Back Bay Observer

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

EPHEMERALS - December 2006

DATE	WHEN	WHAT & WHERE
7	7:30p	December Meeting @ TCC Campus
9	NOON	Annual BBAA Luncheon @ Norfolk Grate Steak
15	Dusk	Skywatch @ Northwest River Park
16	Dusk	Cloverwatch @ Franklin Fairgrounds
23	Dusk	Nightwatch @ Chippokes Plantation
25	8:00p	C H R I S T M A S (NEW ASTRO STUFF DAY)

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LOOKING UP

The Changing of the Guard

As the end of 2006 approaches and a new year appears on the horizon, so too approaches the end of my tour as your club president. It has been my great privilege to serve such a fine group of people as you, the members of the Back Bay Amateur Astronomers for the past two years. I think amateur astronomers must be among the friendliest of all people, and the BBAA-ers are among the best.

I know the club will be in good hands as Dale Carey assumes the position as president. Dale is full of energy and enthusiasm for anything up in the sky. Whether it be the Sun during the day or the stars and planets at night, you can be sure Dale will have a telescope set up.

I fondly remember my first BBAA meeting. I was the first one to arrive in the astronomy classroom at TCC, and shortly after, Dale walked in and we struck up a conversation. I told him I was a brand-new "newbie" in astronomy, and he promptly took me out the back door of the building and pointed out some sights in the sky to get me oriented. That was the start of my passion for stargazing.

Not long after that, I was at a Skywatch at Northwest River Park and lamented to Dale that I had been trying unsuccessfully for weeks to try to find the Andromeda Galaxy. I had followed the directions I had read in the books, but had not been able to see it yet. Dale had me lean against his pickup truck and aim my binoculars at a place in the sky he pointed out (without a laser), and – Voila! -- there it was! It was truly an eye-opening experience, and another milestone in my budding search for heavenly objects.

We have club members of all ages, from grade-school to "over the hill", but when we gaze up into the starry sky, the playing field becomes level. We all can learn something new, and we can learn from each other. Keep sharing your experiences and expertise with others. Keep reaching out to our community, making them aware that there are some beautiful sights beyond those streetlights. Urge them, as I urge you, to

KEEP LOOKING UP!

George Reynolds

November's Meeting Minutes

The November meeting of the Back Bay Amateur Astronomers was called to order by President George Reynolds on Thursday November 2nd, 2006 at 7:30 PM at the Tidewater Community College.

Members in Attendance: Twenty three members were brave enough to attend the annual Officers Election meeting. The following members were present: Neill Alford, Rob Beardsworth, Bruce Bodner, Kenny Broun, Dale Carey, Gerry Carver, Mark Gerlach, Steve Hamilton, Chuck & Karen Jagow, Georgie June, Ben Loyola, Matt McLaughlin, Brian & Karen Murphy, Mike Pereira, George Reynolds, Chuck Rippel, Robert Schonk, Barb & Kevin Weiner and Shelton Williams. We also extend a welcome to Mike Przytala as a guest!

Treasurer's Report: Barb Weiner reported that there was no change in the Treasurer's report and it was the same as last's month in that there was $5,386.34 in total funds. This included $1,401.44 for the scholarship fund and $3,984.09 in general funds.

Secretary's Report: Chuck Jagow reported that we had 118 members and twenty six folks were delinquent in paying their dues.

Astronomical League Correspondent's Report: The Astronomical League Correspondent, Georgie June, presented the Outreach Program certificate to Matt McLaughlin. Congratulations Matt!

Old Business: Dale Carey and Chuck Jagow presented the reworked Liability Waiver form for the PST. Now we just have to wait for the darn thing!

Ben Loyola reported that the BBAA scholarship information had been disseminated early and wide to try and ensure that we have success in awarding the BBAA scholarship next year.

New Business: The election for new BBAA officers took place with little fanfare. Dale Carey ran unopposed for president and won a unanimous victory. Kevin Weiner was reelected Vice-President, Barb Weiner was reelected as Treasurer and Chuck Jagow must continue his sentence as club Secretary.

