

THE METEORITE



The Double Cluster

NGC 869/884

h, γ Per



Newsletter of the Mahoning Valley Astronomical Society, Inc.

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SEPTEMBER 2012

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MVAS CALENDAR

- SEP 8** Astro-Ham & Public Night at Scenic Vista. Noon.
- SEP 29** 50th Anniversary of the MVCO; Celebration BBQ at the observatory, prior to the meeting. 6:30 PM.
- SEP 29** Business meeting at the MVCO ~ 8:00 PM.
- OCT 20** Halloween Party at the MVCO. 7:00 PM

NATIONAL & REGIONAL EVENTS

- SEP 15** **Black River OTAA Meeting.** Saturday 4:00 PM till 2:00 AM Sunday. At the Birmingham United Methodist Church, 15018 South Street, Birmingham, OH 44816 .
<http://www.blackriverastro.org/>
- SEP 14-16** **Connecticut Star Party.** At the June Norcross Scout Camp, Ashford, CT. \$20-30 adult admission fees. Children under 15 free. Tent camping \$20 for the weekend. Full meal plan available. Friendly dark sky event. Talks during the daytime hours. Activities for the kids. <http://www.asnh.org>
- OCT 7-14** **Peach State Star Gaze '12.** Deerlick Astronomy Village, 422 Constellation Lane, Crawfordville, GA. Daytime Speakers - Overnight observing. Fees: Please visit the website for details.
<http://www.atlantaastronomy.org/PSSG/index.html>

MVAS BOARD OF TRUSTEES

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Curiosity to InSight. With the successful landing of the Mars rover Curiosity, NASA has selected one more lander mission to Mars. After a six-month journey, the *InSight* mission will reach Mars in September 2016. It has been designed to take a look into the deep interior of the Red Planet. It will do this with geophysical experiments which include the German Aerospace Center's HP3 experiment. This will penetrate several meters into the Martian subsurface to measure the soil's thermo-physical and electrical properties. One of the aims of the InSight mission is to understand the structure and state of the core, crust, and thermal evolution of Mars. The HP3 experiment was developed at the German Aerospace Center (Deutsches Zentrum für Luft-und Raumfahrt; DLR). HP3 is short for 'Heat Flow and Physical Properties Package'. DLR's HP3 experiment uses an electromechanical impact mechanism capable of driving an instrument container into the Martian surface to a depth of up to five meters. "Until now, a fully-automatic mole of this kind has never been used on any planetary body in our Solar System," states Tim van Zoest, a physicist at the DLR Institute of Space Systems in Bremen, where the impact mechanism was developed.

Vanishing Act. A dusty disk around the Sun-like star TYC 8241 2652 was first seen by the NASA Infrared Astronomical Satellite (IRAS) in 1983, and continued to glow brightly for 25 years. The dust was thought to be due to collisions between proto-planets as they formed normally. Now, enormous amounts of dust known to circle the star are unexpectedly nowhere to be found. Like Earth, warm dust absorbs the energy of visible starlight and reradiates that energy as infrared (heat) radiation. The first strong indication of the disk's disappearance came from images taken in January 2010 by NASA's Wide-field Infrared Survey Explorer, or WISE. An infrared image obtained at the Gemini telescope in Chile on May 1, 2012, confirmed that the dust has now been gone for two-and-a-half years. "Nothing like this has ever been seen in the many hundreds of stars that astronomers have studied for dust rings," said co-author Ben Zuckerman of UCLA, whose research is funded by NASA.

This disappearance is remarkably fast even on a human time scale, much less an astronomical scale. Astronomers have come up with a couple of possible solutions to the mystery, but they say none are compelling. One possibility is that gas produced in the impact that released the dust helped to quickly drag the dust particles into the star and thus to their doom. In another possibility, collisions of large rocks left over from an original major impact provide a fresh infusion of dust particles into the disk, which caused the dust grains to chip apart into smaller and smaller pieces.

More than one way. Strong evidence had pointed to the merger of two white dwarf stars as the cause of Type Ia supernovae. In the August 24 issue of *Science*, astronomers show for the first time that at least some Type Ia supernovae come from a recurrent nova- a red giant and white dwarf binary. Astronomers could discern that the supernova PTF 11kx was surrounded by shells of gas, likely cast off in previous nova eruptions. In falling material on the white dwarf would build-up to the limit before exploding as a Type Ia supernova. Type Ia supernovae are used as "standard candles" used in dark energy research. These standard candles may need to be re-evaluated.

MINUTES OF THE AUGUST MEETING

AUGUST 25, 2012 at the MVCO

To the backdrop of a summer pool party, Secretary Phil Plante presided, called the meeting to order at 8:00 PM. The other officers except Librarian were unable to attend this meeting. Roll Call showed 12 members on hand. One more arrived as the meeting adjourned. Former member Bill White was the only guest. A call for the Reading of the Minutes was given. Greg Higgins moved to suspend the reading. This was seconded by Bob Danko. The Minutes were accepted as published a voice vote.

TREASURER'S REPORT: The Report was read by Phil Plante in the absence of Steve Bartos. He noted a preview of the OTAA income from the previous weekend. We sold \$165 in MVAS apparel; we took in \$345 from registration and \$413 from the Raffle. All this combined equals \$923.00. Details will be in the next report. Bob Danko moved to accept the report. Greg Higgins seconded this motion. By voice vote the motion is adopted. Phil also reminded members that we have an actual working balance of \$3,741.71 that is non-reserved funding. Reserved Funds (see below) equals \$4,164.12.

