



OSFS

Statement

Newsletter of the **Ottawa Science Fiction**

Society, January 2014,

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Dinner-Gatherings start at 6:00 pm.

Jan. 27 at Denny's at South Keys.

Editor's Blather:

It's that season and despite a flu shot I seem to have caught a mild case. Took a lot of starch out of one and whether I can get a reasonable Statement out in time is seriously in question.

The art work this month is, supposedly, a NASA photograph from the Chandra X-Ray Observatory

OSFS Statement #417



circa 2010

This image has spawned a vast swarm of imitations all of which show nothing more than the human mind's ability to do pattern matching. Although in some cases I seriously wonder what pattern they thought they were matching.

I'm not disparaging the ability to dig a pattern out of noise, not even when it isn't there.. Rodin saw a Hand of God in a block of marble and chiseled it out. He essentially "proved it really was there". Good on him. He worked for it.

For Your Viewing Pleasure

See Mercury low in the evening twilight. Jupiter still dominates the sky overnight. Mars rises around midnight, Saturn at 3pm and Venus lies low in the dawn sky. The Moon will be New on the 30th.

Ken Tapping,

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We are suspending requirements of membership dues for now, as we are not paying for meetings. The Executive will review our financial situation regularly.

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Rates

Regular	\$0.00
Family	\$0.00
Extraordinary & Senior	\$0.00

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OSFS Logo	Bruce Wright
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MOVIES List submitted by Sandi Marie

Coming to Your Theatre

FEBRUAR

RoboCop - Feb 7
Vampire Academy - Feb 14

APRIL

Captain America: The Winter Soldier - Apr 4
Robopocalypse - Apr 25

MAY

The Amazing Spider-Man 2 - May 2

JUNE

Edge of Tomorrow - Jun 6
How to Train Your Dragon 2 - Jun 13
Transformers: Age of Extinction - Jun 27

JULY

Maleficent - Jul 2
X-Men: Days of Future Past - Jul 18
Dawn of the Planet of the Apes - Jul 18
Hercules: The Thracian Wars - Jul 25

Coming Events List submitted by Lloyd Penney

January 24-26 - GAnime, Palais de Congres, Gatineau, QC. Anime convention. For more information, www.ganime.ca.

January 26 - Ontario Collectors Con, Delta Meadowvale Hotel and Conference Centre, Mississauga. Action Figures/comics/toys/collectibles convention.

Hours: 10am-4pm. For more information, www.OntarioCollectorsCon.com.

February 21-23 - Con-G, Delta Hotel & Conference Centre, Guelph.

Anime/fantasy/gaming steampunk convention. Guests: Dante Basco, Adam Smith, more. For more information, www.con-g.com.

March 2 - Toronto SpecFic Colloquium, location, TBA, Toronto. Guest: Christopher Golden. For more information, www.specficcolloquium.com.

March 7-9 - Toronto ComiCon, Metro Toronto Convention Centre, Toronto. For more information, www.comicontoronto.com.

March 7-9 - Furnal Equinox 2014: Circus, Sheraton Toronto Airport Hotel & Conference Centre, Toronto. Furry convention. Guests: Sabretoothed Ermine, Sandy Schreiber. For more information, www.furnalequinox.com.

April 4-6 - Ad Astra 2014, Holiday Inn Markham. Guests: David Weber, Anne Groell, Patricia Briggs, Steven Erikson. For more information, www.ad-astra.org, Twitter @adastrasociety, page on Facebook.

April 6 - GTA Comic-Con, Oakville Conference Centre, Oakville. For more information, www.gtacomicon.com.

April 19 - GTA Comic Con 2014, Sheraton Airport Hotel & Conference Centre, Toronto. Hours: 10am-5pm. For more information, www.gtacomicon.com.

April 25-27 - FilKONtario 24, Delta Airport West, Mississauga. Guests: S. J. Tucker, with the Heather Dale Band; Gary Ehrlich, Piers Cawley. For more information, www.filkontario.ca.

April 25-28 - Costume Con 32, Sheraton Airport Hotel, Toronto. For more information, www.costumecon32.com.

May 9-11 - Ottawa ComicCon, EY Centre, Ottawa. Comics convention, more. Guests: Kane Hodder, Amanda Tapping, more. For more information, www.ottawacomicon.com.

May 10-11 - Toronto Comic Arts Festival, Toronto Reference Library, Toronto. For more information, www.torontocomics.com.

