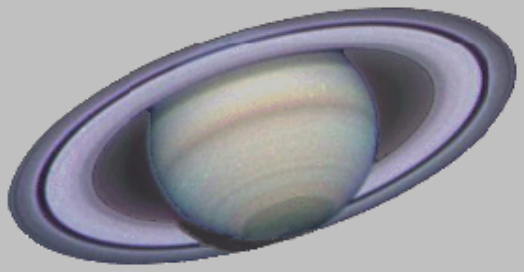
THE METEORITE



Saturn

Hubble Space Telescope Image

Newsletter of the Mahoning Valley Astronomical Society, Inc.

IN THIS ISSUE:

JUNE 2014

Meteorite Editor: Phil Plante
1982 Mathews Rd. #2
Youngstown OH 44514

THE METEORITE

Newsletter of the Mahoning Valley Astronomical Society, Inc.

MVAS CALENDAR

JUN 7	Bill Pearce Memorial Stargaze. Austintown Park.
JUN 21	Public Night at Scenic Vista. Sunset 9:00 PM
JUN 28	CVAS-OTAA meeting. Huntsburg, OH. 6:00 PM
JUN 28	Business meeting at the MVCO. 8:00 PM
JUL12-13	Summer Festival of Arts, YSU. 12 noon - 5:00 PM

NATIONAL & REGIONAL EVENTS

Jun 21-28 **Grand Canyon Star Party.** Held at The Grand Canyon National Park North and South Rims, Flagstaff, AZ. The Grand Canyon Star Party is a public star party. Volunteer with your telescope, or just use them under some of the darkest skies in the country. http://tucsonastronomy.org/gcsp/

Jun 25-29 **Rocky Mountain Star Stare.** Held near Gradner CO. Usually has about 300 astronomers. See the website, for all he details. http://www.rmss.org

Jun 26- 29 **Cherry Springs Star Party.** Held at Cherry Springs State Park, Coudersport, PA. The Registration Desk will open at 12 to 6 PM, Th-Sat. There will be 24/3 food service. http://www.astrohbg.org/CSSP/

Jun 29-Jul 2 **SARA Conference.** To be held at the National Radio Astronomy Observatory, Green Bank, WV. Conference fee of $165 includes SARA membership (Society of Amateur Radio Astronomers). http://www.radio-astronomy.org/

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

JUNE 2014

NEWS NOTES

Titan's Hazy Sunsets. In recent years researchers have developed techniques for obtaining spectra of exoplanets as they transit their host star. These spectra enable scientists to tease out data about exoplanets such as temperature, composition and structure of any atmosphere they may posses. When an exoplanet passes in front of its host star as seen from Earth, some of the star's light travels through the exoplanet's atmosphere. It is essentially the exoplanet's "sunset" light we detect. "It turns out there's a lot you can learn from looking at a sunset," said team leader Tyler Robinson, a NASA Postdoctoral Research Fellow at NASA's Ames Research Center in Moffett Field, California. Their findings were published in the *Proceedings of the National Academy of Sciences.*

They exploited a similarity between exoplanet transits and solar transits of Saturn's moon Titan- as witnessed by the *Cassini* spacecraft. Titan's transit "sunsets" revealed just how dramatic the effects of hazes can be. The team used four observations of Titan made between 2006 and 2011 by Cassini's visual and infrared mapping spectrometer instrument.

Their analysis provided results that include the complex effects due to hazes, which can now be compared to exoplanet models and observations. Robinson and colleagues found that hazes high above some transiting exoplanets might strictly limit what their spectra can reveal. The observations might only reveal data from a planet's upper atmosphere. On Titan, that corresponds to about 90 to 190 miles above the moon's surface, high above the bulk of its dense and complex atmosphere. The study also showed that Titan's hazes more strongly affect shorter wavelengths, or bluer light. Studies of exoplanet spectra have commonly assumed that hazes would affect all colors of light in similar ways. Studying sunsets through Titan's hazes has revealed that this is not the case.

Pluto Gettin' Close. The New Horizons spacecraft has sailed past another milepost back on March 3rd when the NASA spacecraft moved to within four astronomical units (AU) of Pluto. This is less than four times the distance between the Earth and the Sun, or about 371 million miles. This is as close as any spacecraft has ever approached Pluto. "We're as close to the Pluto system now as Earth ever gets to Jupiter, a first for any spacecraft," said New Horizons Principal Investigator Alan Stern, of the Southwest Research Institute, Boulder, Colo. New Horizons will cross the orbit of Neptune on Aug. 25 - exactly 25 years after Voyager 2 made its historic flight past that giant planet. New Horizons will arrive at Pluto on July 14, 2015. it will continue on to explore the Kuiper Belt after its Pluto flyby.

New Mars Lander. The U.S. space agency, NASA, recently gave the green light for the construction of a new Mars lander that will examine the deep interior of the Red Planet. The new Mars mission is called the Interior Exploration Using Seismic Investigation Geodesy and Heat Transport, which is why everyone knows it by its acronym: *InSight*. The mission's spacecraft is scheduled to launch from California's Vandenberg Air Force Base in March 2016 and due to arrive on Mars later that year, in September. The new Mars lander will map out the geography of the deep Martian interior with a seismometer and a heat-flow probe *-all above adapted from Space News Daily.*

MINUTES OF THE FEBRUARY MEETING

MAY 31, 2014 at YSU

The meeting came to order at 6:06 PM in the conference room. President Lou DiNardo presided. There were five Board members present. Roll call showed eleven members attending. The two guests included Donna Cherry and Virginia Bartos. Lou DiNardo moved to suspend the reading and accept the Minutes as published. Don Cherry seconded the motion. By voice vote all were in favor. The Minutes are adopted.

