



EPHEMERALS december 2012

01/03, 7:30 pm
BBAA Monthly Meeting
Plaza Middle School, VA Beach
KIVA Room

01/04
Skywatch
Northwest River Park

01/12
Nightwatch
Chippokes State Park
Surry, VA

01/18, 7:00 pm
Garden Stars
Norfolk Botanical Gardens



BACK BAY observer

The Official Newsletter of the Back Bay Amateur Astronomers
P.O. Box 9877, Virginia Beach, VA 23450-9877

Looking Up!

Editor's Note: At the request of President Courtney Flonta, this month's Looking Up column was written by Observer Editor, Paul Tartabini. Courtney will return as the regular author.

Happy Holidays, BBAA'ers!

At this late date, perhaps you were wondering if the December newsletter went the way of those visions of sugar plums that were just dancing in your head a few nights ago. Well wonder no more. Straight from the ether, delivered directly to your inbox, you'll find this month's newsletter is as real as anything can be in this electronic age we find ourselves in.

Why the late publication date? Let's just say my work-avoiding skills were well-honed enough to prompt me to wait until after the [long-awaited apocalypse](#). I even waited a few days past December 21 just in case those Mayan calendar-makers were off a little. After finally concluding that they were just plain wrong, I found myself scrambling to get the December newsletter out while it was still December.

Fortunately, as I huddled under my bed waiting for the end to come, there was nothing to do but reflect on my one (and hopefully not only) year as a [Back Bay Amateur Astronomer](#). Yes, believe it or not, I only joined BBAA a year ago in late 2011.

For this month's "Looking Up" I thought it would be fun to come up with my own version of the "12 months of Back Bay Christmas" to demonstrate to new and old members alike, the kinds of "gifts" you can receive (and give) by being an active member of BBAA.

[Continued on page 4](#)

CONTENTS

Ephemerals	1
Looking Up	1
NASA Space Place	2
Club Info	3
Averted Vision	5
Meeting Summary	6
Air & Space Museum	7
Calendar	9

It Takes More than Warm Porridge to Make a Goldilocks Zone

By Diane K. Fisher

The “Goldilocks Zone” describes the region of a solar system that is just the right distance from the star to make a cozy, comfy home for a life-supporting planet. It is a region that keeps the planet warm enough to have a liquid ocean, but not so warm that the ocean boils off into space. Obviously, Earth orbits the Sun in our solar system’s “Goldilocks Zone.”

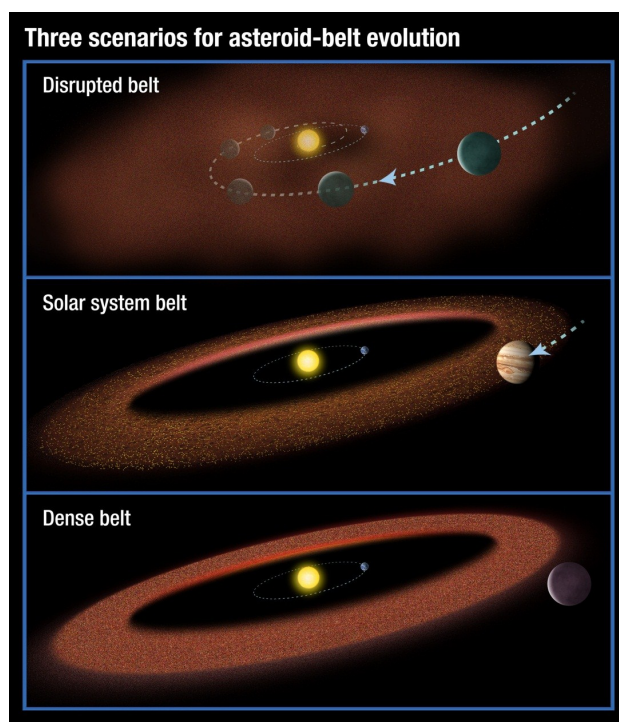
But there are other conditions besides temperature that make our part of the solar system comfortable for life. Using infrared data from the Spitzer Space Telescope, along with theoretical models and archival observations, Rebecca Martin, a NASA Sagan Fellow from the University of Colorado in Boulder, and astronomer Mario Livio of the Space Telescope Science Institute in Baltimore, Maryland, have published a new study suggesting that our solar system and our place in it is special in at least one other way.

