

# CONSTELLATION

the official publication of Bucks-Mont Astronomical Association, Inc

Vol 30, No 2

Spring 2015

Scott Petersen, editor

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## BMAA TELESCOPE PROJECT: STATUS REPORT

*- by Gary Sprague*

If you haven't heard, some of us are working cooperatively on a telescope. It will be an f8, Newtonian reflector on an equatorial mount. Many of our members have had the joy of building their own scope (or scopes in some cases). Most of the rest of us have thought about building one at some point in our star gazing past. I personally remember longingly reviewing the Edmund Scientific catalog and lusting for a 6" reflector or at least the 4 1/2" model. But alas, it was not to be. I did, however, find great joy in a 2 1/2" reflector which was immediately given the finest pipe joint mount I could devise. But I digress; I also considered building my own telescope but the opportunity never arose, until recently.

Thanks to Preston, and his donation of a 6" mirror needing correction, and Bernie's encouragement, I was able to start a long-overdue experience. I have also been joined by others in our club, listed below, who have generously contributed.

### CONTRIBUTORS TO THE BMAA TELESCOPE- TO DATE:

Bernie Kosher- Technical Advisor!

Preston Smith- donation of mirror

Gary Sprague- Mirror grinding, polishing, figuring and coating and mirror cell

Terry Parks- Red dot finder scope, Celestron OMNI 40mm eyepiece

Howard Dutton – Secondary mirror and secondary mount

Vahan Kazandjian– Tube preparation and painting

Lee Zagar – 17mmAstro-Tech eyepiece

The purpose of this project is to give as many people as possible the chance to contribute to building our BMAA telescope. Although the final disposition of this scope is not decided, we will solicit input from our members how best to use it. I suspect we will give it to some deserving star gazer, either through a raffle, a drawing or a donation.

Stay tuned for an update on the project. We are nearing the point where all the elements of the optical tube will be assembled. We hope to see it at a coming meeting. Thanks to all who contributed so far!

*BMAA president Gary Sprague provided this article      [-ed]*

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### **2015 BMAA Officers:**

Gary Sprague, President

Dwight Dulsky, Vice President

John Urbanchuk, Secretary

Ed Radomski, Treasurer

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## Come on a StarWalk with us

*- by Dwight Dulsky*

**Imagine** looking up at a field of glowing “nightsticks”, at each dim point of light is a telescope with an astronomer ready to show you a fantastic sight in the eyepiece and tell you a little something about that object. After a few minutes you move on to the next neon nightstick and discover another astronomer with a different celestial showpiece to share. As you move through the night along the path or across the field a new discovery awaits. At the end of your evening’s quest you have seen many delightful things from the distant cosmos.

This year BMAA will be piloting a new kind of StarWatch for the public that will hopefully engage them in a more meaningful experience as they share time with us under the stars. For as long as I have been a member, StarWatches have been super casual affairs generally consisting of a folks coming up to scopes and seeing what the astronomer has selected for them to see that night. Sometimes we would have an introduction, a laser guided star tour and other astronomy related activities. It is a bit of a hit or miss approach, and difficult to remember what activities may or may not have been done from one place to another.

A StarWalk is a little more planned out and organized, and hopefully our guests will leave with a wider range of that season’s celestial highlights under their belts. For each observing season, we will make up sets of popular astronomical highlights. These will be objects that are relatively easy for our guests to discern and understand. We will publish these guides ahead of time so people can become familiar with the objects and can practice finding them in advance if they so desire. For each object, we will also provide some interesting facts and concepts to help them understand why we are highlighting this object and what its significance is.

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- *StarWalk, continued* -

The astronomers participating will select their "target cards" at the beginning of the event or if we're really organized and communicative, this could be done several days in advance. This might be good to help you decide what kind of equipment to bring that night. For each night we will have a variety of targets that cover a wide range of things. We can also have information/activity centers set up with no telescope, but something interesting to explore or do. So even if you are a member and not comfortable sharing your telescope, you can choose to run an activity table for the night.

The other interesting thing about a StarWalk is that we want to put some distance between our setups to allow folks time to enjoy the night sky while walking to the next experience. Instead of us all being within a few feet of each other we can spread ourselves out. Depending upon the site, we might create a large circle or make it more of a linear path. StarWalks will have an obvious beginning place, where we will greet people and explain the evening's process before we send them on their way to the first setup.

Our primary goal of StarWatches is astronomical outreach to the general public. If we can make them feel by the end of the night that they know some new things about what we do and what's right above their heads, they'll tell their friends and want to come back and see more.

*BMAA vice-president Dwight Dulsky coordinates club StarWatches [-ed]*

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## **Observing Report**

### **Coyle Field run: March 18, 2015**

– *by Igor Peshenko*

When I arrived at Coyle field a few minutes before sunset, Rodney was already there setting up his equipment. It took me over 1.5 hours to get to Coyle during the rush hour. As CFA website is still down I will give a short description of the current field condition for CFA members. As most of you already know all Coyle field users have to use the "state lock" now. It was very stiff but is ok now after someone lubed it recently. There was also no problem with opening gate, although the left half was still sagged, it did not touch the ground anymore. The field was completely cleared from snow and dry.