General Fund 7/1 thru 7/31 2012

OPENING BALANCE:	\$	8,341.51
CLOSING BALANCE:	\$	7,905.83
AVAILABLE FUNDS (NON-RESERVED):	\$	3,741.71
ACCOUNT NET GAIN/LOSS FOR THIS PERIOD:	\$	-435.68

INCOME:

INTEREST	\$	0.34
TOTAL INCOME	\$	0.34

EXPENSES:

CK# 2777 ASTRONOMY CALENDARS (20 COUNT)	\$	129.50
2780* TRIPOD FOR OTAA RAFFLE		279.98
2703* NEW CABLE FOR 16" DOME SHUTTERS		26.54
TOTAL EXPENSES	\$	436.02

* MISSING CHECK NUMBER SEQUENCE; SKIPPED OVER CHECKS BY MISTAKE. WILL USE SKIPPED CHECKS FOR NEXT PAYMENTS.

Reserved Funds

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

CORRESPONDENCE: None reported.

COMMITTEE/OFFICER REPORTS: *IMAGING COMMITTEE:* No report. *VISUAL COMMITTEE:* No report. *LIBRARIAN:* No report.

OBSERVATORY DIRECTOR'S REPORT: Phil Plante reported for Larry Plante. Larry extended his thanks to all those members that came out for the work session and to those that helped set things up the day of the OTAA meeting. Everything worked fine that night and the MVCO seems to have survived another great event. Rosemary Chomos reported that one of the 12" roof latches- that take pad locks, had dropped down during observing at the OTAA. As the roof was cranked closed, this hanging latch rolled along with the roof and struck the back wall. This bent the right angled latch. Fortunately, the leg still slides into the clamp section and is still able to use the pad lock. *Addendum:* Phil notes that Mike Sprague will place grass seed along east side bank, sooner than later. Some small maintenance chores may remain as the season winds down.

OLD BUSINESS: Speaking of chores, the gutter replacement project may have a local contractor available. A sign for "Gutter Runners" is posted at the Hill Top store at the intersection of Rt. 82 and Rt. 534. Harry Harker sent the phone number (330-468-8868). It appears they are a local contractor and could be a viable option in getting this job done before winter. We should have the OD give a call. None of the MVCO "local members" present knew of this business.

Members were reminded of the September 8th Scenic Vista Public Night. This is also the day of the Noon to Noon HAM radio event. Called "Astro-HAM", radio work will be a continuous HAM-fest, regardless of cloudy skies. If is clear that night, we'll need telescopes set-up for the public viewing session.

NEW BUSINESS: Greg found a note under the 16" door. Not known when it was placed. It is from a boy / cub scout troupe that is interested in the observatory. It was left by a Shelly Kennedy. Phil will contact her to see what interest is involved.

Bob Danko noted that Bill White was interested in being reinstated as an MVAS member. Phil Plante noted that due to the fact that it was Bill's third attempt to be reinstated, and that previous episodes of Bill's membership involved conflicts or disagreements. Phil declared that a vote on this request will be postponed until the full slate of officers were present to evaluate said request. Bill asked that the alleged conflicts be brought into the open. Phil noted the conflicts where those that Bill had brought up in a private conversation with several members, who were not present at this meeting. It would not be appropriate to discuss this in a public forum. Phil invited Bill to return at the next meeting, and that he was welcome to observe at the MVCO and to sit in on meetings. Bill declined.

Addendum: Mike Sprague brought down two, signed copies of the MVCO Lease, with Mike and Sabrina as Leasers. MVAS needs to get the president's signature and two witnesses to sign these as well. Both copies are to be given back to Mike as he will have them Notarized. We will get one of the copies.

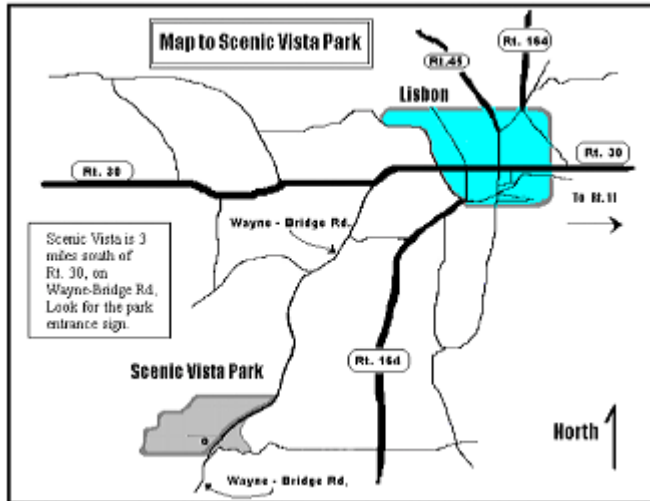
GOOD OF THE SOCIETY: Paul Baker thanked everyone that helped him get his scope de-bugged at the OTAA meeting. It was pointed out that Apollo astronaut Neil Armstrong had passed away earlier in the afternoon.

VISUAL REPORTS: Many reports from the OTAA fired-off in rapid succession. Lou DiNardo saw M13, M17, M31 with dark lanes, M101. Don Durbin saw M6 and M4 as noteworthy. Greg Higgins did a tour of Sagittarius objects. Paul Baker noted M81 & 82, M13, M92 and M27. Phil had M81/82, M51, M13, M8, M11, M22, Double Cluster and Saturn in Titan. Seems like everyone saw the Ring (M57) and the Dumbbell (M27). Fairly decent night it was.