This fortunate “just right” condition involves Jupiter and its effect on the asteroid belt.

Many other solar systems discovered in the past decade have giant gas planets in very tight orbits around their stars. Only 19 out of 520 solar systems studied have Jupiter-like planets in orbits beyond what is known as the “snow line”—the distance from the star at which it is cool enough for water (and ammonia and methane) to condense into ice. Scientists believe Jupiter formed a bit farther away from the Sun than it is now. Although the giant planet has moved a little closer to the Sun, it is still beyond the snow line.

So why do we care where Jupiter hangs out? Well, the gravity of Jupiter, with its mass of 318 Earths, has a profound effect on everything in its region, including the asteroid belt. The asteroid belt is a region between Mars and Jupiter where millions

of mostly rocky objects (some water-bearing) orbit. They range in size from dwarf planet Ceres at more than 600 miles in diameter to grains of dust. In the early solar system, asteroids (along with comets) could have been partly responsible for delivering water to fill the ocean of a young Earth. They could have also brought organic molecules to Earth, from which life eventually evolved.



Our solar system is represented by the middle scenario, where the gas giant planet has migrated inward, but still remains beyond the asteroid belt.

Jupiter’s gravity keeps the asteroids pretty much in their place in the asteroid belt, and doesn’t let them accrete to form another planet. If Jupiter had moved inward through the asteroid belt toward the Sun, it would have scattered the asteroids in all directions before Earth had time to form. And no asteroid belt means no impacts on Earth, no water delivery, and maybe no life-starting molecules either.

[*Continued on page 3*](#)

The Back Bay Amateur Astronomer's

Observer

The BBAA Observer is published monthly; the monochrome version is mailed to members who do not have internet access. Members who do have Internet access can acquire the full color version on the Internet at <http://www.backbayastro.org/observer/newsletter.shtml>

Please submit articles and items of interest no later than the date of the monthly meeting in order to be in the next month's edition.

Please submit all items to:
bbaa.newsletter@gmail.com or BBAA Observer, P.O. Box 9877, Virginia Beach, VA

President

Courtney Flonta
757-580-0644
astrogirl12@yahoo.com

ALCOR

Bill McLean
preciousmyprecious@yahoo.com

Vice President

Mark Gerlach
757-434-4220
mgerlach@verizon.net

Librarian

Bill Newman
billn59@verizon.net

Treasurer

Bernie Strohmeier
757-630-0848
bdsjr@cox.net

Scholarship Coordinator

Ben Loyola
benito@loyola.com

Secretary

Kevin Swann
757-424-6242
kjswann@yahoo.com

RRRT Coordinator

Lawrence "Bird" Taylor
Lawrence.W.Taylor@nasa.gov

Kevin Weiner
kevin.weiner@cox.net

Webmaster

Nick Anderson
nranderson.deepskyobserver@gmail.com

Newsletter Editor

Paul Tartabini
bbaa.newsletter@gmail.com

BBAA Meetings

The BBAA meet the first Thursday of every month except for July. The January meeting will be held in the KIVA Room at [Plaza Middle School](#) located at 3080 South Lynnhaven Rd in Virginia Beach at 7:30 pm.

BBAA Internet Links

BBAA Website
www.backbayastro.org

Yahoo! Groups
tech.groups.yahoo.com/group/backbayastro

BBAA Observer Newsletter
www.backbayastro.org/observer/newsletter.shtml

NASA Space Place, continued from page 2

Asteroids may have also delivered such useful metals as gold, platinum, and iron to Earth's crust.

But, if Jupiter had not migrated inward at all since it formed far away from the Sun, the asteroid belt would be totally undisturbed and would be a lot more dense with asteroids than it is now. In that case, Earth would have been blasted with a lot more asteroid impacts, and life may have never had a chance to take root.

