

Newsletter of the Baton Rouge Astronomical Society

www.brastro.org

April 2013

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PRESIDENT'S MESSAGE

Hello Everyone,

First for some business: If you are receiving this newsletter you are currently considered a club member. However, our latest roster shows that several members are still owing dues for 2013. Remember, the dues payment schedule was changed so that all membership fees are due on January 1st of each year in order to make it easier on the club Treasurer. Your dues payment helps to pay the cost of our liability insurance (which we carry for the purpose of protecting ourselves in the outreach we perform throughout the community), expenses for the Hodges Gardens Star Party, and your membership in the Astronomical League which includes its quarterly newsletter, The Reflector. If you aren't sure whether or not you are currently paid up, please contact either myself (tomanben@gmail.com) or our Treasurer, Geoff (gmicchelli@gmail.com) so we can check into it for you. If you know you have not paid, please consider getting payment to us so there won't be any interruption in your Reflector subscription and so we can continue to grow as a club.

In case you missed it, we had another great year at the Hodges Gardens Star Party. I believe there were 67 people in attendance with a record number already set up on Wednesday. We had some nice dark skies with no clouds the first two nights and just had to deal with some pesky cloud cover late both Friday and Saturday. (Although, several people reported the clouds broke up for a few hours in the wee hours both nights.) It got a bit windy Friday and Saturday, but that didn't stop us from having over 175 people attend the public part of the star party on Saturday evening. Most everyone that came got great views of the PANSTARRS comet after the sun set, too. If you've never been to a star party before, I hope you'll be able to make it next time. We have a great time!

We've got some warmer weather starting to show up and several club members expressing interest in visiting our dark sky site. It's only about 20-30 minutes outside of Baton Rouge and has some nice sky that even offers a view of the Milky Way. If you are interested in going out there, keep an eye on the Forum at our website to see when people are planning a night of observing. Feel free to set up an observing session, too. You'd be surprised how many people are just waiting for someone else to take the initiative so they can tag along.

April is here and with it, the International Astronomy Day on Saturday, April 20th. I'm sure the HRPO could still use volunteers for this event and it would be great if we could have a table for BRAS, as well. What better time to get the word out about our club? Even if you don't have time to volunteer, I hope you will try to get out to the observatory sometime between 3PM-11PM and see the festivities. IAD is always well attended and there are a lot of things to see and do. (Also, it's another great time to promote astronomy to your friends and neighbors and their families.)

Finally, we have identified the new Women's Hospital as a prime candidate for our next Good Lighting Award and we are working on the details, but we still need more submissions. We must keep momentum on our side with this issue. People are starting to see the light (pun intended) and realize that a problem exists, but that problem doesn't have to persist. Let us know if you spot somewhere in the area that is using responsible lighting. Don't be afraid to nominate a place because you aren't sure if it is deserving enough. That's why we have multiple people check out the area and try to get some night time pictures. If we don't get any nominations, we don't even know where to begin! Let's keep this push for dark skies moving and make sure more and more of our community becomes aware of the issue and how they can help.

I hope you will all join us for our next meeting on Monday, April 8th at 7PM at the Highland Road Park