TREASURER'S REPORT: The Report was read by Steve Bartos. Phil Plante moved to accept the Report. Larry Plante made a second to the motion. By voice vote all were in favor and the Report is accepted as read.

General Fund	**4/1 thru 4/30 2014**	
OPENING BALANCE:	$	9,965.31
CLOSING BALANCE:	$	10,226.48
AVAILABLE FUNDS (NON-RESERVED):	$	5,997.36
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	$	+261.17
INCOME:		
MVAS ITEMS-EQUIPMENT SOLD TO CHRIS STEPHAN	$	125.00
DUES 2014		80.00
MVAS MERCAHNDISE		56.00
INTEREST	$	0.17
TOTAL INCOME	$	261.17
EXPENSES:		
CK# XXX NONE	$	0.00
CASH PAYMENTS		0.00
TOTAL EXPENSES	$	0.00
Reserved Funds		
OBERVATORY ACQUISITION & DEVELOPMENT FUND	$	3,914.12
MVCO KEY DEPOSITS		285.00
SUNSHINE FUND		30.00
TOTAL RESERVED FUNDS	**$**	**4,229.12**

2014 Membership dues paid by: M. Heim, B. Prewitt

CORRESPONDENCE: Phil Plante received an e-mail from Honorary Member Tom Bopp. He sent along his best wishes to the MVAS. He noted that his father had passed away in October 2012- our condolences thus sent. Tom said they both enjoyed reading the Meteorite. Tom also noted that when he gives talks, he often cites that his time on the 16" Cass taught him valuable observing skills. It was suggested he be invited to the Anniversary dinner in October.

COMMITTEE REPORTS: *IMAGING COMMITTEE:* Lou reported that Jodi and Roy has posted a remarkable image of Saturn to the group list. They used their new ZWO ASI120MM web cam and a TEC refractor for the image. Lou also received some new planetary processing tips from *Images Plus* software developer Mike Unsold. *VISUAL COMMITTEE:* No reports or Homework submitted. Phil had homework from May, but was not yet prepared for submission. He used the 25" for the Mars, variable, double stars, deep sky and asteroid observations

OFFICER REPORTS: *OBSERVATORY DIRECTOR:* Larry Plante reported that a 10 foot ladder has been purchased for $198 and delivered to the MVCO, as voted on at the February meeting. A supply of materials has also been purchased for staining the deck. They are at the MVCO for anyone that wants to tackle this job. It should be noted that Bob Danko has trimmed the weeds around the buildings- looks good, thanks Bob. All else at the MVCO seemed in good working order.

LIBRARIAN: Rosemary Chomos has not yet placed any of the new books we've received, in the Terry Biltz Library.

OLD BUSINESS: It was reminded that we have the Bill Pearce Memorial Stargaze at Austintown Park the next weekend (June 7th), a Scenic Vista Public night on June 21st and our business meeting on June 28th. Phil Plante went over the Host list to fill in open spots. A host was needed for the July meeting. It was decided to have our annual BBQ that meeting. Members will bring things to grill or side dishes. Paul & Jan Baker are signed-up for dessert and Lou & Karin DiNardo are signed-up of drinks. Contact them if you wish to help them rather than bring BBQ items. Don Cherry signed-up as main snack host for the November meeting. Tom Seckler and Kim Evans signed-on to brink drinks in November. The main snack spot is still open for the October meeting. There might be leftovers from the Anniversary Dinner that could cover this. It may also be a "Halloween dress-up" meeting, with the usual pot-luck chow. More discussion of this topic as the date gets closer

There was discussion of the 75th Anniversary dinner. Rosemary is in discussion with Tony Mehle regarding the BBQ cook. She noted that meat and fuel prices will be increased since her preliminary quotes earlier this year. Phil suggested that we charge attendees (meal tickets) like we did for the 70th Anniversary steak fry. This helped offset expenses for that event and it went off without complaint. The ere was no activity on the T-shirts. Rosemary asked if prototype shirts are made before an order is placed. Phil believed that he had gotten prototype shirts when he submitted art work. Phil had been considering a design (based on Corona Borealis) but never started. A speaker for the event was discussed. Sharon Shanks has his contact number and suggested the radio astronomer from Ohio State that noted the unusual radio signal (possible ET) by writing "WOW" on the read-out chart in the 1960s. No decision has been made yet.

Phil Plante noted that the pending sale of the 50" blank seems to have fallen through. The interested parties had applied for a $10,000 Grant from YSU to use towards the purchase of the 50", but his application was turned down. They expect to try again in the future. There is nothing new on the roof repair. The Trustees will hold a meeting in June to work out a plan for next year as well as determine maintenance needs for this year. [addendum: we may need some painting done- Sec.]

NEW BUSINESS: Steve Bartos has paid the liability insurance to Holloway Insurance ($300). He has also renewed our 501 3(C) status with the IRS. If we have over $50,000 income we would have to re-file our non-profit status. Not likely to happen! Rosemary asked about OTAA prizes. Phil will have a reminder in the June Meteorite for members to start collecting items. He has not yet talked with Tony about a main prize. The speaker for the OTAA was discussed. Sharon Shanks has volunteered to give a talk on the history of planetariums. Sharon was also getting the 2015 YSU schedule ready.

