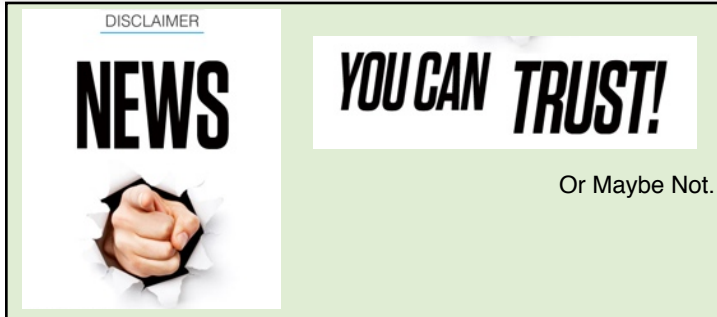


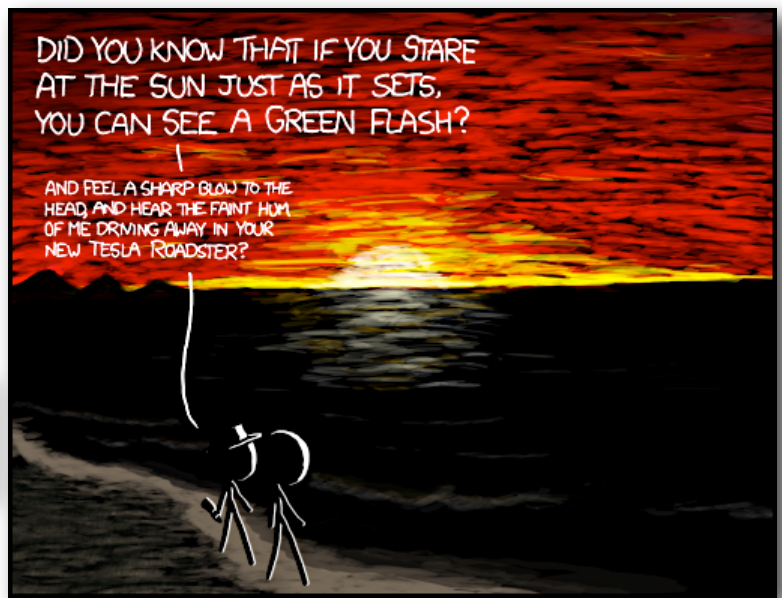


*Astronomy News for Bluewater Stargazers
Vol 10 No. 4 April 2016*



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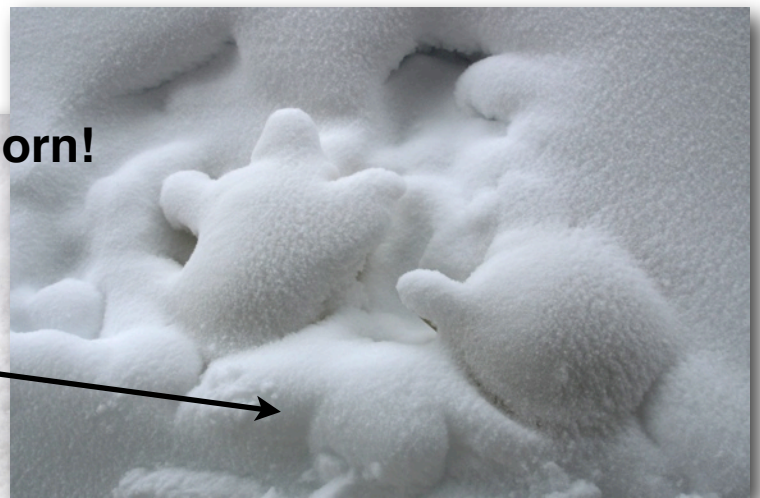


www.xkcd.com cartoonist Randall Monroe has a twisted sense of humour that often deals with astronomy and tickles the fancy of this editor. Hope you occasionally find it amusing as well.

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Ice Turtle Update: Baby Icy Born!

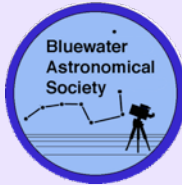


When we informed Petro Middelvin of the Vladivostok Ice Turtle Research Group, he was overjoyed. "Congratulations!" he exclaimed. "I am very pleased that a baby "icy" has arrived and expect it will do well as long as the temperature stays low enough while it is being weened. It's main food at this time (ice milk) must be at the proper temperature for it to digest it properly. With the cold in your area right now, it should be no problem. "

The author of our exclusive report on ice turtles last year at this time, speculated on possible off-spring (arrow) and we couldn't be any happier to announce that an Ice Turtle baby was observed frolicking in the snow several months later. The gestation period of ice turtles is not well known but appears to be several months. The spring warmup seems to be the ideal time for these elusive creatures to appear. Judging by the appearance in the image above taken a few weeks after the birth, baby seems to be adapting well to what's left of Bruce County winters. And it's loving the prolonged ice conditions after the recent ice storm!

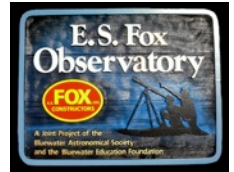
Our intrepid photographer who took this image, was only able to get one shot before momma ice turtle slipped the youngster back under cover and the new family disappeared under the snow. Truly an incredible story!

Disclaimer: S G N reports on the activities of the Bluewater Astronomical Society (formerly Bruce County Astronomical Society) but any opinions presented herein are not necessarily endorsed by BAS. See the BAS website at www.bluewaterastronomy.com for up-to-date details relating to BAS events. The BAS weblog is back, with articles of immediate interest written by various BAS members. SGN is produced and edited by John Hlynialuk. I am solely responsible for its content. Your original articles, images, opinions, comments, observing reports, etc., are welcome. I reserve the right to edit for brevity or clarity. Errors or omissions are entirely mine although I strive for accuracy in star events, etc. I will not publish your emails or other materials without your specific permission to do so. No part of this publication shall be reproduced in any form whatsoever without the editor's consent. However, the Sky Calendar and Feature Constellation pages are free to copy. Feel free to forward this issue in its entirety to friends. Email comments and/or submissions to stargazerjohn@rogers.com



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BAS & Astronomy Events for March

Event times in DST with 24-h clock unless indicated otherwise

Date	Day	Time	Event
Apr 6	Wed	03:30	Venus 0.7° S of Moon
		19:00	Regular Meeting Grey Roots Museum: Trivia Night, Public Welcome
7	Thu	06:24	NM rises locally at 7:11 am DST
		12:36	Moon at Perigee: 357 200 km
9	Sat	@dark	Fox Dark of Moon Viewing night Messier Marathon Night #2 (members/guests)
10	Sun	17:05	Aldebaran 0.4° S of Moon Occultation visible in daylight 6:37 pm - 7:43 pm DST
13	Wed	22:59	FQ Moon rises 11:00 am DST Apr 12
16	Sat	19:46	Regulus 2.7° N of Moon
17	Sun	23:42	Jupiter 2.4° N of Moon
18	Mon	08:59	Mercury Greatest Elongation East 19.9°
21	Th	02:59	Spica 5.6° S of Moon
		11:05	Moon at Apogee: 406 400 km
22	Fri	00:24	Full Moon rises at 7:51 pm DST Apr 21
		00:30	Lyrid Meteor Shower: ZHR = 20
25	Mon	14:28	Saturn 3.7° S of Moon
27	Wed	08:51	Mars 4.9° N of Antares
28	Thu	03:14	Mercury 6.5° S of Pleiades
29	Fri	22:29	LQ Moon rises locally at 2:01 am DST

The April 2016 issue continues the monthly tradition of providing **serious astronomy news** and information about local BAS events. However, being an April issue, some of the articles herein may be on the lighter side or even **totally bogus**. After all, spring has sprung and the silly season is upon us.

