

BACK BAY observer

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



EPHEMERALS march 2011

3/03

Monthly BBAA Meeting

TCC Virginia Beach
Building J, Room JC-12
7:30 PM

3/05

Nightwatch

Chippokes State Park
Surry, VA

3/11

Garden Stars

Norfolk Botanical Gardens
Norfolk, VA
7:00 PM

3/25

Skywatch

Northwest River Park

Looking Up!

Recently there has been a bit of a hubbub regarding the possibility of a tenth planet, or a new ninth one if you care about the IAU's rigged vote. Astrophysicists John Matese and Daniel Whitmire of the University of Louisiana at Lafayette, publishing in the November issue of *Icarus*, report that more than 20 per cent too many of the long-period comets observed since 1898 arrive from a band circling the sky at a higher angle than predicted by the galactic-tide theory. They propose that a giant planet exists in the Oort Cloud that could be disrupting the orbits of cometary bodies. The proposed planet has been tentatively named "Tyche", after a Greek goddess that governed the fate of cities. Tyche would be a gas giant four times as large as Jupiter, composed mostly of hydrogen and helium, and orbit Sol at the incredible distance of 15,000 AU's. That's 1.395 trillion miles, or a mile for every dollar in Obama's budget. (Sorry, I HAD to go there ;)

Other astronomers haven't quite jumped on the bandwagon. In a February 15 article in Space.com, Matthew Holman, planetary scientist at the Harvard Smithsonian Institute of Astrophysics says he was not persuaded by the evidence. In the same article, Hal Levison, a planetary scientist at the Southwest Research Institute in Boulder agreed, echoing Carl Sagan's statement that "Incredible claims require incredible proof". There are questions about whether the difference in cometary paths rises to the level of statistical significance. Even Matese admits that "It's possible that it's a statistical fluke, but that likelihood has lessened as more data has accumulated in the past 10 years." Another flaw in the theory is that such a giant planet would perturb the orbits of bodies in the inner Oort Cloud, and that effect has not been observed. (And how DO you pronounce "Oort", anyway? Is it one syllable or two? Is it "oo" as in "yoohoo", or "o" as in "or"? And are two 'o's enough? ;)

Recent news articles have reported that NASA's WISE telescope (Wide-field Infrared Survey Explorer) provided clues to the existence of Tyche. These are probably incorrect reports: the Space.com article

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Thank Goodness the Sun is Single

by *Trudy E. Bell*

It's a good thing the Sun is single. According to new research, Sun-like stars in close double-star systems "can be okay for a few billion years—but then they go bad," says Jeremy Drake of the Harvard-Smithsonian Astrophysical Observatory in Cambridge, Mass.

How bad? According to data from NASA's Spitzer Space Telescope, close binary stars can destroy their planets along with any life. Drake and four colleagues reported the results in the September 10, 2010, issue of *The Astrophysical Journal Letters*.

Our Sun, about 864,000 miles across, rotates on its axis once in 24.5 days. "Three billion years ago, roughly when bacteria evolved on Earth, the Sun rotated in only 5 days," explains Drake. Its rotation rate has been gradually slowing because the solar wind gets tangled up in the solar magnetic field, and acts as a brake.

But some sun-like stars occur in close pairs only a few million miles apart. That's only about five times the diameter of each star—so close the stars are gravitationally distorted. They are actually elongated toward each other. They also interact tidally, keeping just one face toward the other, as the Moon does toward Earth.