She then suggested that we help with a new "So You Want A Telescope?" event this November 8th at the Planetarium. This would be an informational event to train buyers on how to buy that Christmas gift telescope. MVAS would be there to answer questions and have different telescopes on display. O&A sessions as well. An 8PM time was set. The usual "So You Got A Telescope" event in January would be a follow-up. As in past years MVAS would help telescope owners get their scope up and running. January 17th was the date set. Phil Plante moved to do these events. Lou DiNardo seconded the motion. By voice vote, all were in favor. Finally, former member Mike Celiti from

the late 1990's had asked to rejoin the MVAS back in April He was at the Meteor shower watch at Scenic Vista but he was not present at this meeting. Phil Plante nominated him for reinstatement. Larry Plante seconded the motion. By Voice vote, all were in favor. Pending dues payment, Mike is now a member. Welcome back Mike.

GOOD OF THE SOCIETY: Mike Sprague had leftover concrete from his drive way project. This was placed along the inside curve of the MVCO drive to alleviate erosion and level the drive surface. Many, many thanks Mike! Larry has replaced the lag bolt that the MVCO gate had sat on when locked. It became twisted or bent during removal. He has replaced it with a heavy duty bracket/ledge on which the gate can now sit. This will prevent the gate from sagging under its own weight. Lock and chain are the same. Thanks Larry.

VISUAL REPORTS: Sharon Shanks has spotted Mercury, Jupiter, Mars and Saturn from Boardman, OH. Phil Plante got 20 vso's, Mars, Saturn, Ceres, Vesta using the 25". Chris Stephan got 36 vso's. Tom Seckler imaged M97,13 and 101. Don Cherry has done lunar and planetary imaging. Larry Plante counted 13 meteors during the Cam "storm".

ADJOURNMENT: Adjournment came at 7:06PM. No hosts tonight. Next meeting is at the MVCO, June 28, 2014. Meeting begins at 8:00 PM. Scheduled hosts are *Snack*: Keith Janeco, *Dessert:* Larry Plante, *Drinks:* Phil Plante.
PASSWORD: feature or moon of Saturn. *-minutes by P.Plante*

Immediately after the meeting, members traveled to the Mahoning Country Club to hold a private stargaze.

MVAS REMINDERS

Scenic Vista. Don't forget the public night at Scenic Vista on June 21st. Sunset is at 9:00 PM. Come early enough to set-up. It is a regular public night so plan accordingly. Bring your drinks and snacks with a scope. Check emails if weather is suspect.

Summer Festival of Arts. Held on the YSU campus, it features various artists / craftwork, music and food vendors. MVAS and the YSU Planetarium has provided solar observing for the public, set-up outside of the planetarium. Shows run during the event. Time is 12 noon until 5:00 PM.

Chagrin OTAA. The Chagrin Valley Astronomical Society (CVAS) will hold its annual OTAA event on June 28. Start time is 6:00 PM. It is a bring a "covered dish" or dessert event. There is the possibility of a caravan driving up to Telescope Park (a few miles up the road). It is well worth the trip. This is the same night as the MVAS Business meeting. Members are encouraged to attend CVAS. Those interested should make plans (meet at the MVCO?) for the trip to Indian Hill Observatory. The rest of us will have a our usual meeting at the MVCO. A Google map for IHO is at:
http://maps.google.com/maps?f=q&hl=en&q=15735+huntley+road+huntsburg+oh+44046&om=1&ll=41.548608,-81.076484&spn=0.01532,0.043259

MVAS-OTAA. It's time to start rounding up door prizes for our OTAA on August 23rd. Look for small astronomy items, etc.

MVAS ACTIVITIES

May 5th. Scenic Vista Stargaze. Checks of the Clear Sky Chart for Scenic Vista during the day showed a promising window of clear sky from sunset until midnight. Areas to the north were not so lucky. Clear Sky was right this time. Clouds mostly went away by 7pm at Scenic Vista. Six MVAS'ers and four telescopes eventually showed up. There was a small but muddy road rally, pushing and towing a stuck MVAS vehicle. But early arrivals enjoyed bbq sausage provided by Larry Plante. Thanks Larry! Delish. No public turned out and there very few mosquitoes. A crescent moon hung around, but It was a good observing night. We saw comet C/2012 K1 (PANSTARRS)and Pandian seemed to enjoy using the Astronomy Without Borders 5" scope. All were packed up and left around 11:30 PM. If you missed it, you'll have another shot for Scenic Vista on June 21st.

May 17th Western Reserve Camp. This event was cancelled due to lack of communication. It seems they want to make this an annual event. MVAS may participate.

May 23/24 Camelopardilid Meteor Watch. Over 14 folks attended. Eight were MVAS members. There were 4-5 scopes and many all sky cameras set up. It was a clear, dew free night. One of the best we've had at Scenic Vista in many years. Around 9:35 PM a bright sparkling fireball zoomed southward, nearly overhead. As most readers know by now, the meteor shower was a bust. Reports from across the USA matched the Scenic Vista show. Lot's of deep sky observing took place. Jupiter had its Great Red Spot on display. Mars showed Mare Acidalius and Mare Aurorae albedo features with a small N. Polar Cap. Saturn came up late and was splendid as usual. Jodi and Roy provided hot sandwiches and hot drink. Some imaging took place during the night. At 3AM, all eye looked for meteors. It would seem more sporadics were seen than Cams. At 5:00AM, as this scribe was packing up, he saw one last fireball. It streaked right from the radiant. It matched that first meteor in appearance. This super clear night of observing was a surprise, even though the main event was a dud.

