

CONSTELLATION

An Official Publication of the Bucks-Mont Astronomical Association, Inc.

VOLUME 24, Issue No. 1	January /February/March 2009	Chris Sommers and Scott Petersen, Editors
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President's Message

The winter BMAA monthly meetings of 2009 have been anything but dull and dreary. We have been blessed with some great guest speakers and topics to get us excited about observing now that spring is finally underway. If your observing sessions have been a little unfocused lately, our past few presenters have given you a lot to think about in terms of putting some meaning and purpose into your hobby.

In January, Roger Blake from [Taurus Technologies](#) visited us and explained how we can help him develop the "Virtual Observer" software program. Roger is looking for observing reports from many individuals with various kinds of scopes to help in fine tuning the software. The targets and reporting are fairly easy. In essence, his software will approximate the view you might see through your eyepiece from various parts of the country, conditions and magnifications. Download targets and instructions here: [The Virtual Observer Project](#)

Walt Rauscher provided us with a great introduction to Variable Star Observing and Asteroid Occultation Timing. This is another aspect of amateur astronomy where you can directly contribute to the larger science community with your observations. Observing the variable stars is a wonderful way to hone those skills of discerning magnitude differences among neighboring stars in the field. Timing asteroids can be both an active and passive activity if you want. You can wait till an asteroid's shadow passes over your location or you can get in the car and head out to a prime location to catch a shadow. Your timing of the occultation helps determine the shape and size of these small dark wandering objects. Walt may do a workshop in June at one of our StarWatches on observing variables.

In March, astrophotographer Steve Mazlin gave us a peek into his world of high end digital astrophotography. Steve's approach uses a combination of data sources which range from his backyard observatory near Newtown to telescopes in the southwest and South America. Combine that access with a talent for image processing and you get results rivaling some of the best astrophotography on the planet. Visit: [Steve's website](#) and prepare to be blown away by the pictures.

Just this month, BMAA member Gary Sprague helped us find a way to organize all those observations. If you want to get serious about contributing to amateur astronomy you have to develop some good work habits and discipline in recording your observations. Gary showed us some of the critical elements in constructing an observing log. In the near future Gary will post some blank observing log templates we can download for our use. Recording your observations is a lot like keeping a diary and will certainly be something you will enjoy looking back on in the future.

With 2009 being designated as The International Year in Astronomy, get out there and observe as much as you can. The IYA's purpose is to introduce the public to the wonders of the night sky. One of the best ways to do that is come out and share your scope at a StarWatch.

Dwight Dulsky

BMAA Gophers

Position	Name
President	Dwight Dulsky
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Treasurer	Ed Radomski
Secretary	Cathy Ebert
Star Watch Coordinator	George Reagan
Constellation Editors	Chris Sommers and Scott Petersen
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For More Information About BMAA Go to www.bma2.org.

Wonders in Leo: Comet Lulin

Comet Lulin (official designation C/2007 N3 (Lulin)) is a non periodic comet which was discovered by the 19-year old Ye Quanzhi from China's Sun Yat-sen University in photographs by astronomer Lin Chi-Sheng with a 16-inch (410 mm) telescope at the Lulin Observatory in Taiwan. The comet was near conjunction with Saturn on February 23, and passed near Regulus in the constellation of Leo on February 26 and 27, 2009. Amazingly, this was the same period of time that the dwarf planet Ceres was passing by the 54 Leo in the same constellation. The photo below was taken by Dwight Dulsky on an absolutely freezing night in February.



Feb. 25, 2009 1:00 AM 22 degrees f
8" Meade Schmidt-Cass / CG5 Mount
Prime Focus
Canon XTi DSLR
ISO 1600
7 X 15 sec. exposures (1 min 45 sec total exp.)
Processed with MaxIm DL5 and Corel PhotoPaint.

Observing Report on Saturn and Ceres

➤ **By Bernie Kosher, BMAA**

I recently forwarded a challenge offered by Alan Daroff of the Willingboro Astronomical Society. The challenge was to see how soon after the last ring closing (the rings are now opening for a few months) one could pick out the dark sky between the rings and the ball of the planet, and I extended the challenge to seeing Cassini's division. It's been cold and windy on the few nights that were clear. Normally, that would tend to cause the air to be very turbulent, interfering with detailed observing of the planets. However, some of the nights between Feb 14th and 18th offered moments of surprisingly good seeing.

On the nights of the 15th and 17th I was able to use powers up to about 250X on my 8" reflector. The first thing that was obvious was the difference in brightness of the B and A rings, B being the brighter. During the moments of crisp seeing, the Cassini division on the trailing (eastern) edge of Saturn's rings was visible not so much as a division but as a definite darkening at that position on the rings. Oddly enough, the division was not visible on the leading side. Why? Any guesses?