George Reynolds discussed the upcoming month's calendar of events.

The transit of Mercury across the sun on the 8th was a point of significant discussion prior to the evening's presentation.

Rapid Response Robotic Telescope Project Report:

None.

Observer's Corner: East Coast Star Party.

WOW! Rain (read that "monsoon"), Wind, Food, People, Skies, Fellowship and Great Times! Thanks for another great star party Kent!

Presentation: George Reynolds provided a very thorough presentation on one of NASA's newest adventures. The presentation was named Passport to Pluto which detailed NASA's "New Horizons" mission to Pluto.

In Conclusion: The meeting was adjourned at 9:09 PM.

Chuck Jagow

Soap Box

This is the section of the newsletter where I like to spout off about something. In all actuality it really is just filler. So let me use my little section of filler to tell all the brand new folks in astronomy that are eager to jump in with both feet to be the next crack astro-imager. It is not the easiest thing to do, and it plain takes time and patience. It is one hobby you just can't throw money at and be tops. It takes time and practice, and did I mention it takes time? Oh yeah, don't think it doesn't take money either! If I had it to all do over again I would have just started with my 12" dob and then in a few years maybe a camera… But now that the bug has bit, I have been scratching ever since…

Chuck Jagow

NASA's Space Place

Martian Devils

By Dr. Tony Phillips

Admit it. Whenever you see a new picture of Mars beamed back by Spirit or Opportunity, you scan the rocks to check for things peeking out of the shadows. A pair of quivering green antennas, perhaps, or a little furry creature crouched on five legs…? Looking for Martians is such a guilty pleasure.

Well, you can imagine the thrill in 2004 when scientists were checking some of those pictures and they *did* see something leap out. It skittered across the rocky floor of Gusev Crater and quickly disappeared. But it wasn't a Martian; Spirit had photographed a dust devil!

Dust devils are tornadoes of dust. On a planet like Mars which is literally covered with dust, and where it never rains, dust devils are an important form of weather. Some Martian dust devils grow almost as tall as Mt. Everest, and researchers suspect they're crackling with static electricity—a form of "Martian lightning."

NASA is keen to learn more. How strong are the winds? Do dust devils carry a charge? When does "devil season" begin—and end? Astronauts are going to want to know the answers before they set foot on the red planet.

The problem is, these dusty twisters can be devilishly difficult to catch. Most images of Martian dust devils have been taken by accident, while the rovers were looking for other things. This catch-as-catch-can approach limits what researchers can learn.

No more! The two rovers have just gotten a boost of artificial intelligence to help them recognize and photograph dust devils. It comes in the form of new software, uploaded in July and activated in September 2006.

"This software is based on techniques developed and tested as part of the NASA New Millennium Program's Space Technology 6 project. Testing was done in Earth orbit onboard the EO-1 (Earth Observing-1) satellite," says Steve Chien, supervisor of JPL's Artificial Intelligence Group. Scientists using EO-1 data were especially interested in dynamic events such as volcanoes erupting or sea ice breaking apart. So Chien and colleagues programmed the satellite to notice change. It worked beautifully: "We measured a 100-fold increase in science results for transient events."

Now that the techniques have been tested in Earth orbit, they are ready to help Spirit and Opportunity catch dust devils—or anything else that moves—on Mars.