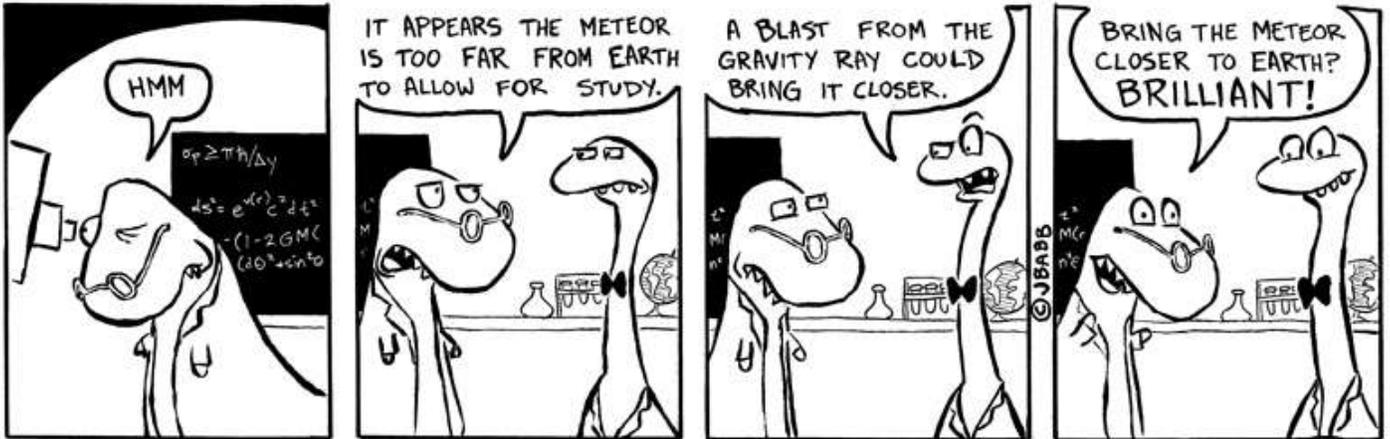
Observatory. We've been having pretty good attendance at the meetings and I'd like to see that grow even more.

Hope to see you out there and Clear Skies!

Ben Toman

BRAS President

tomanben@gmail.com



NOTES FROM THE VICE PRESIDENT

Many amateur astronomers are rather puzzled or intimidated by the thought of spectroscopy. Most of us are not chemists and don't think we have the necessary knowledge to tackle the subject. Plus, most of us want to look at the sky and objects in it, not a bunch of rainbows. However, there is a lot of good science an amateur can do through spectroscopy. Plus it is interesting when you put your mind to it. All this leads up to our guest speaker at our April meeting. BRAS member Bill Buck has been experimenting with some spectroscopic work and will share his experiences and findings with us. He promises to make it interesting, so don't prejudge. It will be a good presentation. I am sure you will have questions afterward.

We have all had the experience of spending a lot of time and frustrations polar aligning our scopes, only to discover tracking errors during observation. There are many good methods, but none of them can beat drift alignment. This is a method whereby you actually test the tracking of your scope after your initial alignment attempts, and make tracking adjustments on the fly. It takes some time and it usually isn't critical for observing but it is essential for astrophotography. Here is a simple way to do it.



Drift Alignment Made Easy

This method is for refractors or Schmidt-Cassegrain telescopes using a star diagonal. Reverse altitude adjustments, if using a star in the west for second star. Reverse all adjustments for Newtonian telescopes.

1. Level tripod.
2. Roughly polar align mount, preferably with a polar scope.
3. Pick a star on meridian, just north of celestial equator.
4. Orient eyepiece cross hairs with north-south and east-west axis of mount.
5. Place star on horizontal cross hair. If star drifts **up**, adjust mount in azimuth to move star **right**. If star drifts **down**, adjust mount in azimuth to move star **left**.
6. Place star back on cross hairs using hand controller.
7. Repeat adjustments until no drift is seen for 5 minutes.
8. Pick star in east, just north of celestial equator, about 20° above horizon.
9. Orient eyepiece cross hairs with north-south and east-west axis of mount.
10. Place star on horizontal crosshair. If star drifts **up**, adjust mount in altitude to move star **down**. If star drifts **down**, adjust mount in altitude to move star **up**.
11. Place star back on cross hairs using hand controller.

Repeat adjustments, as necessary, until no drift is seen for 5 minutes.