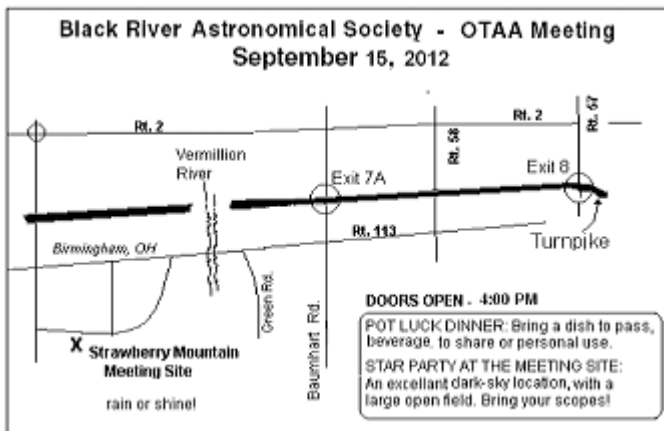
ADJOURNMENT: Adjournment came at 8:18 PM. Shortest MVAS meeting known to mankind. We thank our hosts Bill Pearce for the outstanding Stuffed Pepper Stew. Pandian brought his usual, very tasty, tandoori chicken (monster legs). Rosemary supplied the dessert cakes and pies. The next meeting will be at the MVCO on September 29, 2012. A **Celebration BBQ for to 50th Anniversary of the MVCO** begins at 7:00 PM. Meeting begins around 8:00 PM. Scheduled hosts is Dan Schneider (what to bring?). Please bring what you want to grill for your self or to share. The BBQ will likely continue after the meeting so bring enough and be prepared to take left-overs home! **PASSWORD:** Give the proper name of a star and the constellation it is in. *-minutes by Phil Plante*

MVAS REMINDERS

Scenic Vista Astro-Ham, September 8th. Please come to Scenic Vista Park, near Lisbon, OH on This our last public night for 2012. It is also the first HAM-fest to co-inside with observing. The HAM radio session will begin at noon that Saturday and run continuously until noon on Sunday. This will happen in the pavilion regardless of weather. If it is clear day or night, we should have scopes set up for the usual public observing (solar, night sky). Sunset is at 7:44 PM. A Last Quarter Moon rises 12:24 AM. The public is usually gone by then. Bring snacks for yourself and clothing to match temperatures.



Black River OTAA, September 15th. The last of the OTAA meetings for the year, it is usually one of the best. Good food and prizes. If clear, the skies are very good. Bad weather is not a problem since the program and dinner are inside the church hall in Birmingham, OH. Registration starts at 4:00 PM.



MVCO Anniversary BBQ, September 29. It was 50 years ago to the day when then Governor Michael DiSalle stopped by the new Mahoning Valley Observatory for the official dedication. We will have our regular September business meeting on this anniversary date. Since the two date co-incide, it is fitting to celebrate the anniversary with a BBQ picnic. No specific time had been set (oops!). Usually these things begin around 7:00

PM to allow members time to eat. The business meeting can start anytime after 8:00 PM. With luck it will be short, and then the festivities can continue. Please bring your BBQ delights. Grill space is limited- keep this in mind. There is some soda and water left from the OTAA but probably not enough. If you bring drink, please bring only one 12 pak. Stay tuned to the email group for updates. We have the Scenic Vista event to make last minute plans, as this is the last time many of us will be together before the September meeting.



The picture above is the only known photo of the dedication ceremony. Gov. DiSalle is just arriving. He is the shorter man approaching the center of the frame. Bernie Cortese is entering the frame on the right. The MVO was renamed the Mahoning Valley Cortese Observatory (MVCO) after Bernie passed away in June 2000. Bernie was instrumental in getting the 16" building built. In the background, you can see a trailer mounted Cassegrain that belonged to Norm Oberle. This set-up would almost always show up at an MVAS observing event. Norm made the 31" mirror that was at Warren-Rupp Observatory (Hidden Hollow) and his 25" mirror is now installed at Telescope Park. The MVAS connections to Ohio astronomy run deep.

MVAS ACTIVITIES

August 11 Work day. Nearly a dozen folks showed up to prepare the MVCO for the OTAA meeting the next weekend. It was a cloudy day, but cool enough to work in comfort. Mike Boyer, Fred, Sam, Harry, Dan and perhaps others worked on the 12" door. A long standing issue. Steve Bartos and others cleaned the 16" stage. Steve later hand washed the 8" building exterior to remove moss. Chuck Oiesen and others swept the buildings. Phil cleaned the 25" mirror and secondary. The result left a light blue haze visible from certain angles. Research showed this may be microscopic particles embedded in the aluminum. The particles mixed with dew and were thus deposited. The scope worked fine at the OTAA. Dave Ruck scrapped and painted the 8" roll-off tracks (steel channels). They were rusting. This might be a temporary fix. Mike Heim went over the electric lines to insure the boxes and connections were sound. It worked just fine at the OTAA meeting. The grill was fired up with burgers and hot dogs. Later, a Crosby, Stills and Nash DVD was watch (for the old timers). Clouds put the lid on any chance to see the Perseid meteor shower that night. Everyone left by 10:00 PM. Thanks to all that helped!

August 18 MVAS-OTAA. Members began arriving around 2:00 PM to set up tables and chairs for dinner. The registration area and door prize area was also prepared. It was a cool day with clearing skies. Registration started early, around 4:30 PM. Just about the time Rosemary got the coffee going. Bob Danko announced dinner just before 6:00 PM. The chow line formed quickly as usual. We thank Tony Mehle for great trays of chow from Larricia's Italian Foods. Sausage & peppers, rigatoni, chicken galore to name a few. Pizza, KFC, store bought potato and macaroni salad. Margie's great baked beans, Rich's taco potato salad, Pandian's lemon rice and curry chicken. Lot's of great desserts from home-made to store bought. It's all good.

