

# Bays Mountain Astronomy Club

☞ *Next Meeting: June 6* ☞

## REFLECTIONS

Greetings fellow amateur astronomers! We had another good meeting in May, with Tom Rutherford and his students reporting on the results of their research project "The NITARP AGN." Robin Byrne lead our Amateur Astronomer Corner, with "Star Hopping the Night Sky." Overall, I think it was well received by members and guests.

The annual Astronomy Day held on May 10 at the Park went over very well. The last word I got was that attendance was close to 200 visitors. The weather did not work with us very well this year as we moved into the Nature Center. We were not able to get any additional hand outs from any of the organizations I e-mailed, though the planetarium staff had a large number of giveaway material from NASA and JPL. Even with all the setbacks it was still a good day. I think we had enough displays to spark the interest. I want to thank Joel Shelton, Greg Love, Sally Hale, Brandon Stroupe, Terry Alford, Frank McCollum, Robin Byrne, Adam Thanz and the Park staff for the contributions of time and encouragement given. We

BY WILLIAM TROXEL

are making some changes in how we plan and present future Astronomy Day programs. I will be sharing more details in future articles.

Our next big event will be the annual picnic at the Gazebo at Natural Tunnel State Park on Saturday, July 26, 2014. The picnic will be at 6 p.m. rain or shine.

Greg Love will have the list for members to sign up for what you want to bring to share with everyone. I will also have a list of equipment we need members to commit to bring for the night viewing following the picnic. The park will be bring any campers that want to come up for the event. This will, of course, be weather permitting for the night viewing. Be sure and mark the date Saturday, July 26, 2014 starting at 6 p.m. I will get Adam to put the directions to the Park in the July newsletter. I will Mapquest the written directions from the Park to the site and put them on Bmastro. Remember, bring your own chair. Any questions or comments, please let me know.

Before the fun of the annual picnic in July we have an important business meeting item that takes place in June every year. That, of course, is the election of the



## Calendar

### Special Events

July 26 *BMAC Annual Picnic. Meet at the Gazebo at Natural Tunnel State Park in VA, 6 p.m. Bring a dish to share along with your own chair and a telescope.*

### SunWatch

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

Mar. - Oct., weather permitting.

*BMACers are always welcome to help.*

### BMAC Meetings

7 p.m., Discovery Theater:

June 6 *Jason Dorfman will present "Appalachian Skies - Spring" planetarium show with a concentration on Virgo. William Troxel will provide a fun constellation quiz; Amateur Astronomer Corner: Greg Love: "Binoculars for Astronomy."*

Aug. 1 *Meeting et al.TBD.*

Sep. 5 *Meeting et al.TBD.*

chairman for the next year. This position is open to any member of the club. The only requirement is that you love astronomy, the club and a desire to serve. I will be placing my name on the list for your consideration. I have really learned and grown a lot over the past two years, I have also had a lot of fun being your chairman. Should there be anyone else that would like to be considered for the position, I hope you will place your name in as well. The election will be the main focus of the business meeting for June. We will also make the final preparation for the July 26th picnic. I hope you will come and be a part of this very important club process.

The June meeting will be held inside the planetarium with a special version of one of Bays Mountain's own productions, "Appalachian Skies - Spring."

