ASSET MINUTES January 9, 2015

We had a great turnout in spite of the cold. Three visitors—two first time—were present to put our attendance at 32. Jennifer Doornbos joined at the meeting. Sonya Hodgson said she will be joining soon. Kyle suggested that we put together our own calendars for 2016. So, to that end, during this year send him some of those great shots many of you are getting on your phones. Timothy Istre showed me one on his phone of Venus and Mercury he had taken recently. It was a beautiful picture. Kyle suggested that these calendars could be sold or given away to promote our club. Will showed us a picture he had taken of Comet Lovejoy. Will suggested that we might enjoy viewing some of the programs on You Tube at Discovery Space Videos. (Minutes Continued on Page 3)

WILL’S WORDS

Hello ASSET!

2015 has started with a bang hasn’t it? Comet C/2015 Q2 Lovejoy has been the showpiece for the year. An amazingly bright comet with beautiful colors and attributes. It has been one of the best comets I’ve viewed through a telescope. I hope you are all getting out and having a look. At least try it with some binoculars. We have several outreach events coming up this year as well. Lake Livingston State Park has asked us to come in March along with Martin Dies State Park. I’ll be working with the heads of these parks and I will let you all know when these events are going to happen. I also heard hints of another Dishman? Stay tuned for more on that! We will have a special guest speaker for the February meeting! An astrobiologist from the University of Houston. You don’t want to miss this! See you then!

Will
LOVEJOY IS OUR OBJECT FOR JANUARY

As the clouds parted a comet graced the overhead skies. It was nice to see a great object for a change. Here, we missed seeing it when it was 3.9 or 4th magnitude, but still by the 18th or so, it was beautiful at around 5th magnitude. The clear winter skies show the Winter Circle so well with Lovejoy to the right and above. There was little or no tail because the tail was pointing away from Earth. I hope you all read Justin’s article he sent out, on the 20th, as he had an excellent description of Comet Lovejoy. EVERYBODY THINK CLEAR SKIES!

TERRY MYER HAS A REPORT ON THE COMET—NOTE THE DETAIL

He just didn’t say I saw it, but he made special trips, and had a plan for observing Comet Lovejoy! Hi Howard,

I hope you are sitting down, because I have an observing report! Yes, I know you don’t believe me, but here it is. I went out two nights in a row to observe Comet Lovejoy. Friday the 16th, I went to Mason Road. I took the parallelogram and both sets of binoculars. Going by your map, it didn’t take long to find it. The comet was straight overhead. In the 8x56’s it was a wonderful overall view. There was a triangle of stars just east of it, and it was larger than the entire triangle. Just spent some time enjoying it before I changed to the 15x70’s. I was hoping for clear skies, and I was a day early. The clouds were “ribbed”, and I had to look between the “ribs” to get a clear sky. There was a wind blowing the parallelogram, so it wouldn’t hold the binoculars steady. I observed the coma through the dust in the tail. Around 8 PM, somebody flipped a switch and the wind stopped. After careful observing I saw what looked like the occasional aqua blue glow of the coma with averted vision. The sky was really dark when it was clear. I also enjoyed a good view of Orion before the clouds got too thick.

On Saturday the 17th, the humidity went down to 32%, so I took the 6” Schmidt Newtonian out in the backyard. Haven’t seen it that dark back there in a long time. This was my first time using the 2x Powermate. I could get the comet in the field easily. When I got to 90x, I saw with averted vision a small bright spot. It is not possible to see the nucleus with this scope, but I probably saw the light reflecting off it. This winked in and out of view. I saw the coma as separate from the nucleus light, and then the dusty tail. I tried going to 128x, but lost detail, so I backed it down again. I never saw any color. Maybe it wasn’t as dark as Mason Road. I then found the Andromeda Galaxy, which didn’t look like much, then the Orion Nebula. After that, I was too tired and packed up. It was good to get out again. I was glad to give our temporary neighbor a farewell glance…..Hopefully, I might get another chance to see it.

TERRY

EDDIE WROTE THIS ON THE 19TH; BEING OBSERVANT PAID OFF!

Howard,

This morning, 1/19/15, at 6:25am, as I was driving to work, I saw the oldest moon I have ever seen! A tiny sliver of a crescent, less than 5 degrees, off the east horizon right before the sun came up. I looked up the info on Virtual Moon Atlas and it showed lunation of 28.49 days. New moon for the month of January occurs 1/20/15 at 6:13am, which means the crescent moon I saw was less than 24 hours before the new moon! I wish I had had my telescope or binoculars to really study the view!

Eddie T.
(Brenda’s Minutes Continued From Page 1)

Also check out Goddard Space Flight Center and NASA’s Physics of the Cosmos. There’s lots of educational content online. **January refreshments: Brenda Tantzen**

Brenda Tantzen  
ASSET Secretary

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**ERIDANUS THE RIVER**

Eridanus the River begins near the star Rigel in the constellation Orion the Hunter – and wells up in a great loop before ambling back down toward the southern horizon.

