	D	23+	13	280	ZC 313	7.1	012°		0.10"			

D* = Graze path 8km north of MVCO at 2 deg azimuth

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.....

It was a Merry Christmas Party Dec. 10.



Above, Left to right- by faces encountered.: Roy, Jodi, Ed, Sheila, Bob, Lou, Dennis, Rose, Bill, Dave, Pandian, Tony, Maryanne, Harry, Larry, Rosemary, Linda, Gretchen, Sam, Keith, Phil, Dan, Steve, Eric, Mark, Dick and sitting is Rudolph (Greg) (Group Photo supplied by Tony Mehle as edited by Sam DiRocco to include Harry. All others by Tony)



Chow Time!
Cheesecakes galore!



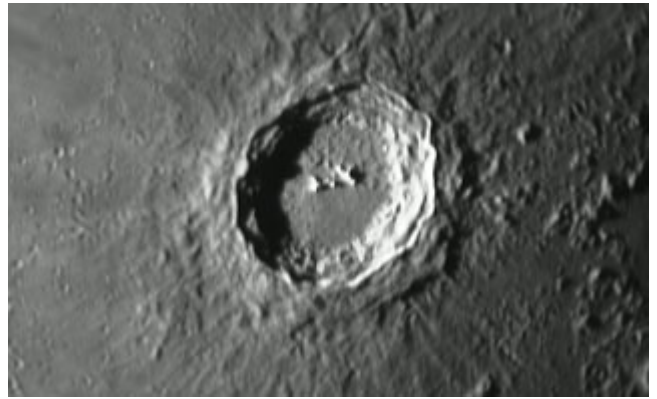
Below: Plenty of cheer and chow. Looking forward to next year's Party.



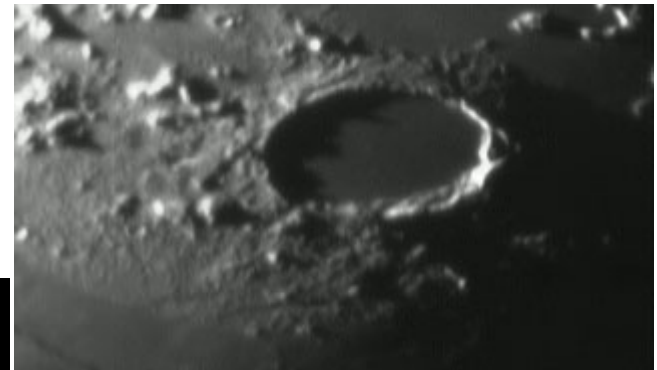
MOON MADNESS



Dennis Marko submitted this internet cartoon to add some "spice" to the Meteorite. Every Earth-bound lunar explorer needs a copy of Rühl's *Atlas of the Moon*.



Lou DiNardo shot Copernicus Oct. 8th, 2011 with a Meade 10" SCT.



Lou also shot Plato the same night.



Bill Pearce snapped a nearly full moon on November 13, 2011. Fine detail and contrast. Notice the very bright, small dot that is the crater Aristarchus. It's near the terminator, upper left. It's one of the youngest and brightest craters.



Bill did a lunar phase sequence Dec. 2, 2011 in a quest to image the Lunar X.

Phil Plante shot this gibbous phase on June 28, 2010. He was testing an Astrotech 72mm APO. Notice the libration differences, especially at Mare Imbrium and Tycho, compared to Bill's photo's.



libration differences, especially at Mare Imbrium and Tycho, compared to Bill's photo's.