*(Continued on page 5)*

STAR STUFF

BY TERRY ALFORD

**Book Review: *The Martian* by Andy Weir**

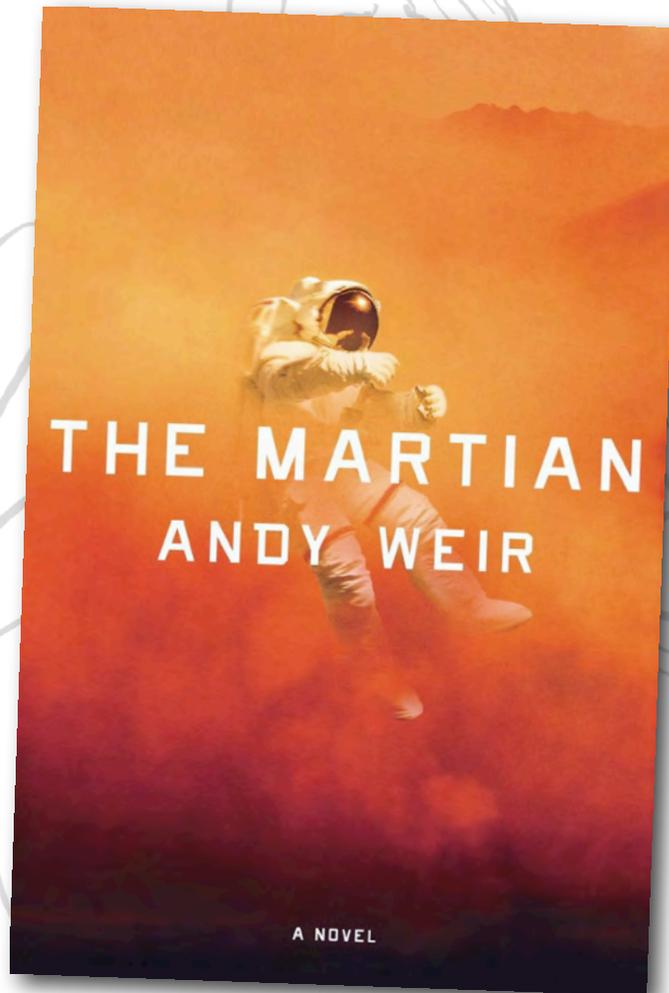
Basically I had quit reading modern science fiction. Today it seems that this genre is either science fantasy, horror or simply pure fiction. So I was mildly surprised earlier this year when a new science fiction book kept staying in the top 10 best selling fiction books in hardback. The title was *The Martian*. I read the two line description in the newspapers listing of best sellers. It was rather interesting. Something like "An American astronaut gets stranded on Mars and goes through many hurdles to try to get rescued. Fast action and compelling." Like I say, I am paraphrasing. But how many other times has this theme been used?

My semester of labs ended and I put up the hammock in the back yard. I needed something to read. Since the Johnson City Library usually has the latest best sellers I gave them a call. "Yes, we have that book but it is now loaned out. Want to get on the wait list?" "Of course," was my response. About 10 days later I got the call to go check out the book.

First, I read the very short bio on the author on the inside of the back cover. Weir is a youngish guy with a career in software engineering. But he is also a self-described space nerd

that especially likes relativistic physics, orbital mechanics and the history of manned space flight. Wow. Oh, and this was his first novel. My expectations sunk a little.

I started reading the book that evening and literally found it hard to put down. I finished the 369th last



page the next day. It was that compelling. Weir's style reads much like a spy thriller with many plot turns and twists. There is quite a bit of humor as well as some salty language. But it is also full of science, physics and math stuff. Almost too much (this is

my only and minor complaint). Still, it seems possible that this story could happen as described. Highly unlikely but scientifically plausible.

The main character is Mark Watney, an engineer and botanist. He is one of a team of six astronauts on the "Hermes," a large spaceship built specifically for the Ares Mars mission program. There were two previous Ares missions but the astronauts only stayed on the surface of the planet a few days. This mission was scheduled to last about a month and much more research and taking of samples was on the agenda. A few days after landing, a horrendous sandstorm started brewing up. It got worse quickly. The MAV (Mars Escape Vehicle) was designed to withstand wind speeds up to 150 kph but this storm was peaking at 175kps. NASA ordered the team to leave Mars and head back to Earth on the Hermes. As the astronauts struggled against the wind and sand to get back to the MAV, an unfortunate accident happened to Watney. The others searched for Watney but couldn't find him in the storm. The telemetry from Watney's suit indicated he was dead. The MAV was in danger of being toppled by the wind so the rest of the team reluctantly left Watney's "body" somewhere buried in the sand on Mars and blasted off to get back to the Hermes.

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HAPPY BIRTHDAY JIM MCDIVITT

BY ROBIN BYRNE

This month we celebrate the life of one of America's first astronauts. James Alton McDivitt was born in Chicago, IL on June 10, 1929. After graduating high school in Kalamazoo, Michigan, McDivitt first attended Jackson Junior College in Jackson, MI. His college education was interrupted, though, by the Korean War.