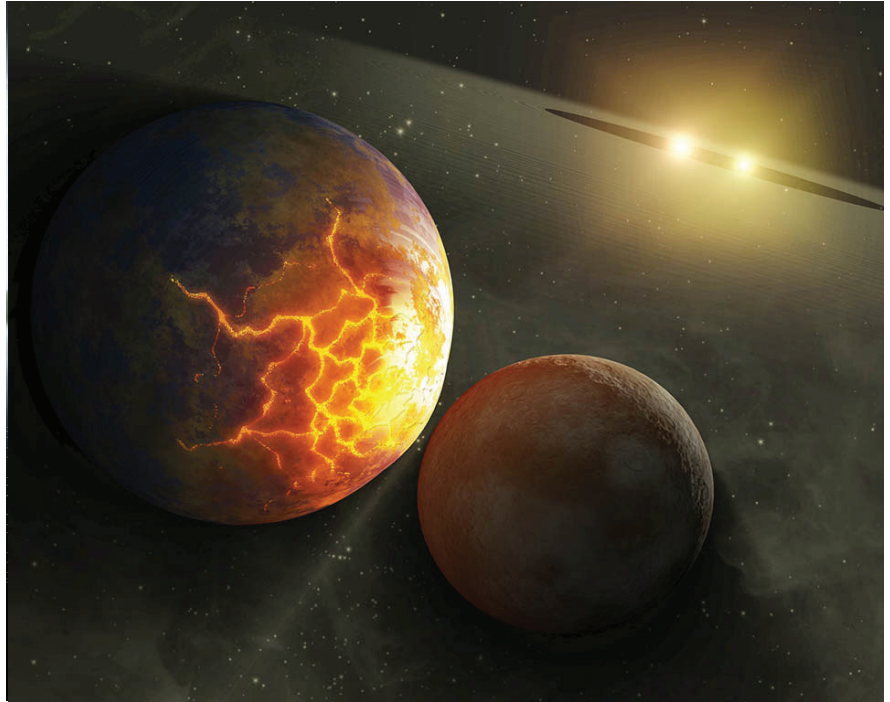
Such a close binary is "a built-in time bomb," Drake declares. The continuous loss of mass from the two stars via solar wind carries away some of the double-star system's angular momentum, causing the two stars to spiral inward toward each other, orbiting faster and faster as the distance shrinks. When each star's rotation period on its axis is the same as its orbital period around the other, the pair effectively rotates as a single body in just 3 or 4 days.

Then, watch out! Such fast spinning intensifies the magnetic dynamo inside each star. The stars "generate bigger, stronger 'star spots' 5 to 10 percent the size of the star—so big they can be detected from Earth," Drake says. "The stars also interact magnetically very violently, shooting out monster flares."

Worst of all, the decreasing distance between the two stars "changes the gravitational resonances of the planetary system," Drake continued, destabilizing the orbits of any planets circling the pair. Planets may so strongly perturbed they are sent into collision paths. As they repeatedly slam into each other, they shatter

into red-hot asteroid-sized bodies, killing any life. In as short as a century, the repeated collisions pulverize the planets into a ring of warm dust.

The infrared glow from this pulverized debris is what Spitzer has seen in some self-destructing star systems. Drake



Planetary collisions such as shown in this artist's rendering could be quite common in binary star systems where the stars are very close.

and his colleagues now want to examine a much bigger sample of binaries to see just how bad double star systems really are. They're already sure of one thing: "We're glad the Sun is single!"

Read more about these findings at the NASA Spitzer site at www.spitzer.caltech.edu/news/1182-ssc2010-07-Pulverized-Planet-Dust-May-Lie-Around-Double-Stars. For kids, the Spitzer Concentration game shows a big collection of memorable (if you're good at the game) images from the Spitzer Space Telescope. Visit spaceplace.nasa.gov/en/kids/spitzer/concentration/.

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

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/newsletters/newsletter.shtml>.

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BBAA Meetings

The BBAA meet the first Thursday of every month except for July. While school is in session, we meet at the VA Beach TCC Campus. **The March Meeting will be held at TCC Virginia Beach, Building J, Room JC-12 at 7:30 PM.** Directions available at www.backbayastro.org.

BBAA Internet Links

BBAA Web Site

<http://www.backbayastro.org>

Yahoo! Group

<http://tech.groups.yahoo.com/group/backbayastro>

BBAA Observer Newsletter

www.backbayastro.org/observer/newsletter.shtml

It's Messier Marathon Time Again!

George Reynolds

Ah, Spring – when a young man's fancy turn to thoughts of... a Messier Marathon! No, that doesn't mean a 26.2-mile run with trash strewn all about. It means staying up all night to try to see all 100-plus objects that French astronomer and comet hunter Charles Messier (pronounced MESS –ee-ay) cataloged in the late 18th – early 19th centuries for other comet hunters to avoid. Many of the objects looked enough like comets in the telescopes of that era that these galaxies, nebulae, and star clusters were often mistaken for those elusive "dirty snowballs" known as comets. Today, amateur astronomers do not avoid these objects, we seek them out!

Finding all 110 (or 109, or 103, depending on who you read) Messier objects has become a "rite of passage" for many serious amateur astronomers. It is a good way to learn how to see faint, fuzzy objects in the eyepiece or binoculars and identify them and learn one's way around the night sky. One can even earn certificates and pins of recognition from the Astronomical

League for finding and logging them.

But why now? Well, March is the best month for seeing all the Messier objects in a single night, because they are all potentially visible if you have a good enough observing location. At this time of year, Earth is poised in its orbit around the sun so that a very intrepid (and lucky) stargazer can conceivably see them all from dusk until dawn. Also, we have a few more hours of darkness and clear skies before the onslaught of spring rains and (horrors!) Daylight Saving Time.