May 31 Country Club Stargaze. The skies were clear at the Mahoning Country Club. Six MVAS scopes were set up on a driveway near the club house. Fireworks (spectacular!) halted observations as the smoke cleared. Many of the 200 guests came by for looks at Saturn, Mars and some deep sky. A good time for all. The tacos hit the spot later on.

Observer's Notes. A June Bug?

June is a month when school is over and summer vacations get under way. June often brings out that observing "bug" we all have. It has been a long winter, right? Observers anticipate pleasant June evenings under the stars. In past years, several MVAS observers often joined together for "star parties"; mainly at the MVO. Below are some the June highlights and notable events gleaned from the MVO log books and Meeting Minutes. There are other such entries for other months, but this June we'll focus on those June entries. Maybe you'll the bug too.

1940 June 12th. The MVAS held its meeting at the Warren YMCA. Food was first served at this meeting, Cookies and ice cream where the first treats served-up. This set the tone for MVAS activities. The hosting duties began here. Food eventually carried over into observing sessions. Summer corn roasts became an annual event during the late 40's, early 50's. Food seems to give a more social aspect to our activities. Now crock pots and grills often join telescopes for observing events.

1955 June 27. The MVAS hosted a public star party at Packard Park in Warren. It was well advertised in the *Tribune.* It is estimated that over 100 people showed up. Ah, the good old days. Looking through a telescope was a treat to most folks. Now the general public is used to electronic images.

1966 June 18. Allen Heasley's backyard Varistar Observatory was dedicated. It was a smaller version of the MVO 8" building. Allen's scope was a Draper 6" refractor. Many MVAS members attended the celebration. They all had their refractors along. Variable star observers from around the country attended as well. Such notable observers included Carolyn Hurless, Curtis Andersen, Dian Lucas, George Deidrich, and Art stokes. This also points the success of the MVAS variable star observers.

1977 June 22,25. Eric Siglan, Dan Murphy, and Chuck Johnsen used the 16" to identify Uranus. Previously, there were a few single entries of possible sightings of Uranus. None were confirmed and were made with personal scopes. This is an example of an MVAS observing team spotting this challenging planet in a big scope. Uranus can be seen in binoculars but it looks so much like a star that it is often hard to identify.

1982 June 23. Don Matthews, Mel Hosler, Mike Moreley, Jack Shallenberger, Ryan Mathews, Art Caruso, Tom Wilmitch, Frank Moger, Bob Danko and 12 visiitors observered at the MVO. It was in the heyday of the Wednsday night work sessions at the MVO. Members came out to work and then conduct public observing sessions with the telescopes. This was a well attended event. It is surpising to have so many members and visitors show up. The ultra clear sky was the likely attraction. Observations went on until 3:30 AM. Jack Shallenberger was a founding member of the MVAS. Amazing in that 43 years later he was still actively abserving.

1984 June 20. Tom Wilmitch, Mike Moreley, John Beaver, and Doug Fowler observed the planets with both the 8" and 16" scopes. In the log entry, they noted the hiddeous light pollution at the MVO. This may be the first mention or documentation of the encroaching light pollution. It has steadily increased. Thus around this time the notion of getting a dark sky site began to surface. On April 30, 1988, Scenic Vista Park was introduced as a possible dark sky site. In May '88, MVAS had it's first business meeting at the Park.

1985 June 1. After checking the site, Bob Andress logs in that the MVO had no damage from the tornado that went through the Newton Falls area the previous day. We were very lucky.

1990 June MVAS alumni Dr. Ron Parise flies on his first Shuttle mission. Having help design the Astro Telescope, he flew as a mission specialist. The observing skills he learned using the MVO 16" came in handy when manually pointing the Shuttle scope. After a second flight, Ron was named as an Honorary member in December 1995 at the Christmas Party.

1991 June 8. MVAS held its first public star party at Scenic Vista. These events have been going on ever since.

1992 June 14. Dr. Francis Graham and an associate use the 16" to time a lunar occultation reappearance of Neptune. It was an early morning event. They noted the bug bites.

1992 June 15. Nearly a dozen members watch a partial lunar eclipse. Crater timings were made with the 16". Images taken with other scopes. A BBQ was the hit of the event.

1994 June 8. After may tries Phil Plante found Pluto in the 16" in late May. He repeated the find on the 8th. Bob Danko, Dick Klesch and Eric Klesch shared and confirmed the view. They used charts from S&T magazine. There have been stories of the YSU contingient finding Pluto in the 1980's but no reports of this have been found. Yet.

2004 June 4. Greg Higgins, Steve and Joanne Bartos, Bob Danko, Dan Schnieder, Sam DiRocco and Harry Harker were at the MVCO to watch the sunrise transit of Venus. Meanwhile the "Blues Brothers" Tony Mehle and Phil Plante traveled to the New Jersey shore for an ocean view of the Transit.

2006 June 24. With the newly built 25" Dob (Titan) Phil Plante was looking for and found Pluto again. This time Rosemary Chomos, Lou DiNardo, Mike Boyer, Fred Boyer, Sam DiRocco all had a view. They called themselves the "Pluto Club". Not long after, Pluto was demoted to dwarf planet status.

2009 June 26. As part of the International Year of Astronomy, the MVAS conducted several Discover the Moon public obseving sessions. These were simultaneously held at both Boarman Park and Austintown park. This night had clear skies and cooler temps. Two teams of observers would tackle the event, although the Boardman team was usually shorthanded!