In 1951, McDivitt joined the Air Force and earned his pilot's wings the following year. He flew in 145 combat missions from 1952 - 1953. In 1954, McDivitt enrolled in the advanced flight school at Tyndall Air Force Base. In 1957, the Air Force paid for him to return to college. McDivitt majored in aeronautical engineering at the University of Michigan and graduated first in his class in 1959. From there, McDivitt went on to test pilot school, and later completed the U.S. Air Force Aerospace Research Pilot School program, qualifying him to be a test pilot at Edwards Air Force Base. Overall, McDivitt flew more than 5000 hours, 3500 hours of which were in jet aircraft.

On April 18, 1962 NASA announced that applications for the second set of astronauts would be accepted. These new astronauts would begin as support for the Mercury 7 and then fly with the original astronauts on the Gemini

missions. Jim McDivitt threw his name in the hat. Five months later, NASA announced the "New Nine" astronauts, including McDivitt. McDivitt's first flight was as the Commander on Gemini 4 with Ed White as his Pilot. Launched on June 3, 1965, the mission objectives were to perform a rendezvous with



the upper stage of their launch vehicle and to perform America's first spacewalk. The rendezvous was not a success. The launch vehicle was still venting its unused fuel, making it an erratic moving target, and orbital rendezvous was still not fully understood. McDivitt's best guess

was that they got within 200 feet, but he and Ed White had difficulty estimating the distance and never could agree. In order to preserve their fuel, McDivitt decided to stop the attempt at rendezvous. Next up was Ed White's spacewalk. While White floated in space, McDivitt photographed him and maintained the attitude of the capsule. The vehicle's hatch consistently had problems with sticking. McDivitt had to use his gloved hands to manually mesh the gears to make it close upon Ed White's return to the capsule after 20 minutes of walking in space. On June 7, the two men returned to Earth, falling just one day short of the endurance record set by the Soviets. This flight also has the distinction of a possible "UFO" sighting. McDivitt saw something he describes as looking "like a beer can or a pop can, and with a little thing like maybe like a pencil or something sticking out of it." He took some photos, but the exposures were not good. His best guess is that it was either ice or

Mylar insulation that fell off of the capsule. That didn't stop the press from trying to find flying saucers in the series of photographs that came back. One reporter found pictures that appeared to have four objects that looked like tadpoles.

*(Continued on page 5)*

NASA SPACE PLACE

## The Hottest Planet in the Solar System

By Dr. Ethan Siegel

When you think about the four rocky planets in our Solar System—Mercury, Venus, Earth and Mars—you probably think about them in that exact order: sorted by their distance from the Sun. It wouldn't surprise you all that much to learn that the surface of Mercury reaches daytime temperatures of up to 800 °F (430 °C), while the surface of Mars never gets hotter than 70 °F (20 °C) during summer at the equator. On both of these worlds, however, temperatures plummet rapidly during the night; Mercury reaches lows of -280 °F (-173 °C) while Mars, despite having a day comparable to Earth's in length, will have a summer's night at the equator freeze to temperatures of -100 °F (-73 °C).

Those temperature extremes from day-to-night don't happen so severely here on Earth, thanks to our atmosphere that's some 140 times thicker than that of Mars. Our average surface temperature is 57 °F (14 °C), and day-to-night temperature swings are only tens of degrees. But if our world were completely airless, like Mercury, we'd have day-to-night temperature swings that were hundreds of degrees. Additionally, our average surface temperature would be significantly colder, at around 0 °F

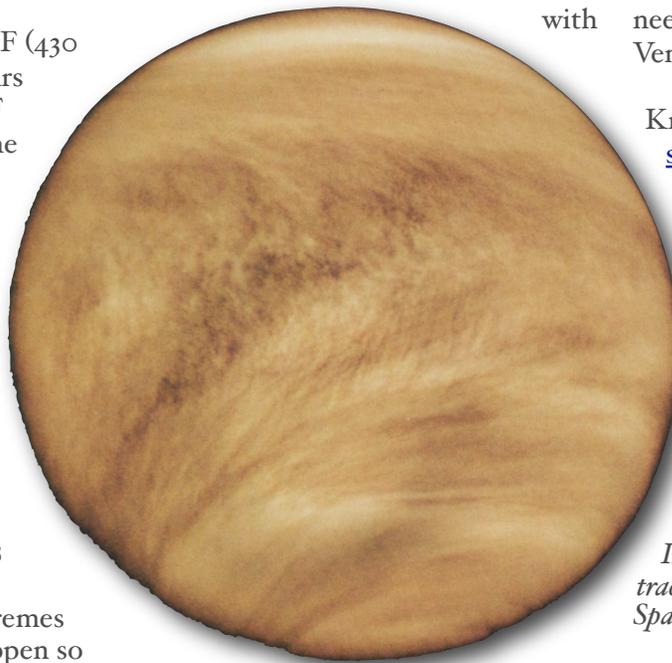
(-18 °C), as our atmosphere functions like a blanket: trapping a portion of the heat radiated by our planet and making the entire atmosphere more uniform in temperature. But it's the second planet from the Sun -- Venus -- that puts the rest of the rocky planets' atmospheres to shame. With an atmosphere 93 times as thick as Earth's, made up almost entirely of carbon dioxide, Venus is the ultimate planetary greenhouse, letting sunlight in but hanging onto that heat with