Some people go Messier marathoning only in March, and then brag indoors about their annual excursion under the stars. But realistically you could conduct a Messier marathon any month of the year. You just won't see all 110, but you could see 90 or more of them. A good reference, possibly the best one, is Harvard Pennington's book, *The Year-Round Messier Marathon Field Guide*. In fewer than

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Welcome New Members!

Looking Up! Continued from page 1

indicates that the WISE data will not be released until April. Apparently Matese and Whitmire have been making a claim for the existence of Tyche since 1999. The hope is that the WISE device may have detected this body which is expected to have a temperature of minus 100 degrees Fahrenheit.

It may take up to two years to wade through the huge amount of data from the WISE telescope. Matese stated that the predicted spectrum is uncertain and may be difficult to pick out from a large number of signals. Even if it is found, the name may not even stand (Tyche was the sister of the goddess Nemesis, but that's a different theory.) It's up to the IAU, and they may even decide that Tyche does not really belong to Sol, but it was captured from another star. (And what can you expect from a group that diss'd Clyde Tombaugh?)

The controversy over Tyche comes as an interesting counterpoint for me. I recently rediscovered a little 1976 paperback book of science essays by the famed writer, Isaac Asimov. (I've kept paperbacks from forever ago.) It is entitled "The Planet That Wasn't." The title essay is primarily concerned with the attempt of early astronomers to explain the shift in the perihelion of Mercury.

Mercury has the most eccentric orbit of any known in the 19th century. Its orbit ranges from 46 million kilometers from the sun (25.8 million miles) where it speeds along at 56 km/sec (125,000 mph), out to 70 million kilometers (43.5 million miles) where it has slowed to 37 km/sec (87,766 mph). As it whips around the sun, from time to time it transits the face of the sun. These transits have been watched by astronomers since the 1700's. They found it disconcerting that their transit predictions were off as much as an hour.

If there were no other planets, Mercury's perihelion point would be in the same position on every orbit. However, there are several other planets that pull on the little orb, and its perihelion point gradually moves around the sun. In 1843, French astronomer Urbain Jean Joseph Leverrier did

the math to measure the gravitational effect of all the other planets on little Mercury. But the perihelion point moved forward a little more than all the perturbations could account for. In 1882, Canadian-American astronomer Simon Newcomb did more observations with better instruments and measured the shift at 0.104 seconds of an arc.

Astronomers hate discrepancies. In 1859 Leverrier proposed that the perturbations in Mercury's orbit must be coming from a yet undiscovered planet inside the orbit of Mercury. He named this object Vulcan, after the god who presided over the forge of the divine smith. Asimov details the predictions and controversies by and between various astronomers thru the 19th century: Dr. Lescarbault (a French amateur), James Craig Watson, Lewis Smith, Edward Charles Pickering (who claimed photographic evidence of a body at 4th mag.), and William Wallace Campbell, who said nothing brighter than 8th magnitude existed inside the orbit of Mercury. Leverrier went to his deathbed believing in Vulcan.

It was not until the 20th century that the work of Albert Einstein explained that gravity has a small mass of its own. This explained that the small gravitational pull of the mass equivalent of the large gravitational pull of the sun was just enough to account for the motion of Mercury's perihelion. (But if there is no Vulcan, where will Mr. Spock come from in the 25th century? ;)

I think the major point here is that even though it is tempting to do so, we should not jump to pet theories. We have to wait until all the evidence is in. Even ten or twelve years of observations may stand or fall based on future discoveries or other evidence. Matese and Whitmire may prove to be correct and what a discovery that would be!

Mark Gerlach

/\\ark Gerlach



Tyche

Messier, continued from page 3

200 pages you can learn all you need to know about finding those gems of the night. The book is filled with plenty of star charts and sketches to help you locate and identify the Messier objects. All you need is a dark sky with good horizons, and a well-collimated telescope.

To catch them all, now is a good time to try. The early evening twilight and late morning twilight objects will be the hardest to see. Throughout the night, objects will appear in groups, causing an observer to quickly rush from one to the other . . . and then there will be times of waiting for more to appear. If you're new at astronomy, any time is a good time to start honing your observing skills by finding the "M-objects". If you start now, maybe by next year you'll be ready to catch them all in one night. Good luck.



Charles Messier
(1730-1817)



The Year-Round Messier
Marathon Field Guide by
Harvard Pennington, published
by Willmann-Bell, Inc.