In February the constellation will be high in the southern sky to view. **Eridanus** was a purely mythical river of the north which was later identified as the Po of northern Italy. The constellation **Eridanus** traditionally represents the river into which **Phaeton** fell when slain by Jupiter for having set the world on fire by misguiding the chariot of his father **Phoebus**. **Eridanus** is also home to several notable deep sky objects. The **Witch Head Nebula, NGC 1535**, a planetary nebula, and **IC2118**, that lies close to **beta Eridani** and is thought to be either a gas cloud reflecting the light of **Rigel**, a super-giant star in the constellation Orion, or an **ancient supernova remnant**. The nebula is blue in color and lies approximately 900 light years away from Earth. Being a faint constellation, you can still see the arching loop of stars on the west side of Orion. And Eridanus has a zero mag. star **Achernar**, but it is below our horizon. When you look at Orion, notice the stars to the right of Rigel. This will probably be a new constellation for you?

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**Our pre-meal is at LA Cantina Mexican Grill, Parkdale Mall 4555 Dowlen Road, at 5:15 before the club meeting at 7 PM. Every body is invited to gather for the enjoyment of visiting. See you there. Howard and Jane**

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**JUPITER’S TRIPLE TRANSIT OF JANUARY 24, by Howard**

The Americas witnessed a rare triple shadow transit of three of Jupiter’s moons — Io, Europa and Callisto. If you missed the event, you won’t have another chance to see something like this via the telescope until December 30, 2032! The **TRIPLE TRANSIT** was from 12:28 - 12:52 AM, Saturday morning, with less than a 1/2 hour window. Here the clouds did it to us again. On Cloudynights.com, it seems most of the U.S. was cloudy except in Florida. The whole process to observe and log took good planning. The few comments I found that were positive said it was a very rewarding experience. Of course the four Galilean satellites, can be seen orbiting Jupiter in endless dance, any night, with binoculars or telescopes. Next time I will be 92?

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**QUOTE OF THE MONTH** - “I know that I am mortal and a creature of the day; but when I search out the massed wheeling circles of the stars, my feet no longer touch the earth, but I am side by side with Zeus himself, I take my fill of ambrosia, the food of the gods.” -- Ptolemy
Minor mergers have massive consequences for black holes
By Dr. Ethan Siegel

When you think of our sun, the nearest star to our world, you think of an isolated entity, with more than four light years separating it from its next nearest neighbor. But it wasn't always so: billions of years ago, when our sun was first created, it very likely formed in concert with thousands of other stars, when a giant molecular cloud containing perhaps a million times the mass of our solar system collapsed. While the vast majority of stars that the universe forms—some ninety-five percent—are the mass of our sun or smaller, a rare but significant fraction are ultra-massive, containing tens or even hundreds of times the mass our star contains. When these stars run out of fuel in their cores, they explode in a fantastic Type II supernova, where the star's core collapses. In the most massive cases, this forms a black hole.

Over time, many generations of stars—and hence, many black holes—form, with the majority eventually migrating towards the centers of their host galaxies and merging together. Our own galaxy, the Milky Way, houses a supermassive black hole that weighs in at about four million solar masses, while our big sister, Andromeda, has one nearly twenty times as massive. But even relatively isolated galaxies didn't simply form from the monolithic collapse of an isolated clump of matter, but by hierarchical mergers of smaller galaxies over tremendous timescales. If galaxies with large amounts of stars all have black holes at their centers, then we should be able to see some fraction of Milky Way-sized galaxies with not just one, but multiple supermassive black holes at their center!

It was only in the early 2000s that NASA's Chandra X-ray Observatory was able to find the first binary supermassive black hole in a galaxy, and that was in an ultra-luminous galaxy with a double core. Many other examples were discovered since, but for a decade they were all in ultra-massive, active galaxies. That all changed in 2011, with the discovery of two active, massive black holes at the center of the regular spiral galaxy NGC 3393, a galaxy that must have undergone only minor mergers no less than a billion years ago, where the black hole pair is separated by only 490 light years! It's only in the cores of active, X-ray emitting galaxies that we can detect binary black holes like this. Examples like NGC 3393 and IC 4970 are not only confirming our picture of galaxy growth and formation, but are teaching us that supermassive relics from ancient, minor mergers might persist as standalone entities for longer than we ever thought!

Check out some cool images and artist reconstructions of black holes from Chandra: http://chandra.harvard.edu/photo/category/blackholes.html

Kids can learn all about Black Holes from this cool animation at NASA’s Space Place: http://spaceplace.nasa.gov/black-holes.

FACTS ABOUT NASA's CURIOSITY ROVER - Curiosity's size allows it to carry a host of scientific experiments that will be able to zap, analyze and take pictures of any rock within reach of its 7-foot (2 meters) arm. Curiosity is about the size of a small SUV. It is 9 feet 10 inches long by 9 feet 1 inch wide (3 m by 2.8 m) and about 7 feet high (2.1 m). It weighs 2,000 pounds (900 kilograms). Curiosity's wheels have a 20-inch (50.8 cm) diameter.