The infrared data from the Spitzer Space Telescope contributes in unexpected ways in

revealing and supporting new ideas and theories about our universe. Read more about this study and other Spitzer contributions at spitzer.caltech.edu. Kids can learn about infrared light and enjoy solving Spitzer image puzzles at spaceplace.nasa.gov/spitzer-slyder.

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

December: One of my first events was the Anniversary Dinner. I recall being struck by how welcoming everyone was. Dinner at Fire & Vine was good, but the best part was being around so many folks who loved astronomy as much as I did.

January: I attended my first meeting as a full member and thoroughly enjoyed spending over an hour just talking astronomy. I remember afterwards, flipping through the [Pocket Sky Atlas](#) with fellow deep sky observer Nick Anderson trying to figure out what naked eye fuzzy he had seen from a dark sky site (it was the [Sigma Cancri](#) system). Now where else can you do that?

February: With the 2012 Mars opposition quickly approaching, one of the best places to get tips on observing the red planet was the [Back Bay Yahoo site](#). I recall a particularly useful tip by Mark Ost, one of BBAA's most experienced members (think Master Yoda to us Jedi wannabes). Mark alerted us to the benefits of a Light Blue #80 filter to see atmospheric features on Mars. Dusting off my overlooked blue filter paid off tremendously, and I was treated to incredible views of clouds on Mars!

March: I found myself publishing my very first [BBAA newsletter](#). Yes, it took me a grand total of two months to become "actively involved" in BBAA, if you catch my drift. Being the newsletter editor has enhanced my club experience and has helped me get to know folks so much better.

April: One of the fun parts of being in a club is being alerted to new observing challenges by your fellow members. Last April Bill McLean led a [discussion](#) on the Yahoo site about 3C 273, a [quasar](#) in the constellation Virgo. Thanks to Bill's prompt and finder charts posted by different club members, I was able to find the quasar and in so doing, set my personal best for the furthest object observed with my 8" Dob — 2.5 billion light years!

May: With the Venus transit coming up, I knew I needed a solar filter. Still, "astro bucks" are hard to come by, especially when you have teenage daughters. Thanks to a talk at a monthly meeting by another one of BBAA's super experienced members, Dale Carey, I mustered up the courage to make my own solar filter using [Baader](#)

[AstroSolar Safety Film](#). I can now view the sun safely using my home-made filter, something I would not have attempted without my BBAA support group.

June: Of course, the highlight of the month (and year) was the [Venus Transit](#) on June 5! All day in Hampton Roads it was completely overcast with rain. Miracle of miracles, only an hour before the beginning of the transit, the clouds cleared and astronomy memories were made. For me, the memories were so much sweeter with club "astro buddies" to share them with. I can't tell you how much more fun celestial events are when you experience them with your BBAA friends!



The author, his daughter and his 8" Dob & DIY solar filter on Transit Day in Newport News.

July: Hot dogs, hamburgers and astronomy at the annual BBAA summer picnic. Even the pouring rain did not dampen spirits as we still had fun listening to eclipse stories from Kent Blackwell, flipping through vintage 1970's issues of Sky & Telescope with Bill McLean and watching Georgie June and Chuck Jagow [try to drench each other](#) before Mother Nature had the chance.

August: After a nearly nine-month trip to Mars, NASA's curiosity rover [made a flawless landing](#) on our neighboring planet in the early morning hours of Aug. 6. BBAA members were at the Air and Space Museum in Hampton to watch the excitement and do some outreach. Club members had fun showing the Moon to countless guests, and later, cramming into the filled-to-capacity IMAX Theater to watch the first video clips transmitted back. At the end of the night the BBAA crowd was the last to leave, eventually having to be shooed out by the security guard as the group huddled around Bird Taylor's iPad watching the 3 AM press conference.

[Continued on page 5](#)

September: One feature of BBAA that I didn't appreciate until long after I joined was just how many experienced members we have. Fortunately for the club, they are all willing to share their wealth of knowledge. At the September meeting I had the pleasure of listening to Ben Loyola's presentation on [asteroid hunting](#). I was amazed at the level of sophistication that Ben employs in trying to discover new asteroids and to help update the orbital paths of known asteroids.

