

Bays Mountain Astronomy Club

☞ *Next Meeting: Mar. 7* ☞

REFLECTIONS

Greeting fellow amateur astronomers!

Another month is here, which signals the start of spring StarWatches. Saturday, March 1st starts the spring season for StarWatches. The March 1st event officially starts at 7 p.m. Please come out about 1/2 hour early to set up telescopes. If you want to help do a quick clean up of the observatories, arrive an additional 15 or so minutes earlier.

Hope you were able to come to the February meeting to hear Darlene Denis, Mars One Project applicant, speak. We had a great turn-out. Ms. Denis agreed to keep me posted when she gets updates.

Brandon Stroupe and myself started getting the footage for the video to add to the web site. We still need to get more footage over the spring viewing season. I also want to get some footage at some of our events and meetings.

Adam gave out the 2014 astronomy club schedule. We have extra if you want to give them out to Friends or neighbors. It is small enough to be a great ice breaker into our hobby and an invitation to come

BY WILLIAM TROXEL

out to visit the club meeting, Star and SunWatches.

I also wanted ask your help with getting speakers for upcoming months. I know that many times you have different contacts of people who have an interest in our hobby. I would welcome any help from you.

I wanted to share with you some awesome new features on the club web site. The 1st is the addition of the clear sky clock for Bays Mountain Observatory. Now we have an additional place we can go to get the information about viewing at the Park. I personally have the CSC app on my smart phone and iPad which is a wonderful convenience, to show friends and interested people in the club and park. You can go to the clear sky clock web page and get additional information and see if it would be something that could be helpful to you. It is a free app from the App Store.

The second feature is the guidelines section that is intended to help feature speakers with a guide to what we are hoping to have for the members and visitors to our meetings. Next time you are on the park page click on the club section and check the guide out. There is



Calendar

Special Events

May. 10 Astronomy Day.

SunWatch

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

Mar. - Oct., weather permitting.

BMACers are always welcome to help.

StarWatch

7 p.m.: Mar. 1 & 8

8 p.m.: Mar. 15, 22 & 29

8:30 p.m.: Apr. 5, 12, 19, & 26

BMACers need to arrive 30 min. early to set up.

BMAC Meetings

6:30 p.m., Observatories:

Mar. 7 Observatory cleanup and observing.

7 p.m., Discovery Theater:

Apr. 4 Tom Rutherford and students: "The Caltech Project;" Constellation Quest: Terry Alford: Total Lunar Eclipses of 2014; Amateur Astronomer Corner: Adam Thanz: Planispheres.

May 2 Program TBA.

wonderful information for everyone that can apply to all level of speakers and people who have never spoken before or have been thinking about speaking.

Both of these features are great resources. Next time you're on the site, take an extra few minutes and check out both.

March's meeting is going to be outdoors, so after we finish cleaning up we will have time for some viewing. We had many new visitors for the February meeting. Let's keep this up to help share our love of astronomy!

Until next time, clear skies.

STAR STUFF

BY TERRY ALFORD

March 1st falls on a Saturday this year. This happens to be the night of our first StarWatch of the Spring. This also happens to be a new moon. Don't you really like it when things come together? A couple of weeks later the full moon falls on the 16th. The March full moon is sometimes called the Full Sap Moon or the Full Worm Moon. Don't even ask about that second name. On March 30th, we will have a second new moon in the month. Let's see, if the second full moon of the month is a "Blue" Moon, would the second new moon of the month be an "Orange" Moon? I think UT fans would like that designation. [Ed.: I'm not sure, orange and blue? Them's Gator colors!]

During the first two weeks of the month, Mercury will be visible to the lower left of much brighter Venus during morning twilight. If you are up early and have a driven scope, consider setting it on Venus and let the scope follow the planet for a few hours. By mid-morning, Venus will be much higher in the sky. Now there will be much less atmospheric muck to look through so crank up the magnification to try to see cloud details. A #47 violet filter can certainly help. Be CAUTIOUS! Make sure your scope is still following the planet and the mount drive has not stopped. You do not want to even consider a chance that the sun could shine down your optical tube assembly (OTA).

Mars becomes a major player in the "planet parade" this month. Earth is racing towards its next opposition with the Red Planet on April 8th. Thus Mars will be bright and relatively big all month. Not as big as the full moon, of course, but large enough in apparent diameter

that some surface detail can be eked out with most scopes on a steady night. It will rise about 3 1/2 hours after sunset at the start of the month, but by month's end, it will rise during evening twilight and will thus be a popular telescope target of amateur astronomers across the globe. Mars is fairly close to the bright star Spica in Virgo. Its bright, ruddy color and steady shine makes it easy to be identified as a planet rather than a star.