of Earth days to rotate, its winds circumnavigate the entire planet every four days (with speeds of 220 mph / 360 kph), making day-and-night temperature differences irrelevant.

Catch the hottest planet in our Solar System all spring-and-summer long in the pre-dawn skies, as it waxes towards its full phase, moving away from the Earth and towards the opposite side of the Sun, which it will finally slip behind in November. A little atmospheric greenhouse effect seems to be exactly what we need here on Earth, but as much as Venus? No thanks!

Check out these "10 Need-to-Know Things About Venus:" <http://solarsystem.nasa.gov/planets/profile.cfm?Object=Venus>. Kids can learn more about the crazy weather on Venus and other places in the Solar System at NASA's Space Place: <http://spaceplace.nasa.gov/planet-weather>.

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



*NASA's Pioneer Venus Orbiter image of Venus's upper-atmosphere clouds as seen in the ultraviolet, 1979.*

incredible effectiveness. Despite being nearly twice as far away from the Sun as Mercury, and hence only receiving 29% the sunlight-per-unit-area, the surface of Venus is a toasty 864 °F (462 °C), with no difference between day-and-night temperatures! Even though Venus takes hundreds

MISCELLANEOUS

**Reflections**

*(continued from page 1)*

The show is a live tour of the current night sky that includes many additional visuals and a dash of planetarium magic. During the show, Jason Dorfman will expand upon their normal presentation of the constellation Virgo. This will be June's Constellation Quest submission. But, we'll add a fun activity at the end that will test all of our skills of the night sky. I think you will enjoy this different approach. The Amateur Astronomer Corner will be led by Greg Love with "Binoculars for Astronomy." In fact, bring your binoculars into the theater to learn about their features and even use them in the planetarium sky! I hope you will be able to come out this month. Until next time...

Clear skies.

**Star Stuff**

*(continued from page 2)*

Of course he didn't die...there would be no more story. He barely makes it back to the habitat. Immediately, he realizes he is in deep trouble. The next Ares mission isn't scheduled to arrive for four more years and he will run out of food and water long before then. The radio antennas were destroyed by the storm so he has no way to communicate. In short, he is in deep trouble...he used a different expression.

A large part of the book is told by the logbook Watney writes in on a

regular basis. His ingenuity and humor keep him going through crises after crises. One of my favorite passages is "Yes, of course duct tape works in a near-vacuum. Duct tape works anywhere. Duct tape is magic and should be worshiped." So this book is not Robinson Crusoe on Mars but rather MacGyver on Mars.

This novel was originally self published online in 2011 but because of its popularity it came out in hardback early this year. Warning, once you start reading it this book will be difficult to put down. In fact, I read it a second time before turning it back in to the library. It is that good. And, of course, a movie is in the works for the near future.

**Happy Birthday**

*(continued from page 3)*

McDivitt identified them as reflections of bolts made to appear unusual due to the multiple panes of glass in the window.

McDivitt's next venture into space would occur on March 3, 1969 as Commander of Apollo 9. This was the first Apollo flight to include the Lunar Excursion Module (LEM). In Earth orbit, McDivitt and Rusty Schweickart (Lunar Module Pilot) separated the LEM from the Command Module (CM), where David Scott remained as Command Module Pilot. The LEM was maneuvered 180 km away from the CM before returning and docking after 6.5 hours of flight. This was the first time two spacecraft as part of a single mission had flown separately. This led to the need to have names

**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.

for the two vehicles, so the CM was dubbed "Gumdrop" and the LEM was called "Spider." The 10-day mission was an unqualified success. This was McDivitt's last spaceflight. He flew a total of 14.12 days in space.

