

Bays Mountain Astronomy Club

☞ *Next Meeting: Sept. 5* ☞

REFLECTIONS

Greetings fellow amateur astronomers! Well, it is September, which we all know means we have a month and half 'til StarFest 2014. I write this article with my excitement level fast coming to a boil. You all know that I am not one to consider this annual event with any less than my full head - on attention. I plan all year long for this 3-day awesome event. Each year, I wonder how can it "wow me" yet another year, alas, I leave with a high that I can not find words to express. The speakers are set, all that is needed is you. Get your registration filled out and turned in to Adam or Jason. The registration deadline is Sept. 26.

I want to share my review for the annual club picnic. We had a very good turnout and lots of great food. I have to tell you that I was afraid the weather would not allow us to do the star party. I am happy to report that we were able to have the star party but clouds did move into the area so we did not get a completely clear sky. We still had between 20-25 park visitors come up. Terry Alford shared that our annual picnic night had a chance to see the Hubble telescope pass over. The angle and



BY WILLIAM TROXEL

window for viewing was very small, I did not hear anyone announce that it was in view. I think the picnic was overall a very good time for everyone. Thanks to everyone for coming out!

The August club meeting welcomed our own Kayla Jenkins, Sullivan South student, who shared her open cluster research with members. I want to thank her for all the work and her willingness to stand up in front of a group. August's constellation quest was Cygnus, the swan. This constellation was a very good one to see with the naked eye or with binoculars. Some fast facts about this constellation are: it is the 16th largest constellation in the night sky. It occupies an area of 804 square degrees. This constellation has two bright stars, Deneb and Albireo. Both can be seen with the naked eye. This constellation is listed as a summer constellation, however it has been known to be seen as late as early January. This also is the constellation that has five stars that make up the Northern Cross. For more information about this month's featured constellation, check out <http://www.constellation-guide.com/>

Calendar

Special Events

Oct 17-19 StarFest. This is BMAC's 31st annual regional astronomical convention/star gathering. Visit the club's website for registration forms. Pre-registration with payment is mandatory in order to attend.

SunWatch

Every Sat. & Sun., 3 - 3:30 p.m.,

Mar. - Oct., weather permitting.

BMACers are always welcome to help.

StarWatch

Oct. 4, 11, 7:30 p.m.

Oct. 18, 25, Nov. 1 7 p.m.

Nov. 8, 15, 22, 29 6 p.m.

BMACers are always welcome to help with this nighttime viewing program for the public. Please show up about 30 min. prior to help set up.

BMAC Meetings

7 p.m., Discovery Theater:

Sep. 5 Mark Marquette will present: "Is Mars an Abode for Life?" Const. Quest and Amateur Ast. Corner TBA.

6 p.m., Observatory:

Oct. 3 6 p.m. Observatory cleaning and ?. Const. Quest and Amateur Ast. Corner TBA.

7 p.m., Discovery Theater:

Nov. 7 Matt Connon (ETSU Grad Student) will speak on "Observation of 'BE' Stars." Const. Quest and Amateur Ast. Corner TBA.

Dec. 5 Christi Whitworth; Dir. of Education Outreach, PARI will speak on "Radio Astronomy & Smiley as an Outreach Tool." Const. Quest and Amateur Ast. Corner TBA.

[constellation-list/Cygnus-constellation/](#)

I want to share some more details about the direction I am working on for the club. I am developing contacts with other clubs and hope that we can arrange some field trips to visit them. I asked for a show of hands of members that would be interested in going to places like PARI, or the Asheville, NC club's new observatory.

(Continued on page 5)

STAR STUFF

BY TERRY ALFORD

September is an interesting month. Of course it is getting dark a little earlier each night and the weather starts cooling down. This month, Fall officially starts at 10:29 p.m. EDT on the night of September 22. Will you try to stand a raw egg on it's end that evening? [Ed.: Arghh!]

Even though solar maximum has been over a year ago the Sun still has days of interesting features visible on it's "surface." On any given day the Sun may show one or two larger spots and/or several smaller ones. Through a hydrogen alpha filtered telescope there are usually several small prominences and a filament or two. It is really interesting to view the Sun in H-alpha light over the course of several hours and watch the changes.

Little Mercury is a very tough object to see low in the West after sunset this month. If you have binoculars or a wide field scope and a low horizon, you may be able to spot the "Winged Messenger" less than a degree to the left of the 1.0 magnitude star Spica on or around the 20th. Mercury will be a little brighter at 0.0 magnitude.