The raffles went off well. Everyone got a door prize. We had 69 people register, but there were a few more that didn't. We thank Tony Mehle once again for donating the Delos eyepiece as a main raffle prize. With no speaker this time it was a casual set-up period. Scopes went into use as soon as twilight was ending. Perhaps 15 telescopes dotted the field along with tripod mounted binoculars. The MVAS 25" was placed in the yard and was used (Phil was attendant). The 8" was also used (Dan was attendant). The 12" was used (Dave was attendant). The 8" Criterion was in use (Bob was attendant). Clouds rolled in around midnight- time for the midnight buffet. There were several imagers at work, all night. The clouds thinned out around 1:30 AM and observers kept at it. The last of the scopes got packed away around 3:00 AM. Clean-up got started by Rosemary and Phil. The night watch crew of Phil, Larry and Bob finished clean-up as the sun rose. There was the few hour nap in the car of course. Another great event. We can only hope that next year will be just as good if not better. Thanks to all that made this happen. Bringing food, drink and telescopes!

cup myself- not being a regular coffee drinker. Sometimes we'd have glazed donuts left from the picnic, to go with the coffee. I too would indulge in the famous treats with a cup of java in hand. But after about 15 years of brewing, I have let others handle the coffee. A fine job they do. Perhaps even better?

Getting back to the Ring, more than once I would just center the Ring in the eyepiece when a call for a second batch of coffee would ring out. Of course I left the scope to tend to my chore. As a metaphor, the Ring would often remind me of the glazed donut reward I'd get for making the coffee. Most times before returning to the scope, I'd grab a chair and take in the "night view". Sipping on the coffee, I'd listen to the muffled chatter of the observers. I'd listen for the tree frog's chirp. Crickets too. Looking south I'd see the Milky Way "steam" rising from the Teapot (Sagittarius); but it could just as well be a coffee pot! The aroma from the cup of coffee reinforced the coffee pot idea. I'd follow this coffee "steam" up to the zenith-near Lyra. My celestial donut was up there. A final sip of the brew and it was back to the Ring.

On a personal level, this August OTAA experience of the "night view" is now immortalized in my mind. Whether from the chair or through an eyepiece, the "night view" is a pleasing memory. Perhaps you might find a similar observing connection. It's a great way to personalize your observation. Take in the ambiance. It is just as important as the image that enters the hungry eye. These days many people focus on a healthy diet. I now find it good to know that I need not partake of a hot beverage and a pastry in order to have a coffee and a donut. The sky serves the feast. It's all food for the soul. - P. Plante

MVAS Homework: The Double Cluster

Observer's Notes.....

A Coffee and a Donut

The first MVAS-OTAA meeting I ever attended was in August 1987. That was 25 years ago. Naturally, lots of things have changed since that humid August night. Many MVAS friends have moved on in their lives or have reached their final destination. The MVCO sky has brightened considerably. We have a few more telescopes on the premises. Back then the 16" Cassegrain (Draper-Prather) ruled as king-pin. The venerable 8.25" Draper-Hoynos refractor was always the crowd favorite. Back then, as now, we had volunteers to attend the scopes during the OTAA event. Several members would work each scope, giving the others a break- to go grab a coffee and visit with others and their scopes. I'd often volunteer for the 16" duty. Sitting quietly in the corner of the stage, a box fan aimed at me set to high speed- it was a sweet gig. Around 11:00 PM, Lyra is near the zenith during August. It's a perfect time to bring the Ring Nebula into focus. As such, I'd often hear someone from another club marvel at how bigger and brighter the Ring looked in the 16" compared to their smaller, shorter focus scopes. Aha! This is a deep sky observing secret that many observers don't realize at first. A large aperture scope using really high magnification is great for globulars and planetary nebula. Even galaxies. But that's a topic for another time.

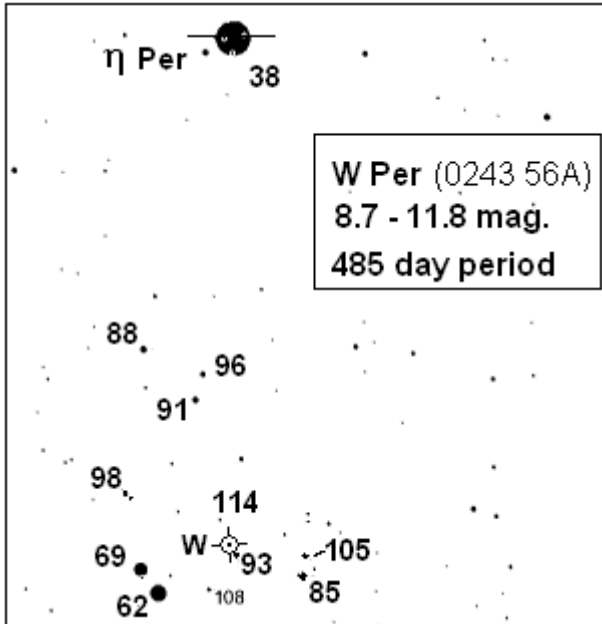
Over this 25 year span, I also volunteered to be coffee master. I took over from the previous Meteorite editor, the late great Bob Clyde. Editor & coffee master seemed to be a job connection not to be found in any official document. But it was always a joy and privilege to brew the "rocket fuel" observers needed to get through the night. Most times, I'd even have a

The Double Cluster is circumpolar (continuously above the horizon) from most northern temperate latitudes. It is south of the constellation Cassiopeia. A line drawn from γ Cas through δ Cas, and then extended from γ about as long as their separation is- will bring you to the Double Cluster. The Double Cluster approximately marks the point of the Perseid meteor shower, which peaks annually around August 12 or 13. Although easy to locate, observing the Double Cluster is best seen with low power scopes or binoculars. Higher power views can isolate each cluster on its own. They have distinct differences. A reddish variable star called AD Per sits between the clusters. A slow beating heart, it swings from 9th to 11th magnitude over a span of 363 days. Keep track of its brightness over this observing season. Viewed together, the clusters usually are described as being a "breathtaking" sight.