In May 1969, McDivitt became Manager of Lunar Landing Operations. The group's objective was to oversee the lunar exploration program, and to also redesign the lander for longer missions. Three months later, McDivitt was named Manager of the Apollo Spacecraft Program, during which he oversaw the Apollo 12-16 missions.

In June 1972, McDivitt retired from NASA and from the Air Force, taking the position of Executive Vice President for Consumers Power Company. Three years later, he moved to Pullman, Inc, where he ultimately became President of the Railcar Division. In 1981, McDivitt became Senior Vice President at Rockwell International. In 1995, McDivitt retired.

Jim McDivitt is the epitome of a go-getter. Whether as a pilot, astronaut, or businessman, McDivitt was consistently a success. May his life serve as an inspiration for us all.

References:

James McDivitt -

Wikipedia

[http://en.wikipedia.org/wiki/James\\_McDivitt](http://en.wikipedia.org/wiki/James_McDivitt)

Astronaut Bio: James A. McDivitt

<http://www.jsc.nasa.gov/Bios/htmlbios/mcdivitt-ja.html>

McDivitt - Encyclopedia Astronautica

<http://www.astronautix.com/astros/mcdivitt.htm>

**For Sale**

Meade ETX-125 (-5" Maksutov-Cassegrain)

Includes eyepieces, tripod, and autostar

asking \$500

Kerry Mraz  
Belmont, NC  
704-560-5919

**For Sale**

The following items are being sold for a friend in Colorado, so there will be a shipping charge. Contact Ray Bloomer at King University - [raybloomer@gmail.com](mailto:raybloomer@gmail.com). If an item is not priced, contact Ray.

1. Questar Catadioptric Apochromatic telescope, 89mm, variable focus length 45.5"-56". Includes solar filter and possible eyepiece (probably Brandon based on the photo). Asking \$750. If mount and other accessories are found, then the price will be much higher, approaching \$2K.

2. Meade Deep Sky Imager with Auto Star Suite and cables.

3. SBIG Model STV Video Camera and Auto Guider, power cable, CPC 2x teleconverter, power cable, operating manual, CD for product installation, in original hard case shipping box. \$350.



4. SBIG ST-7 XME-D (USB), The Sky software, hard shipping case, power supply, instruction manual, allen wrenches, purchased in 2006. \$600.



5. TeleVue Refractor NP 101, 540 mm, f/5.4 APO Everbright Dielectric (SN 1717),

TeleVue Gibraltar Mount with optical encoders, and wood tripod  
TeleVue short front Diagonal,  
TeleVue Sky Tour Database Manual and Operating Guide

TeleVue eyepieces: Nagler 7 mm and 22 mm, Nagler Zoom 3-6 mm, 2x Powermate, Star Beam for alignment, very large Panoptic 41 mm. A super sweet setup. \$8,200 retail, for you, \$3,500.

6. Celestron STL 6303E CCD camera with eyepiece mount, hard shipping case, power supply, and manuals 2x 5-hole filter whewls but no filter wheel mounting)



7. 2 Telrad Reflex sights (one in original packing, not used). \$20 ea.

8. Lumicon 1.25" Rotating Polarizer.

9. Lumicon 2" Rotating Polarizer (still sealed).

10. Lumicon Oxygen III Filter, about 1" in diameter.

11. Lumicon Oxygen III Filter about 2" diameter.

12. Custom Scientific filter sets: RGBC 50 mm (for STL above).

13. Custom Scientific Bessell UBVR1, 50 mm.

### Posting for Library

If you would like to help a local library by giving a short presentation with young children, then contact the Thomas Memorial Library, Bluff City, TN

June 24, 2 p.m.; ~30 min.; ~25 elementary aged children  
423-538-1980

### StarFest 2014

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

Read all about it here:

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



# The Bays Mountain Astronomy Club



Edited by Adam Thanz:  
[thanz@kingsporttn.gov](mailto: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:**

\$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!

## Calendar

### **Special Events**

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### **SunWatch**

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Mar. - Oct., weather permitting.

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### **BMAC Meetings**

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Aug. 1 Meeting et al.TBD.

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853 Bays Mountain Park Road  
Kingsport, TN 37660