October: After hearing much about BBAA's [Garden Stars](#) outreach event held monthly at the Norfolk Botanical Gardens, I finally decided to check one out for myself. I was eager to contribute to BBAA's significant outreach effort, and Garden Stars was the perfect event to do so. After an informative and entertaining presentation by our very own Solar System Ambassador, George Reynolds, guests were treated to views of numerous objects including the Moon and the Andromeda Galaxy.

November: Like many other club members, my desire for astro gear far exceeds the dollars in my astronomy piggy bank. While "do-it-yourself" is always a lower cost option, it does require a certain amount of skill. So it was for me with [dew control](#). I knew a little about resistors and soldering, but not much. How cool that BBAA has Jim Tallman, a former electronics tech in the US Navy who spent 20 years working on radar, navigation and communication systems. Cooler still that Jim is always willing to help a fellow club member. Needless to say, with Jim's help the dew heater was a piece of cake.

Well, there you have it, 12 months of BBAA treats. I hope everyone had as much fun as I did. I also hope you can see how much of an impact you can make on others.

Clear Skies, everyone,

Paul Tartabini

Averted Vision

Getting the Most from What Nature Gave You

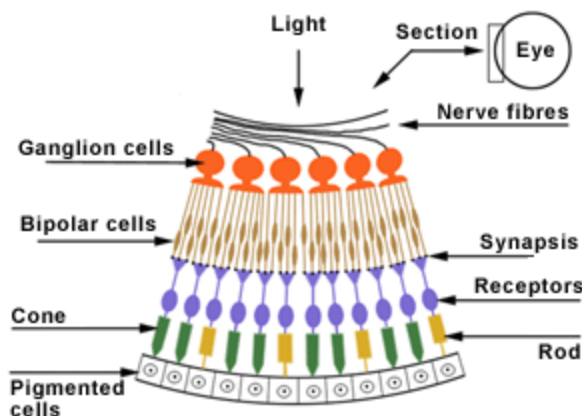


Using averted vision means looking slightly off to one side rather than straight on. It exposes the most sensitive part of your eye and lets you see much fainter objects. If you've never tried this before, you'll be amazed at how much more you can see, with or without a telescope.

The Basics

- The retina of your eye has two types of light-detecting cells: rods and cones.
- Cones detect color under well-lit conditions and are densely packed in the fovea, near the center of your retina. Cones help you see color and fine detail, which is why you look directly at objects you want to see well, like books, movies, and faces.
- Rods are mostly away from the center of your retina. You see less detail and no color with the rods, but they are much more sensitive to light.
- The way your eye is structured means you see the faintest objects if you look 8 to 16 degrees off center. The exact angle is a little different for each person.

- This only works if the object you're looking at is on the nose-ward side of your eye. So look slightly rightward with your right eye and leftward with your left eye. Do the reverse and you'll expose the blind spot of your eye and you won't see a thing.



A cross section of the human retina, showing rod and cone cells.

[Continued on page 6](#)

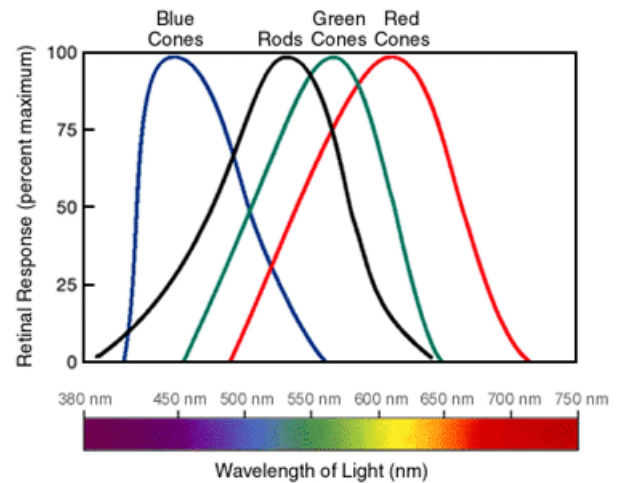
Deeper Look

If you're using both eyes, as with binoculars, looking only sideways makes one eye more sensitive at the expense of the other. The solution? Look up. That uses another rod-rich part of your retina above the fovea..