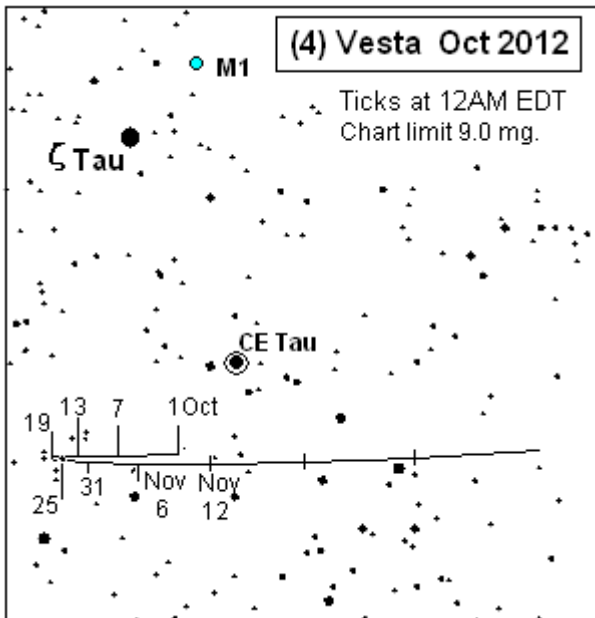
Also known as Caldwell 14, the Double Cluster is composed of open clusters NGC 884 and NGC 869. In addition they are sometimes listed as χ Persei and h Persei. χ Per (884) is the eastern-most cluster. They appear close together in the constellation Perseus. NGC 884 and NGC 869 are at distances of 7600 and 6800 light-years away, respectively, so they are also close to one another in space. The clusters' ages, based on their individual stars, are relatively young. NGC 869 is 5.6 million years old and NGC 884 is 3.2 million years old. In comparison, the Pleiades have an estimated age ranging from 75 million years to 150 million years. There are more than 300 blue-white super-giant stars in each of the clusters. The clusters are also blue shifted with NGC 869 approaching Earth at a speed of 22 km/s (14 mi/s) and NGC 884 approaching at a similar speed of 21 km/s (13 mi/s). Their hottest main sequence stars are of spectral type of B0.

MVAS OBSERVER CHARTS

Variable star of the month: **W Persei** (*abbrev: W Per*). W Per is a long period variable that rests south of the showpiece double star η Per. In late August W Per was on the rise in brightness, halfway between bottom and top brightness. You'll need a scope to split η Per and it will also serve well to follow W Per.



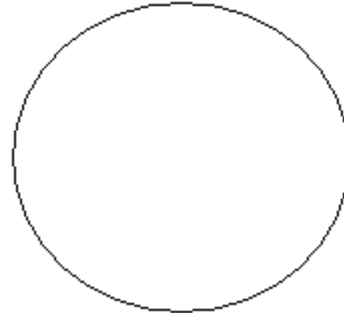
Asteroid of the month: **(4) Vesta**. This October, we start a three month quest in following Vesta. In late August 2012 the Dawn spacecraft left orbit around Vesta and went on its way to Ceres; the asteroid we'll look at in January 2013. Meanwhile, Vesta is in the same finder field as variable star CE Tau. It shines a golden yellow. Also nearby is the Crab Nebula (M1). Thus there are a few other attractions nearby. Vesta will rise in brightness from magnitude 7.7 to 7.2 by the end of October. CE and Vesta are binocular work....it should be. But M1 needs a scope.



MVAS OBSERVATIONS - DUE OCTOBER 2012

OBSERVER _____

Featured object: Double Cluster. Please try a sketch. Make pencil points of the brightest stars first. Take your time and get them positioned accurately with respect to the other stars. Fill in the fainter ones accordingly. It helps if your instrument is tracking the sky so that you don't have to repeatedly re-center the view. It is easier than you might think. Good luck!



Double Cluster Observation:

Date: _____ Time(EDT) _____ Scope _____

W Per magnitude estimates:

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

_____	_____	_____	_____
_____	_____	_____	_____

(4) Vesta Observations:

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

_____	_____	_____	_____
_____	_____	_____	_____

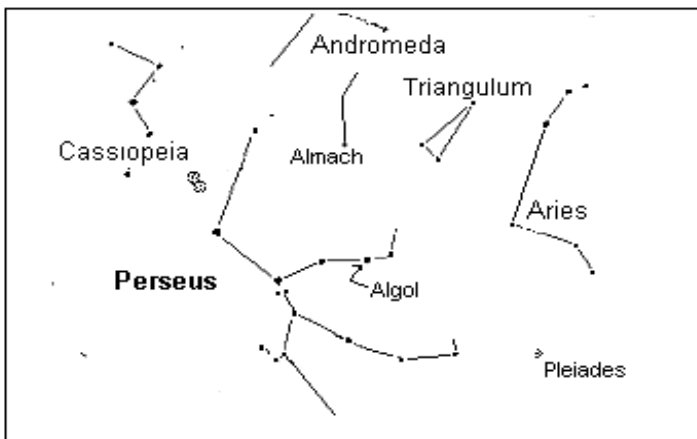
Other Objects in Perseus to observe

D. Sky	Date	Scope	DbI.	Date	Scope	SEP	MAG	SPLIT?
M- 34	_____	_____	η Per	_____	_____	28.5"	3.8 - 8.5	Y / N
M- 76	_____	_____	Σ 331	_____	_____	11.9"	5.2 - 6.2	Y / N
N- 1499	_____	_____	ϵ Per	_____	_____	9.0"	2.9 - 8.9	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 — Perseus