There were some clouds and wind when we arrived but the clouds went away by 8 pm and the wind calmed down completely by that time too. It was very dry and pretty cold. I took a quick binocular look at C/2014 Q2 Lovejoy which was near Ruchbah in Cassiopeia. The comet was very low in the sky and its brightness and size have reduced significantly since January when I observed and imaged it last time. I took a few 3 min shots of the comet through 6" AT6RC before aiming the scope on my target of the night - the Leo Triplet (also known as the M66 Group). Unfortunately, some clouds arrived from south around 10 pm and spoiled a few first subs, besides, the object was still low in the sky. About same time Joe drove onto the field and set his 12.5" dob nearby. In half an hour clouds passed away and the sky stayed crystal clear for the rest of the night. Joe was after an asteroid (sorry, I forgot its name) but he kindly let me peek at the comet and a number of other great objects. Rodney left the field early, Joe stayed until midnight. The imaging conditions were good, the target was high in the sky, the subs looked encouraging so I decided to stay longer to collect as many shots as possible. I left the field around 2 am.

*See Igor's image of Comet Lovejoy, next page [-ed]*



*BMAA member Igor Peshenko provided this article and image [-ed]*

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## 2015 Planetary Observing Highlights: March through June

*- by Igor Peshenko*

March 12	Io transit + shadow	End transit: 21:00 End shadow: 21:40
March 14	Europa transit shadow Callisto transit  Sunset: Moon Venus	Start: 19:07 End: 21:57 Start: 20:46 End: 23:35 Start: 21:34 End: 2:18 19:06 no yes
April 4	Jupiter: Io transit shadow  Sunset: Moon: Venus:	altitude 59° at sunset and rising Start: 18:28 End: 20:47 Start: 19:38 End: 21:55 19:28 rise 20:00 altitude 34° at sunset
April 7	Jupiter: shadow  Sunset: Moon: Venus:	altitude 60° at sunset and rising Start: 17:05 End: 20:33 19:31 no altitude 35° at sunset

April 8	shadow	Start:	End: 20:41
April 11	Jupiter: Io transit shadow	altitude 63° at sunset and rising Start: 20:22 Start: 21:30	End: 20:47 End: 21:55
	Sunset: Moon: Venus:	19:35 no altitude 35° at sunset	
April 15	Jupiter: Europa transit shadow	altitude 63° at sunset and rising Start: 18:04 Start: 20:29	End: 20:53 End: 23:19
	Sunset: Moon: Venus:	19:39 no altitude 36° at sunset	
April 17	Jupiter: shadow	altitude 63° at sunset and rising Start:	End: 21:47
	Sunset: Moon: Venus:	19:41 no altitude 36° at sunset	
April 21	Jupiter: Ganymede transit	altitude 63° at sunset Start: 20:02	End: 23:35
	Sunset: Moon: Venus:	19:45 new Moon, altitude 35° at sunset altitude 36° at sunset	
April 22	Jupiter: Europa transit shadow	altitude 63° at sunset Start: 20:36 Start: 23:05	End: 23:25 End: 01:54
	Sunset: Moon: Venus:	19:46 new Moon, altitude 45° at sunset altitude 37° at sunset	
April 27	Jupiter: Io transit shadow	altitude 67° at sunset Start: 18:36 Start: 19:49	End: 20:53 End: 22:09
	Sunset: Moon: Venus:	19:50 altitude 56° at sunset altitude 38° at sunset	
May 04	Io transit shadow	Start: 20:30 Start: 21:45	End: 22:45 End: 0:02
May 17	shadow	Start: 20:10	End: 23:00

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May 20 Jupiter:                    altitude 56° at sunset, 31° at 22:30  
 shadow                    Start: before sunset    End: 20:30  
 shadow                    Start: 20:03                End: 22:20  
 Io transit                    Start: before sunset    End: 21:08  
 Callisto transit            Start: before sunset    End: 22:25  
 at 22:07 shadow will disappear behind Callisto

Sunset:                    20:13  
 Moon:                      new Moon, altitude 25° at sunset  
 Venus:                     altitude 37° at sunset

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May 24	Europa transit	Start: 20:25	End: 23:13
	shadow	Start: 22:46	End:

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May 27 Jupiter:                    altitude 50° at sunset, 32° at 22:00  
 Io transit                    Start: 20:50                End: 23:07  
 shadow                    Start: 21:00                End:  
 shadow                    Start: 21:59                End:

Sunset:                    20:19  
 Moon:                      altitude 47° at sunset  
 Venus:                     altitude 36° at sunset  
 Saturn                     altitude 36° at 22:00

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June 3                    Ganymede transit

June 12 Io transit and shadow

June 18 shadow

SATURN:            June-August  
 VENUS:            March-June

*BMAA member Igor Peshenko assembled this guide to help plan some of our planetary observing [-ed]*

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***Editor's Note***

The CONSTELLATION is your BMAA club newsletter and its success depends solely on your input. Please submit articles to me at: [constellation@bma2.org](mailto:constellation@bma2.org). I am trying to maintain a quarterly publication cycle, on or about the Solstices and Equinoxes with supplements as required. Thanks.