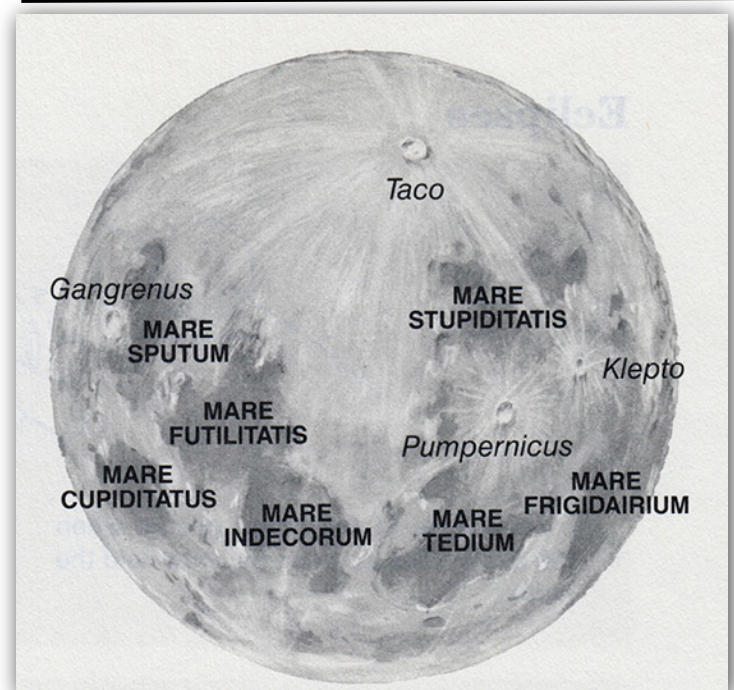
READER BEWARE.

Nevertheless, ALL ASTRONOMY AND BAS EVENTS ARE CORRECT AND SO IS THE SKY CALENDAR. 'No Foolin' with those!

The editor takes NO responsibility for anything that may befall you as a result of taking anything you might find on this or in any of the following pages seriously. "Caveat Emptor"



Tom Weller's lunar map gives his version of named features. From *Science Made Stupid* (still available on Amazon.ca) along with other Weller classics like "*Culture Made Stupid*" and "*Minims: or Man Is The Only Animal That Wears Bow Ties*" -a book of minims as opposed to maxims...



Gorilla Escapes Zoo, Ends up on ISS

A local zoo in Florida has finally got the answer to what happened to the gorilla that went missing shortly before the Mar 31 re-supply flight to the ISS. Zoo officials are at a loss to explain how it made its way into the cargo ship, but it may have been after some food in one of the cargo bags and ended up trapped inside (maybe it decided to nap after eating its fill).

In any case, it ended up stowed on the Space-X Dragon cargo mission and eventually found itself in the cargo locker on board the ISS. It must have been quite a ride, and no doubt the reason it was so angry when astronaut Mark Kelly zipped open the container as part of the un-stowing process. Kelly immediately vacated the locker area when he noticed a furry hand emerging from the partially unzipped canvas stow bag. Cameras on board ISS caught the ensuing action (see screen shots) as the irate creature emerged and starting looking for someone on which to vent his anger. No doubt it's disorientation by zero-g saved several astronauts from being mauled.

Mission Commander Sergei Volkov, quickly assessed the situation, (Volkov was a circus trapeze star in the former Soviet Union) and realized that the gorilla's love of bananas could be used to lure it to a secure hold. The plan worked brilliantly. Mark Kelly attached strips of velcro to a dozen bananas and stuck them in prominent locations leading to the EVA lock on the mid-deck module. The hungry beast, quickly adapted to being in free fall, focused on getting food and followed the trail of treats. Not without incident, however, at one point it took a side track and ended up in the ISS control room and accidentally fired the retro rockets. But as Volkov, said, "First things first! comrades! Let's get the gorilla out of our space ship!" "Besides, we have a few days before the re-entry



creature (informally named "Gary"). Also it happens to be occupying the EVA airlock which contains all the emergency space suits and escape pod. Gary seems to be acclimatizing to its new environment quickly, and it has shown remarkable intelligence, in spite of falling for the dumb "follow-the bananas" trick.

No doubt, there is more yet to the story of "Gary" the Involuntary Space Gorilla. Stay tuned.



becomes an issue."

The gorilla was finally cornered in the EVA airlock. Kelly suggested venting the lock and letting the beast float free, but Volkov, obviously reluctant to dispatch a beloved circus animal this way, suggested keeping the creature in the lock, pending directives from NASA officials.

On the ground, medical scientists considered taking advantage of the opportunity of having another test animal on board ISS and there was some discussion of devising experiments to test the gorilla's reactions to the environment. It was, after all, in a safe place in a controlled environment. NASA is considering a plan of impromptu experimentation and is reluctant to pass up an opportunity to test another primate's response to space travel (see article below). The biggest hurdle would be to get food to the



*Ham, Space Chimp bolted into Mercury MR-2 capsule
NASA photos*

Alan Shepard, bolted into his Mercury Freedom 7 capsule

Ham, America's first space chimp paved Alan Shepard's way on Mercury's Freedom 7 mission May 5, 1961. After his flight Jan 31, 1961, Ham lived for 17 years in the National Zoo in Washington, D.C.

After his death in 1983, Ham's body was turned over to the Armed Forces Institute of Pathology for necropsy. Following the necropsy, the plan was to have him stuffed and placed on display at the Smithsonian, following Soviet precedent with their space dogs Belka and Strelka. This plan was abandoned after a negative public reaction. Ham's remains, minus the skeleton, were buried at the International Space Hall of Fame in Alamogordo, New Mexico. Colonel John Stapp gave the eulogy at the memorial service. The skeleton is at the National Museum of Health and Medicine.

Ham's backup, Minnie, was the only female chimpanzee trained for the Mercury program. After her role in the Mercury program ended, Minnie became part of an Air Force chimpanzee breeding program, producing nine offspring and helping to raise the offspring of several other members of the chimpanzee colony. She was the last surviving astro-chimpanzee and died at age 41 on March 14, 1998. [There is no memorial for this female chimp, as far as I know, but she surely deserves one! -ed]

Pickles and Humbug: A Bit of Comparative Logic

(anonymous)© *The Journal of Irreproducible Results*,
v15 #1 p18, August 1966

Pickles will kill you!

Every pickle you eat brings you nearer to death. Amazingly, the "thinking man" has failed to grasp the terrifying significance of the term "in a pickle". Although leading horticulturists have long known that Cucumis Sativus possesses indehiscent pepo, the pickle industry continues to expand.

Pickles are associated with all the major diseases of the body. Eating them breeds wars and Communism. They can be related to most airline tragedies. Auto accidents are caused by pickles. There exists a positive relationship between crime waves and consumption of this fruit of the cucurbit family. For example:

1. Nearly all sick people have eaten pickles. The effects are obviously cumulative.
2. 99.9% of all people who die from cancer have eaten pickles.
3. 100% of all soldiers have eaten pickles.
4. 96.8% of all Red sympathizers have eaten pickles.
5. 99.7% of the people involved in air and auto accidents ate pickles within 14 days preceding the accident.
6. 93.1% of juvenile delinquents come from homes where pickles are serve frequently.