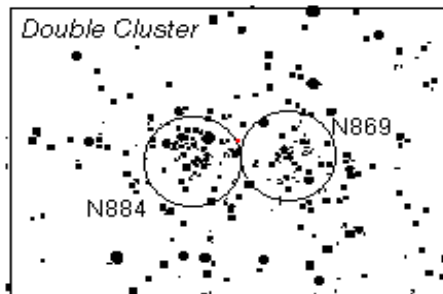
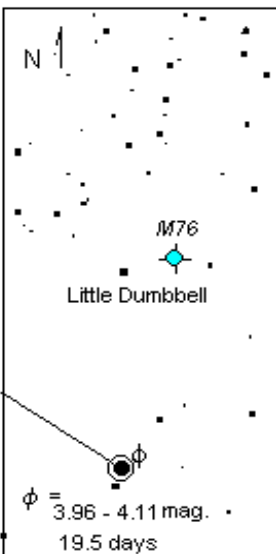
Look for Perseus high in the NE sky soon after sunset, Sep. & Oct. It passes overhead later on, and will be difficult to aim a fork mounted scope at it. But it is worth the effort to explore the region. With your naked eye you should be able to follow its famous eclipsing variable star called Algol. A double star; we can't see the companion, but we can tell when it passes in front of the primary. Algol gets dimmer at that time. Binoculars might help you follow it. They will also give a good view of the alpha Perseus Cluster. The cluster stars between alpha and delta are about 750 light years away. Binoculars give a fine look at the Double Cluster. A showpiece object indeed. With a telescope you can take in the many fine double stars as well as M76 and M34. About 3 degrees east of Algol is a cluster of galaxies. One is Perseus A-- a strong radio source. There may be as many as 2 dozen galaxies in this group. How many can you catch? You will need at least a 10" scope or bigger. A good atlas is an essential tool as well. There are several open clusters and faint galaxies shown on the map, but not in the list. Give them a try.

The California Nebula needs an H-beta filter and a low power RFT or large binoculars, under pristine skies. It is a popular astrophoto target as well. Enjoy!

M-76 Transit Times:

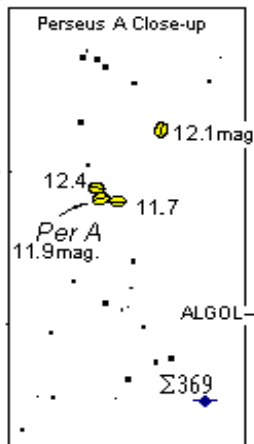
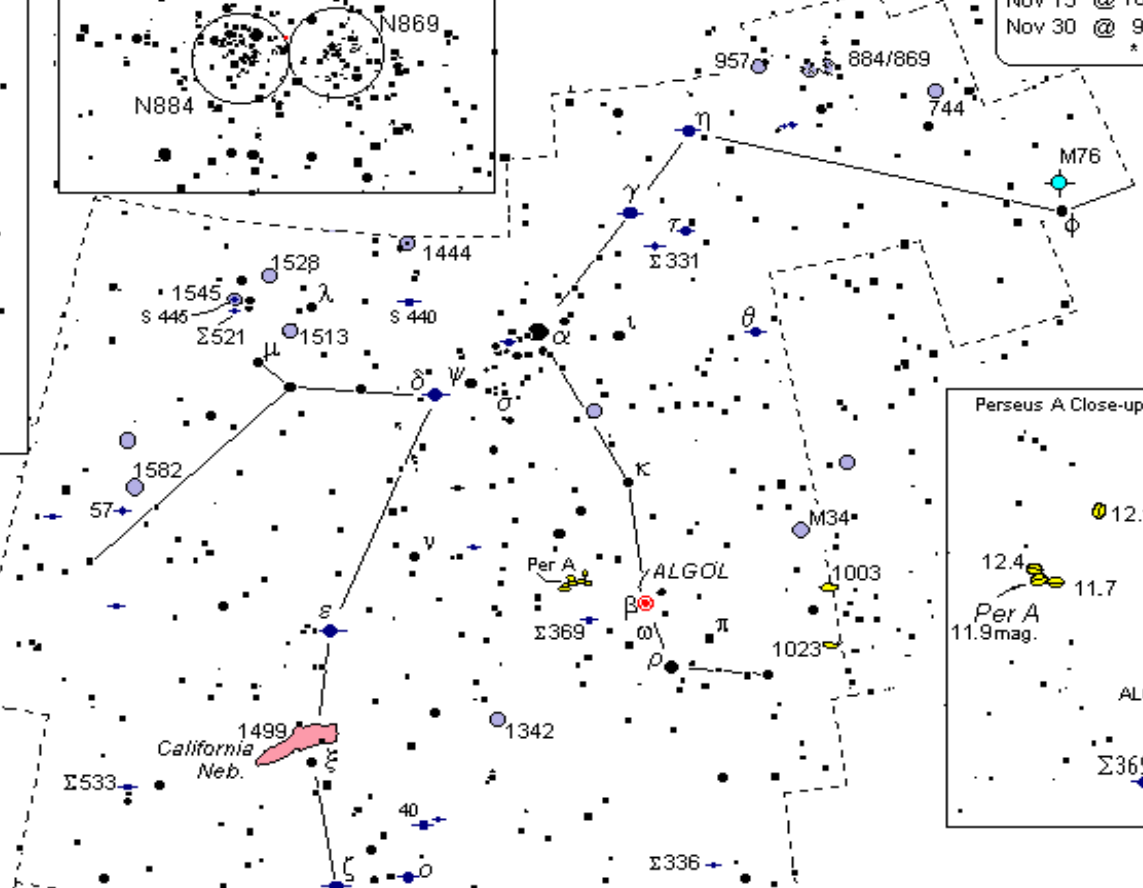
Sep 15	@	3:30 AM
Sep 30	@	2:30 AM
Oct 15	@	1:30 AM
Oct 30	@	12:30 AM
Nov 15	@	10:30 PM*
Nov 30	@	9:30 PM*