Venus isn't too much easier. If you are an early riser (I'm NOT), you can see Venus a half hour to an hour before sunrise. On September the 5th, it will be only one degree from the star Regulus. Venus is heading towards superior conjunction with our Sun in late October.

Mars is shrinking ever so slowly in size and brightness. It starts the month at + 0.6 magnitude but ends September at +0.8 mag. The disk shrinks to a little over 6", a little small to show details in amateur telescopes. But on the evenings of

the 27th and 28th, Mars will be just a little more than 3° from the very similar appearing star Antares. This will be a good opportunity for naked eye or binocular viewing and comparing the brightness and color of the two objects.

Jupiter is rising earlier in the morning but it's disk is still near it's smallest apparent size. By the month's end it will shine at -1.9 magnitude. Most scopes will still show the two main belts and at least some of the Galilean moons.

Saturn moves slowly eastward in the early evening sky keeping it's magnitude around +0.6. The rings are still tilted at 23° so Saturn can still be an awesome sight, especially to someone just starting out in astronomy. Be sure to view Saturn as often as possible this month as it will fade behind the Sun before too long. Use at least 100X and try to observe as early as possible in the evening's twilight. On the evening of the 12th, Saturn's second largest moon, 10.2 mag Rhea, will occult a 7.8 mag star. This will happen around 8:38 EDT. We are very close to the line where the visibility of this occultation will occur. But what the hey, I don't need no stinkin' badges...err reasons to observe Saturn.

The ice giants, Uranus and Neptune, are still nice binocular objects in the evening sky. Uranus is in Pisces and close to mag 5.7. It will be pretty easy to spot in binoculars or a finder scope. Crank up the magnification to see a 3.7" disk. Neptune is a little smaller with a 2.4" disk. It is located in Aquarius.

A very large full Moon will occur on September 8 at 9:38 p.m. Again it is near perigee this month. New Moon falls early in the morning of September 24th.

StarFest 2014

The deadline for registering for StarFest is September 26th. If you want to attend this very special event, I need your registrations with full payment before that date.

Remember, to be fair, even if you are a BMAC member, walk-ins and visits are not allowed.

The details for this annual astronomy convention/star gathering event from our club are available. The dates are October 17-19, 2014.

Read all about it here:

<http://www.baysmountain.com/astronomy/astronomy-club/?GTTabs=4>

Adam Thanz

HAPPY BOOK REVIEW: THE ELUSIVE NEUTRINO

BY ROBIN BYRNE

This month I'm back to ye olde bookshelf for another book review. This book is "The Elusive Neutrino: A Subatomic Detective Story" by Nickolas Solomey and was published in 1997.

Solomey gave a series of lectures in 1994 as part of his role as the 39th Compton Lecturer of Physics at the University of Chicago, Enrico Fermi Institute. His lecture series was about the neutrino, and from those lectures, he created this book. From the date, this is obviously going to be a little dated (he briefly discusses the "future" Large Hadron Collider toward the end of the book). However, the information about the history of neutrinos, which is the majority of the book, is as relevant today as it was 17 years ago.

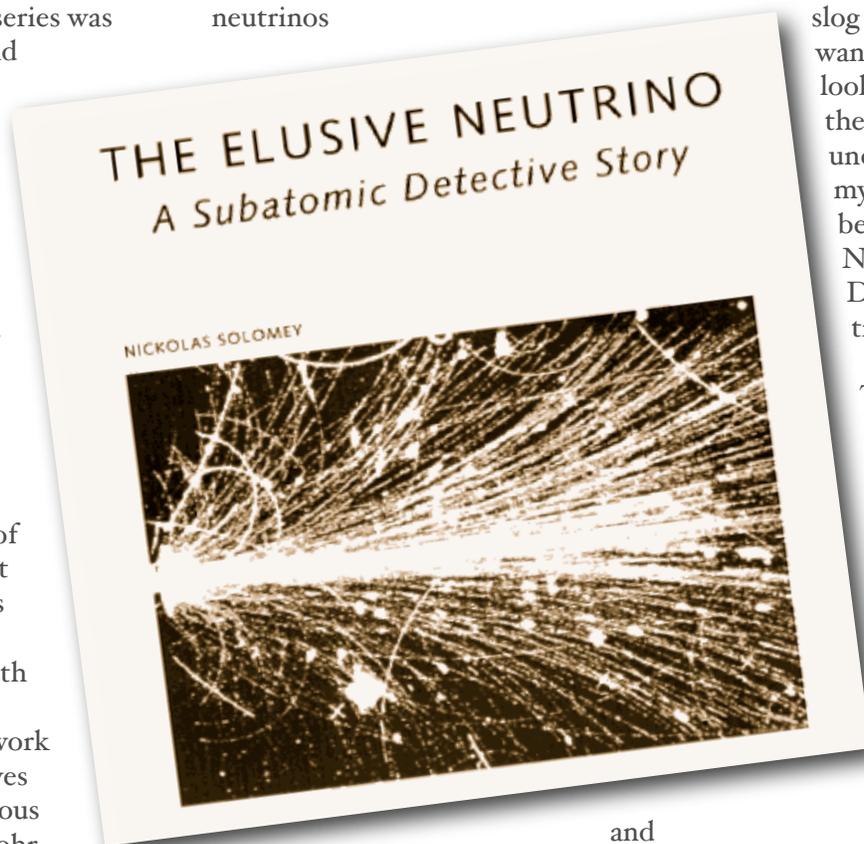
Solomey begins with the discovery of radioactivity and the work by the Curies. He moves on to the work by various scientists, including Bohr and Rutherford, who ultimately determined the structure of the atom. Then we venture into the world of quantum mechanics, with Fermi, Pauli, and Feynman and their contributions. The different types of radioactive decay are discussed, as well as the production of neutrinos during the decay process.