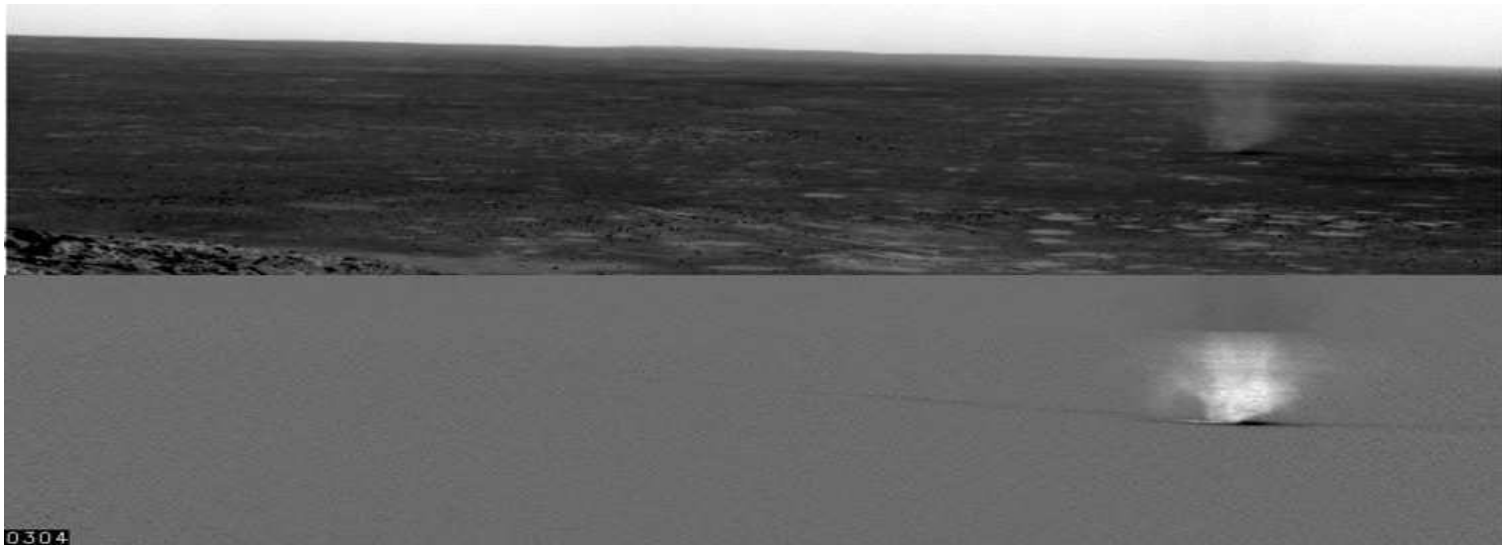

IMAGE CREDITS / CAPTION

The top half of this image is part of a series of images of a passing dust devil on Mars caught by Spirit. In the bottom half, the image has been filtered to remove everything that did not change from one image to the other. Notice the faint track left by the dust devil. Credit NASA/JPL/Mark T. Lemmon, Univ. of Arizona Lunar and Planetary Laboratory.

BBAA INFO

The BBAA meet the first Thursday of every month. While school is in session we meet at the VA Beach TCC campus in the Pungo building. Summer meetings are usually held at the Chesapeake COX campus. The December meeting will be on Thursday December 7th at 7:30 PM at the VA Beach TCC campus in Virginia Beach.

WHERE IS THE MEETING?

TIDEWATER COMMUNITY COLLEGE CAMPUS

The TCC Campus is located in Virginia Beach off of Princess Anne road. The following should help you locate the campus.

FROM Interstate I-64:

Proceed to the I64 / I264 junction and take I264 East .
Take the S. Independence Exit, 17A, right hand lane (.000000048134 AU).
Turn LEFT onto Princess Anne road (.000000010322 AU).
Turn LEFT onto Community College Place (.000000002131 AU).
At the Stop Sign turn right and follow the road around to the left and park in one of the parking lots.

The meeting is held in the Pungo Building which is on the right hand side of the pathway that splits the two major parking lots. The Astronomy classroom is in the far back right hand corner of the building.

COX COMMUNICATIONS CAMPUS

The COX Communications Campus is located in Chesapeake's Greenbrier section. The following should help you locate the facility.