* = EST



Algol varies from 2.1 mag to 3.3 mag every 2.867 days. Refer to S&T as it usually lists the time of minimum light. Listed below are comparison star magnitudes to use on Algol.

α Per	= 1.81
ϵ Per	= 2.90
k Per	= 3.79



DEEP SKY				DOUBLE STARS				Check list		Instruments used:
type	mag.	size	notes	mag.	sep.	"colors"				
M76	PN	12.2	67"	ζ	2.8 - 9.2	13"	greenish, ash	<input type="checkbox"/>	η	<input type="checkbox"/> on _____ <input type="checkbox"/> on _____ <input type="checkbox"/> on _____ <input type="checkbox"/> on _____
M34	OC	5.2	35'	η	3.8 - 8.5	28"	yellow, blue	<input type="checkbox"/>	θ	
884/869	OC	6.1	29'	θ	4.1 - 9.5	77"	yellow, orange	<input type="checkbox"/>	ϵ	
N1023	Gal	10.4	7' x 2'	σ	3.0 - 7.5	8.8"	lemmon, cobalt	<input type="checkbox"/>	57	
N1582	OC	7.0	37'	57	6.1 - 6.8	120"	yellow, lilac	<input type="checkbox"/>	$\Sigma 331$	
N1513	OC	8.4	9'	$\Sigma 331$	5.2 - 6.2	12.0"	white, blue	<input type="checkbox"/>	$\Sigma 336$	
N1528	OC	6.4	23'	$\Sigma 336$	7.0 - 8.3	8"	yellow, blue	<input type="checkbox"/>	$\Sigma 369$	
N1342	OC	6.7	14'	$\Sigma 369$	6.8 - 7.7	3.0"	yellow, blue	<input type="checkbox"/>	$\Sigma 533$	
N1499	NEB	--	160'	$\Sigma 533$	7.6 - 7.7	1.1"	red, blue	<input type="checkbox"/>		
				$\Sigma 521$	7.5 - 9.6	2.1"	gold, red	<input type="checkbox"/>		

Algol was _____ mag. on ___/___/___
 Algol was _____ mag. on ___/___/___

Solar and Lunar (EDT).

Date	Sunset	Moonrise	Moonset
1	7 : 05	7 : 40p	8 : 51a
5	6 : 58	10 : 18	12 : 35p
9	6 : 52	1 : 02a	3 : 21
13	6 : 46	5 : 22	5 : 29
17	6 : 39	10 : 14	8 : 13
21	6 : 33	2 : 04p	— : —
25	6 : 28	4 : 15	3 : 40a
29	5 : 22	6 : 13	7 : 42

PLANET WATCH

Neptune Transits	Uranus Transits	Jupiter Transits
8:48p	10:57p	3:36a
8:32p	10:41p	3:18a
8:16p	10:25p	3:01a
8:01p	10:09p	2:43a
7:45p	9:53p	2:25a
7:29p	9:37p	2:08a
7:14p	9:21p	1:50a
6:58p	9:05p	1:32a

October 2012

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

Asteroid for October 2012 (4) Vesta

Date	Rises	RA		Alt.	Azm	Magnitude
		hr.	min			
		Dec.				
		hr.	deg.			
		topocentric				
1	11 : 08 pm	05 : 36	+17.5	8°	069°	7.7
7	10 : 47 pm	05 : 38	+17.5	12	77	7.7
13	10 : 25 pm	05 : 40	+17.5	16	80	7.6
19	10 : 02 pm	05 : 40	+17.4	20	84	7.4
25	9 : 39 pm	05 : 40	+17.4	25	88	7.3
31	9 : 14 pm	05 : 40	+17.4	29	92	7.2

(at midnight)

Celestial Highlights

Date	UT hr	Event
4	11.4	Moon 4.3° S. of Pleiades
7	04	Draconid meteor shower
8	07	LAST QUARTER MOON
15	12	NEW MOON
21	04	Orionid meteor shower
22	03	FIRST QUARTER MOON
26	22	Mercury greatest E. 24°
29	19	FULL MOON