I was surprised (although I guess I shouldn't have been) at how far out in the rings the division appeared to be. It seems much further inward when the rings are open. An illusion, I suppose.

The rings are very narrow, and really didn't seem to end in a sharp point, as one would think. Perhaps this was due to the seeing not being perfect. Since the projection of the rings would appear as a very thin ellipse, I would think the rings should show a noticeable thinning to a sharp point at the ends.

After a bit of time at the eyepiece, I realized that the part of the rings nearest the ball of the planet were darker than the areas further out. This would correspond to the darkness between the rings and the planet. I imagine the C ring also darkened this area, but cannot be sure.

All in all, the Cassini Division and the separation darkening were more intensity gradients than obvious gaps. The shadow of the rings was clearly defined directly north of the rings, and in contact with them. As the sub solar point was at about latitude 2 degrees south, this would follow.

The planet itself showed two distinct, but somewhat uneven, bands about equally distant from the center line. While the seeing was not good enough to be very critical, there were definite unevenly dark areas to both, while overall the southern band was darker than the northern.

I was able to see four moons; Titan, Tethys, Rhea and Dione, while Enceledus escaped me. As it happened, Enceledus was very close to Dione on the 16th and behind the planet on the 18th. Oh well.

Some Saturnian facts on those nights.....

Equatorial diameter about 19.6 seconds

Polar diameter about 17.7

Ring diameter about 44.4 seconds

Magnitude 0.6

Subsolar point -1.8 or -2.9 depending on using the center of the planet or the rings
(a negative sign means southern latitude)

Phase was essentially full at 99.9 percent

I urge you to try this while the ring angle is small. Later in the year the Earth will pass through the plane of the rings and they will become invisible for a period of hours or days.

And on to Ceres.

The largest classical minor planet (I realize it no longer is, but for traditions sake bear with me) is currently at the brightest it will be for the next two thousand years. Who cares, you may ask. It's an opportunity to see an asteroid at it's brightest, which I think is kind of neat, so there.

The asteroid is currently in Leo Major, just above the hind quarter area. The chart in Sky&Telescope for March is good to get you in the ballpark, but as the brightest Ceres gets is about 7, you need a detailed chart to pick it out. Binoculars are just fine, as is any scope. I would recommend that binocs be mounted to make it easier to compare the stars to your charts. I found it easily with a 3" f/5 refractor at 15 power. Nicely frames the star field and doesn't overpower one with background stars. This area of the sky is not full of Milky Way stars as you are looking pretty much toward the galactic north pole (in Coma Bernenice).

I was able to get a fairly decent photo with a Canon XSi digital using 800ASA, f/7 for one minute from the brightly lit skies of Trenton. Any wider lens setting washed out the sky too badly. The faintest stars clearly visible on the photo are about 8th or so.

Anyone interested in this photo is welcome to send me a note and I'll email it to you. It's about 4meg, so expect some download time.



Observing/Activity Report

➤ By Dwight Dulsky, BMAA

I shoulda known better...

Looking at my red face in the mirror this morning reminds me to go find the sunscreen before our next solar event - ouch.

The Solar SUNday event at MC3 was perfectly timed between a very windy Saturday and rainy Monday this past weekend. It was a perfect day for solar viewing over at the college. This was a joint event between Montgomery County Community College (MC3), BMAA and the Del-Val Astronomical Society folks. I'm not sure if there were any Ches-Mont folks there or not. We set up on the "Quad" which is on the campus side of the science building. I counted about 11 solar scopes on hand ranging from a very long 6"+ refractor to a gaggle of PST's. Kelli Spangler of the college had out the beautiful Coronado SolarMax 90 and there was a nice TeleVue 101 on hand along with Ed's sweet Questar. I brought out my PST and an 8" reflector filtered just for white light observing. As expected, no sunspots were visible. But, thankfully there was a very nice solar prominence along the south limb that impressed both the observers and visitors all afternoon.

An unexpected highlight of the afternoon was viewing Venus just a few degrees west of the Sun. A gentleman from DVAS was checking his Sky6 software and noticed that Venus was about exactly one hour (15 degrees) west of the sun. He wisely protected that Televue 101 as he slewed west away from the sun. Using a low powered eyepiece he picked up a very thin crescent of Venus (as Chris posted earlier tonight). The Televue's view was very crisp against a bright blue sky. Ed also picked up Venus in his Questar as well.

I overheard someone say we had about 75 visitors join us for the afternoon. We met a lot of nice folks and gave out many BMAA brochures. Outside of my sunburned nose, it was a great way to spend a Sunday afternoon.

Here's some pictures

<http://www.bma2.org/gallery/albums.php>

Thanks to Ed Radomski, Chris Sommers and Herb Borteck for bringing scopes and sense of humor! We also appreciate the hospitality of the college for sponsoring this event.

