

Bays Mountain Astronomy Club

☞ *Next Meeting: Oct. 4* ☞

REFLECTIONS

BY WILLIAM TROXEL

Greetings fellow star gazers.

It's time for another report from your club chairman. Hope you were able to attend last month's field trip to ETSU's Powell Observatory. Dr. Henson welcomed us to the world of remote viewing. Our target for the evening was the night sky from northern Chile in South America. I have to tell you that I was really excited on the drive over to the campus. I have heard many of you talk about remote viewings, but for a newbie like me, it was the high point of the entire week. Weather, which has not been on our side much this year, was overcast and we did not get to do any viewing of the night sky. Dr. Henson was able to show us a picture from the inside of the dome and some of overcast skies outside of the dome. He talked about some of the complex setup that makes it possible for astronomers to be able to view from anywhere in the world. The problem is now that Dr. Henson gave me a taste, I am afraid I want more. This field trip also ignited my dreams again. I want to thank Dr. Henson and ETSU for making our meeting such a wonderful event.



I wanted to update you on my personal progress with the journals I ordered. They arrived a few weeks after last month's article came out. I spent the first week reading the directions in the front of them only to find that I did not have much more insight on how to use them.

The good thing about that is that the weather has not been that clear so I have not missed a lot of nights because I did not understand what I needed to record. I have to tell you that I am not sure once I know what to record if I will know how to find it from what I am seeing through the binoculars and my telescope, once I get the new mount, or new scope. I had them with me at the field trip to ETSU's Powell Observatory in case any of you asked to see them.

Have you ever talked with one of the customer service advisors at the online astronomy websites? Most of the time I feel like they are only trying to sell me whatever they are low in their sale numbers for that period of time. Over the last few months, I was lucky and talked to someone who seemed to know and care, or at least the person on the other side acted like they cared.

Calendar

Special Events

Oct. 11-13 *StarFest 2013. If you have not registered, sorry, the deadline has passed and there are no walk-ins.*

SunWatch

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

Mar. - Oct., weather permitting.

BMACers are always welcome to help.

StarWatch

Oct. 5, 12, 7:30 p.m.

Oct. 19 & Nov. 2 7 p.m.

Nov. 9, 16, 23, 30 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

6:30 p.m., BMP Observatory

Oct. 4 6:30 p.m.! Observatory cleanup and observing.

7 p.m., Discovery Theater

Nov. 1 Topic and speaker TBA.

Because of the conversation I have an outline of how to set a better budget, what questions to ask & what features to look for when I look at new equipment. I think I told someone at one of our meetings that I wish I had enough money to just go out and buy what I needed, but now I think it is better to take my time adding equipment as my skills improve. I know you have heard the old saying that "It's not about how quick you get to the finish, it's about the journey you take getting there." One of the things I have learned so far is that this old saying has a lot of weight in our hobby.

(Continued on page 2)

STAR STUFF

BY TERRY ALFORD

Fall is my favorite season! Darkness falls sooner. The Summer haze dissipates. Nights are cool and crisp. This is a great time to view many objects in the heavens. Galaxies galore, nebulae abound, star clusters are everywhere and of course there is a multitude (pun intended!) of double and multiple stars. Here is my arbitrary list of the "best" double stars for Fall and Winter. Again the concentration is on color, ease of splitting (although a couple are pretty close to one another), and just plain attractiveness in the eyepiece. Only three on this list are below the Celestial Equator and the lowest listing is -23° . All can be split with a 4-inch or larger scope and several can be separated with a 60mm refractor. Listed in order of Right Ascension.

Gamma Arietis RA 01 H Dec 19° "Mesarthim" This double is separated by 8 arc seconds so this is an easy split. Both stars shine at a combined magnitude of 3.9. Looks like a pair of headlights pointed at you!

Gamma Andromedae RA 02 H Dec 42° Very beautiful and great contrast at blueish and yellow. Striking in even a small scope. It is easy to imagine that one is looking at a star with a huge planet orbiting it. Many amateur astronomers have the opinion that only Alberio is more attractive. A must see for your observing list.