Images credit: NGC 3393 in the optical (L) by M. Malkan (UCLA), HST, NASA (L); NGC 3393 in the X-ray and optical (R), composite by NASA / CXC / SAO / G. Fabbiano et al. (X-ray) and NASA/STScI (optical).
Gary Robertson sent this in to us: Gary loves the Sky!

Howard, this is a report on some of my stargazing this month.
There has been a lot of cloudy days this month, but when the sky clears, man it has
been clear with a capital C. I have been using my binoculars a lot as usual, but some nights
have not been too cold and I took the time to get out my telescope(s).

I have been following the comet C/2014 Q-2 on all nights that have been clear enough
for binoculars. I see the comet as being a light green when the moon was not out. The moon seems to
take the color out of the comet for me.

On the 19th I took out my 90 mm Meade refractor to check out Venus, Mars, Jupiter and some
other old standbys. The seeing was so good that I decided to look for some new things, (for me). First I
looked out to the west of Ursa Major a bit and found to my surprise that I could actually see M-81 and
M-82. That, my fellow stargazers, is the first time I have seen any galaxy from my house other than the
milky way or Andromeda. I then moved over to the other end of Ursa Major and think I saw M-51 with
averted vision, or maybe I just wanted to see it so badly that I think I saw it? That area of the sky was
pretty much washed out by my neighbor’s security light. By the way, I was using a 32mm plossel eye-
piece from Celestron. This eyepiece gives a wide field but gives me a good black background. I tried
other eyepieces after I found the galaxies but more power did not give any brighter view.

Keep looking up. Gary


The next Star Party is just around the corner, as you see above. This is only 2 1/2 hours from Beaumont and is very convenient and easy for all of us. It only costs $10 and payable when you arrive. Those of you who can’t get off work can at least do the Friday & Saturday night viewing. Will, Lonnie and I, plus others in ASSET make this party. You can trailer, tent or stay in cabins. But now is the time to plan. Put it on your calendar. You have the beautiful botanical gardens, bicycles, birding, etc.

Kelly Taylor sent photos

Howard, if you think any of these are good enough, feel free to use them. As always, Thanks Howard you’re the best. Clear skies and happy viewing.

Kelly said the Moon shots were taken with his 8 inch refractor, which flips the image and won’t be the same as a reflector. They are more than good enough! Also Kelly is helping Bill Christian put together a new 8" refractor and is holding the new refractor lens. Bill has been waiting for it for some time.

I cropped down the pics for the StarGazer and added the names of the mountains and craters. All of you get out and find these features on the Moon. In the top picture, Clavius is a large crater with steep walls and a flat floor. A curved chain of small craters arcs across the floor. Tycho is 52 miles in dia. and its center mountain is 14,500 ft. high. At full Moon, it is the most striking feature on its surface. Maginus is a walled plain, 100 miles in diameter, and in the telescope has lots of craterets in it. The best times to see these features are at the quarter Moon and a day after. The bottom picture, at the top of the Moon as we see it, is on the eastern edge of Mare Imbrium. Archimedes is a 50 mile crater with a lava covered floor and has small mountains to its NE side. The Apennine Mountains and the features pictured, really stand out when viewed. As you study the area notice the detail and take in its beauty.

Thank you for sharing your photography again, Kelly!
**WHAT'S HAPPENING IN THE SOLAR SYSTEM? WHERE ARE THE PLANETS?**

**MERCURY** moves into the morning sky and by mid-month will be bright in the Southeast and placed well for viewing. You early risers be on the lookout for it. Binoculars may help to locate.

**VENUS and MARS** become a pair of early evening planets during February. On the 22nd, they are at their closest and only 30’ (1/2 degree) apart in the same telescopic field of view (fov). The days leading up to this event will be a good time to have a star party.

**JUPITER** is at opposition on February 6th. The planet starts February in Leo. During February it moves to the west (that is in a retrograde sense) and into Cancer. Jupiter remains the great planet of the month as it is up most of the night. The moons continue their dance around Jupiter.

**SATURN** remains a morning object throughout February. On the 1st it rises close to 2am; by the end of the month a few minutes before midnight. The planet will be in Scorpius near the close double star beta Sco, at magnitude 2.6. Saturn will be about 9° from Antares. The rings are tilted more toward us in 2015, offering better views of the system and its moons.

**URANUS** remains in Pisces as an evening object, magnitude 5.9. Poor viewing.

**NEPTUNE** is at conjunction with the Sun on the 26th. Too close to the Sun.

**PLUTO** is in Sagittarius in early morning sky. Its magnitude is 14.4. Too close to the Sun.

**JUNO** is the best minor planet to view. Starts in February in Hydra. It moves into Cancer on the 16th. This places it in the evening sky, although it doesn't set until several hours after midnight. Its brightness fades during the month from magnitude 8.2 to 8.9.