Merrill Hess
BRAS Vice President

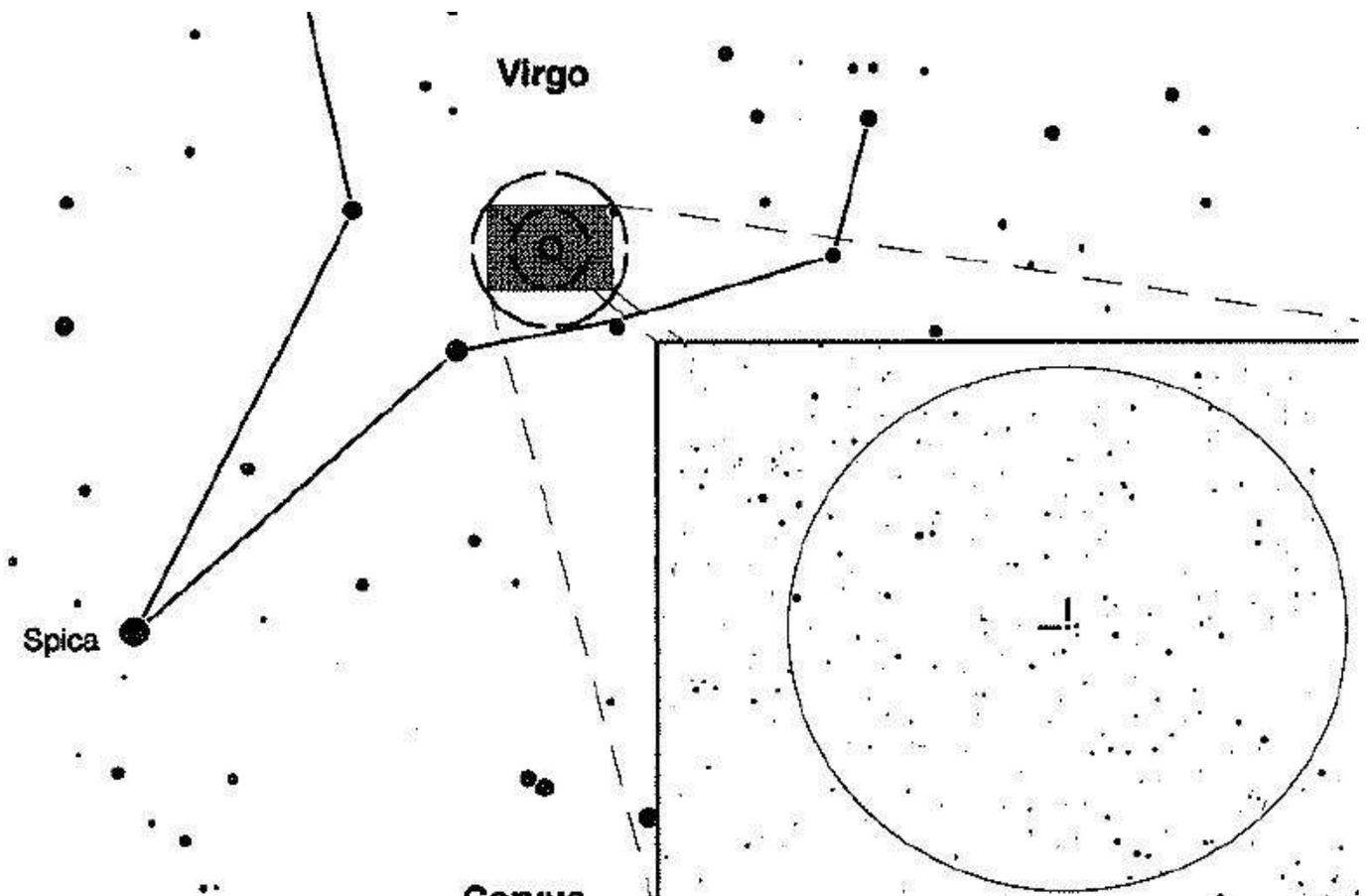
VERY DEEP SKY OBJECTS

Trevor McGuire

At the recent Hodges Gardens Star Party, after two great nights of observing, I had already seen scores of objects both new and old to me, so on the third night, I embarked on a new personal challenge. My goal was to observe as many of the NGC galaxies listed in my Pocket Sky Atlas as I could. On the third night, after the moon went down and the sky got pretty dark, I trained my scope on Virgo and quickly nabbed a dozen or so around Porrima and when I looked back at my star chart for the next one, I noticed an X labeled 3C 273. I had completely forgotten that there was a quasar in that vicinity of the sky, but I now had a new mission to observe it.