Jupiter will be high overhead as darkness falls. Oh Jove is noticeably brighter than nearby Castor and Pollux in Gemini. It will be a prime target during our StarWatches in March and April. By the end of the month, Jupiter will still be brighter than Mars but it is still interesting comparing the two in brightness, color and in details that can be observed telescopically.

Marvelous Saturn rises before midnight at the start of the month and, of course, a little earlier each night after that. The rings are tilted at a good angle to view. Next to the moon, Saturn is probably the most popular object in the sky for "newbies" young and old alike. Experiment with color filters and try to pull out different details on Saturn... as well as Mars and Jupiter.

There are a couple of interesting alignments of various Solar System objects this month. On the nights of March 17th and 18th, a waning gibbous moon moves close to Mars and Spica. Definitely an attractive sight and a delightful photo opportunity. On the 21st that same Moon will stalk Saturn.

We cannot celebrate any major meteor showers in March, but we can certainly do a happy jig recognizing the Vernal Equinox. At

12:57 p.m. Eastern Time on March 20th, the Sun crosses the Celestial Equator heading North. Bingo, spring has arrived in the northern hemisphere.

Happy Book Review*(continued from page 5)*

The same effect they discovered is why many of Marie Curie's papers are still slightly radioactive.

People believed that radioactivity was going to be a miracle cure for a myriad of ailments. For this reason, many were reluctant to recognize its deadly effects, including Marie. Her declining health was attributed to overwork and the need for fresh air. One doctor misdiagnosed her as having tuberculosis, sending Marie abroad for her health. The trip was the beginning of her final decline. The doctors at the sanitarium found no evidence of tuberculosis, but, instead, extreme anemia (one of the more common causes of death for those who had been working with the radioactive elements in laboratories around the world). Within a few days, Marie Curie was dead.

A woman in a man's world, Marie Curie never saw herself as unique or unusual. She saw herself as a scientist doing what she loved. Those who worked with her described the joy she found from new discoveries. Those were probably the happiest moments of her life. She lived for her work. Sadly, it was her work that also killed her.

Marie Curie: A Life by Susan Quinn; Simon & Schuster 1995

HAPPY BOOK REVIEW: MARIE CURIE: A LIFE

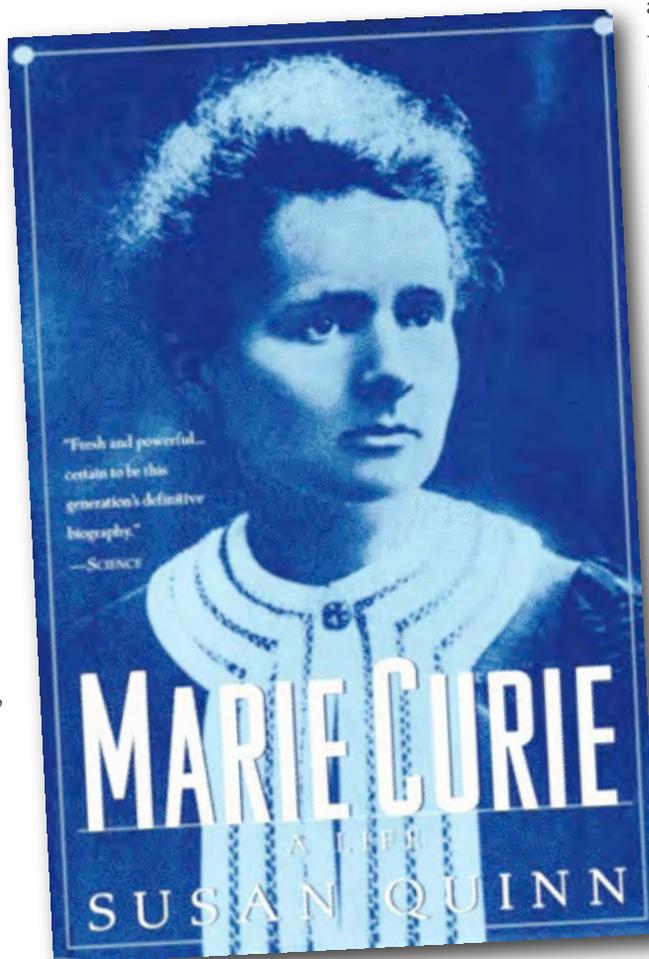
BY ROBIN BYRNE

A recent trip to Brevard, NC found Adam and I in a thrift store where I stumbled upon the book "Marie Curie: A Life" by Susan Quinn. Needless to say, I snatched it up. I'm glad I did. I had only a vague knowledge of Marie Curie's scientific work and knew nothing of her private life. This book helped me to more fully appreciate this remarkable woman.