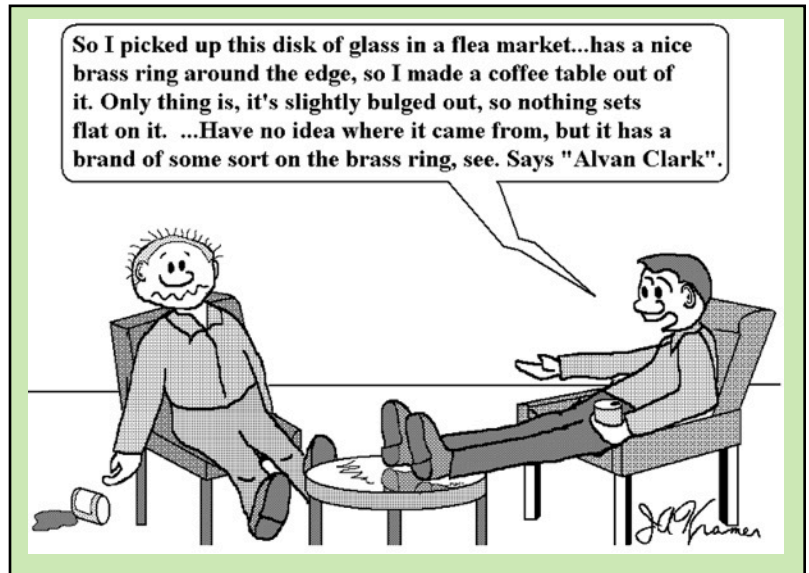
Evidence points to the long-term effects of pickle-eating:

- Of the people born in 1839 who later dined on pickles, there has been a 100% mortality.
- All pickle eaters born between 1919 and 1929 have wrinkled skin, have lost most of their teeth, have brittle bones and failing eye-sight - if the ills of eating pickles have not already caused their death.
- Even more convincing is the report of a noted team of medical specialists: rats force-fed with 20 pounds of pickles per day for 30 days developed bulging abdomens. Their appetites for wholesome food were destroyed.

The only way to avoid the deleterious effects of pickle eating is to change eating habits. Eat orchid petal soup. Practically no one has any problems from eating orchid petal soup.

From the editor: Here's proof cucumbers can kill:

Samuel Pepys wrote in his diary on August 22, 1663, "this day Sir W. Batten tells me that Mr. Newburne is dead of eating cowcumbers, of which the other day I heard of another, I think." In "The Greenstone Door", William Satchell notes that "Te Moanaroa was dead - of a surfeit of cucumbers...", having eaten four of the "prickly" melons. (Chapter XX, The Storm Cloud).



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Ten Laws of Astrophotography

by Clive Gibbons Hamilton Centre

When one has been engaged in the pursuit of astrophotography for a number of years, one realizes the existence of several **Great Truths** which rule the discipline. These revelations usually present themselves towards the end of a particularly fruitless observing session. The veteran astrophotographer has no doubt experienced some or all of the following.

To the novice let them be a warning...

1. Fosdick's Law of Field Rotation

The probability of finding a bright guidestar close to the object you wish to photograph is inversely proportional to the accuracy of your polar alignment.

2. Simon's Law of Impending Overcast

If everything is going according to plan, you have 15 minutes before the sky clouds over.

3. The Area Law of Reciprocal Probability

The smaller the field of view of your photograph, the greater is the chance that a well-lit low-flying aircraft will fly through it.

4. The First Law of Suburban Astrophotography

Your emulsion will sky-fog in half the time it would take to properly record the object you wish to photograph.

5. Digby's Law of Inevitable Failure

The chance that your photo will be in focus is directly proportional to the number of other factors which will ruin it anyway.

6. The Law of Non-liability

The probability that your slides will come back mounted and cut down the middle of each frame is directly proportional to the clarity of the directions you give the photofinisher to leave them uncut and unmounted.

7. The Perfect Polar Alignment Delusion

If your guidestar fails to drift in declination, you are hallucinating.

8. The Social Interaction Principle

The time it takes to set up your telescope is directly proportional to the number of people present to "help" you.

9. Digby's Second Law of Inevitable Failure

The chance that you will forget your cable release at home is inversely proportional to the chance that you will forget your film at home, unless of course, you forget both.

10. Newman's Observation

Murphy was an astrophotographer.

Reprinted from *Orbit*

LSST will take digital images of the entire visible southern sky every few nights from atop Cerro Pachón in N. Chile. It will produce the widest, deepest, and fastest views of the night sky ever observed.

The "camera" consists of a total of 189 sensors and over 2.7 tonnes of components packed tightly into a cylindrical body, all attached to the LSST's 8.4-metre primary mirror. The LSST will generate a vast public archive of data—approximately 6 million gigabytes per year—that will help researchers study the formation of galaxies, track potentially hazardous asteroids, observe exploding stars, and better understand dark matter and dark energy.

Components of the camera, which will be the size of a small car image right) and weigh more than 3 tonnes, will be built by an international collaboration of labs and universities and is scheduled for first light in 2022.

Candidate for a Pullet Surprise

Jerrold H. Zar
Northern Illinois University

PULLET SURPRISE

I have a spelling checker,
It came with my PC.
It plane lee marks four my revue
Miss steaks aye can knot sea.

Eye ran this poem threw it,
Your sure reel glad two no.
Its vary polished in it's weigh.
My checker tolled me sew.

A checker is a bless sing,
It freeze yew lodes of thyme.
It helps me right awl stiles two reed,
And aides me when eye rime.

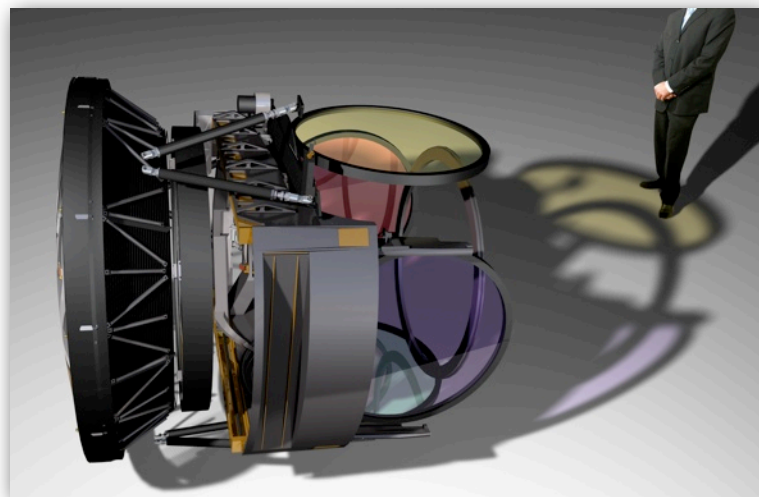
Each frays come posed up on my
screen
Eye trussed too bee a joule.
The checker pours o'er every word
To cheque sum spelling rule.

Bee fore a veiling checker's
Hour spelling mite decline,
And if we're lacks oar have a laps,
We wood bee maid too wine.

Talk About a Camera!

How about a
3200 megapixel sensor?

Canon and Nikon may have new 50-megapixel cameras soon, but they've been outpixelled by a 3200-megapixel sensor (scale model right) being built for the Large Synoptic Survey Telescope (LSST) now under construction in Chile.



Butt now bee cause my spelling
Is checked with such grate flare,
Their are know fault's with in my
cite,
Of nun eye am a wear.

Now spelling does knot phase me,
It does knot bring a tier.
My pay purrs awl due glad den
With wrapped word's fare as hear.

To rite with care is quite a feet
Of witch won should bee proud,
And wee mussed dew the best wee
can,
Sew flaw's are knot aloud.

Sow ewe can sea why aye dew
prays
Such soft wear four pea seas,
And why eye brake in two averse
Buy righting want too pleas.

-- Jerrold H. Zar
Department of Biological Sciences
Northern Illinois University
DeKalb, IL 60115-2864
jhzar@niu.edu

M 51 -the Finest Galaxy in the Spring Sky

"Normand" I said, "the telescope you built for me has now repaid me in full! ... I am looking at the Whirlpool Galaxy, M51, and its companion galaxy, NGC 5195, and the view is like a photograph!"

Author in conversation by phone with Normand Fullum

By far, the most dramatic and spectacular galaxy visible to amateur astronomers in the Spring sky is Messier 51, with its interacting companion galaxy, NGC 5195, nestled beside it. I do enjoy astrophotography and this year, during our Arizona sojourn, I have enjoyed astrophotography on most clear nights.