Solomey's area of expertise is instrumentation, so his descriptions of the various theories of physics leave something to be desired. He means well, but it just doesn't come through. Living in the South, the phrase "Bless his heart" comes to mind. He does a much better job describing the various techniques and apparatuses used to detect neutrinos

made them much more complicated than necessary to get his point across. Not being a nuclear physicist, it makes me wonder how much of his discussion of quantum physics was equally distorted.

Is this a book worth reading? If you are interested in the history of our understanding of neutrinos, then yes, but be prepared for a slog to get to where you want to be. If you are looking for a quick read on the beach, then an unqualified "no" would be my answer. All in all, the best part of "The Elusive Neutrino: A Subatomic Detective Story" was the title.

The Elusive Neutrino:
A Detective Story by
Nickolas Solomey;
Scientific American
Library, 1997



and other subatomic particles through the ages. This is clearly where his passion lays. Thumbing through the book, you will see loving images of equipment and spray patterns from atomic particle collisions.

However, where I really cringed was when he ventured into the world of astronomy. He clearly didn't understand all of the astronomical concepts he wrote about, and often

NASA SPACE PLACE

Droughts, Floods and the Earth's Gravity, by the GRACE of NASA**By Dr. Ethan Siegel**

When you think about gravitation here on Earth, you very likely think about how constant it is, at 9.8 m/s^2 (32 ft/s^2). Only, that's not quite right. Depending on how thick the Earth's crust is, whether you're slightly closer to or farther from the Earth's center, or what the density of the material beneath you is, you'll experience slight variations in Earth's gravity as large as 0.2% , something you'd need to account for if you were a pendulum-clock-maker.

But surprisingly, the amount of water content stored on land in the Earth actually changes the gravity field of where you are by a significant, measurable amount. Over land, water is stored in lakes, rivers, aquifers, soil moisture, snow and glaciers. Even a change of just a few centimeters in the water table of an area can be clearly discerned by our best space-borne mission: NASA's twin Gravity Recovery and Climate Experiment (GRACE) satellites.

Since its 2002 launch, GRACE has seen the water-table-equivalent of the United States (and the rest of the world) change significantly over that time. Groundwater supplies are

vital for agriculture and provide half of the world's drinking water. Yet GRACE has seen California's central valley and the southern high plains rapidly deplete their groundwater reserves, endangering a significant portion of the nation's food supply. Meanwhile, the upper Missouri River Basin—recently home to severe flooding—continues to see its water table rise.

NASA's GRACE satellites are the only pieces of equipment currently capable

months to the lead-time water managers have for flood prediction, and better predict the impacts of droughts worldwide. As NASA scientist Matthew Rodell says, “[W]ithout GRACE we would have no routine, global measurements of changes in groundwater availability. Other satellites can't do it, and ground-based monitoring is inadequate.” Even though the GRACE satellites are nearing the end of their lives, the GRACE Follow-On satellites will be launched

in 2017, providing us with this valuable data far into the future. Although the climate is surely changing, it's water availability, not sea level rise, that's the largest near-term danger, and the most important aspect we can work to understand!