2012 June 12. With the last Venus transit for those now alive, the MVAS had several groups in action. The transit ingress would occur just before sunset from Ohio. The local group went to Mill Creek Experimental Farm for a clear view of the horizon. This was not available at the MVCO. Members of the public also attended Mill Creek. Unfortunately the local group was clouded out. Tony Mehle and Larry Plante traveled to Lake Erie for clear views and images. Phil Plante and eclipse friends went to Hawaii. They saw the entire event. Jodi and Roy McCullough met J. R. Pandian in Australia. Likewise, they also saw the event. MVAS group observing had gone international.

MVAS Homework: A Saturn Sequence

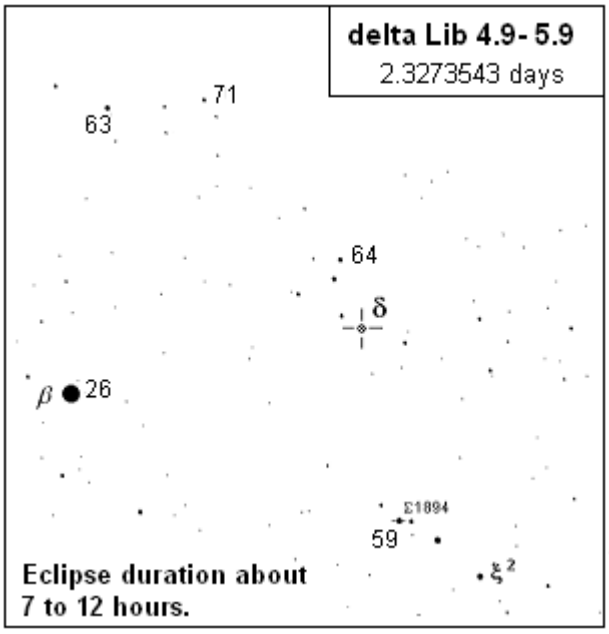
.This June Saturn is up in the southeastern sky during late twilight. A good evening target. Follow a sequence that examines the features in a set order. This saves time. I've use the following procedure (for 20 years now) but you can re-arrange as you like. To begin, check to see if the overall image is steady. If the planet is wavy-shimmering- you have a hot telescope or the atmosphere is turbulent. Or both! Wait till later to observe. If it hasn't improved, reconsider your observation.

1) Rings first: Check-out Cassini's division when it becomes visible. It should be visible in a good 60mm at power. Next check the rings for details and contrast. The outermost *A Ring* is usually darker than the *B ring*, which is inside Cassini. The outer 2/3 of the *B Ring* is brightest of all The inner third of the *B Ring* is a touch fainter. Look for faint grooves in the inner *B Ring*; similar in appearance to phonograph grooves. Next look for the *C Ring* or Crepe ring. It is inside the *B Ring*. It is a dim and dull light. You can tease it out by finding the black sky between the *C Ring* and the globe. If you can see any of these, there is a fighting chance for the belts and zones. Dim ones especially.

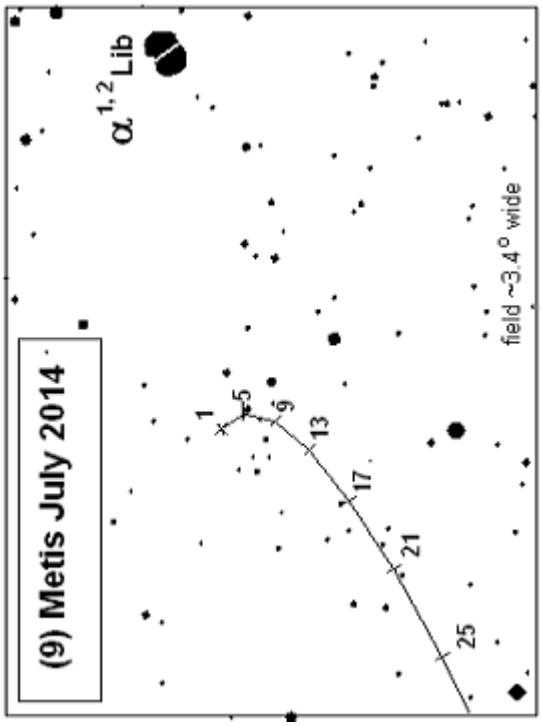
2) Belts and Zones. Look for the *Equatorial Zone* adjacent to the rings. It is the brightest, most obvious zone. Can you see the Crepe ring crossing in front of the *EZ*? Can you see the shadow of the globe on the rings? Look for the *North Equatorial Belt* and *North Polar Region* ("cap"). Check for other belts and zones. Master a set routine, use it for sketching- step by step. At worst, a routine will make you a more astute observer.

MVAS OBSERVER'S CHARTS

Variable star of the month: δ Librae (*abbrev:* δ Lib). δ Librae is an Algol type eclipsing variable. Easy to find and follow its 7 hour eclipse (binoculars). Eastern observers: look for minimum light on **June 9** (1:30 AM), **June 17** (1:00 AM), **Jun 24** (12:30 AM), **June 30** (12:30 AM). On these nights, watch it drop about one magnitude, then rise in a few hours. Start making estimates a few hours before and a few hours after times above. Note the exact times of your estimate. Do one every 30 minutes.