Iota Trianguli RA 02 H Dec 30° A nice pair of stars that shine at 5.0 and 6.4 magnitude. Separated by 4 arc seconds. Each star itself is a binary. I have seen this pair many times while scanning for M33. Worth seeking out.

Iota Cassopeiae RA 02 H Dec 67° A triple star system at magnitudes of 4.0, 7.0 and 6.2. The brightest star is yellowish while the other two have a blueish cast. Very nice.

Gamma Ceti RA 02 H Dec 3° A beautiful pair of yellow and blueish stars that shine at 3.6 and 6.2 magnitudes. Separated by just 3 arc seconds so use a little more magnification.

Sigma Orionis RA 5 H Dec -5° The famous "Trapezium." A must see quadruple star system in the spectacular M42 Great Nebula. The stars range from 4th to 10th magnitude so crank up the magnification of your scope.

H3780 Leporis RA 05 H Dec -18° OK, so this object is on hardly anyone's observing list. So why did I include it here? This is a multiple star system with at least six individual stars visible with a large scope. My 8-inch Dob routinely shows 4 or 5 stars depending on the seeing. This system could also be described as a very small open cluster. The magnitudes vary from 7th to 10th and some stars are pale blue. Not too difficult to find as H3780 is only a couple of degrees east of Alpha Leporis.

H3945 Canis Majoris RA 07 H Dec -23° . A 5.0 mag orangish star paired with a 7.0 mag blueish star separated by 27 arc seconds. An easy double that is beautiful to view.

Alpha Geminorum RA 07 H Dec 32° "Castor" This fine double has white components, both with a greenish tint. They are similar in magnitude at 2.0 and 2.8. Very lovely. Once as a challenge I took an 8x50 right angle finder scope and modified

it to accept traditional 1 1/4-in eyepieces. At about 60x the double star was split. Not cleanly as there was chromatic aberration and a fuzziness of image, but it was split!

Zeta Aquarii RA 22 H Dec 00° Close to each other at 4.4 and 4.6 magnitudes. Pale green and yellow separated by only 3 arc seconds. Like Gamma Arietis this pair is often described as appearing like a pair of headlights. Very lovely!

Reflections by William Troxel

(continued from page 1)

Those of you that are still young and those just starting out, don't get discouraged if you think "If I only had that piece of equipment or that better mount, tripod, or even telescope." I now see that as I grow in astronomy I will be better able to know what I need next.

I have been talking the last few meetings about our involvement with the the public programs in astronomy at the Park. I first want to thank all of you that come out now and help, the park staff really does look forward to us being there and be a part of the program. I wanted to touch on another aspect of this involvement. I am writing about the benefit for us to learn as we share. Last year, I was sharing some of the things about one of the stars that I had viewed on my own star session with a visitor, when he told me another thing I had not noticed, we moved the scope to that position and he showed me what he was talking about.

(Continued on page 5)

HAPPY BOOK REVIEW: "APOLLO EECOM - JOURNEY OF A LIFETIME"

BY ROBIN BYRNE

At this year's SEPA (Southeastern Planetarium Association) conference, the keynote speaker was Sy Liebergot, who brought along copies of his book to sell. As several people rushed to get in line, I was fortunate to be close enough to get a copy. I'm glad I did.

Like so many books written by people involved in the Apollo program, Liebergot's book gives wonderful insights into a particular portion of the program, as well as his own personal story. Written mostly in chronological order, we begin with Sy's childhood. His father was constantly on the run from his gambling debts, drank heavily, physically abused Sy, had several affairs, and left his wife for one of his mistresses who had become pregnant. His mother was mentally unstable, and ultimately had to be institutionalized. A very bleak existence for a young child.

Sy's first dream was to be a photojournalist, and after high school, he got a job at the Philadelphia Enquirer.

However, it wasn't as a photographer, but as a copy boy. Seeing no hope of moving up the ladder, Sy decided to join the Army. It was in the Army that he got his first training in working with electronics and a variety of equipment as part of the Army Weather Observers Corps (AWOC). After completing his tour of duty, Sy moved to California and worked several jobs while attending college to obtain his degree in

engineering. With a recent marriage, a growing family, plus the responsibilities of work and school, Sy's life was filled with stress.