May 16-18 - CanGames, Rideau Curling Club, Ottawa. Gaming convention. For more information, www.cangames.ca.

May 23-25 - Anime North, Toronto Congress Centre + 3 hotels, Toronto. For more information, www.animenorth.com.

May 23-25 - What The Fur!?, Sheraton Montreal Airport Hotel, Montreal. Furry Cconvention with steampunk theme. Guest: Alex Cockburn. For more information, www.whatthefur.com.

June 6-8 - Bloody Words XIII, Hotel TBA, Toronto, ON. Mystery convention. Guests: Vicky Delany, more. For more information, www.bloodywords.com.

June 6-8 - Niagara Falls ComicCon, Hotel and Facility TBA, Niagara Falls, ON. Guests: William Shatner, more. For more information, www.NFComicCon.com.

June 12-15 - SteamTopia, DoubleTree by Hilton Hotel Detroit-Dearborn, Dearborn, MI. Steampunk convention. For more information, see page on Facebook.

July 11-13 - TFcon 2014, Delta Meadowvale Hotel and Conference Centre, Mississauga. Transformers toy convention. For more information, www.tfcon.ca.

July 18-20 - ConBravo!, Hamilton Convention Centre & Sheraton Hotel, Hamilton. Gaming/cosplay convention, more. Guests: Angry Joe, DJ Cutman, more. For more information, www.conbravo.com.

July 17-20 - Detcon 1, Detroit Marriott at the Renaissance Center, Detroit, MI. North American Science Fiction Interim Convention (NASFiC). Guests: Steven Barnes, John Picacio, Bernadette Bosky, Arthur Hlavaty, Kevin J. Maroney, Helen Greiner, Bill and Brenda Sutton, Roger Sims, Fred Prophet. For more information, www.detcon1.org.

August 1-3 - Condition vs. The Monsters, Four Point by Sheraton Hotel, London, ON. Furry convention. Guests: Sigil, Wolfbird, Dixie von Fur. For more information, www.conditionfurry.ca.

August 14-18 - Loncon 3/72nd World Science Fiction Convention, ExCeL, London, UK. Guests: Iain M. Banks, John Clute, Malcolm Edwards, Chris Foss, Jeanne Gomoll, Robin Hobb, Bryan Talbot. For more information, www.loncon3.org.

August 28-31 - Fan Expo Canada, Metro Toronto Convention Centre, Toronto. 20th anniversary event. For more information, www.fanexpocanada.com.

October 10-12 - Creation Salute to Supernatural, Toronto Weston Harbourcastle, Toronto. Guests: Jensen Ackles, Jared Padalecki, Misha Collins. For more information, www.creationent.com.

November 14-16 - SFContario 5, Ramada Plaza Hotel, Toronto. Guests: Robin Hobb, James Murray. For more information, www.sfcontario.ca.

August 19-23, 2015 - Sasquan/73rd World Science Fiction Convention, Spokane Convention Center, Spokane, WA. Guests: David Gerrold, Leslie Turek, Tom Smith, Vonda McIntyre, Brad Foster. For more information, www.sasquan.org.

October 12-15, 2017 - Bouchercon XLVIII, Hotel TBA, Toronto. World Mystery Convention. Guests: Louise Penny, Chris Grabenstein, Twist Phelan, Gary Phillips. More information TBA.

Astronomy

New Kind of Planet or a Failed Star?

Posted by Keith Cowing - Source: University of Toronto

An object discovered by astrophysicists at the University of Toronto may challenge traditional understandings about how planets and stars form.

The object is located near and likely orbiting a very young star about 440 light years away from the Sun, and is leading astrophysicists to believe that there is not an easy-to-define line between what is and is not a planet.

"We have very detailed measurements of this object spanning seven years, even a spectrum revealing its gravity, temperature, and molecular composition. Still, we can't yet determine whether it is a planet or a failed star -- what we call a 'brown dwarf'. Depending on what measurement you consider, the answer could be either," said Thayne Currie, a post-doctoral fellow in U of T's Department of Astronomy & Astrophysics and lead author of a report on the discovery published this week in *Astrophysical Journal Letters*.

Named ROXs 42Bb for its proximity to the star ROXs 42B, the object is approximately nine times the mass of Jupiter, below the limit most astronomers use to separate planets from brown dwarfs, which are more massive.

However, it is located 30 times further away from the star than Jupiter is from the Sun.