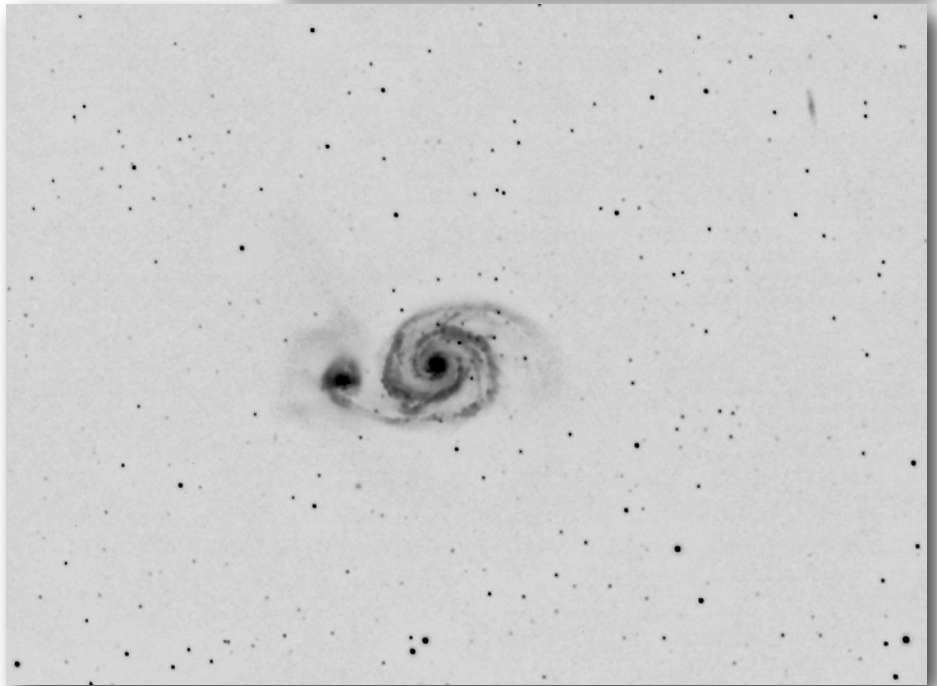
So, this spring, I have concentrated mostly on imaging a number of interacting galaxies: the Whirlpool (M51 and its companion NGC 5195) shown in my image right); the Whale Galaxy, (NGC 4631 and its companion, NGC 4627); Bode's Galaxy(M81) and its nearby Cigar Galaxy (M82). The only difficulty with imaging is that the visual experience is delayed somewhat by the necessity of image processing. But for me the eyepiece experience of amateur astronomy, where the effect is immediate and photons directly excite the retina is a more satisfying experience -a personal connection to the Universe.

It's no wonder then, that a large Dobsonian purchase would at some time, become a reality for me. There were some objects that I wanted to see with my own eyes. So, I contracted Normand Fullum to build me a 32 inch, f/3.5, reflector, controlled by ArgoNavis and driven by ServoCat.

The scope was delivered personally by Normand on a cold December day in 2012 to our Four Elements Observatory at Little Pine Tree Harbour. There it sat, unused, until we returned home from Arizona in the spring.

And so it was, on a beautiful May evening, that I directed the computer to put M51, the famous Whirlpool galaxy, into the FOV. I was using a 13 mm Ethos eyepiece and the visual effect was much like a photograph. I saw, without averted vision, the spiral arms of M51 with their granular, knotted clumps of H-II regions and stellar associations. I could also trace two major spiral arms and easily followed the NE one until it met the companion galaxy, NGC 5195. I also saw the nucleus of M51, the dark dust lanes on the inside of its two major spiral arms, and observed a dusty mottling within NGC 5195. The real surprise was seeing, with averted vision, the faint intergalactic, gaseous nebulosity surrounding both M51 and NGC 5195.

It was now about 11:00 PM. I climbed down the observing ladder, and went into our cottage to get my cell phone. After returning to my observing station atop the ladder I called Normand at his home in Hudson, PQ. He was just going to bed. That was when I told him that the scope which he had made for me had now, with this view of M51 and its companion, paid me back in full!



M51 Whirlpool Galaxy and companion NGC 5195 Negative photo above, positive photo below. Canon 60Da 12.5 min exp. @3200 ISO 150 mm TOA refractor, TAK EM 400 mount (Photo by D.Cunningham, 2016) taken at Arizona Sky Village



The first observation of the real spiral glory of M51 was made by William Parsons, the Third Earl of Rosse, in April, 1845, about 171 years ago. Parsons had constructed, at Bir Castle, Parsonstown, County Offalay, in Ireland, between 1842 and 1845, the largest reflector in the world, called the Leviathan of Parsonstown.

Its reflective surface had an aperture of 72 inches, at f/8.8, and remained the largest telescope in the world until the 100 inch Hooker telescope was built on Mt Wilson in 1917. The mirror was made from Speculum, an alloy of tin and copper, and its metallic reflective surface had to be refreshed by repeated polishing. The telescope and its mount were huge! It weighed 12 tons, and was mounted between two masonry walls each 6 feet thick, separated by 23 feet, and were 50 ft high! The tube itself was 58 feet long, 8 feet in diameter in the middle, and tapered to 7 feet at each end! According to Parsons, the telescope tube, slung with chains, was steady, even in high winds. However, the observer, when the scope was pointed to the vertical more than 50 feet high, swayed to and fro!

Parsons sketched M51 in April 1845, and he shared his observations with the British Association for the Advancement of Science in Cambridge, in June, 1845. His description of the nebula and his drawing caused quite a stir! His sketch (reproduced above) shows the two galaxies, the two main spiral arms, the associated internal dust lanes, the connecting bridge between the interacting galaxies, and some dust in NGC 5195. Parsons also observed and sketched spiral structures in galaxies M33, M99, and M101.

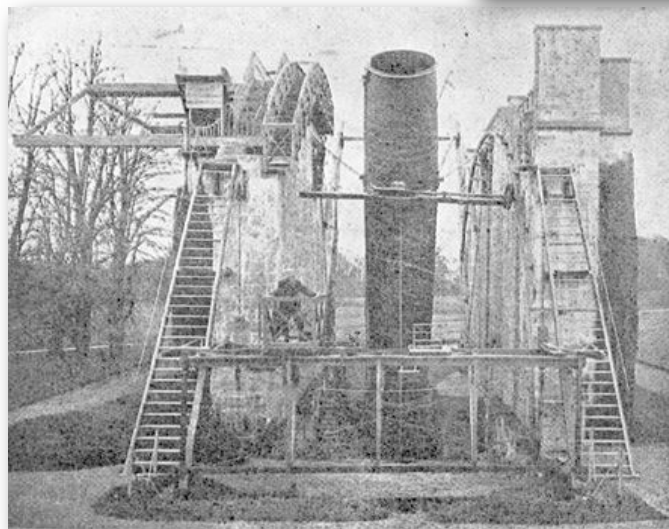
How good were the images drawn by William Parsons? Well, according to a report by Jeff Kanipe and Dennis Webb, in their recent book "Volume 3 - Annals of the Deep Sky", a Webb Society member, Malcolm Thomson, compared Parsons' descriptions and drawings of various deep-sky objects with their Digitized Sky Survey images, and he was quoted as saying:

"To see such detail, as recorded in Parsons drawings, the telescope had to have been performing at an acceptable level and fully justified the hopes and aspirations for it, expressed by its builder, Lord Rosse (William Parsons)."

Indeed, I was so impressed with my own large aperture views of M51, that I have asked an artist and friend to do a charcoal sketch of M51, as seen from the eyepiece. When it is finished this Spring I will frame it and place it on the wall of our Four Elements Observatory.



Above: Lord Rosse's drawing of M51 from views in the 72-inch reflector (below). **Right:** William Parsons, 3rd Earl of Rosse. **Below:** an early image of "The Leviathan of Parsonstown" and below that as it now appears.