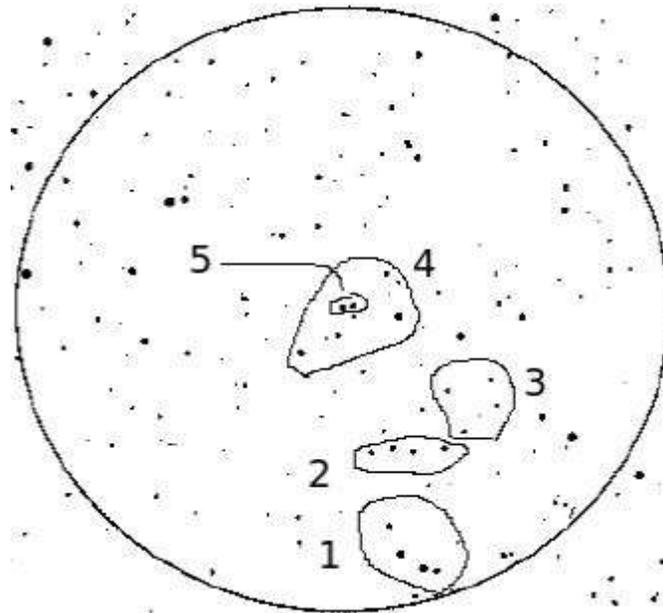
As many of you know, a quasar is a very distant galaxy that has an active black hole; that is, the black holes at their centers are still absorbing material. They are necessarily distant because if they were closer, the light wouldn't be as old, and we would see a more stable galaxy. That is, when we see a quasar, the light is so old that if that quasar grew up into a galaxy that had evolved something with telescopes, they would look at the Milky Way and see a quasar as well. With that, it is a coincidence that this quasar is in the Virgo supercluster; it is merely part of the cluster optically and has nothing to do with all the other galaxies that are substantially closer to us.

As it turns out, to observe this quasar, all one needs is a tiny bit of math and an accurately aligned finder scope. The small math is required to calculate your true field of view through the eyepiece. Many people know that their eyepieces have a 50° or 68° or even 100° apparent field of view, but the actual amount of sky one sees is calculated by $(\text{actual FOV}) = (\text{apparent FOV}) \div (\text{magnification})$. Since $(\text{magnification}) = (\text{focal length of telescope}) \div (\text{focal length of eyepiece})$, we have $(\text{actual FOV}) = (\text{apparent FOV}) \times (\text{focal length of eyepiece}) \div (\text{focal length of telescope})$. To observe this quasar, you want a set up with an actual FOV of .5 to 1. I used an arrangement that gave me .62° actual FOV.



In the image above, the star to the left of the Telrad target is Porrima, and the circular region that is blown up is 1° of actual field of view with all stars shown down to magnitude 15. The star hop I used to find 3C 273 started with placing my well-aligned Telrad as shown in the image, and then panning ever so slightly until I found the four brighter stars that make a small arc in the bottom of the blowup. They were the most distinctive feature I could identify in the eyepiece. From there, I 'swooped' to the four nearly colinear stars 'above' the arc. Think about the trick to find Arctaurus from the Big Dipper: "arc to Arctaurus", but do it on a much smaller scale. Moving to the right along those four nearly straight stars, one finds another set of four stars that look like a miniature Keystone from Hercules; they make a quadrilateral that isn't quite square nor trapezoidal, but close enough to be called such. Once you are here, you are within a quarter degree of a right triangle of two bright stars and one dim one. One the hypotenuse of this right triangle, one will find what looks like a double star. In actuality, the star that is closer to the narrow tip of the triangle is in fact 3C 273, weighing in at 2.44 billion lightyears from your eye.