FROM Interstate I-64:

Take exit 289B (between the Indian River & Battlefield exits).
South on Greenbrier Parkway (.7382 miles).
Turn RIGHT onto Eden Way West (.9231 miles).
Turn RIGHT on Crossways Blvd (.88901 miles).
Turn Right into the Cox Campus

The meeting is usually held in the Silver room located on the North side of the facility. Enter and tell the guard that you are with the BBAA and they will issue a badge and direct you to the room.

BBAA INTERNET LINKS

BBAA WEB SITE
http://groups.hamptonroads.com/bbaa/

YAHOO GROUP
http://groups.yahoo.com/group/backbayastro

BBAA OBSERVER NEWSLETTER
http://www.backbayastro.org/newsletters/newsletter.shtml

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What do you want to do?

OBSERVER INFO

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/newsletters/newsletter.shtml

Please submit articles and items of interest no later than the 20th of December for the January issue. Please submit all items to:

ObserverBBAA@cox.net

OR

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Mercury Transit Of November 8, 2006

November 8, 2006 marked the first transit of the planet Mercury since May 2003, and it'll be 10 more years before the next one. I'd been looking forward to the 2006 transit for quite some time.

Many years prior to the 2003 transit I drove my 1960's Mustang to the oceanfront at Virginia Beach and watched the transit through a 8" f/7 Newtonian. Where has the time gone, I remember it well, yet that was over 40 years ago?

Clouds and heavy rains occurred the day and evening before the November 8, 2006 transit. I was hopeful the skies would clear by the next day. Unfortunately, that wasn't in the projected forecast. All I could do was cross my fingers and hope for the best.

Looking at the weather maps it appeared the further south one traveled the better the chances of finding a few holes in the clouds. Coinjock, NC was my choice. Dr. Robert Hitt and Ted Forte accompanied me to the lovely area of Waterlilly, NC about six miles from Hampton Lodge Camping Resort. As we drove to the area only one other car was parked along the roadside, but that person hadn't come to see Mercury. Rather, the fisherman was hoping to have luck catching fresh water bass in brackish waters along the canal bank. I found out later that Norfolk Astronomical Society member Glendon Howell was also observing the transit less that 1/2-mile from my vantage point.

Ted Forte began setting up a Celestron C-8. Robert Hitt mounted his special naked eye solar viewer atop a tripod while I grabbed all kinds of optical aids out of the trunk of my little Acura. First out of the car was a pair of 70-year old 20x120 battleship binoculars fitted with glass solar filters; next was a 80mm f/7.5 refractor outfitted with a Canon 20D digital single lens reflex camera. And lastly was my new 66mm f/5.9 William Optics refractor. Now, we were all ready to go. Bring on the transit!

As fate would have it, the moment of 1st and 2nd contact lo and behold the clouds parted. Wow! I've now seen Mercury transit three times in my lifetime. I was enamored how small it was, and how razor sharp the 10-arcsecond disk appeared. It was the best I've ever seen it!

The small planet would traverse nearly halfway across the solar surface in a two-hour period before clouds once again began covering the sky. To exacerbate the situation further a thick layer of fog eerily crept in from the ocean. Soon the sky was washed in a gray hue as the temperature dropped nearly 10 degrees. It was obvious we would not watch the transit until sunset. That's too bad because I had planned the composition of my photograph to include a lovely spindly tree in the foreground of the setting sun.

Despite the clouds hampering some of the viewing time we were more than satisfied to have seen what we did. I'll be ready ten years from now when once again the small and insignificant planet Mercury will take center stage as it transits across the face of the sun.

Kent Blackwell

The Confusing World of Eyepieces

If you have a telescope, you will need eyepieces. A telescope without an eyepiece is like a camera without a lens.

When it comes to buying eyepieces, always buy the best quality.

a) The difference in quality will drastically improve the view through any telescope.

b) The difference in cost is not great. The cheapest quality eyepiece will sell for $40.00 where as the best eyepieces in the world (namely Meade's Super Plossl's & Televue) will sell for about $120.00.