Right: The Leviathan of Parsonstown as it appeared in 2011. One of the two speculum mirrors (left) of 5 that were cast is on display at the Science Museum in London England. The telescope at Birr Castle has been rebuilt and an aluminum mirror (not glass) was installed in the tube for viewing in 1999. The telescope is in use for star tours today.

Missed by “that much”

LaMont “Monte” Hamilton is an ordained minister, Reiki Master healing practitioner, registered hypnotherapist, and holds multiple degrees in business, psychology, and education, and has worked in the paranormal field full time for over 25 years.

Here’s what he sees for 2014:

- 1 A discovery that diseases can be transmitted or transferred by **pure thought** from one location to another will be found. *(Did not happen)*
- 2 Scientist will discover **and prove** that we live in an **identical twin universe** that’s the mirror opposite of ours. *(Did not happen)*
- 3 **Nobel Prize in Chemistry** will go to: Alivisatos, Seeman, and Mirkin for their work on DNA. *(Actually went to: Eric Betzig, Stefan Hell and W. E. Moerner)*
- 4 **Nanotechnology** that uses the unique properties of DNA to treat the human body targeting individual cells. *(This isn’t something unique to 2014 as development of this kind of technology began years ago, and it’s not ready for humans)*
- 5 USA will lose one of its past **Presidents or First Lady** this year after a prolonged illness. *(We didn’t) [Failed to predict Nancy Reagan’s passing as well in 2016 -ed]*
- 6 The Atlantic Ocean along the central east coast [of the U.S.] will be **contaminated due to radiation** or pollution that kills aquatic life. *(Did not happen).*
- 7 Russia, China, and U.S. will collaborate on an **asteroid shield/tracking program** due to a potential hazard coming by December. *(Did not happen, and no threat in December)*
- 8 A tragic full-blown horrific **civil war breaking out in Sudan** by April, drawing the U.S military into the conflict. *(Turns out it was Syria and Iraq.)*
- 9 Due to the advancement of new nano-chemicals, **future cars** will not need to be washed as much or need windshield wipers to repel dirt or water. *(Did not happen in 2014)*
- 10 Programmers will discover a simple computer code or app that will end almost all future online **computer viruses**. *(Did not happen, probably will.)*
- 11 Significant positive views about women will create a rise in global political and economic power for them this year, and another top 5 auto manufacturer will have a **female CEO** before the year is out. *(There was a female CEO announced in 2013!. This doesn’t count as a prediction for 2014. Nice try, Lamont.)*
- 12 **New protruding land masses** or islands will start to form around Hawaii, Southeast Asia, and the Bahamas over the next year, sparking renewed interest in the legend of Atlantis. *(Atlantis, really? Didn’t happen).*
- 13 The original 1969 **USA moon landing site** will be reported as damaged or vandalized by another country that lands on the moon. *(Didn’t happen.)*

From the editor:

Astrologers insist on making predictions about the coming year that can then be checked. The unsurprising result is that the majority of these are wrong. One wonders why they persist in proving themselves wrong year after year. Anyway here is a short list of predictions from Lamont Hamilton, whose ego apparently prevents him from accepting the fact that, as Sheldon Cooper would say: “Astrology is hokum!”

The predictions at left are for 2014, but let us conservatively extend the time interval to the end of 2015, thus giving them plenty of time to come true, if they were going to. The actual 2015 predictions posted on his website had an equally low hit rate, i.e. about 5%, no surprise there.



Top Ten Differences Between Astronomy & Astrology:

10. Astronomers never try to contact dead astrologers.
9. Nancy Reagan never asked an astronomer for advice.
8. An astronomer plans an evening according to the position of the stars & planets; an astrologer plans a life according to the positions of the stars & planets.
7. Telescopes come in a staggering array of shapes and sizes. All Ouija boards look the same.
6. Carl Sagan did not have a 900 number.
5. Your VISA limit is of very little interest to an astronomer.
4. Astronomers occasionally make accurate predictions.
3. Alcohol makes complex astronomical concepts more difficult to comprehend; alcohol makes astrological concepts easier.
2. Transposing two astronomical objects’ coordinates makes a huge difference; transposing two peoples’ horoscopes makes no difference at all.
1. Astronomers believe in the truth of relativity. Astrologers believe in the relativity of truth.



Church of the FSM Recognized as Legitimate Religion in Netherlands

The Church of the Flying Spaghetti Monster has [finally been recognised as a religion](#) in The Netherlands.

Two days ago, pastafarians were told by the country's Chamber of Commerce that they would be granted official status. They had been trying for several years.

Members of the new church naturally celebrated the news with a bowl of pasta.

A spokesman for the Dutch arm of the group said: 'The Church of the Flying Spaghetti Monster is since today officially registered as a Denomination! 'Our church stands for equality for all.



Therefore, anyone can sign up free of charge and without obligation. 'To express our faith we put a colander on our heads. Also on official government documents. 'We come together in local churches and at events. Our services are especially devoted to socialising. So we eat pasta, we drink beer and discuss faith.'

Although a momentous time for the church of FSM – this is not the first time the church has been recognised in some capacity. The Church of the Flying Spaghetti Monster is already recognised in North America after being established by 'prophet' Bobby Henderson in 2005 as a protest against creationism.

Pastafarians believe heaven is a beer volcano with a stripper factory, while hell is the same but the beer is stale and the strippers have sexually transmitted diseases. Explaining more, the 'hammock enthusiast' says: 'We believe the Flying Spaghetti Monster created the world much as it exists today, but for reasons unknown made it appear that the universe is billions of years old (instead of thousands) and that life evolved into its current state (rather than created in its current form). 'Every time a researcher carries out an experiment that appears to confirm one of these "scientific theories" supporting an old earth and evolution we can be sure that the FSM is there, modifying the data with his Noodly

Appendage. 'We don't know why He does this but we believe He does, that is our Faith.'

R'amen.

Read more: <http://metro.co.uk/2016/01/28/the-netherlands-has-recognised-the-church-of-the-flying-spaghetti-monster-as-a-religion-5649017/#ixzz41Ezkdzvs>

FLYING SPAGHETTI MONSTER THE GAME

INSTRUCTIONS:
 AS THE FLYING SPAGHETTI MONSTER, YOU MUST CONVERT AS MANY PEOPLE INTO PASTAFARIANS AS YOU CAN BEFORE TIME RUNS OUT!

USE YOUR MOUSE TO GUIDE THE SPAGHETTI MONSTER ACROSS THE PLAYFIELD. CLICK THE MOUSE BUTTON TO DEPLOY YOUR NOODLY APPENDAGE TOWARD THE SCURRYING PEOPLE!

BE SURE NOT TO MAKE CONTACT WITH THE DARKLY-CLAD SCHOOL ADMINISTRATORS!

START GAME!

SCORE: 0 TIME REMAINING: PASTAFARIANS: 0 MUSIC: ON OFF

Was The Big Bang Just A Black Hole?

Fraser Cain (Universe Today) "Asks a Spaceman" Dr. Paul Matt Sutter

Was the Big Bang singularity just a really big black hole singularity? A black hole with all the mass of the Universe inside it?

To answer this question here is Dr. Paul Matt Sutter, an astrophysicist with Ohio State University and the Astronomical Observatory of Trieste. Paul specializes in cosmic voids, he also knows plenty about both the Big Bang and black holes.