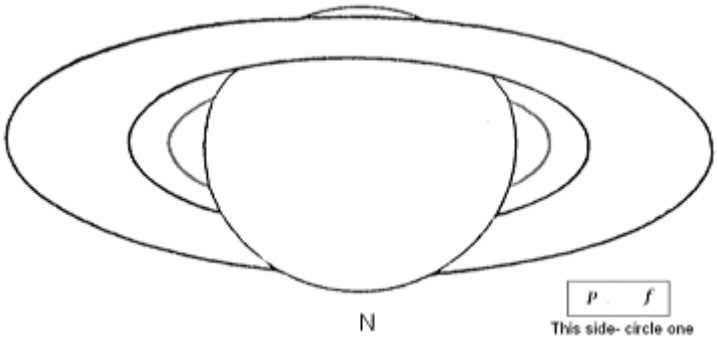
Asteroid of the month: (**9) Metis.** July's asteroid tracks east of α Lib (Zubenelgenubi). Get the scopes out! Metis drops from 10.8 to 11.2 magnitude during July. Saturn sits 1.8° north.



MVAS OBSERVATIONS (Homework)

OBSERVER_____

Featured object: Saturn. Fill in details with pencil. Use a fine tip black marker to fill the shadow of the globe on things and the space between the globe and inner Crepe Ring, if seen. The rings have their north face tilted 22° towards Earth. In a Newtonian, south appears "up". Just turn the paper to match the view. Record if the "indicated" side of Saturn is the preceding or following side. Star diagonals optically flips this direction around.



Saturn Sketch:

Date:_____ Time(ET)_____ Scope _____magx _____

δ Lib magnitude estimates:

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

(9) Metis Observations:

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

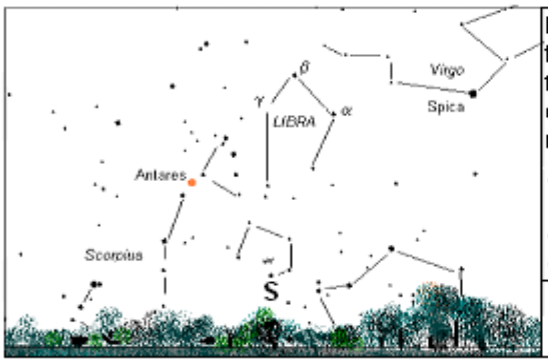
Other Objects in Libra to observe

D. Sky	Date	Scope	**Dbl.**	Date	Scope	SEP	MAG	SPLIT?
N- 5812	_____	_____	μ Lib	_____	____	1.9"	5.6 - 6.6	Y / N
N- 5885	_____	_____	Σ 1962	_____	____	11.6"	6.4 - 6.5	Y / N
N- 5897	_____	_____	Σ 1894	_____	____	25.1"	5.9 - 8.2	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 — Libra