- With a little practice, averted vision reveals objects 20-40x fainter than direct vision. That's a huge difference.
- Rods are most sensitive to blue-green light, but your optics nerve and brain are not wired to detect color when only your rod cells are exposed to light. That's why faint objects appear grayish-white.

Good To Know

The blinking nebula, NGC 6826, is an object that most dramatically demonstrates averted vision. Stare directly at this blue-green planetary nebula and you see only the dim central star. Look slightly to the side and the faint nebula around the star appears suddenly. When you switch from straight on to averted vision, the nebula appears to blink on and off. It's darned impressive.



The Sensitivity of Rods and Cones across the Spectrum.

A Personal View

I usually begin with a short lesson on averted vision when showing faint objects to beginners. When they try it, they usually gasp at the subtle detail that suddenly appears.

The material from this article was provided by the [One-Minute Astronomer website](#). For further reference, check out this [averted vision scale](#) by Ron Morales from the website [astronomylogs.com](#).

December 6, 2012 BBAA Meeting Summary

This following is a summary of the December meeting. Minutes were not received in time for publication in the newsletter, so be sure to check the [BBAA website](#) in the future for complete meeting minutes.

Courtney Flonta opened the meeting at Tidewater Community College. She informed the group that our current Treasurer, Bernie Strohmeier, had decided not to continue as an officer after the end of the 2012 calendar year. After a short discussion, Jim Tallman was nominated and elected as the BBAA Treasurer for 2013. The club sends out a sincere thank you to Bernie for all his time and dedication spent in the last year helping to make BBAA successful. In addition to keeping our financial house in order, you could always count on Bernie's warm smile and welcoming ways. We look forward to his continued involvement in club activities.

The rest of the meeting was dominated by discussion of what to do with a [SkyShed](#) Personal Observing Dome (POD) that had

been graciously donated to the club by the family of a past member who had passed away. Lawrence "Bird" Taylor suggested that BBAA donate the POD to the Virginia Peninsula Astronomy/Stargazers (VPAS) club since they have access to the [Grundland Astronomy Park](#) (GAP), where it can be used to support public outreach. The GAP also provides a safe place to keep the POD since it is locked when not being used for astronomy or by the Hampton Parks & Recreation Dept.

Club members present at the meeting voted unanimously to donate the POD to VPAS.

One thing missing from the POD was the hardware required to assemble it. Ideally, it would be wonderful if there is a local Scout that would be interested in getting the hardware package (about \$500), and erecting it out at the GAP for their Eagle Project. The first to-do's are to meet with Hampton Parks & Recreation and discuss placement and foundation options along with transporting the dome observatory parts from George Reynold's home in Virginia Beach out to the GAP.



Astronomy Club Road Trip

A Visit to the National Air and Space Museum's Steven F. Udvar-Hazy Center

By Lawrence "Bird" Taylor

A couple of months ago several of us were observing out at the Grundland Astronomy Park (GAP) in Hampton. During one of the night's numerous "cookie-breaks", Bill McLean and George Curran came up with the idea of an AstroBuddies road trip to the National Air & Space Museum's adjunct facility, the Steven F. Udvar-Hazy Center in Chantilly, Virginia.

The Udvar-Hazy Center, named after a large donor, is the new home of Space Shuttle Discovery, and also houses the Concorde, an SR-71 Blackbird and scores of other aerospace vehicles. In addition to the aircraft and spacecraft on display, there is an IMAX theater and even an observing tower overlooking the Dulles airport where visitors can watch the air traffic.

The invitation was open to all and final arrangements were made on the Virginia Peninsula Astronomy Stargazers (VPAS) [Yahoo Group site](#). In the end we had five in our group: Myself, Ian (my son), George Curran, Kevin (George's son) and Bill McLean.

There was plenty of room for all five of us in the George's van. George and Kevin were very fine hosts. Ian cranked away on work up and back with his MacBook. I faded in and out of oblivion with my

headset ringing my ears. Bill dreamed of cookies and where we'd have snacks while picking out rest areas along the route.