His final year in school came with a new job, working at North

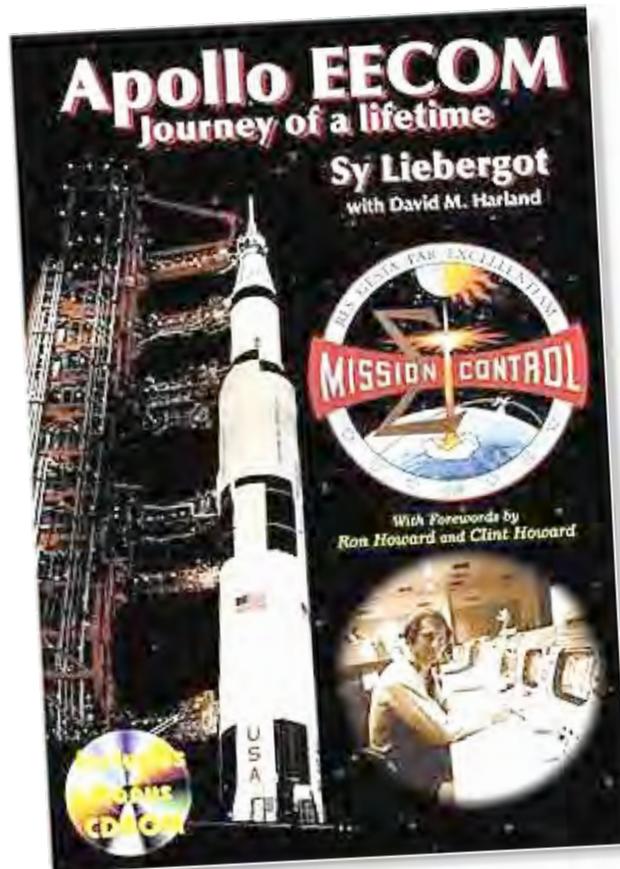
Spacecraft Center's Mission Operation Control Room (MOCR). He was on his way to becoming a flight controller.

Sy eventually was given the position of EECOM (Electrical, Environmental and Communications). Although the Communications portion was later separated off into a different position, the acronym stuck. The EECOM was responsible for all life support systems, including electrical power, heating and cooling, atmospheric pressure, oxygen supply, and the fuel cells containing liquid hydrogen and oxygen. Essentially, the EECOM was responsible for about half of the systems on board.

Although involved with all of the Apollo missions, Sy is best remembered for his role during the Apollo 13 disaster. With only one hour left in his shift, the fateful words "Okay Houston, we've had a problem here" were heard. With data streaming in that seemed impossible, Sy's first thought was that there was

something wrong with the instrumentation. When it quickly became evident that it wasn't a faulty sensor, the next step was to try to isolate the problem and save whatever power and oxygen they could.

(Continued on page 5)



American Aviation, which got the contract to build the second stage of the Saturn V rocket, as well as the Command and Service Modules (CSM) for the Apollo flights. This led to a position with the Flight Operations Support Group and a move to Houston. Sy quickly realized that he was essentially a go-between for NASA and the contractor. He wanted more. When the opportunity arose, Sy switched to NASA's Manned

NASA SPACE PLACE

How to hunt for your very own supernova!**By Dr. Ethan Siegel**

In our day-to-day lives, stars seem like the most fixed and unchanging of all the night sky objects. Shining relentlessly and constantly for billions of years, it's only the long-term motion of these individual nuclear furnaces and our own motion through the cosmos that results in the most minute, barely-perceptible changes.

Unless, that is, you're talking about a star reaching the end of its life. A star like our Sun will burn through all the hydrogen in its core after approximately 10 billion years, after which the core contracts and heats up, and the heavier element helium begins to fuse. About a quarter of all stars are massive enough that they'll reach this giant stage, but the most massive ones -- only about 0.1% of all stars -- will continue to fuse leaner elements past carbon, oxygen, neon, magnesium, silicon, sulphur and all the way up to iron, cobalt, and, nickel in their core. For the rare ultra-massive stars that make it this far, their cores become so massive that they're unstable against gravitational collapse. When they run out of fuel, the core implodes.

