Bays Mountain Astronomy Club

☞*Next Meeting: Dec. 2*☜

SKYWARD *BY BRAD DUNN*

Well, we've got another StarFest in the books. This year's event was a huge success! We had close to 100 attendees this year and I think it's safe to say we all had a blast. Thanks again to Todd, Bays Mountain Park, and everyone who participated to make this a great weekend. We had five very interesting talks, some great food, and a two perfect nights of stargazing. I will be taking over at the helm as StarFest chairman for next year's event and I will have some big shoes to fill!

At last month's meeting, I started things out with a talk about the different myths and legends associated with astronomy. Due mainly to the improvements in communication thanks to the Internet and social media, there has been a big increase in astronomy myths over the last ten years. I think most of the club members were up to date for the most part, but there were a few things that caught a few of us off guard. After the break, we opened the floor for any new business. The only new business was to set a date for the dinner in January. We decided on January 7th with a back up date of January 14th. For the December meeting, we will meet in the Discovery Theater for any business, then if the weather permits, we will do some observing and use the Big Dob. I will also bring my Dob since they are similar to give some comparison. If it's cloudy, we can go to the planetarium and have a members-only shootout. Try to make it out to the last StarWatch if you can, until then get outside and look up!

Calendar

Special Events

Jan. 7 BMAC annual dinner, 6:30 p.m. Place TBA.

Jan. 14 BMAC dinner SNOWDATE.

SunWatch

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

Mar. - Oct., weather permitting.

BMACers are always welcome to help.

StarWatch

6 p.m.: Nov. 26

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

BMAC Meetings

7 p.m., Discovery Theater

Dec. 2 Observing will be the theme.

Feb.. 3 Topic TBA.

EYE TO THE SKY *BY BOB SMITH*

The crystal clear nights of December are always a fun time for amateur astronomers. Pointing out the Pleiades or showing the Great Nebula in Orion to a friend is always a special moment. Take time during the holidays to show your non-astronomical friends some of the sights we sometimes take for granted.

Venus is growing brighter and rising a little higher in the southwest each evening. Back in mid-November it was visible for only a few minutes before sliding below the horizon. By the first week of December the bright jewel is visible for about two hours after sunset. The magnitude -3.9 planet is just too intense for viewing after the sky darkens so you may want to view our "Sister Planet" through a telescope before the sky is fully darkened. Venus is also fairly easy to photograph. A snapshot of the evening twilight and Venus makes for a nice screensaver but be sure and include a foreground object—a barn or house, your dog or maybe a self-portrait of you at your telescope. The day after Christmas a thin crescent Moon is a few degrees to Venus' right. The next night, the 27th, the Moon stands above the planet.

Jupiter is high in the east as the Sun sets this month. The magnitude -2.7 planet is highest in the south by around 9:00 p.m. as December opens, but will reach the meridian by 7:00 p.m. around Christmastime. Through a telescope, you will immediately notice the nearby "stars" that are the Jovian moons. Io, Europa, Callisto and Ganymede put on a never-ending show as they circle around the largest planet. Sometimes we see all four, other times there may be only three and on occasion only two. One of the toughest targets is the Great Red Spot which was red at one time but is certainly not now. Try these times between darkness and midnight. December 1-9:00; 3-10:39; 4-6:30; 5-midnight; 6-8:08; 8-9:47; 9-5:30; 10-11:25; 11-7:06; 13-8:55; 15-10:33; 16-6:25; 17-midnight; 18-8:00; 20-9:42; 21-5:30; 22-11:20; 23-7:12; Christmas-8:51; 27-10:29; 28-6:21; 29-midnight; 30-7:59. All these times are Eastern Standard Time and only include hours in the early to late evening. The GRS may take an hour to transit the meridian on the planet. Good hunting.