The author begins in Poland with Marie's parents, both of whom were educators. The early years were highly focused on education for all of their children. When Marie was still quite young, her mother was diagnosed with tuberculosis. Marie's oldest sister became their mother's caretaker and accompanied her to a wide variety of sanitariums all over Europe. Meanwhile, Poland was being bombarded from all sides, with Germany taking over the region where Marie grew up. The dictatorial rule even appeared in the schools, not even allowing the children to speak Polish. Fortunately for Marie, the teachers at her school were loyal to Poland, so they only spoke German when being inspected.

From an early age, Marie showed a talent for science and had dreams of attending college. Unfortunately, at this time, women could not attend college in Poland and would have to study abroad. That was expensive, and Marie's family could not afford to send both

her and her older sister to school. So, Marie's sister went to Paris to study to become a doctor, while Marie earned a living working as a governess. She had almost given up on the notion of college, when her sister contacted her, inviting Marie to move in with her and her new husband. In many ways, this was the start of Marie's life.



It was while a student that Marie met Pierre Curie. Working together in a laboratory, they soon realized that they were a good match. Their collaboration would continue until Pierre's untimely death (he was run over by a carriage). The Curies

learned about the discovery of x-rays and were interested in seeing if other substances emitted some form of rays. By analyzing various sources of ore, they eventually found a new element, which Marie named Polonium (after her native Poland), that emitted rays. Eventually, the term "radioactive" would be applied to this element. This discovery, along with their subsequent work with radioactive materials, garnered the Curies much attention and praise. However, many believed that Marie, being a woman, could not have been a true collaborator, but merely a lab assistant. So, while Pierre received recognition from the established scientific societies (even though he loathed the attention), Marie was often ignored. It wasn't until some of their colleagues in the fields of physics and chemistry began speaking out that Marie earned the respect she was due. This culminated in the Curies receiving a Nobel Prize in Chemistry for their discovery. During all of this, Marie and Pierre had two daughters: Irene and Eve. Marie kept journals of their development. Ever the scientist, her entries included measurable aspects, such as height and weight, eating habits, as well as behavior. Over the years, it would be

Irene who was most similar to Marie, with an aptitude for science and math. Eve was an enigma, with a talent for the arts.

(Continued on page 5)

NASA SPACE PLACE

A Two-Toned Wonder from the Saturnian Outskirts**By Dr. Ethan Siegel**

Although Saturn has been known as long as humans have been watching the night sky, it's only since the invention of the telescope that we've learned about the rings and moons of this giant, gaseous world. [Ed: The rings were first seen by Galileo in 1610, but were not known as rings until Huygens in 1655.] You might know that the largest of Saturn's moons is Titan, the second largest moon in the entire Solar System, discovered by Christiaan Huygens in 1655. It was just 16 years later, in 1671, that Giovanni Cassini (for whom the famed division in Saturn's rings—and the NASA mission now in orbit there—is named) discovered the second of Saturn's moons: Iapetus. Unlike Titan, Iapetus could only be seen when it was on the west side of Saturn, leading Cassini to correctly conclude that not only was Iapetus tidally locked to Saturn, but that its trailing hemisphere was intrinsically brighter than its darker, leading hemisphere. This has very much been confirmed in modern times!

In fact, the darkness of the leading side is comparable to coal, while the rest of Iapetus is as white as thick sea ice. Iapetus is the most

distant of all of Saturn's large moons, with an average orbital distance of 3.5 million km, but the culprit of the mysterious dark side is four times as distant: Saturn's remote, captured moon, the dark, heavily cratered Phoebe!

Orbiting Saturn in retrograde, or the opposite direction to Saturn's rotation and most of its other moons, Phoebe most probably originated in the Kuiper Belt, migrating inwards and eventually succumbing to gravitational capture. Due to its orbit, Phoebe is

infrared-sensitive Spitzer Space Telescope. As the Phoebe Ring's dust grains absorb and re-emit solar radiation, they spiral inwards towards Saturn, where they smash into Iapetus—orbiting in the opposite direction—like bugs on a highway windshield. Was the dark, leading edge of Iapetus due to it being plastered with material from Phoebe? Did those impacts erode the bright surface layer away, revealing a darker substrate?