Learn more about NASA's GRACE mission here: http://www.nasa.gov/mission_pages/Grace/ Kids can learn all about launching objects into Earth's orbit by shooting a (digital) cannonball on NASA's Space Place website. Check it out at: <http://spaceplace.nasa.gov/how-orbits-work/>

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

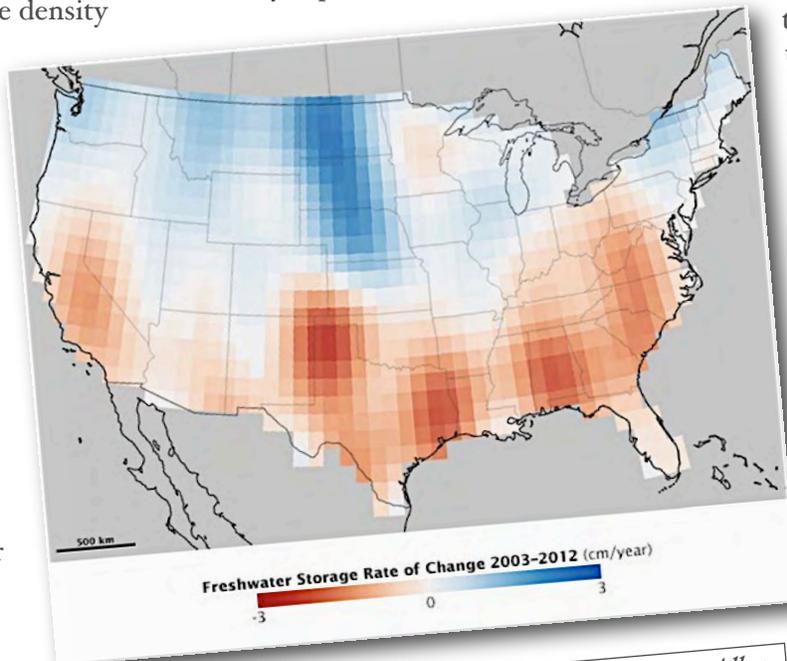


Image credit: NASA Earth Observatory image by Jesse Allen, using GRACE data provide courtesy of Jay Famigleitti, University of California Irvine and Matthew Rodell, NASA Goddard Space Flight Center. Caption by Holli Riebeck.

of making these global, precision measurements, providing our best knowledge for mitigating these terrestrial changes. Thanks to GRACE, we've been able to quantify the water loss of the Colorado River Basin (65 cubic kilometers), add

*MISCELLANEOUS***Reflections***(continued from page 1)*

These are just a few of the places that we could look into as field trips. I have made contact with people at both of these places and I will report my progress in upcoming meetings and articles.

I have also been thinking about ways to bring new members into the club. I know this is an area that seems to give all clubs, not just ours, concern. You know that I am always willing to try new ideas. If you have any ideas, please let me know. I hate to set goals when it involves numbers for growth, so I am not going to set any numbers. I just want you to know that this is one of the areas that I plan to address this year.

September's meeting will feature as our keynote speaker our own Mark Marquette. Mark's topic will be "Is Mars an Abode for Life?" I am still looking for someone to lead our Constellation Quest and Amateur Astronomer Corner for this and future meetings. If you have not participated in this yet, please do. It's lots of fun, not much work, and you'll learn a new facet of astronomy!

I will leave you this month with this thought. The astronomer Carl Sagan wrote:

"The cosmos is all that is or ever was or ever will be. Our feeblest contemplations of the cosmos stir us--there is a tingling in the spine, a catch in the voice, a faint sensation, as if a distant memory, falling from a height. We are approaching the greatest of mysteries."

Reading these words send a chill up my back. I feel the stir, the tingling, the falling from a height

each time I get a chance to stargaze. I can not help but wonder if I am the only one that gets this sensation. Do others get excited at just the chance you could see something or learn something new this night? I hope we, by our love for this hobby, have made it fun for all that come by our own devotion. Until next time, clear skies.

Regular Contributors*WILLIAM TROXEL*

William is the current chair of the club. He is currently a deliverer for Little Debbie products.

TERRY ALFORD

Terry is a founding member since 1980 and has been chair many times. He has worked as an astronomy lab instructor at ETSU since 2001.

ROBIN BYRNE

Robin has been writing the science history column since 1992 and was chair in 1997. She is an Associate Professor of Astronomy & Physics at Northeast State Community College (NSCC).

ADAM THANZ

Adam has been the Editor for all but a number of months since 1992. He is the Planetarium Director at Bays Mountain Park as well as an astronomy adjunct for NSCC.

The Bays Mountain Astronomy Club



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Dues:

The Bays Mountain Astronomy Club requires annual dues for membership. It covers 12 months and is renewable at any time.

Rates:

\$16 /person/year

\$6 /additional family member

If you are a Park Association member, a 50% reduction in fees is applied.

Find out more at our website:

<http://www.baysmountain.com/astronomy/astronomy-club/>

🍏 Made on a Mac!

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