We arrived at the Steven F. Udvar-Hazy Center a little after 10am and pulled into the spacious parking lot after paying the \$15 parking fee (the only cost involved with touring the Center). After a short walk to the hangars we were all impressed by the facility, which is really quite a beautiful space.

As you enter, the first thing you see is Space Shuttle Discovery facing you down a long hall. A Pitts Special biplane is nearby, inverted on the ceiling, and there are airplanes and spacecraft totally filling a couple of very large hangars.

The five of us split into groups throughout the day. It was fun cruising along with another AstroBuddy observing and sharing thoughts on all the vehicles.

The Udvar-Hazy web site has some nice guides to give you some background before you head up there. I particularly enjoyed scanning over the hanger maps the weeks before we actually visited.

[Continued on page 8](#)

Astronomy Road Trip, continued from page 7

The sights we saw are too numerous to list, but let me mention the highlights:

- The SR-71 Blackbird is so unique, and that is really saying something in a facility with so many one-of-a-kind planes and spacecraft. On its final flight, the aircraft we saw set a speed record by flying from Los Angeles to Washington, D.C., in 1 hour and 4 minutes. The airplane landed at Washington-Dulles International Airport and was subsequently turned over to the Smithsonian.



- How amazing to see a Mercury, Gemini, Apollo, and Shuttle all right next to each other! Hard to believe that the progression of Mercury with one astronaut to the Space Shuttle with seven astronauts only spanned twenty years.

- Wandering past all of the experimental aircraft brought back a flood of childhood memories for me. When I was a kid I don't think I read anything that didn't have aerospace vehicles in them. I loved the World War II aircraft. I loved seeing the flying wings from Northrop to the Horten brothers.

- The Enola Gay is displayed right next to an elevated walkway that really allows for a good look into the cockpit. I thought it was a somewhat ironic display with two WWII Japanese aircraft displayed under one wing. I think they just put planes where they fit.



- Another plus was the newly opened restoration workshop, a special kind of "changing" gallery where the museum actually restores vintage aircraft. We were able to peek in and see some very unusual airplanes as well as one that is currently being worked on. Unfortunately, no work was being performed on a Sunday, but that will be worth another trip.

In the weeks before the trip, I had asked a few friends how much time we should allot for the visit. Most said a couple of hours was plenty. Needless to say, we must of really been enjoying life, because Ian and I didn't look up for a break until four or five hours had passed.

The museum reminds me of the Air Force's Wright-Patterson Museum in Ohio in that you can walk up very close to the aircraft and view it from many different angles. It was comfortable in the hangar and I was amazed at how quiet it was. It was very easy to have conversations while enjoying the machines.

After a reprieve at the Café, there were lots of planes that needed a re-visit. If memory serves, we were at Udvar-Hazy until four. Then we drove on into Fairfax for nourishment before the three hour trip home. Even with a little DC traffic, all of us were still smiling pretty hard when we got back to Hampton from such a fantastic day up at the Udvar-Hazy Center. It was my and Ian's first time there. I'm definitely going again.

It is a beautiful museum that isn't very far from home. Everyone needs to take a road trip and enjoy a day or two visiting the National Air & Space Museum and the Steven F. Udvar-Hazy Center.

BBA Member Lawrence "Bird" Taylor is also the founder of the Virginia Peninsula Astronomy/Stargazers (VPAS). There is no charge to join VPAS. The best way to find out about events is to join the [VPAS Yahoo Group](#).



January 2013

BBAA Events	Special Outreach	Astronomical Events
01/03 BBAA Monthly Meeting		01/02 Quadrantids Peak
01/04 SkyWatch @ Northwest River Park		01/04 Last Quarter
01/12 Nightwatch @ Chippokes State Park	01/18 Garden Stars @ NBG	01/11 New Moon
		01/18 First Quarter
		01/26 Full Moon



Sneak Peek into February

Fri 2/01/2013 Skywatch at Northwest River Park
 Thu 2/07/2013 BBAA Monthly Meeting, TCC Campus, 7:30 pm
 Sat 2/09/2012 Nightwatch at Chippokes State Park, Surry VA.
 Fri 2/15/2012 Garden Stars at Norfolk Botanical Gardens, 7:00 pm