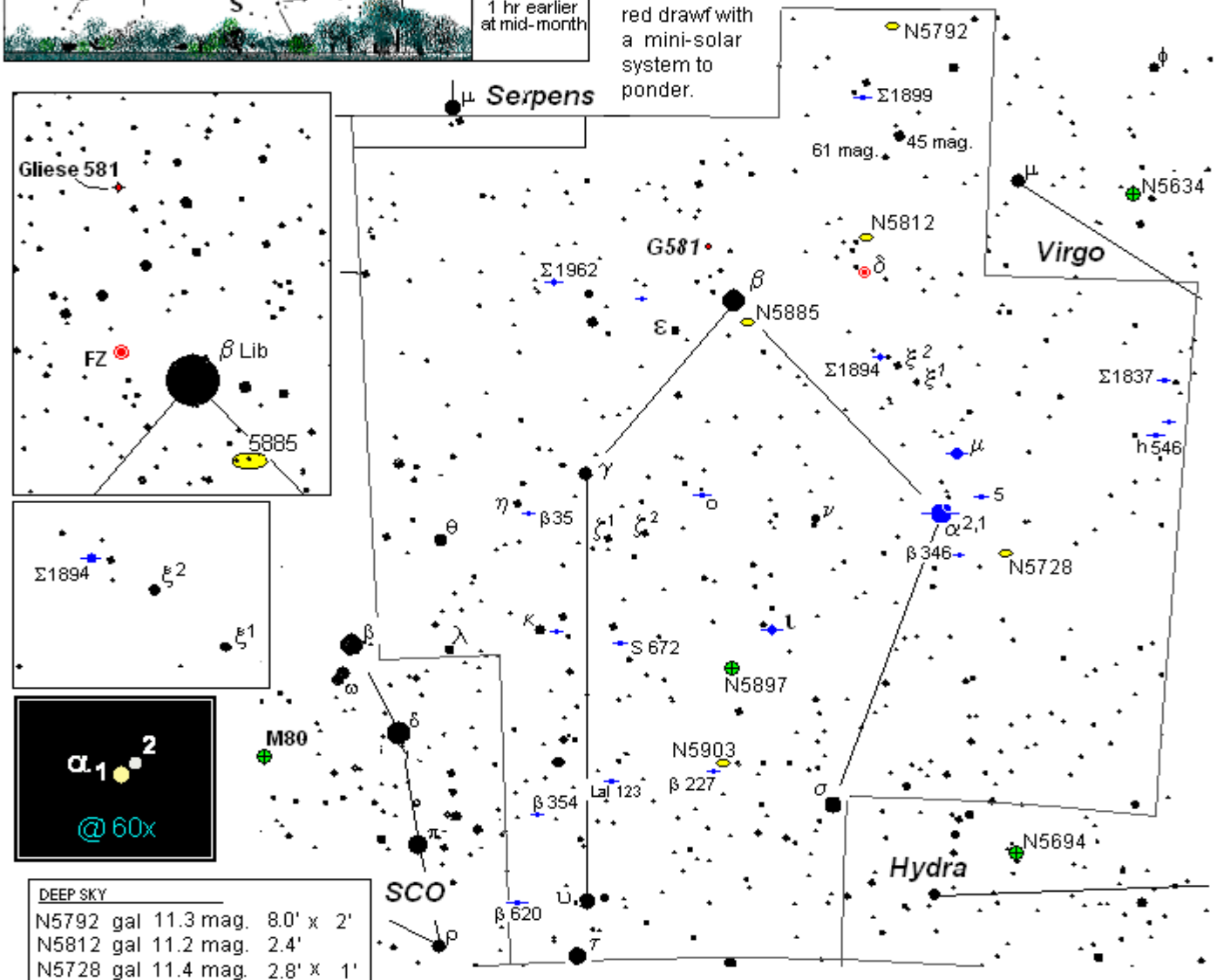


Libra transit time for the 1st. of the month....

Apr-	4 AM
May-	2 AM
Jun-	12 AM
Jul-	10 PM

1 hr earlier at mid-month

Late spring and early summer provide opportunities to view an often neglected constellation. Libra. It has no 1st magnitude stars or M-objects and this may be the reason. It fills the sky between Spica and Antares. Binocular users can check out the alpha star- a fine double star. Or keep track of variable star delta Librae. Scopes work well on all the nice doubles and globular cluster NGC5897. Several galaxies weigh-in on the scales (Libra). But larger apertures will be needed. All are fainter than 11th magnitude. The low altitude will increase the challenge. Check in on Gliese 581 too. It is red drawf with a mini-solar system to ponder.



DEEP SKY			
N5792	gal	11.3 mag.	8.0' x 2'
N5812	gal	11.2 mag.	2.4'
N5728	gal	11.4 mag.	2.8' x 1'
N5885	gal	11.8 mag.	3.0' x 3.2'
N5897	glo	8.6 mag.	12.6'
N5903	gal	11.2 mag.	2.0'

DOUBLE STARS				
α Lib	2.7,	5.2	231"	yellow, white
μ Lib	5.6,	6.6	1.9"	yellow, bl. grn
ι Lib	4.5,	10.9	57.3"	white, yellow
ο Lib	6.2,	8.4	44"	
5 Lib	6.4,	10.1	3.1"	orange, white
β 35	7.3,	8.7	1.8"	both yellow
β 227	7.5,	8.6	1.8"	
β 346	7.5,	7.9	2.5"	both yellow
β 354	7.3,	9.3	5.7"	
β 620	7.0,	6.6	50.6"	
Σ1837	6.9,	8.8	1.2"	both yellowish
Σ1962	6.4,	6.5	11.6"	both gloss white
Σ1894	5.9,	8.2	25.1"	silver, orange
Σ1899	6.7,	10.2	28.6"	orange, white
h 546	6.6,	10.0	40.0"	
S 672	6.3,	8.9	11.4"	yellow, brown
Lal123	6.9,	7.0	9.0"	

Gliese 581 10.5 exo-planetary sys.

δ Lib-Algol type variable, 2.327d. 4.9-5.9mag.

Check list			
5792	____	5 Lib	____
5812	____	β 35	____
5728	____	β 227	____
5885	____	β 346	____
5897	____	β 354	____
5903	____	β 620	____
α Lib	____	Σ1837	____
μ Lib	____	Σ1962	____
ι Lib	____	Σ1894	____
ο Lib	____	Σ1899	____
		h 546	____

Instrument:	date used:

S 672 ____
Lal123 ____
Gleise 581 ____

δ Lib
____ mag. on ___/___/____
____ mag. on ___/___/____

2014 JULY SKY ALMANAC

Solar and Lunar (EDT).

Date	Sunset	Moonrise	Moonset
1	9 : 01	— : —	11 : 21p
5	9 : 00	— : —	00 : 47a
9	8 : 58	— : —	3 : 17a
13	8 : 57	9 : 42p	7 : 33a
17	8 : 54	— : —	12 : 20p
21	8 : 51	2 : 00a	— : —
25	8 : 48	5 : 11a	— : —
29	8 : 44	— : —	9 : 53p

PLANET WATCH

	Pluto	Saturn	Venus
Date	*Transits*	*Sets*	*Rises*
1	1:40 AM	2:58 AM	3:58 AM
5	1:24	2:42	3:59
9	1:08	2:26	4:01
13	12:51	2:10	4:04
17	12:35	1:54	4:08
21	12:19	1:38	4:12
25	12:03	1:22	4:17
29	11:43 PM	1:06	4:24

July 2014

S	M	T	W	T	F	S
		1	2	3	4	5
					Pluto	☽
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 2014 (9) Metis

Date	Transits	RA hr.	RA min	Dec. deg.	at 10:00PM EDT Alt.	Azm	Magnitude
1	9 : 46 PM	14	58	- 16	32°	184°	10.8
5	9 : 30 PM	14	57	- 16	32	188	10.8
9	9 : 14 PM	14	57	- 16	31	193	10.9
13	8 : 59 PM	14	58	- 17	30	197	11.0
17	8 : 44 PM	14	59	- 17	29	201	11.0
21	8 : 30 PM	15	00	- 17	28	204	11.1
25	8 : 16 PM	15	02	- 17	27	208	11.2
29	8 : 02 PM	15	04	- 17	25	211	11.2
				+			