BBAA Meeting Minutes: February 3, 2011

The February, 2011 meeting was called to order at 7:35 p.m. by President Mark Gerlach in Room JC13 of TCC, VB campus. Those in attendance were Neill Alford, Kenny Broun, Bryan Condrey,, Elizabeth Dougherty, Kevin Dougherty, Ted Forte, Mark Gerlach, Georgie June, Ben Loyola, Matt McLaughlin, Bill McLean, Bill Newman, Bill Powers, Kevin Rasso, George Reynolds, Jim Tallman, "Bird" Taylor, C. Travis, and Larry Wade.

Treasurer's report: General Fund, \$3443.80; Scholarship Fund, \$3694.12; total, \$7137.92.

Secretary's report: 78 paid-up members. Many others overdue.

Scholarship committee report: Ben Loyola said the deadline for scholarship application submission is May 1st. He stated that the Virginia Beach school system has a good scholarship Web site, in contrast to Chesapeake and Norfolk public schools. "Bird" Taylor suggested we advertise the scholarship to Hampton schools as well.

Old Business:

The librarian job is available, as Gerry Carver is ready to turn it over to someone new. Bill Newman is interested. Since Gerry wasn't in attendance, it was recommended that Bill contact Gerry.

Discussion of a dark sky site was renewed. Ken Broun knows of a place with 15 acres in North Carolina. He'll check into the details. Some suggestions were that we could possibly lease it for the yearly property tax payment; or, possibly find some property with property tax in arrears and purchase it. An ad hoc committee is needed to delve into this matter. Some possible members could be Dale Carey and Bruce Bodner (both of whom were not in attendance). The Secretary should contact them.

Ted mentioned that a database in Backbayastro has been established for members to volunteer to present a monthly meeting feature. Please sign up on the database with the date and subject you would like to present.

Schedule:

Nightwatch Saturday, Feb. 5

Skywatch Friday, Feb. 25

Mount Trashmore Star Party Friday, April 15. Members can come in the early afternoon and set up solar-filtered telescopes, then transition into night observing.

Yuri's Night Saturday, April 16 at Virginia Air and Space Center, Hampton. An adult party, 7 pm to midnight. Members will set up telescopes on the upper-floor porch as in the past. The moon will be 97% full, rising at 6:20 pm and transiting just after midnight. Sunset is 7:40 pm, with civil twilight ending at 8:07 pm. Members may come early and browse through the VASC for free.

New business:

Schedule continued:

Presentation to a Girl Scout troop tomorrow, Friday, Feb. 4.

Garden Stars Friday Feb. 11, 7 to 9 pm.

Green Bank star party June 29 thru July 2.

Almost Heaven Star Party August 26-30, Spruce Knob, West Virginia.

Our new ALCOR Bill McLean put in a "plug" for the Astronomical League's observing "clubs", whereby members can earn a pin and a certificate by observing such things as the Moon, double stars, planetary nebulae, etc.

IN FACT, our own "Master Observer" Ted Forte will be presenting the topic of A.L. observing "clubs" at the March meeting. This is one not to miss!

This month's meeting feature was presented by Ken Broun, Astronomy Professor at Tidewater Community College, Virginia Beach Campus. His presentation was in two parts: First, a discussion and illustration of the scale of the solar system and ultimately the universe, using a spreadsheet and numbers. Then we adjourned to the planetarium downstairs, where he illustrated the relative sizes of the planets, their distances, and the comparison to the sizes of other stars in our galaxy. It was a mind-blowing whirlwind "tour" of outer space.

The meeting was adjourned at 9:15 p.m. by President Mark Gerlach.



<http://xkcd.com/473/>

“Jump Start” Your Astronomy Hobby!

(Confessions of an Anonymous Astronomer)

I just came back inside from the cold, after fiddling with a dead battery in my car. It needed a jump start. And, when I got to thinking about it, I realized that my observing program needs a jump start, too!

I have gotten lazy, “idling”, as it were, in my stargazing habits. When I started out, all fresh and eager ten years ago, I couldn’t get out under the stars enough. Whether it was in the back yard with my binoculars and/or a telescope, or getting out to Nightwatch and the East Coast Star Party and other “serious” observing sessions, I MADE time for stargazing. I even made it down to Chiefland, Florida one year for that renowned star party.

The key to my enthusiasm was the accomplishment of a goal: to view certain celestial objects and learn the night sky. Instrumental to that goal was the availability of observing “clubs” of the Astronomical League. Any member can go to the A.L. Web site (<http://www.astroleague.org/>) and find dozens of challenges for observing. Ted Forte has a special presentation of these observing opportunities planned for the March BBAA meeting.