Most telescopes on the market come with one eyepiece, and most of the time it is a 25mm or 26mm, meaning low to medium magnification. Since the eyepiece allows you to change magnification, you can see why it would be nice to have a few extra eyepieces to choose from when looking at Saturn or the Orion Nebulae.

The price of the eyepiece is not connected to the power of the ocular, but rather to the design. For example, with four elements, Plössls are a simpler and therefore less expensive design than an Ultra-wide or Nagler design, which has six elements. There are others that fall between these three in quality and cost. Also remember that eyepiece design does not affect magnification, only the focal length of the telescope in conjunction with the focal length of the eyepiece. In other words, a 9mm eyepiece will give the same magnification for a specific telescope whether it is a Plössl or a Nagler. What will be affected is eye relief, the field of view, and the resolution of the image. In general, the more elements an eyepiece has, the wider its field of view, the better the eye relief, and the crisper the image. Eyepieces come in three barrel sizes: .965", 1.25", and 2".

IN GENERAL, the more elements an eyepiece has the wider its field of view (some are so wide you literally have to move your eye around to see the edges of the field!)

.965" eyepieces come with most department store or catalog telescopes because they are less expensive to manufacture. While you can find better quality .965 eyepieces as accessories, the ones that generally come with a telescope of that caliber are usually plastic and hard to look through, especially in the higher powers. If you have a telescope that takes this size eyepiece, consider upgrading the existing eyepieces that came with your scope for some which are made of glass. You will find viewing through these much more of a pleasure. They are available in a limited number of designs and from a limited number of manufacturers because of the few telescopes that take them.

1.25" eyepieces are the most common size used in telescopes today. They come in a wide variety of styles and prices, from about $50 for the more simple designs to over $300 for the most high-quality, wide angle eyepieces.

2.00" eyepieces are available in medium-to-low power designs, but no telescope on the market that I am aware of comes standard with a 2" eyepiece as part of its package. These beauties are intended for larger aperture telescopes, and give lovely low-power, bright images of the deep-sky. Because of the amount of glass used, they tend to be heavy and on some telescopes, counterweights may need to be used to balance out the system. If you decide to take the 2" plunge, remember that you need a 2" focuser (on a Newtonian) or a 2" diagonal (on a Catadioptric or Refractor) in order to use these.

Don't get carried away with buying the highest power eyepieces, especially when considering the second or third addition to your collection. It is important to remember that 50x-60x per inch of aperture is the maximum usable magnification under PERFECT seeing conditions for any telescope, but that 10x-15x per inch is the most used power range of seasoned amateur astronomers. That means that if you have a 10" telescope, your most used magnification would be 100x-150x, and the highest power you would be able to use would be 500x-600x. I can assure you, though, that our atmosphere cannot usually support such high magnifications except under rare conditions. Those are the times we stay up all night long, amazed at the luck we had at pulling out our telescope that particular evening!

A term you should know is "parfocal". If a set of eyepieces are parfocal, it means that you will not have to refocus each time you change them as you look at an image under different magnifications. This is nice although not imperative, but if you are building a set of eyepieces from the ground up, I would keep it in mind and aim towards this end. I just wouldn't let it stop you if a great deal came up on a wonderful eyepiece!

The second eyepiece I usually recommend to a new telescope owner is one that magnifies the image about 100x. How do you know which focal length eyepiece to buy to achieve that magnification? Here's your answer:

Magnification=focal length of telescope divided by focal length of eyepiece.

Example: An 8" f10 Schmidt-Cassegrain has a focal length of approximately 2000mm. 2000 divided by a 20mm eyepiece would equal 100x.

Most telescopes have their focal lengths written somewhere on the tube or on the inside rim of the corrector plate. You can

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December's Solar System Viewing Targets

The December skies promise to be REALLY COOL (in more ways than one)! There will be some stunning conjunctions of planets in the pre-dawn skies and a couple of meteor showers. Here's what to look for, according to the 2006 *RASC Observer's Handbook*:

After November's transit of the Sun, Mercury will continue its best morning apparition of the year for us here in the northern hemisphere. Early in the month will be the best times to see it before dawn. By mid-month it will become lost in the glare of the rising sun as it continues on its orbit toward superior conjunction, or "aphelion", on the far side of the Sun.