1. Did the whole Universe start off from a really massive black hole?

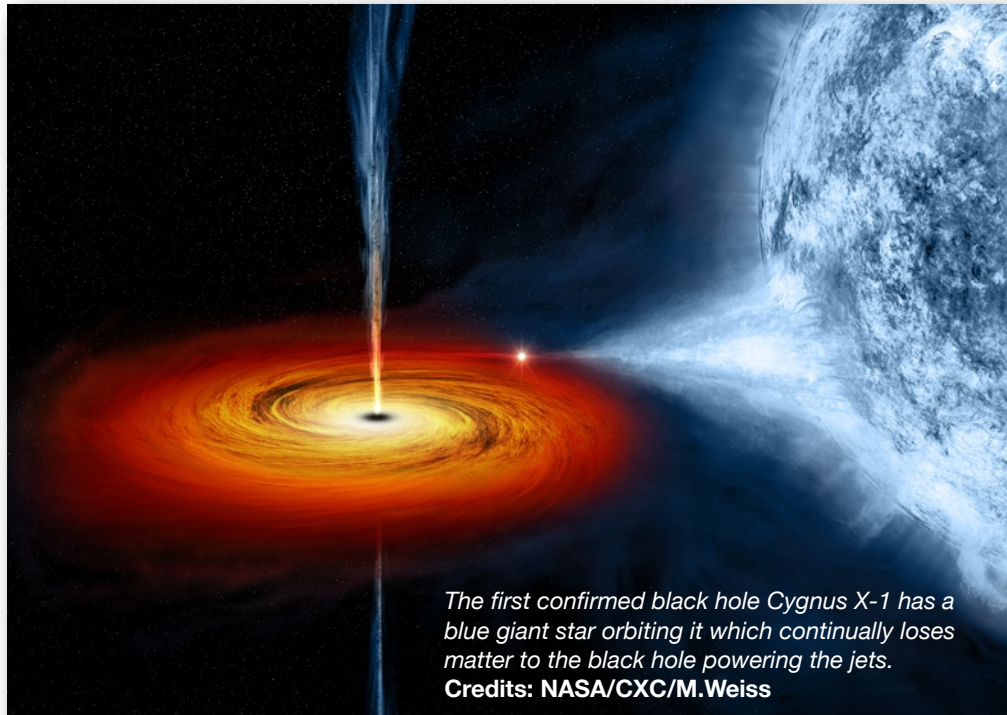
Paul: Thanks, Fraser. So, when we're looking at singularities, it's important to keep in mind what a singularity is. A singularity is a place of infinite density, and that's not really a thing. It just means that the mathematics that we're using to describe the thing have broken down. Like we get infinities in our answers when we try to calculate what's going on. In as far as we know, these kinds of things, these breakdowns in the mathematics, happen in two places. One is at the center of a black hole, where stuff is compressed down so much that we can't follow the math anymore, and the other time is in the very early universe, when the entire universe is crunched down into such a tiny volume at such high densities that we can't follow the math any more. So that's the only thing that they have in common – that there's a singularity, which means that we can't do the math any more.

And so even though they're the same, they're very, very different. A black hole singularity is a point in spacetime – like you live in the universe and you can point – there's a singularity like right over there, or over there or over there. It's a piece of the universe that's embedded in the larger universe, whereas the Big Bang singularity is the whole entire universe. It's a different thing where the entire universe is compacted down at such incredibly high densities that our mathematics can't keep track of it any more.

2. Why didn't the early universe just collapse back into a black hole?

Paul: Oh, that's a very good question, Fraser. You're thinking about these incredibly high densities in the early universe, and it's natural to wonder why it didn't just behave like a black hole behaves and crunch down into an infinitely dense point – why even bother expanding? And it's important to remember here just how different black holes are from the early universe. In both cases, we're using general relativity – these are the laws of gravity – they govern the laws of these systems. But we're using the same set of equations in different scenarios. We're using them to describe different things. A black hole is a particular solution to Einstein's equations of general relativity, and that solution comes about from asking the question "If I take a bunch of stuff over there and compact it down to incredibly high densities, what happens?" The answer is that you get a singularity surrounded by an event horizon. That's one particular set of solutions to the mathematics of that scenario.

But in the early universe, we have a different solution – we have a different thing going on. It's a different universe. The black hole solution is static – it's fixed, it's unchanging with time. That's an assumption in the mathematics. But in the early universe, things are changing. It's a different set of questions we're trying to answer when we apply general relativity to the early universe is "If I fill the whole universe evenly with a whole bunch of stuff, what does the



The first confirmed black hole Cygnus X-1 has a blue giant star orbiting it which continually loses matter to the black hole powering the jets.

Credits: NASA/CXC/M.Weiss

whole universe do?" That's a different question than the question we're asking about black holes, and so we get a different answer. So even though we have that incredibly high density, the mathematical solution describing it, because we're describing the time evolution of the universe, we get different answers than we get for the black hole bits. And when it comes to the early universe – when you fill it up evenly with a bunch of stuff and ask what the heck happens to the universe, there's only two answers. Either the stuff in the universe causes the stuff to collapse and contract, or the stuff in the universe causes the universe to expand. And it depends on what the universe is made of, and it turns out, handily enough, that the universe is made of the kind of stuff that makes it expand. It's that time evolution component here that's important – that sets the difference between what's happening in the early universe and what's happening in a black hole.

3. Could Black holes have formed in the Early Universe because it has such high densities?

Paul: Oh yeah, very clever, Fraser. I see where you're going with that. With incredibly high densities, you're wondering maybe a little piece of the universe pinched off and made a black hole. Maybe in those early microseconds. And why couldn't that black hole have expanded to consume the rest of the universe? And the key here isn't about density, it's about differences in density. What separates a black hole from me is that it's way more dense than me, or at least I hope so. That's what makes it a black hole. It's much more dense than it's surroundings. But in order to make that black hole form, you had to have a little bit of extra stuff like in a pocket, like an extra gas cloud or a star, a little bit higher density than normal. Then gravity can work, and start pulling in more stuff, and more stuff, and more, building and building until you get the gravitational collapse that leads to a black hole.

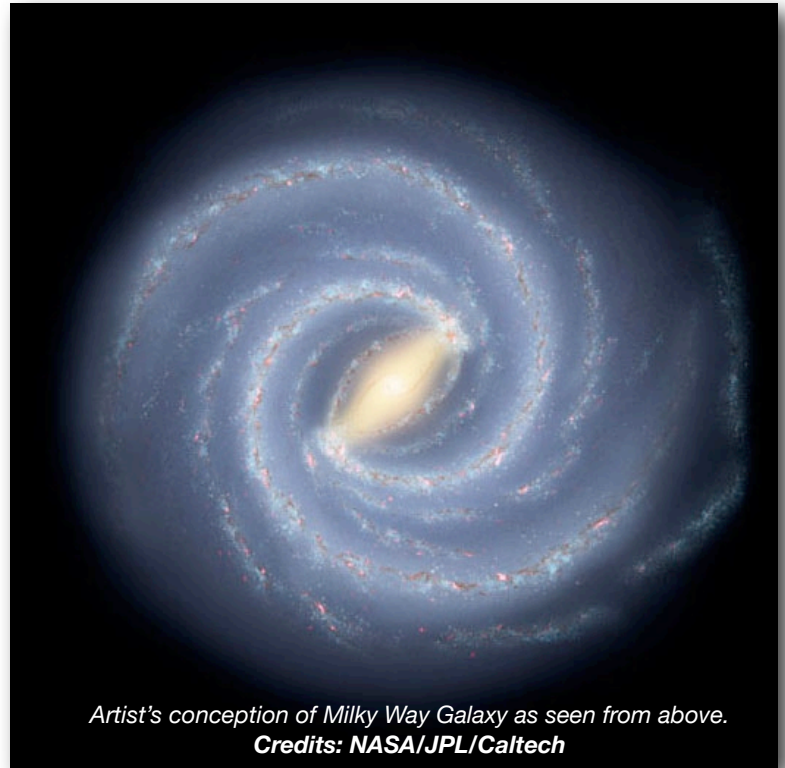
But in the early universe, everything was uniform. There were no differences in gravity. Yeah, it was incredibly high density, but if you could be transported back there and actually survive, you wouldn't feel any gravitational pull anywhere because every direction is the same density. You're surrounded by the same amount of stuff in every direction – there's no gravity. It all cancels each other out. So there's no opportunity for a black hole to form because any one spot in the universe is no more dense than any other, so all the gravity cancels out and you get nothing. No black hole – they don't come onto the scene until much, much later in the evolution of the universe, and by that time, the universe is so big, the black holes can't affect the overall evolution.