The Crowd



Daytime Venus



NASA Space Place: Apollo Upgrade

The flight computer onboard the Lunar Excursion Module, which landed on the Moon during the Apollo program, had a whopping 4 kilobytes of RAM and a 74-kilobyte “hard drive.” In places, the craft’s outer skin was as thin as two sheets of aluminum foil.

It worked well enough for Apollo. Back then, astronauts needed to stay on the Moon for only a few days at a time. But when NASA once again sends people to the Moon starting around 2020, the plan will be much more ambitious—and the hardware is going to need a major upgrade.

“Doing all the things we want to do using systems from Apollo would be very risky and perhaps not even possible,” says Frank Peri, director of NASA’s Exploration Technology Development Program.

So the program is designing new, more capable hardware and software to meet the demands of NASA’s plan to return humans to the moon. Instead of staying for just a few days, astronauts will be living on the Moon’s surface for months on end. Protecting astronauts from harsh radiation at the Moon’s surface for such a long time will require much better radiation shielding than just a few layers of foil. And rather than relying on food and water brought from Earth and jettisoning urine and other wastes, new life support systems will be needed that can recycle as much water as possible, scrub carbon dioxide from the air without depending on disposable filters, and perhaps grow a steady supply of food—far more than Apollo life-support systems could handle.

Next-generation lunar explorers will perform a much wider variety of scientific research, so they’ll need vehicles that can carry them farther across the lunar surface. ETDP is building a new lunar rover that outclasses the Apollo-era moon buggy by carrying two astronauts in a pressurized cabin. “This vehicle is like our SUV for the Moon,” Peri says.

The Exploration Technology Development Program is also designing robots to help astronauts maintain their lunar outpost and perform science reconnaissance. Making the robots smart enough to take simple verbal orders from the astronauts and carry out their tasks semi-autonomously requires vastly more powerful computer brains than those on Apollo; four kilobytes of RAM just won’t cut it.

The list goes on: New rockets to carry a larger lunar lander, spacesuits that can cope with abrasive moon dust, techniques for converting lunar soil into building materials or breathable oxygen. NASA’s ambitions for the Moon have been upgraded. By tapping into 21st century technology, this program will ensure that astronauts have the tools they need to turn those ambitions into reality.

Caption:

The Chariot Lunar Truck is one idea for a vehicle equal to the lunar terrain. Each of the six wheels pivot in any direction, and two turrets allow the astronauts to rotate 360°.



Learn more about the Exploration Technology Development Program at www.nasa.gov/directorates/esmd/aboutesmd/acd/technology_dev.html. Kids can build their own Moon habitat at spaceplace.nasa.gov/en/kids/exploration/habitat.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Galileo at the Franklin

Opening April 4th and continuing through September 7th 2009, the [Galileo exhibit](#) at the Franklin Institute will be a very popular destination for visitors to Philadelphia. Astronomers will find the historical artifacts equally fascinating as seeing one of the two surviving actual telescopes used by Galileo. I have heard several positive reports from people who have visited the show.

You might also enjoy another event happening at the Franklin on Tuesday April 21st 7-8:30 PM. Dr. Sandra Faber will be featured along with a panel of other scientists discussing the Cosmic Origin of the Human Species. Derrick Pitts will moderate the discussion to this free public event (reservations required). See: http://www.fi.edu/franklinawards/09/Faber_Lecture.pdf for more information and reservations.

[NEAF](#) - Northeast Astronomy Forum

April 18-19, 2009 America's Premier Astronomy Expo
Rockland Community College Suffern, NY
Two days of astronomy exhibits, vendors, talks and workshops!

[ALCON 2009](#) – Astronomical League Convention

August 7-9, 2009
Hofstra University Hempstead, NY (Long Island)