Mercury is in conjunction December 9 with Mars, which is almost as far as it gets since going around the far side of the Sun. Mars is a pale ghost of what it was last year, but is on its way back for another appearance in late 2007.

The real eye-grabber occurs before dawn (just after 6 am) on the morning of December 10. Mercury, Jupiter, and Mars will be in close conjunction. This will be the closest grouping of naked-eye planets during the period 1980-2050, according to the RASC *Handbook*. All three planets will fit (barely) into a 1-degree circle. The stars Graffias (Beta Sco) and 9 Omega 1 Sco will be just outside that 1° circle, and Dschubba (Delta Sco) will be about 3 degrees to the west of the group. But be forewarned – you will need an unobstructed horizon (like the ocean) in order to see them, and the Sun will rise right behind them.

Saturn will rise about 9 pm early in December, and will be about 55° high in the southwest at the beginning of morning twilight. It will be a glorious object to see, and a wonderful target for our astro-imagers.

December promises two meteor showers, one major and one minor. The Geminids occur in the wee hours of December 14, and are expected to have more than 100 per hour ZHR (Zenithal Hourly Rate) at peak. The Ursid meteor shower may be visible after midnight on December 22 and 23. Appropriately, the minor Ursid meteor shower appears to originate in (what else?) Ursa Minor.

If you should choose to brave the cold December weather and the long nights (or early mornings), there will be some sights to see this month. If you want more details, check out the astronomy magazines or visit the Skyhound observing Web site, http://www.skyhound.com/sh/skyhound.html.

George Reynolds

(Continued from page 6)

also figure out your own focal length by taking the aperture and multiplying it times 25.4. This gives you the aperture in millimeters. Then multiply this number by the focal ratio of the telescope (f/10, for example) and this gives you the focal length of your telescope. Example for an 8" f/10 Schmidt-Cassegrain: 8 x 25.4 = 203.2mm x 10 = 2032mm of focal length.

Eyepieces are referred to by their focal length in millimeters, and so it will be written on the eyepiece itself (not the power!) and on the box it comes in. The power of the eyepiece will change according to which telescope you put them into.

A nice set of eyepieces usually numbers between 3 and 6 or so. If you have access to an astronomy club, find others who have the same type telescope you do and ask THEM what their favorites are.

Barlow Lenses

Barlow lenses increase the magnification of an eyepiece by lengthening the effective focal length of the telescope. The Barlow goes into your focuser or diagonal, and then the eyepiece you are using slips into the other end of the Barlow lens, or sometimes the Barlow goes directly into the focusing tube, the diagonal follows, and then the eyepiece goes in the diagonal as usual. A 2X Barlow increases the magnification of the eyepiece two times, a 3X magnifies the image three times, and so forth. The good things about a Barlow are that you can use a lower power eyepiece (which usually has better eye relief) and get the magnification of a much higher power eyepiece. A set of three eyepieces, with the addition of a Barlow, becomes a set of six eyepieces.

If you decide to purchase a Barlow lens, buy the best one you can. A high quality Barlow is an excellent addition to your eyepiece collection, but a cheap Barlow will distort the image and decrease the light coming to your eye to such a degree as to only be a detriment to your observing session.

Article provided by **www.cameraconcepts.com**

DECEMBER 2006

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2
3	4 Full Moon	5	6	7 BBAA MEETING @ TCC	8	9 LUNCHEON @ GRATE STEAK
10	11	12 Last Qrtr	13	14	15 SKYWATCH @ NWRP	16 CLOVERWATCH @ FRANKLIN
17	18	19	20 New Moon	21	22	23 NIGHTWATCH @ CHIPPOKES
24 / 31	25 CHRISTMAS DAY	26	27 First Qrtr	28	29	30