***- Scott Petersen, editor***

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## 2015: BMAA Public Observing Schedule (listed on BMAA website)

<b>Date(s)</b>	<b>Type/Location</b>	<b>Starting Time</b>
April 27 (no alternate) Monday	Public Moon/Jupiter watch: Jupiter transits Igoe-Porter-Wellings Memorial Field, Parking lot, Warrington	7:30pm (7:45 sunset)
May 16/17 Saturday/Sunday	Public Moon/Jupiter watch: Nockamixon, Tohickon Boat Access Area*	8:00pm 8:09 sunset
June 10 (no alternate) Wednesday	Public Star Watch: Igoe-Porter-Wellings Memorial Field, Parking lot, Warrington	8:30pm
June 18 (no alternate) Thursday Date requested by Park	Public Star Watch: New moon Northampton Municipal Park, Richboro	9:00pm
July 15/18 Wednesday/Saturday	Public/Member Star Watch: New moon, Jupiter 4degrees N of new moon Green Lane Park	9:00pm Possible Club picnic?
August 13 (no alternate) Thursday	Public/Member Star/Meteor watch: Perseid meteor peak Nockamixon, Tohickon Boat Access Area*	8:30pm
September 27 (no alternate date) Sunday	Public/Member Lunar Eclipse watch: Tyler State Park (find another observing area, just outside of the picnic grove or at another lot near there has a better western horizon because the moon will be low. Enters Penumbra at 9:07 PM EDT, Umbra at 10:11 PM, Greatest at 10:47 PM EDT	7:30pm

\* Late evening access allowed at this location.

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## Non-public, charitable event (not listed on BMAA website)

<b>Date/Time</b>	<b>Location/Organization</b>
Thurs. Feb 26 <sup>th</sup> 2015 6:15 PM	Program/StarWatch for kids/parents - Nockamixon Nature Center
Fri. March 20 <sup>th</sup> 2015 8:00 PM	Program/StarWatch for the St. Luke's Hospital wilderness Medicine Conference - Bear Creek Resort near Macungie
TBD – April 2015	Program/StarWatch at St. John the Baptist School - Ottsville, PA, Set with alternate date
Sat. April 25 <sup>th</sup> 2015 9:30am-12:30pm	Earth Day Celebration - Jarrett Nature Center, Horsham – Solar Event & PR Display
Thurs. May 14 <sup>th</sup>	StarWatch at Council Rock South HS, Newtown, PA
Sat. June 20 <sup>th</sup> 2015 dusk	Family Camp Out - Jarrett Nature Center, Horsham StarWatch
Fri. May 15 <sup>th</sup> 2015	Simmons Elementary Cub Scout Troop Pack Meeting, Horsham- may be program with/without StarWatch

## Space Place

### **Where do old satellites go when they die?**

Like every other machine, satellites do not last forever. Whether their job is to observe weather, measure greenhouse gases in the atmosphere, or point away from Earth to study the stars, eventually all satellites grow old, wear out, and die, just like old washing machines and vacuum cleaners

So what happens when a trusty satellite's time has come? These days there are two choices, depending on how high the satellite is. For the closer satellites, engineers will use its last bit of fuel to slow it down. That way, it will fall out of orbit and burn up in the atmosphere.

The second choice is to send the satellite even farther away from Earth. It can take a lot of fuel for a satellite to slow down enough to fall back into the atmosphere. That is especially true if a satellite is in a very high orbit. For many of these high satellites, it takes less fuel to blast it farther into space than to send it back to Earth.

### **Burning metal and 'spacecraft cemeteries'**

Getting rid of the smaller satellites in low orbits is simple. The heat from the friction of the air burns up the satellite as it falls toward Earth at thousands of miles per hour. Ta-da! No more satellite.

What about bigger things like space stations and larger spacecraft in low orbit? These objects might not entirely burn up before reaching the ground. There is a solution - spacecraft operators can plan for the final destination of their old satellites to make sure that any debris falls into a remote area. This place even has a nickname - the Spacecraft Cemetery! It's in the Pacific Ocean and is pretty much the farthest place from any human civilization you can find.



Spacecraft cemetery in the South Pacific Ocean, far from where anyone lives.

### **“Graveyard orbits”**

What about those higher satellites we blast farther away? Those we send into a “graveyard orbit.” This is an orbit almost 200 miles farther away from Earth than the farthest active satellites. And it's a whopping 22,400 miles above Earth!

So is that the end of it for these far-away satellites? As far as you and I are concerned it is! However, some of these satellites will remain in orbit for a very, very long time. Perhaps someday in the future, humans may need to send “space garbage trucks” to clean these up. But for now, at least, they will be out of the way.

*Space Place is provided by NASA as a courtesy to local astronomy clubs [-ed]*