Variable Star of the Month: **delta LIB** 4.9 - 5.9 mag 2.3273543 day period

Celestial Highlights

Date	UT hr	
4	08	**Pluto at opposition**
5	11	**FIRST QUARTER**
6	01	Mars 0.2° S. of Moon
8	02	Saturn 0.4° N. of Moon
11	00	S UMa at maximum
12	11	**FULL MOON**
12	19	Mercury 21° W Elong.
18	08	Uranus 1.4° S. of Moon
19	02	**LAST QUARTER**
24	17	Venus 4.4° N. of Moon
26	22	**NEW MOON**
31	11	S. delta Aquariids

LUNAR OCCULTATIONS FOR JULY 2014

Civil date	hr	min	sec	UT date	hr	min	sec	Ph	Moon % illum.	Moon alt	Moon azimuth	Star name	Star Mg	event PA	dbl./ sep.
1	22	25	10	*2*	02	25	10	D	19+	9°	270°	16 SEX	6.6	136°	NA
9	22	43	03	*10*	02	43	03	D	92+	29	173	XZ 2436	6.6	080°	4.40"
12	1	21	54	*12*	05	21	54	m	100+	30	183	XZ 2487	6.3	169°	0.070"
15	1	21	12	*15*	05	21	12	R	89-	29	133	36 Aqr	7.0	223°	.100"
18	4	48	55	*18*	08	48	55	R	58-	48	137	XZ 136	6.1	274°	29.9"
19	5	32	40	*19*	09	32	40	R	47-	50	131	XZ 92688	6.8	295°	NA
24	5	05	50	*24*	09	05	50	R	6-	7	72	XZ 944	5.9	212°	.030"

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…..

The Back Log: MVAS in action….

2014 outdoor events began with the **BinoBlast** on March 22. Of course it was cloudy. About 10 people showed up to share food and stories. Former member ('65-'68) John Monsanti and friends stopped by. They were interested in acquiring the 50" blank. Below Jodi and Roy share their fantastic aurora images from Canada. To the right, John Monsanti stands next to Titan. John had built the original steel fork mount for the 25" in the early 70's. That mount has long since disappeared.

Chili-fest April 12, 2014.
About a dozen people showed up for this one. We had five crock pots going. Down from last year's event. Below, Chris and John talk about MVAS of days past. Don Cherry won the chili raffle. Below: our first good look at the MVCO after a brutal winter. The place held its own and seemed in good shape.

Above left: The chili table was set (one more on the way). At Center, Chris gets the feast started. Far right, we had muffins and other desserts. Below, the chow line formed. Frequent trips were needed. We had to try them all! No one went away hungry.

After everyone left, the hazy sky was too tempting to pass up. Your editor opened the 8" building for looks at Mars (see it near the 8" dew cap?) and the gibbous moon. Nice end to the night.

May 3 Scenic Vista Stargaze. Only six showed up to catch the clear sky window from 7 PM until we left at 11 PM. The early four feasted on grilled sausage sandwiches. Thanks Larry! Once again the food was more than adequate.

As Clear Sky Chart had indicated, the clouds parted around 7:00 PM at Scenic Vista. The crescent Moon stayed in the sky, but deep sky obkects were observed. Turned to be a decent night. Too bad most were scared away by the clouds up north.

May 23/24 Cam Meteor Watch.

Over a dozen showed for this much anticipated event. A new meteor shower radiating from Camelopardilis. It turned out to be less spectacular than the sporadic meteors we saw. Nonetheless it was a spectacular night. Super clear and steady skies gave way to fine planetary viewing of Jupiter, Mars and Saturn. Deep sky was simply wonderfull. Amazingly there was no dew even though it got a little on the cool side. The big scopes were: 12" Dob (B. Prewitt), 10" SCT (L. Plante) 10" Dob (M. Celiti). Several smaller scopes and binoculars were in use.

The McCullough's led a group set-up by the pavilion. Several all sky cameras were deployed, hoping to catch a few Cams.

The pavilion tables hosted may equipment cases from the pavilion group. And the food too, thanks to the McCulloughs. Jan Baker had home made chocolate cake as well. Yum.

Above: Another group set up on the usual observing field.

Around Cam shower time, a few adlib photos were taking by the editor. By chance the Summer Triangle was caught.

Same for the Sagittarius Milky Way sitting over the pavilion

May 31 Bar Mitzvah Stargaze.

This private event went off well. At sunset folks began to come out for looks through MVAS scopes. In early evening Jodi and Roy teamed with Dr. Pat Durrell for solar viewing. Amazing that the sky was clear! Trees to the north obstructed the view a bit.

The sky was still bright when they started to get interested in the telescopes. There would be a steady stream of observers for a few hours.

Lou aims his 6" Newtonian at the crescent Moon. It was visible in the fading twilight sky. Jupiter too. Later, Saturn was the favorite object.

Rosemary had younger astronomers using her telescope at the start. Viewing the Moon. A few really liked Mars.

Just as things were starting to get going (dark sky), the fireworks went off. It was a spectacular show. You might be able to make-out Larry silhouetted with his 10" SC, against the ground displays. It took about 15 minutes for the smoke to clear out. Interesting experience observing while explosives go off. Hope no ones optics got too dusty.

MVAS has been busy thus far in 2014. Especially in May. But June and October look to be busy months. Get ready!

All images in this Gallery edition were taken by Phil Plante.