The intruding matter approaches the center of the star, then rebounds and bounces outwards, creating a shockwave that eventually causes what we see as a core-collapse supernova, the most common type of supernova in the Universe! These occur only a few times a century in most galaxies, but

chances of finding one for yourself? Here's how.

Pick a galaxy in the process of a major merger, and get to know it. Learn where the foreground stars are, where the apparent bright spots are, what its distinctive features are. If a supernova occurs, it will appear first as a barely perceptible bright spot that wasn't there before, and it will quickly brighten over a few nights. If you find what appears to be a "new star" in one of these galaxies and it checks out, report it immediately; you just might have discovered a new supernova! This is one of the few cutting-edge astronomical discoveries well-suited to amateurs; Australian Robert Evans holds the all-time record with 42 (and counting) original supernova discoveries. If you ever find one for yourself, you'll have seen an exploding star whose light traveled millions of light-years across the Universe right to you, and you'll be the very first person who's ever seen it! Read more about the evolution and ultimate fate of the stars in our universe:

<http://science.nasa.gov/astrophysics/focus-areas/how-do-stars-form-and-evolve/>.

While you are out looking for supernovas, kids can have a blast finding constellations using the Space Place star finder: [http://](http://spaceplace.nasa.gov/starfinder/)

spaceplace.nasa.gov/starfinder/.

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



SN 2013ai, via its discoverer, Emmanuel Conseil, taken with the Slooh.com robotic telescope just a few days after its emergence in NGC 2207 (top); NASA, ESA and the Hubble Heritage Team (STScI) of the same interacting galaxies prior to the supernova (bottom).

because it's the most massive, hottest, shortest-lived stars that create these core-collapse supernovae, we can increase our odds of finding one by watching the most actively star-forming galaxies very closely. Want to maximize your

MISCELLANEOUS

Reflections**by William Troxel***(continued from page 2)*

Bingo! I learned something new. These are the kind of things that can and will happen. Please try to come out, it will be fun.

This month will feature the last meeting before "The 30th StarFest." At the beginning of the next meeting (6:30 p.m.!), we will be cleaning up the domed and roll-off observatories. Then we are going to have a Constellation Quest and I am hopeful that we can focus on an observing session. The next night, which is Saturday, after our meeting is the first night of StarWatches at the Park. Check the website for the start time. Then the countdown starts and we will be only 7 days until StarFest. I am so excited about this year's event. I hope you are as well. [Ed.: By the time you read this, registration will be closed. Sorry, walk-ins cannot be accepted.]

Before I close this month's article I wanted to let you know I sent out 2 e-mails to thank our visitors that came to last month's meeting. I hope to see you all at upcoming events.

Until next time, keep watching the night sky and learning new things.

Clear skies...

Happy Book Review**by Robin Byrne***(continued from page 3)*

After unsuccessfully trying to stop the loss of all power, it was decided to move the crew to the Lunar Module and power down the Command Module so that there would be enough power left for reentry. Even though the flight crew on duty during the start of the disaster was well immersed in addressing the problem, the next shift was on hand and providing support already. So the decision was made to proceed with the handover to the next shift to keep everyone fresh. Although only involved for one hour, the work of Sy and the other flight controllers is what saved the lives of the Apollo 13 crew. Sy calls it "the longest hour of his life."

Liebergot remained with NASA into the beginning of the shuttle era, but felt the need to move on. He found a variety of positions that kept him happy. He also found a relationship that would finally last. He found the balance that had been missing all along.

Written in the abrupt, conversational style you would expect from someone who went through the military and had worked at Mission Control, "Apollo EECOM" is an enjoyable, quick read, with plenty of anecdotes about the people and events of the Apollo era. I highly recommend it.

Apollo EECOM Journey of a Lifetime by Sy Liebergot with David M. Harland; Apogee Books, 2006

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



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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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