4. Right now the universe is expanding – will it someday collapse?

Paul: Yeah, a lot of astrophysicists and cosmologists worry about this decades ago – we thought that yeah, maybe the universe is expanding now, but maybe there's a little bit too much stuff in it – maybe that expansion will slow down, stop and then reverse, and then we'd end up in this massive big crunch scenario, the opposite of the Big Bang. Paul: But it turns out, dark energy is here, and dark energy makes the expansion of the universe accelerate, so not only is the universe getting bigger and bigger every day, it's getting faster and faster every single day. And that, well, that kinda sucks.

That sounds pretty open and shut, but there's more to this journey. If you took the mass and energy of the entire Universe and turned it into a black hole, it would have almost the exact same density as the Universe itself, and an event horizon larger than the observable Universe.

So does that mean that we are, in fact, living inside a black hole? Could we tell the difference?



Artist's conception of Milky Way Galaxy as seen from above.

Credits: NASA/JPL/Caltech

The center of the Milky Way galaxy, with the supermassive black hole Sagittarius A* (Sgr A*), located in the middle, is revealed in image below left. Astronomers have used NASA's Chandra X-ray Observatory to take a major step in understanding why material around Sgr A* is extraordinarily faint in X-rays.

The image shows X-rays from Chandra in blue and infrared emission from the Hubble Space Telescope in red and yellow. The inset shows Sgr A* in X-rays only, covering a region half a light year wide. The diffuse X-ray emission (blue) is from hot gas captured by the black hole and being pulled inwards. This hot gas originates from winds produced by a disk-shaped distribution of young massive stars observed in infrared.

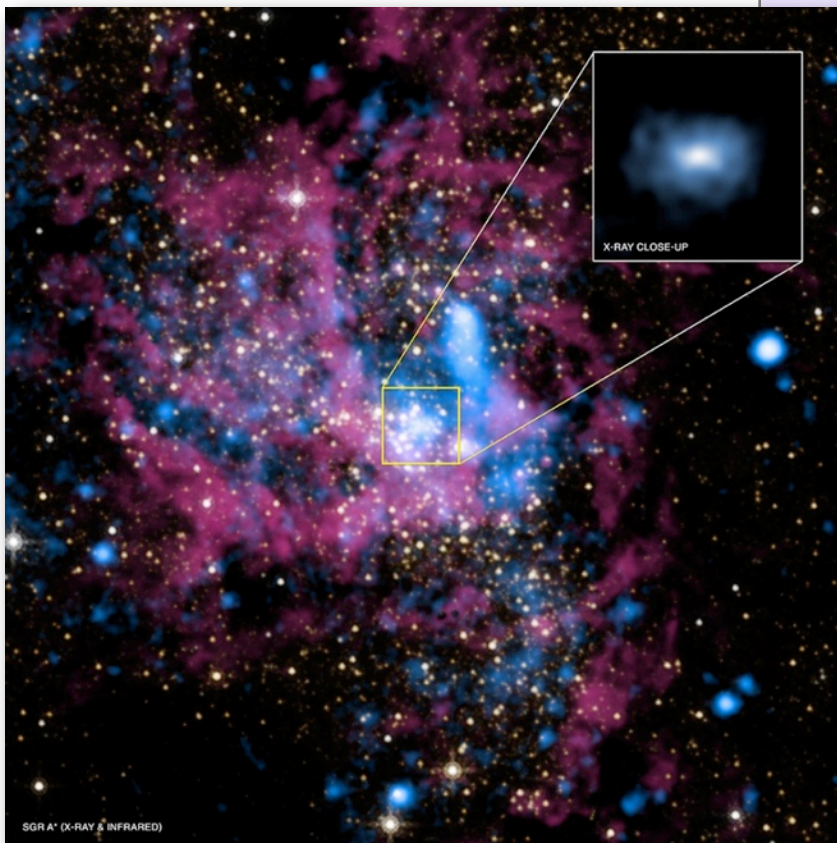
During 2012, Chandra captured X-ray images of multi-million degree gas swirling around Sgr A*, a 4 million solar mass black hole. At just 26,000 light years from Earth, Sgr A* is one of very few black holes in the universe where we can actually witness the flow of matter directly.

Less than 1% of the material initially within the black hole's gravitational influence reaches the event horizon because much of it is ejected. Consequently, the X-ray emission from material near Sgr A* is remarkably faint, like that of most of the giant black holes in galaxies in the nearby Universe. The captured material loses heat and angular momentum before being able to plunge into the black hole. The ejection of matter allows this loss to occur.

This work should impact efforts using radio telescopes to observe and understand the "shadow" cast by the event horizon of Sgr A* against the background of surrounding, glowing matter. It will also be useful for understanding the impact that orbiting stars and gas clouds might make with the matter flowing towards and away from the black hole.

The paper is available online and is published in the journal Science. **Image credit: X-ray: NASA/UMass/D.Wang et al., IR: NASA/STScI**

The Quiet Beast at the MW Centre



SGR A* (X-RAY & INFRARED)

Event times in DST with 24-h clock unless indicated otherwise

Apr 6	Wed	03:30	Venus 0.7° S of Moon
		19:00	Regular Meeting Grey Roots Museum: Trivia Night, Public Welcome
7	Thu	06:24	NM rises locally at 7:11 am DST
		12:36	Moon at Perigee: 357 200 km
9	Sat	@dark	Fox Dark of Moon Viewing night Messier Marathon Night #2 (members/guests)
10	Sun	17:05	Aldebaran 0.4° S of Moon Occultation visible in daylight 6:37 pm - 7:43 pm DST
13	Wed	22:59	FQ Moon rises 11:00 am DST Apr 12
16	Sat	19:46	Regulus 2.7° N of Moon
17	Sun	23:42	Jupiter 2.4° N of Moon
18	Mon	08:59	Mercury Greatest Elongation East 19.9°
21	Th	02:59	Spica 5.6° S of Moon
		11:05	Moon at Apogee: 406 400 km
22	Fri	00:24	Full Moon rises at 7:51 pm DST Apr 21
		00:30	Lyrid Meteor Shower: ZHR = 20
25	Mon	14:28	Saturn 3.7° S of Moon
27	Wed	08:51	Mars 4.9° N of Antares
28	Thu	03:14	Mercury 6.5° S of Pleiades
29	Fri	22:29	LQ Moon rises locally at 2:01 am DST

Planets

MERCURY re-appears east of the Sun in mid-April reaching greatest elongation on Apr 18 lingering above the horizon for 2 h after sunset .

VENUS, (-3.8) is much closer to the Sun now and difficult to spot in bright dawn twilight. It will pass behind the Sun in early June.

MARS, (mag. 0.8) rises after midnight and is high above the southern horizon by dawn. It gets closest to Antares on April 27 before it starts retrograde motion. **JUPITER**, (-2.4) is 30° high in the SE by sunset and is well placed for viewing in dark evening skies.

SATURN, (mag. 0.3) rises an hour after Mars and stays less than 10° away from Mars all month. Both **URANUS**, (5.8) and **NEPTUNE**, (7.9) are morning planets with Neptune rising 4 am followed by Uranus 1.5 h later. **Dwarf planet, Ceres** (8.6) sits between Uranus and Neptune this spring. **Asteroid, Vesta** (6.7) is near Mercury on Apr 18 and has the same viewing conditions until both set. **PLUTO** (mag. 14) rises about 3 am in Sagittarius and is visible in dark sky for several hours until sunrise. Charts for these planets and asteroids for the 2016 viewing season are now available on the BAS website.