The image below has the numbered recipe to repeat this star hop. Recall that the circle is 1° in diameter, and that the stars go down to magnitude 15, so if you do the math above and get an actual FOV of $.5^\circ$, you will only be getting a small portion of the picture below and still might not see as many stars.



One of the most common questions we get at outreach events, or at HRPO is, "How far can you see?" This object pretty well puts that question to bed for most backyard telescopes. I hope some of you get a change to try this out; keep in mind that quasar is short for quasi-stellar object, which means it won't look like anything but a regular star. It's the knowledge of what you are looking that makes this object a must-see.

MESSAGE FROM THE HRPO

FRIDAY NIGHT LECTURE SERIES

all start at 7:30pm

- 5 April: "NASA Spinoff Technology"
- 12 April: "Wonders of the Spring Sky"
- 26 April: "A Rain of Meteorites"

CALL FOR VOLUNTEERS: ON SITE

*Saturday, 20 April from 3pm to 11pm. *Twelve to twenty volunteers.* **International Astronomy Day.** Staffing rides, information booth, ticket booth, front desk, entry gate, solar telescope, nighttime telescope and other stations. Moderate difficulty; training provided beforehand. 2013 is make-or-break time for IAD. This will be HRPO's seventh consecutive IAD event, and we hope to get 800 participants.

INTERNATIONAL ASTRONOMY DAY

Saturday, 20 April from 3pm to 11pm

Free and for all ages.

The seventh annual IAD event will take place this month at HRPO. Whether or not you decide to volunteer, please make an effort to promote IAD to all of your family, friends and coworkers. We have a few posters left; if you contact HRPO ahead of time we can hold one or two for you to pick up and post at your workplace or church. Thanks!



OBSERVING NOTES

Constellation Of The Month : LEO – The Lion

Position in the sky

Right Ascension: 11 Hours Declination: +15 Degrees

Named Stars

Regulus (Alpha Leo), mag. 1.36, double star, 22nd brightest

Regulus B and C, mag. 8 and 13, double star

Denebola (Beta Leo), “The Lion’s Trail”, mag. 2.14

Al Geiba (Gamma Leo), “The Lion’s Mane”, mag. 2.28,
doubleStar with Gamma B, mag.3.51

Zosma (Delta Leo), “The Lion’s Back”, mag. 2.55

Ras Elased Australis (Epsilon Leo), mag. 2.98

Adhafera (Zeta Leo) “The Beard” ,mag. 3.33

Chort (Theta Leo) “Small Rib”, mag. 3.34

Al Minliar Asad (Kappa Leo) “The Muzzle”, mag.4.46

Alterf (Lambda Leo) “The View of the Lion”, mag. 4.32

Ras Elased Borealis (Mu Leo), mag. 4.1

Subra (Omicon Leo) ‘ double star, combined mag. 3.53

Al Jabbah (Eta Leo) “The Forehead”, mag. 3.51

Deep Sky Objects

M65 (NGC 3623) mag. 10.25 With M66, 21’ apart btwn

M66 (NGC 3627) mag. 8.9 Theta & Iota SSE of Theta

M95 (NGC 3351) mag. 11.4 With M96, 42’ separation

M96 (NGC 3368) mag. 10.1 about 9 deg. East of Regulus.