Toward dawn, locate the prominent constellation Leo the Lion. Below its hindquarters lies the planet Mars. It is magnitude 0.8 as December opens, but is rapidly being approached by Earth in our orbits around the Sun and brightens to magnitude 0.2 by Christmastime. The end of the month finds it "only" 110 million miles from Earth. The "Red Planet" increases in size to almost 9 arcseconds by the end of the month so take out your highest power eyepiece and clean it off for the best views of the Martian surface features. We are looking at the North Pole of the planet and the polar cap should be readily visible. Mars is highest and best visible in steady air a few hours before dawn but you can find it anytime after midnight. The Last Quarter Moon passes 8° south of Mars the night of December 16/17. The newest Mars expedition spacecraft is set to blast off from Earth sometime between November 25th and December 18th. Will the new Curiosity rover finally encounter Marvin the Martian? Will the sand worms devour the rover? Stay tuned.

Saturn was in conjunction with the Sun back in October and is just now rising before dawn among the stars of Virgo. The planet is still fairly, low but if your scope is set up one morning to observe Mars before dawn take a peek at Saturn. The rings are tilted about 15° to our line of sight and the Cassini division should be fairly easy. Keep in mind that the Cassini spacecraft is still whizzing through the Saturnian system and sending back great photos of the inner moons. Go to the JPL/NASA website for some great photos.

The final planet to observe is tiny (and elusive) Mercury. After about the 15th, the innermost planet should be visible low in the East with a good horizon and no clouds. It reaches greatest height on December 22nd when it is magnitude -0.4 and maybe 10-15° above the eastern horizon. Perfect timing for Christmas morning.

There will be a total eclipse of the Moon the morning of December 10—the first in a couple of years. Unfortunately we are out of the area to observe the eclipse. It's best on the U.S. west coast and into the Pacific area. Oh well. Can't win 'em all. Try to catch it on the internet later in the morning. Totality is from 9:00 till 10:00 a.m. EST.

Comet Garradd has been around for a few months now and while it hasn't been spectacular, at least we have been able to observe the little fuzz ball. It is predicted to reach 6th or 7th magnitude this month but will

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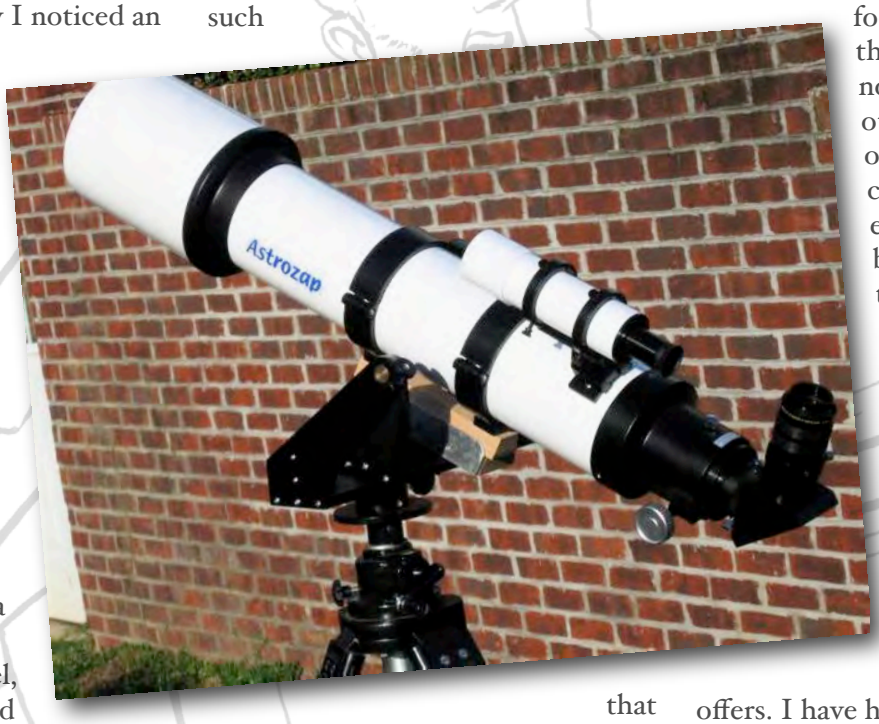
STAR STUFF