The diagram below gives the sunrise/sunset times and the Sun's altitude for April. The moon phase graphic at the bottom of this page shows the lunar phase for each night of the month. Times of moonrise for NM, FQ, FM and LQ for Owen Sound are in the Sky Calendar listing at left. The April 10 Aldebaran occultation is a daytime event locally from 6:37 pm to 7:43 pm DST. The Moon is a crescent and disappearance is at the dark limb. See Special Events.

BAS Events

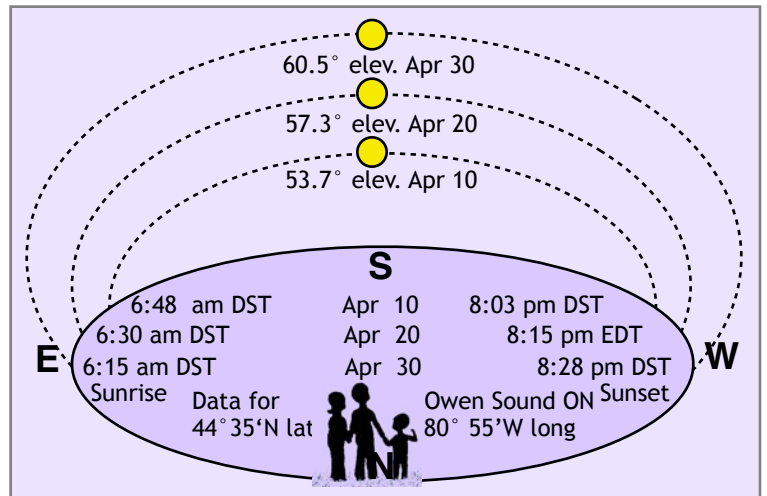
Apr 6	Wed	19:00	Regular Meeting Grey Roots Museum: Trivia Night, Public Welcome
9	Sat	@dark	Fox Dark of Moon Viewing night Messier Marathon Night #2 (members/guests)

Special Events

Aldebaran Daytime Occultation Apr 10

If you have nothing to do Sunday evening Apr 10, and the skies are clear, and you can find the 4-day old crescent Moon in the sky, then you should occupy yourself watching it block out the light from Aldebaran. The occultation happens from 6:37 pm DST when it disappears behind the Moon's dark leading edge. Aldebaran reappears at 7:43 pm DST at the bright limb but it will still be daylight at the time. Times are plus or minus a minute or so. You may need to use GOTO to locate the Moon ahead of time or find the Moon visually which shouldn't be that difficult. Good luck!

Note: Starry Night diagram below is shown with black sky for clarity, the sky will actually be bright blue.



April 2016

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
	By permission Univ. of Texas McDonald Obs.					
3	4	5	6	7	8	9
				NM		
10	11	12	13	14	15	16
			FQ			
17	18	19	20	21	22	23
					FM	
24	25	26	27	28	29	30
					LQ	

BAS Member Loaner Scopes

Solar H-alpha scope now available.

Our Lunt solar scope can be borrowed by BAS members and it is waiting at the Fox! Contact Brett to get your hands on it. We now have a suitable mount for it as well. A short training session will be provided on pickup.

Several Dobbs available.

One 12-inch dobsonian loaner telescope is available for free loan by members. Smaller 8-inchers are also available. Contact John H. or Brett T. for availability. Scopes come in and out so keep checking with John or Brett if you are interested in a loaner.



SGN Classified Ads Section

(Now also on our website)

FOR SALE: "Holy Hand Grenade"

From the website: <http://www.zhumell.com/>

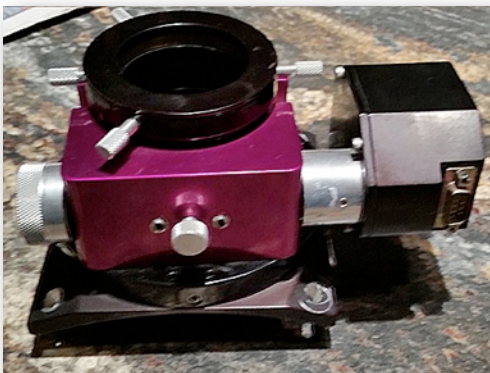
At Zhumell, we're committed to bringing you the highest-quality optics available, and our new **Z100 2" Eyepieces** don't disappoint. With a 100-degree apparent field of view, 16mm eye relief for viewing comfort (even with glasses), and fully multi-coated lens-to-air surfaces, these eyepieces meet all criteria for a premium piece without the staggering price tag. An ideal piece of optical equipment to enhance your telescope and further your enjoyment of astronomy. Easily attach 2-inch format filters of any kind to further enhance your experience.



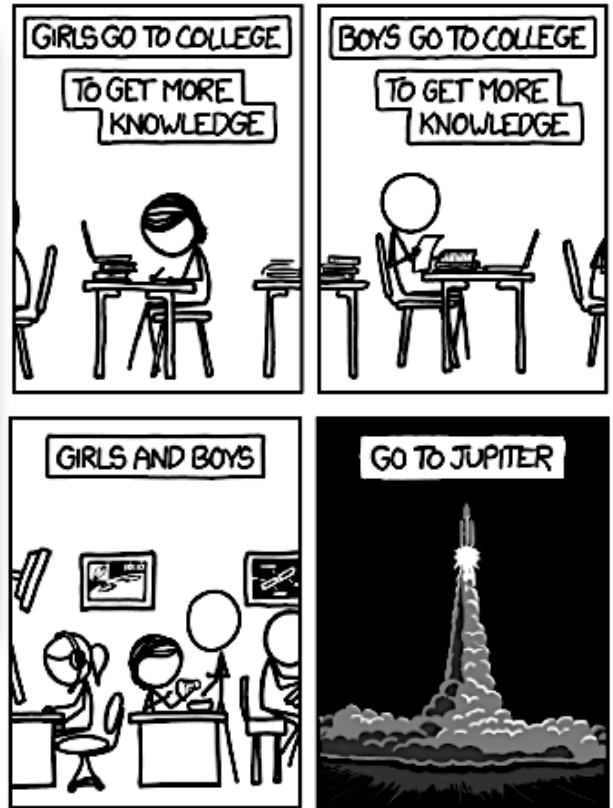
[\$200 US -and read the reviews!]

FOR SALE:

Moonlite CRL 2.5 inch Large Format **Crayford Newtonian Focuser** (\$592.10 new -see <https://focuser.com/products.php>) with Hi-Res Stepper Motor (\$252.81 new). Flange for 14" tube, accepts 2" accessories (EP/camera). This is a **true Crayford focuser**, not the cheap "Crayford-style" knock-off. Not set up for manual focusing, requires hand paddle (\$330 not included) for manual operation and computer control for remote focusing. This is meant for a remote imaging setup and comes from an abandoned project (12" scope). Over \$850 plus taxes and shipping new. Asking \$600.00. Contact **Paul** at ski@bmts.com



Cartoon Corner c/o www.xkcd.com



From the Editor: I was a bit puzzled by this one at first and here is the gist of the author's explanation. This comic is a play on the popular school-yard taunt: "Girls go to college, to get more knowledge; Boys got to Jupiter, to get more stupider." Another version is "Boys go to Mars to get more candy bars, Girls go to Jupiter, to get more stupider." The gender of the chanter determines the version. This comic subverts the original rhyme by having both girls and boys get smart and go to Jupiter together! Maybe not a side-splitter but I like it.

FOR SALE:

Celestron AVX mount. Includes GOTO hand controller, tripod and two 10 pound counterweights. OTA capacity 30 pounds. Reviews at <http://joebergeron.com/avx.htm> New \$880, asking \$650.00. Contact **John H.** at stargazerjohn@rogers.com