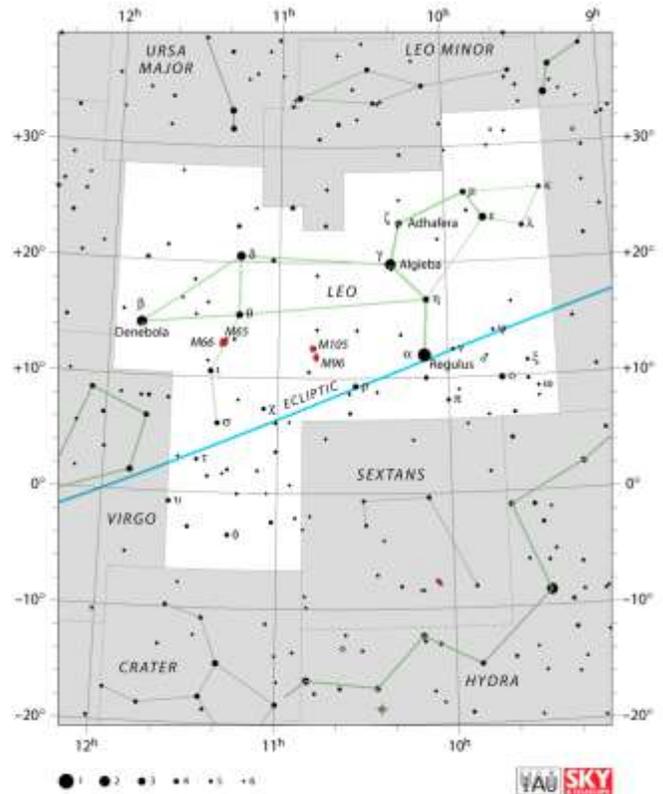
M105 (NGC 3359) Has two companions, NGC 3384 and
NGC 3389. Mag. 10.2, triangular about 8 deg. on a side

NGC 3628 35’ north of M66

Double and Multiple Stars – 97

Variable Stars – 33

Star Clusters, Nebulae, and Galaxies - 71



The Greeks associated Leo with the Nemean Lion, the beast killed by Heracles during the first of his twelve labors. The lion lived in a cave in Nemea, a town located to the southwest of Corinth. It was killing the local inhabitants and could not be killed because its skin could not be pierced by any weapons. Heracles could not kill the lion with arrows, so he trapped the lion in its own cave, grappled with the beast and eventually choked it to death. He used the lion’s claws to cut off its pelt, and then wore the pelt as a cloak, complete with the lion’s head. The cloak both protected Heracles and made him appear even more fearsome.

BRAS Dark Sky Site Viewing Dates

April 6th 2013 Primary, April 13th 2013 Secondary

APRIL ASTRONOMICAL EVENTS

Leonid Meteor Shower will peak in the early morning hours on April 22, 2013.

Jupiter is in the western sky after dark, and sets after midnight.

Saturn is low in the east at nightfall, climbs high in the south around midnight.

Jupiter and the Moon will be 2" apart on April 14, 2013.

Saturn in opposition to the Sun on April 27/28, 2013.

Full Moon passes 4 deg. south of Saturn on April 25, 2013.

Vesta at mag. 8.2, will be north and west a little from M1 on April 6, 2013. On the last day or 2 of April, will be near M35. On April 29th, passes directly in front of NGC 2158 (less than ½ deg. southeast of M35)- it will take 2 hours to Cross NGC 2158.

On April 17th, 1 day before First Quarter Phase, the rugged lunar Appennines thrust diagonally into the sunlit domain slightly north of the moon's equator. Just north of this mountain range and along the terminator stand two prominent craters- Aristillus and Autolycus. A pair of larger round craters, Hipparchus and Allategnius are just south of the equator.