BMAA 2009 Schedule of Events

April	1 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	3 Fri	8pm	StarWatch, Tamanend Park, Upper Southampton
	23 Thu	8:30pm	StarWatch, Pennypack Ecological Restoration Trust, Huntingdon Valley
May	30 Thu	8:30pm	StarWatch, Silver Lake Park, Bristol
	6 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	15 Fri	9pm	StarWatch, Covered Bridge Park, New Britain
	22 Fri	9pm	StarWatch, Nockamixon State Park, Quakertown
	28 Thu	9pm	StarWatch, Cedar Hill Park, Horsham
June	1 Mon	9pm	StarWatch, Gwynedd Wildlife Preserve, Upper Gwynedd
	3 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	19 Fri	9:30pm	StarWatch, Peace Valley Nature Center, Doylestown
	25 Thu	9:30pm	StarWatch, Willard Markey Centennial Park, Perkasio
	27 Sat	9:30pm	StarWatch, Tyler State Park, Newtown
July	1 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	17 Fri	9pm	StarWatch, Cedar Hill Park, Horsham
	24 Fri	9pm	StarWatch, Tamanend Park, Upper Southampton
	28 Tue	9pm	StarWatch, Lower Nike Park, Warrington
August	5 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	13 Thu	9pm	StarWatch, Peace Valley Nature Center, Doylestown
	21 Fri	8:30pm	StarWatch, Nockamixon State Park, Quakertown
September	27 Thu	8:30pm	StarWatch, George M. Bush Park, Buckingham
	2 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	10 Thu	8:30pm	StarWatch, Honey Hollow Environmental Education Center, Solebury
	18 Fri	8pm	StarWatch, Covered Bridge Park, New Britain
October	24 Thu	7:30pm	StarWatch, George M. Bush Park, Buckingham
	7 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	9 Fri	7:30pm	StarWatch, Peace Valley Nature Center, Doylestown
	16-18		STELLA-DELLA-VALLEY XXIII, Camp Onas, Ottsville
	23 Fri	7:30pm	StarWatch, Pennypack Ecological Restoration Trust, Huntingdon Valley
November	27 Tue	7:30pm	StarWatch, Silver Lake Park, Bristol
	4 Wed	8pm	BMAA General Meeting, Peace Valley Nature Center, Doylestown
	12 Thu	7:30pm	StarWatch, Gwynedd Wildlife Preserve, Upper Gwynedd
	20 Fri	7:30pm	StarWatch, Lower Nike Park, Warrington
December	24 Tue	7:30pm	StarWatch, Peace Valley Nature Center, Doylestown
	2 Wed	8pm	BMAA Holiday Meeting, Peace Valley Nature Center, Doylestown

All StarWatches are free and open to the public. See www.bma2.org for directions. StarParties are open to members and guests only. Call the BMAA Message Line 215-579-9973 for activity updates. Cancellations due to

Constellation-Instructions to Authors

You need to be a BMAA member to submit an article. Articles are typically ½ to 2 pages in length. They can vary in topic from reviews of books, star parties, observing, equipment, issues of general astronomical interest, etc. Go to the BMAA website and take a look at *CONSTELLATION* back issues and you will get the idea. Another good example for articles is on the Cloudy Nights web site (<http://www.cloudynights.com>).

As to the format for articles, please adhere to the following:

Word Processor: MS Word.

Font: Times New Roman

Margins: 1 inch all sides.

Title Font Size: 14 pt

Text Font Size: 10 pt

Spacing: Single Space

Original Figures: Gray scale or color, jpeg format, and please save the file as the size as it would appear in the article (about 2" x 3"). The figures should be original due to copyright issues.

The Editors will modify the article as needed to fit the format.

Email articles to: constellation@bma2.org

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Name and address _____ _____ _____ _____ Telephone Home _____ Cell _____ E-mail _____	Renewal (<input type="checkbox"/>) New Member (<input type="checkbox"/>) Renewal Dues are \$25.00/year and are due starting in November Dues for new members are: <table style="width: 100%; border-collapse: collapse;"> <tr><td>January</td><td style="text-align: right;">\$25.00</td></tr> <tr><td>February</td><td style="text-align: right;">\$23.00</td></tr> <tr><td>March</td><td style="text-align: right;">\$21.00</td></tr> <tr><td>April</td><td style="text-align: right;">\$19.00</td></tr> <tr><td>May</td><td style="text-align: right;">\$17.00</td></tr> <tr><td>June</td><td style="text-align: right;">\$15.00</td></tr> <tr><td>July</td><td style="text-align: right;">\$13.00</td></tr> <tr><td>August</td><td style="text-align: right;">\$11.00</td></tr> <tr><td>September</td><td style="text-align: right;">\$9.00</td></tr> <tr><td>October</td><td style="text-align: right;">\$25.00</td></tr> <tr><td>November</td><td style="text-align: right;">\$25.00</td></tr> <tr><td>December</td><td style="text-align: right;">\$25.00</td></tr> </table>	January	\$25.00	February	\$23.00	March	\$21.00	April	\$19.00	May	\$17.00	June	\$15.00	July	\$13.00	August	\$11.00	September	\$9.00	October	\$25.00	November	\$25.00	December	\$25.00
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December	\$25.00																								

Additional members from the same household are 1/2 price.

Your name, city of residence, telephone number and e-mail will be posted in the member's area of the website that can be viewed by using a club issued name and code word. The code is changed periodically and issued to club members only.

() Do not list my name or any personal information on the website.

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Your e-mail address will be added to the e-group list and you will receive one e-mail a day containing all the mail that is sent to the group address by other members that day. This will allow you to be aware of current activities and discussions, and you may respond to any message by addressing your response to the e-group address. You must be a member to send to or receive messages from the e-group. You may cancel or change this option by contacting Jim Moyer, info@bma2.org.

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 Ed Radomski
 36 Far View Rd.
 Chalfont, PA 18914