Variable Star of the Month: **W PER** 8.7 - 11.8mag 485 day period

LUNAR OCCULTATIONS FOR: OCTOBER 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	Mag.	PA	sep.		
0	23	17	49	1	03	17	49	R	99-	44°	121°	ZC 166	6.7	240°			NA		
1	1	37	21	1	05	37	21	R	99-	59	172	ZC 700	6.5	235°			NA		
6	4	47	21	6	08	47	21	R	68-	66	143	ZC 808	6.8	254°			NA		
7	1	57	50	7	05	57	50	R	60-	29	88	68 ORI	5.8	243°			0.10"		
9	3	47	12	9	07	47	12	R	40-	29	94	1 CNC	5.8	300°			NA		
10	3	16	41	10	07	16	41	R	30-	12	84	50 CNC	5.9	203°			NA		
20	22	34	48	21	02	34	48	D	38+	6	238	ZC 2763	6.5	046°			0.08"		
26	3	27	28	26	07	27	28	D	88+	13	260	kappa PSC	5.0	052°			163"		
26	3	30	47	26	07	30	47	d	88+	12	261	ZC 3455	6.3	087°			0.05"		
28	19	10	13	28	23	10	13	D	99+	15	087	pi PSC	5.5	055°			NA		
31	4	29	19	31	08	29	19	R	98-	53	243	ZC 497	6.5	288°			0.09"		

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.)

GALLERY.....

MVAS Imaging Committee at work during July and August.

Lou Dinardo's work (below):



M-16, The Eagle Nebula. In Sagittarius.



M-20, The Trifid Nebula. In Sagittarius.



M-19, a globular cluster in Ophiuchus.

Mike Heim's work (below):



NGC 7635, The Bubble Nebula in Cassiopeia.



M33, The Pinwheel Galaxy in Triangulum.



M-16, The Eagle Nebula. In Sagittarius.

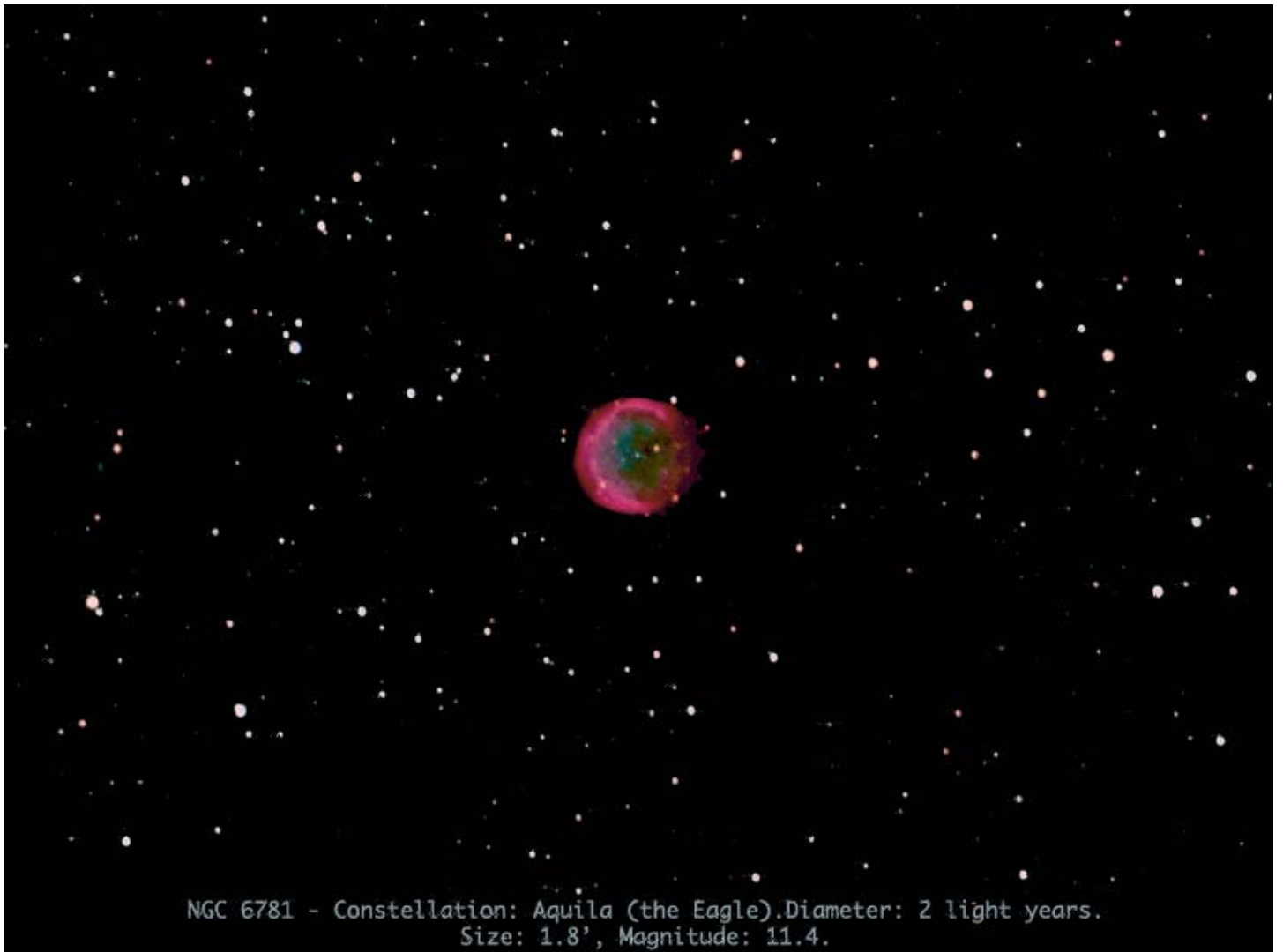
Bill Pearce's work (this page):



The Appenine Mts. With Plato at top right edge. Lunar image from June 28, 2012.



M101, also The Pinwheel Galaxy, but in Ursa Major.



NGC 6781 - Constellation: Aquila (the Eagle). Diameter: 2 light years.
Size: 1.8', Magnitude: 11.4.