BY TERRY ALFORD

A couple of years ago I purchased a used 5-inch f/6.5 achromatic refractor telescope. I used it for wide field views of galaxies and star clusters. Quite often though, I would use it with a 0.5 focal reducer and my IIE (Image Intensifier Eyepiece). 5 inches of unobstructed aperture working at about f/3.2 is a lot of fun with DSOs (Deep Space Objects).

Then last February I noticed an ad for a 5-inch f/5 achromatic refractor in the Cloudy Nights Classifieds. Evidently the ad had been up for a while and there were no takers. The asking price was dropped to the point that it really grabbed my attention. The scope was an Astrozap brand Petzval refractor. This optical tube assembly came with tube rings, a 2-inch focuser with nearly 5 inches of travel, a metal dovetail bar and an 8x50 straight-through finder. With no diagonal or eyepiece, the scope's weight was listed at 16 lb. The optics consisted of two groups of fully multicoated lenses. The primary objective was advertised as a well corrected f/10 air-spaced doublet and mounted in a fully adjustable cell with three pairs of push-pull bolts. The second lens grouping was mounted in the front of the focuser and acted as a field flattener and focal reducer bringing the final focal ratio down to f/5. Very interesting!



I e-mailed the seller to find out why he was trying to sell this scope. He said he had bought two identical OTAs to make a large binocular telescope but the project got to be too much to handle so he was selling one of them. I would think that he had star tested both OTAs and was keeping the one that he liked best. Still, he was throwing in two new Plössl eyepieces and the price was such that I could not resist. A week or so later the scope arrived.

The scope was well packed and arrived in great condition. The glossy white paint on the tube was nearly flawless. The dew cap was metal but the big lens cap on the end was made of black plastic. I removed the lens cap and peered into the tube with a flashlight. The inside of the tube was covered with a flat black textured surface. At least two baffles were visible. Nice. The oversized rack and pinion focuser had large knobs and moved very smoothly. An unexpected bonus was that the seller included a large padded bag to keep the scope in. All very good but how would it perform under the stars?

First of all I was impressed by the very flat field offered by the Petzval design. This lens design was invented for the camera industry over 150 years ago. Chromatic aberration was very well controlled. Images snapped into focus rather nicely but the depth of field was not as deep as many other refractors I have observed with. Of course that was to be expected. Still, I have been very pleased with this telescope. Lunar and planetary views are crisp but with a 635 mm focal length it is tough to get a large image unless real short focal length eyepieces or a Barlow lens is used. The real strength of this scope is the wide fields of views it offers. I have had very nice observing sessions with the Astrozap 127 f/5 just scanning with a low power two-inch eyepiece and a nebular filter. If interesting stuff shows up it is easy to bump the power up to 125-150X for detailed views. But, of course, my current passion is to use the IIE, 0.5 focal reducer and H-alpha filter to seek out emission and planetary nebulas at 13X with 5-inches of unobstructed aperture. Horsehead Nebula here I come!