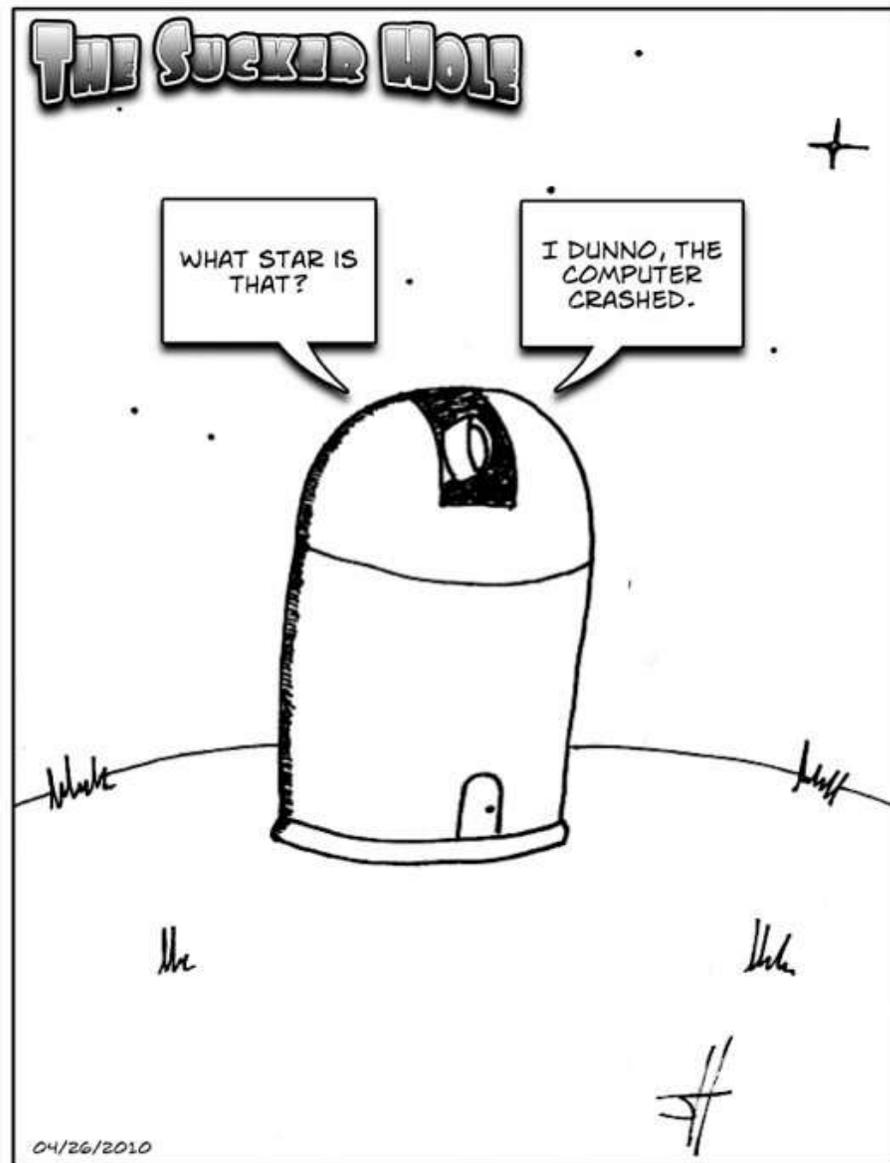
On April 17, the Lunar X can be seen

TREASURER'S NOTES

As Ben mentioned in his President's message, membership has its privileges! If you haven't renewed, I urge you to do so. If your membership expired, you recently got an email from me. I'll be at the meeting on Monday if you'd like to renew.

I'd also like to mention that you can renew for multiple years. It's nice knowing that your membership will be good for the next several years, and you won't have to worry about the pesky treasurer bugging you :)

Geoff Michelli
BRAS Treasurer



PREVIOUS MEETING MINUTES

B.R.A.S. Meeting March 2013 notes:

- **7:05** Meeting begins
- **7:07** Briar's notes on Women's Hospital lighting mentioned. Meeting with government officials on light pollution discussed.
- **7:12** Other anti-light pollution campaigns discussed. British Astronomical Association's Campaign for Dark Skies handouts given.
- **7:14** Upcoming outreach events discussed.
- **7:16** Hodges Gardens Star Party mentioned.
- **7:17** Attempts to view comet PANSTARRS mentioned.
- **7:20** Meteor Observing Award given to Trevor.
- **7:20** Observing equipment for sale at late airline pilot's estate. Includes numerous telescopes and cameras.
- **7:30** Peter Diener's "Einstein's Legacy" talk begins.
- **8:53** Talk ends.
- **8:54** Messier 101 Observing Award given to Brad Schaefer.
- **8:55** Meeting adjourned.

Rory Bentley
BRAS Co-Secretary