"This situation is a little bit different than deciding if Pluto is a planet. For Pluto, it is whether an object of such low mass amongst a group of similar objects is a planet," said Currie. "Here, it is whether an object so massive yet so far from its host star is a planet. If so, how did it form?"

Most astronomers believe that gas giant planets like Jupiter and Saturn formed by core accretion, whereby the planets form from a solid core that then accretes a massive gaseous envelope. Core accretion operates most efficiently closer to the parent star due to the length of time required to first form the core.

An alternate theory proposed for forming gas giant planets is disk instability -- a process by which a fragment of a disk gas surrounding a young star directly collapses under its own gravity into a planet. This mechanism works best farther away from the parent star.

Of the dozen or so other young objects with masses of planets observed by Currie and other astronomers, some have planet-to-star mass ratios less than about 10 times that of Jupiter and are located within about 15 times Jupiter's separation from the Sun. Others have much higher mass ratios and/or are located more than 50 times

Jupiter's orbital separation, properties that are similar to much more massive objects widely accepted to not be planets. The first group would be planets formed by core accretion, and the second group probably formed just like stars and brown dwarfs. In between these two populations is a big gap separating true planets from other objects.

Currie says that the new object starts to blur this distinction between planets and brown dwarfs, and may lie within and begin to fill the gap. "It's very hard to understand how this object formed like Jupiter did. However, it's also too low mass to be a typical brown dwarf; disk instability might just work at its distance from the star. It may represent a new class of planets or it may just be a very rare, very low-mass brown dwarf formed like other stars and brown dwarfs: a 'planet mass' brown dwarf."

"Regardless, it should spur new research in planet and star formation theories, and serve as a crucial reference point with which to understand the properties of young planets at similar temperatures, masses and ages," Currie said.

Astronomy

THE AGE OF AQUARIUS

Ken Tapping, 21 January 2014

Thousands of years ago, our astronomical ancestors noticed that although the constellations moved across the sky during the night, and changed with the seasons, their patterns stayed the same. It was as though the stars were fastened to a great, dark, rotating sphere. This became known as the "celestial sphere". However, there were other objects that were clearly not fastened down (or up). The Sun, Moon and planets all move compared with the starry background. Intriguingly though, these other objects did not wander randomly around the sky, they were confined to a narrow strip, now called the ecliptic. This is because the Earth and other planets orbit the Sun in the same plane, and the Moon orbits the Earth almost in that plane too, so what we see is rather like marbles rolling around on a plate, from a viewpoint on one of the marbles.

That strip of sky passes through 13 constellations: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio (or Scorpion), Ophiuchus, Sagittarius, Capricorn (or Capricornus), Aquarius and Pisces. There was an aversion to the number thirteen, so Ophiuchus was fired and the twelve remaining constellations became known

as the “Signs of the Zodiac”. The ancient picture was that the Sun, Moon and planets moved between the Earth and the celestial sphere, so we would see them with particular zodiacal constellations in the background. For example one might say that Jupiter lies in the constellation of Gemini. Just like the Earth, the celestial sphere has poles, directly above the Earth's poles and called the north and south celestial poles, and midway between them, directly above the Earth's equator, is the celestial equator. Since the Earth is leaning at an angle of about 23 degrees, the ecliptic crosses the celestial equator at two points.

The result is that we see the Sun, Moon and planets moving between the northern and southern halves of the sky. As the Sun moves around the sky each year, following the ecliptic, about 21 March it crosses the celestial equator heading north, marking the spring equinox. On 21 September, give or take a day, it crosses the celestial equator heading south, marking the autumn equinox. When the idea of the zodiac was first set up, the spring equinox point coincided with the constellation of Aries, so this constellation became the first sign of the zodiac. This was the situation when the science of astronomy and the pseudoscience of astrology went their separate ways. Since then the situation has changed.

If you have ever played with “spinning tops”, you will have found that although it is possible to get the top

spinning absolutely vertical and unmoving, most of the time the top wobbles, or precesses, where the axis of the top describes a circle. The same thing applies to the Earth. Since the Earth is not absolutely round and there are other objects such as the Sun and Moon pulling at it, the spinning Earth precesses too, with a complete wobble taking 25,800 years. Precession makes the intersections of the celestial equator with the ecliptic change, so that compared with the calendar the zodiac slides backwards one sign every 2150 years or so. So today instead of the spring equinox point being in Aries, it has slipped back into Pisces, making that constellation the current first sign of the zodiac. So some 2,000 years ago it was the “Age of Aries”. Now it is the “Age of Pisces”. In some 2,150 years or so from now, we will have slipped back one more sign, and we will have arrived at the “Age of Aquarius”. Of course, by then it's likely few will remember the song. In about 23,650 years, the first sign will be Aries again, and the cycle will start over.