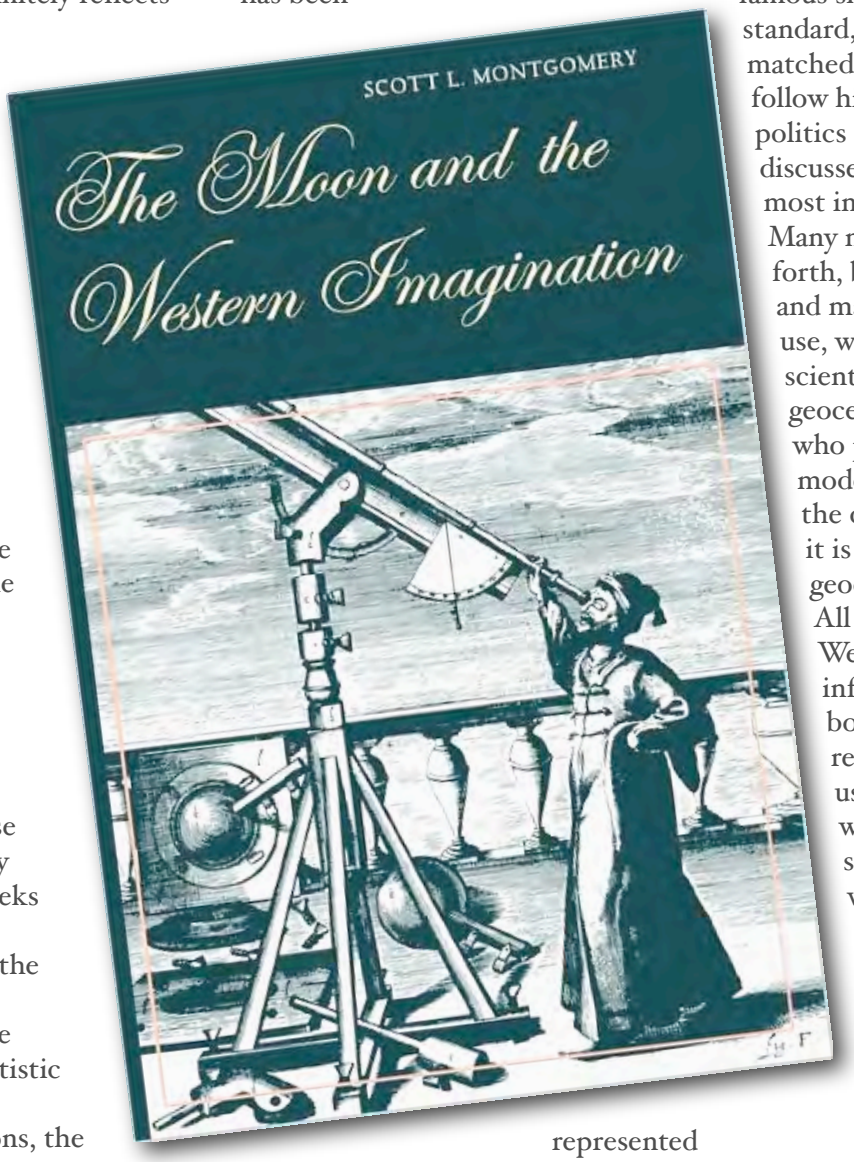
HAPPY BOOK REVIEW: "THE MOON AND THE WESTERN IMAGINATION" *BY ROBIN BYRNE*

The ole bookshelf is calling, and this time I picked up "The Moon and the Western Imagination" by Scott L. Montgomery. Montgomery is a geologist, who clearly also has an interest in art and culture. However, his writing style definitely reflects more of the geology background than his other interests. Sadly, this book was not exactly riveting to read, which is a shame, because the content had the potential to be quite interesting.

Montgomery takes us through a chronological journey of ideas and images related to the Moon. However, the journey, as the book title suggests, is limited to Western concepts. No other cultures are incorporated. So, naturally, under these conditions, the story begins with the Greeks and remains within Europe throughout the text.

From tales of the Moon's origins to artistic representations to scientific observations, the book is rich with information. Early conflicting ideas about whether the Moon would be inhabited, or not, were entertaining. Even early notions of how men could journey to the Moon were discussed. All of this should have been fascinating to read, but Montgomery's writing style kept getting in the way.

Many chapters were devoted to the changing way in which the Moon has been represented in works of art. Montgomery goes into much detail about many art pieces and the significance of various representations. Sadly, very few of these images are actually reproduced in the book, leaving the reader to either use their imagination, or read the book while searching the internet for each image discussed.