In reality, the dark particles picked up by Iapetus aren't enough to explain the incredible brightness differences alone, but they absorb and retain just enough extra heat from the Sun during Iapetus' day to sublimate the ice around it, which resolidifies preferentially on the trailing side, lightening it even further. So it's not just a thin, dark layer from an alien moon that turns Iapetus dark; it's the fact that surface ice sublimates and can no longer reform atop the leading side that darkens it so severely over time. And that story—only confirmed by observations in the last few years—is the reason for the one-of-a-kind appearance of Saturn's incredible two-toned moon, Iapetus!

Learn more about Iapetus here: <http://saturn.jpl.nasa.gov/science/moons/iapetus>.

Kids can learn more about Saturn's rings at NASA's Space Place: <http://spaceplace.nasa.gov/saturn-rings>.

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



learned



Images credit: Saturn & the Phoebe Ring (middle) - NASA / JPL-Caltech / Keck; Iapetus (top left) - NASA / JPL / Space Science Institute / Cassini Imaging Team; Phoebe (bottom right) - NASA / ESA / JPL / Space Science Institute / Cassini Imaging Team.

constantly bombarded by micrometeoroid-sized (and larger) objects, responsible for not only its dented and cavity-riddled surface, but also for a huge, diffuse ring of dust grains spanning quadrillions of cubic kilometers! The presence of the "Phoebe Ring" was only discovered in 2009, by NASA's

MISCELLANEOUS

Happy Book Review

by Robin Byrne
(continued from page 3)

After Pierre's death, Marie went into mourning for a few years. This had a profound affect on the children. When she finally came back to life, Marie was as enthusiastic about her work as she had ever been. This led her to work with a fellow chemist, Paul Langevin. They found they were kindred spirits and enjoyed their collaboration. However, Langevin was married and had children. Their affair would last for a few years, until Langevin's wife, who seems to have been mentally unstable, threatened to expose their affair with love letters she had found. Meanwhile, Marie was being considered for a second Nobel Prize, this time in physics, for her work with Polonium. The scandal broke in one of the seedier tabloids. Marie fled out of town, staying with various friends around France and Europe. The Paris tabloids painted her as a foreigner who brought her unfeminine ways to France, with the intent of ruining the French way of life. Many of her colleagues, including Albert Einstein, came to her defense, but as far as the press was concerned, Marie was a villain. Fortunately for Marie, the Nobel Committee was not in Paris, and she received the reward without any controversy. However, the Paris newspapers barely covered her accomplishment.

Not long after, World War I broke out, and Marie felt the need to help. The newly invented x-ray machines were being used in hospitals, but not on the front.

Marie changed that. She assembled a fleet of cars, equipped with portable x-ray machines. She and Irene went around to the various fronts, training people how to use the machines. No one knows how many lives were saved because of her efforts.

These intervening years helped to erase the stigma of her affair, and Marie was able to return to her scientific work. Many believed that radioactive materials would ultimately be a cure for cancer, so enthusiasm for research in this area grew. With support from the French government and various societies, she was able to build the laboratory she had always dreamed of, plus a medical research wing funded by the Pasteur Institute. Marie found herself to be even more of a celebrity, and was invited to America by an enterprising woman named Marie "Missy" Meloney, who promised to raise enough money for Marie to purchase one gram of radium for her research. Marie despised the publicity tour she was obligated to take, but she did get the radium.

As her health began to deteriorate, Marie depended even more on Irene. When Irene married Frederic Joliot, Eve became her constant companion. Meanwhile, Irene and Frederic worked together, much as Marie and Pierre had. It was the Joliot-Curies (as they were known) who discovered that exposure to radioactivity can render a non-radioactive material, at least temporarily, radioactive. Irene and Frederic won the Nobel Prize in Chemistry for this discovery.

(Continued on page 2)

Regular Contributors**WILLIAM TROXEL**

William is the current chair of the club. He serves as activities coordinator for a local retirement living community.

TERRY ALFORD

Terry is also a founding member since 1980 and has been chair many times, as well. 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 almost all of the years since 1992. He is the Planetarium Director at Bays Mountain Park as well as an astronomy adjunct for NSCC.

The Bays Mountain Astronomy Club



Edited by Adam Thanz:
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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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