I started out on the “Messier Club”, attempting to locate and identify the 110 (109 to

purists) comet-like objects Charles Messier wanted other comet-hunters to avoid. When I got frustrated trying to find some of those faint fuzzies (because my novice’s eyes were not yet trained in seeing in

the dark), I temporarily gave up, and went to the “Lunar Observer’s Club”. It’s a list of 100 objects and features to observe on the Moon, with naked eye, binoculars, and telescope. Finally, something at least I could SEE. I earned my Lunar Club pin in record time, thanks to a spate of drought and unusually clear weather. That got me “jump-started” and ready for more.

I tackled the Messier list again, and with help from some more experienced club

members, I earned the Messier Club certificate and Pin, and also those of the Binocular Messier Club. I went on to the Urban Club, observing 100 objects in light-polluted skies... and subsequently got bogged down in the humdrum routine of life, my observing engine “idling”, until it slowed down and the battery died. That’s why I now need a “jump start”.

The Astronomical League has added many more observing clubs since I earned my last pin, so I now have no excuse. I am getting geared up to recharge my stargazing batteries, and start on a new challenge – a real GOAL to get me back out under the stars. And you can do it, too! Why not start TODAY?



Planetary Nebula Club

Hosted by Ted Forte and the BBAA

It seems like the "theme" this month is the observing "clubs" of the Astronomical League. Well, thanks to Ted Forte, long-time member and past president of the BBAA, and "Master Observer," There is a list of planetary nebulae which one can observe, log, even sketch, and earn a certificate and pin for.

Here is the "straight scoop" on the PN Club, in Ted's own words, directly from the Web site of the Astronomical League (<http://www.astroleague.org/>).

Planetary Nebulae are perhaps the most interesting and beautiful objects in the heavens. A genre full of wonderful variation, they exhibit complex shapes, and may even show vibrant colors. The last hurrah of a sun-like star, their study is essential to the understanding of stellar evolution. If you don't already have an appreciation for these most magnificent of objects, it is hoped this program will inspire you. We stand ready to welcome you into the ranks of the planetary nebula aficionado!

It is hoped that this observing club will whet your appetite. There are at least a thousand planetary nebulae visible in amateur size instruments and many marvelous ones are not on our list. We hope you enjoy the program and your subsequent observations of planetaries.

The Catalog of Objects

One hundred ten planetary nebulae were chosen for this program. Among them are some of the most famous showpieces in the northern sky, but the list contains examples across the entire range of planetary nebula morphology. Some are tiny star-like points

that will challenge you to pick them out of their crowded star fields. Others will appear as ghostly apparitions that will severely test your powers of observation. In addition, we have included four examples of "proto-planetary nebulae" as additional challenges.

This program was developed as a club project by the Back Bay Amateur Astronomers of southeastern Virginia and the list contains only objects that rise above the horizon from

there. The most southerly object on the list is at a declination of -40 degrees 26 minutes.

Full information may be found at this Web address: <http://www.astroleague.org/al/obsclubs/planetarynebula/planetneb1.html>

And the point of contact is:

Planetary Nebula Club Chair: Ted Forte

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(757) 427-3894

E-mail: twforte@cox.net



Photo montage of first-hand viewing of final launch of Shuttle Discovery, February 24, 2011 at 4:50 pm from the NASA Causeway site.

Photos by John S. Mitchell, Jr., the editor's brother-in-law. See more at <http://www.flickr.com/photos/jsmjrr/tags/sts133/>.



BACK BAY ***observer***

March 2011

BBAA Events	Special Outreach	Astronomical Events
03 BBAA Monthly Meeting at TCC VB		04 New Moon
05 Nightwatch at Chippokes		
11 Garden Stars at Norf. Bot. Gardens		12 First Quarter
		19 Full Moon
25 Skywatch at NWRP		
		26 Last Quarter



Sneak Peak into April

Saturday 04/02/2011 Nightwatch at Chippokes State Park, Surry VA.

Thursday 04/07/2011 Meeting at TCC VA Beach, Building J, Room JC-12 at 7:30 p.m.

Friday 04/08/2010 Garden Stars at Norfolk Botanical Gardens at 8:00 p.m.

Friday 04/15/2011 3rd Annual Mt. Trashmore Star Party @ Mt. Trashmore, VA Beach, 6:00 - 11:00 PM.

Friday 04/22/2011 Skywatch at Northwest River Park

Saturday 04/30/2011 Nightwatch at Chippokes State Park, Surry VA.