The last section of the book deals with the earliest telescopic observations of the Moon. Galileo's famous sketches of craters set the standard, with a realism rarely matched by many who tried to follow his example. Then the politics of naming lunar features is discussed, which I found to be the most intriguing part of the book. Many naming schemes were put forth, but the one we use today, and many of the names still in use, was meant to represent both scientists who were in favor of a geocentric universe and those who proposed a heliocentric model. However, if you look at the craters' locations and size, it is clear to see that the geocentrists were favored.

All in all, "The Moon and the Western Imagination" is an informative, if not exciting, book to read. As a source for research, it would be quite useful. As a book to curl up with, only if you are suffering from insomnia would I recommend it.

NASA SPACE PLACE

Re-thinking an Alien World: The Strange Case of 55 Cancri e

Forty light years from Earth, a rocky world named "55 Cancri e" circles perilously close to a stellar inferno. Completing one orbit in only 18 hours, the alien planet is 26 times closer to its parent star than Mercury is to the Sun. If Earth were in the same position, the soil beneath our feet would heat up to about 3200 F.

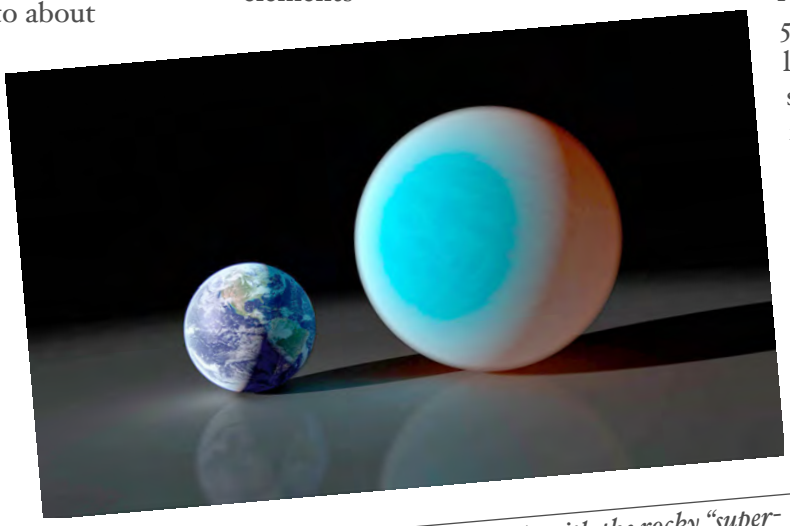
Researchers have long thought that 55 Cancri e must be a wasteland of parched rock.

Now they're thinking again. New observations by NASA's Spitzer Space Telescope suggest that 55 Cancri e may be wetter and weirder than anyone imagined.

Spitzer recently measured the extraordinarily small amount of light 55 Cancri e blocks when it crosses in front of its star. These transits occur every 18 hours, giving researchers repeated opportunities to gather the data they need to estimate the width, volume and density of the planet.

According to the new observations, 55 Cancri e has a mass 7.8 times and a radius just over twice that of Earth. Those properties place 55 Cancri e in the "super-Earth" class of exoplanets, a few dozen of which have been found. Only a handful of known super-Earths, however, cross the face of their stars as viewed from our vantage point in the cosmos, so 55 Cancri e is better understood than most.

When 55 Cancri e was discovered in 2004, initial estimates of its size and mass were consistent with a dense planet of solid rock. Spitzer data suggest otherwise: About a fifth of the planet's mass must be made of light elements and compounds—including water. Given the intense heat and high pressure these materials likely experience, researchers think the compounds likely exist in a "supercritical" fluid state.



Artist's rendering compares the size Earth with the rocky "super-Earth" 55 Cancri e. Its year is only about 18 hours long!

A supercritical fluid is a high-pressure, high-temperature state of matter best described as a liquid-like gas, and a marvelous solvent. Water becomes supercritical in some steam turbines—and it tends to dissolve the tips of the turbine blades. Supercritical carbon dioxide is used to remove caffeine from coffee beans, and sometimes to dry-clean clothes. Liquid-fueled rocket propellant is also supercritical when it emerges from the tail of a spaceship.

On 55 Cancri e, this stuff may be literally oozing—or is it steaming? — out of the rocks.

With supercritical solvents rising from the planet's surface, a star of terrifying proportions filling much of the daytime sky, and whole years rushing past in a matter of hours, 55 Cancri e teaches a valuable lesson: Just because a planet is similar in size to Earth does not mean the planet is like Earth. It's something to re-think about.

Get a kid thinking about extrasolar planets by pointing him or her to "Lucy's Planet Hunt," a story in rhyme about a girl who wanted nothing more than to look for Earth-like planets when she grew up. Go to http://spaceplace.nasa.gov/story-lucy.

The original research reported in this story has been accepted for publication in Astronomy and Astrophysics. The lead author is Brice-Olivier Demory, a post-doctoral associate in Professor Sara Seager's group at MIT.

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

MISCELLANEOUS

Eye to the Sky
by Bob Smith

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be visible for only a short while after sunset. Garradd is headed straight north and spends the month among the stars of Hercules. With the comet positioned in this northerly constellation you may have a better chance observing the comet in the pre-dawn sky when Garradd will be visible for a longer period of time. On the 28th the comet is quite close to Lambda (λ) Herculii.

I've been reporting lately on some of the brighter asteroids as they appear in our night sky and this month brings us another of these small wanderers. Asteroid 15 Eunomia reached opposition and was brightest in late November. The 200 mile wide odd shaped space rock is zipping through the constellation Perseus and at 8th magnitude should be visible through binoculars under a dark sky. It passes close to several bright guide stars that should help pinpoint the tiny speck and show its movement (over an hour or so) against the background stars. On the night of December 1st, Eunoma is within one degree of Chi (χ) Perseii. Then on Christmas night it is very close to Omicron (o). Find a location chart online or in your favorite publication and try to find this wandering space rock.

Telescope for Sale

I have a complete setup for sale. It includes a Meade LX200gps 12" with Autostar2. It has a focal reducer on it which makes it an f/6.5. Includes a 4" Mak-Cassegrain piggybacked on the tube. An 8 x 50 spotting scope. A Telrad finder. A starlight Xpress MX-716 camera with all hardware to run it. A computer tower with all programs to run setup. The Sky 6 program, Astroart 3 to run the camera. A set of 4 eyepieces. A set of colored filters. A skylow filter, a nebula filter. Everything is in good working order. Wanting $3000.00 for it all.

Please reply to telrad104@yahoo.com
George Dennison.

Telescope for Sale

BUSHNELL SCOPE

675 X 4.5" Reflector Telescope

W/accessories

$200.00

534-1437

Call to come and see it.

Regular Contributors

BRAD DUNN

Brad is the current chair of the club and a member since 2007. During the day, he runs Dunn Professional Billing and Dunn Construction.

BOB SMITH

Bob is a founding member of BMAC, since 1980. He has also served as chair many times over the years. He currently works at Pioneer Industrial Sales.

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 and is also the sole proprietor of Celestial Woodworks.

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 Case of the Disappearing Planet" will be our next primary offering for the planetarium. It should start sometime in December.

Written and voiced by BMAC's own Robin Byrne, this full-dome program is sure to please. It looks at what we classify as a planet and realize that this reclassification process had already happened 200 years ago!

Bays Mountain Planetarium

The Bays Mountain Astronomy Club

Find out more at our website:
www.baysmountain.com
Edited by Adam Thanz:
thanz@kingsporttn.gov

Dues:

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

Rates:

$12 /person/year

$4 /additional family member

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

Made on a Mac!

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