Small Asteroid 2014 AA Hits Earth

Discovered on New Year's Eve by a telescope in Arizona, a small asteroid struck Earth somewhere over the Atlantic Ocean — apparently unnoticed — about 25 hours later.

It was New Year's Eve, but that didn't stop observer Richard Kowalski from scanning the sky for near-Earth objects (NEOs). He hadn't been using the 60-inch telescope on Arizona's Mount Lemmon for long when he noticed a 19th-magnitude blip skimming through northern Orion in a seven-image series begun at 11:16 p.m. MST (6:18 Universal Time on January 1st). After confirming that it was a new find, Kowalski dutifully submitted positions and times to the IAU's Minor Planet Center. Then he went back to the night's observing run. Thus did the Mount Lemmon reflector, part of the Catalina Sky Survey, discover 2014 AA, the first asteroid found this year. But at the time neither Kowalski nor anyone else realized that the little intruder was only 300,000 miles (500,000 km) from Earth and closing fast.

As announced by the MPC earlier today, it's "virtually certain" that 2014 AA hit Earth. According to calculations by dynamicist Stephen Chesley (Jet

Propulsion Laboratory), the impact occurred somewhere between Central America and East Africa. Chesley's "best-fit" collision is over the Atlantic Ocean just off the coast of West Africa at roughly 2:30 Universal Time this morning. More precision has come from an analysis of infrasound data by Peter Brown (University of Western Ontario). Infrasound is extremely low-frequency acoustic energy (20 hertz or less) created, for example, during energetic explosions. A global network of detectors, maintained by the Comprehensive Nuclear-Test-Ban Treaty Organization, can pinpoint the location and energy of any powerful detonation — including airbursts from meteoric blasts. According to Brown, 2014 AA triggered very weak detections at three infrasound stations. His triangulation from those records, shown in the graphic at right, indicates that the space rock slammed into the atmosphere near 40° west, 12° north. That location, about 1,900 miles (3,000 km) east of Caracas, Venezuela, is far from any landmass "The energy is very hard to estimate with much accuracy — the signals are all weak and buried in noise," Brown explains. And yet, he adds, we're lucky that the event happened just after local midnight, when winds are calmest. "Had this occurred in the middle of

the day I doubt we would see any signals at all," he says. Brown's rough guess is that the impact energy was equivalent to the explosive power of 500 to 1,000 tons of TNT — which, though powerful in human terms, implies the object was no bigger than a small car. "It was no Chelyabinsk," he says.

So 2014 AA was too small to reach the ground intact. But it must have created one heck of a fireball! The skies over the Atlantic were relatively clear last night. Alas, a search of ship- and plane-tracking websites turned up no vessels in that area — it seems that no one was positioned to witness 2014 AA's demise.

"I'm not aware of any visual sightings," says William Cooke of NASA's Meteoroid Environment Office in Huntsville, Alabama. "Looks like it was too far away from human eyes."

The impact occurred a little after 3 h UT, Brown says. That's only about 22 hours after Kowalski's initial report to the MPC, and it's giving me déjà vu all over again. It's been just five years since another small asteroid called 2008 TC 3 struck Earth over Sudan just 19 hours after its discovery by the same telescope.

The difference between these events is that astronomers had nearly a day of advance warning

regarding the 2008 impact. Telescopes worldwide amassed hundreds of observations before the object slammed into the atmosphere, and eventually many fragments were recovered.

There was no heads-up alert this time. "I'm kicking myself for not having spotted this," admits amateur NEO sleuth Bill Gray (Project Pluto). Most mornings, he downloads the circumstances for recent discoveries and computes "what ifs" for potential impactors and near-misses. "However, on New Year's Day, I'd made arrangements to go with my family to visit my sister, go for a walk, stop off for a doughnut, shovel snow, etc., etc." He didn't realize an impact was imminent until last night — only a couple of hours before the impact. Let's cut Gray some slack and instead give him, Chesley, and Gareth Williams at the MPC a collective pat on the back. All three were able to conclude — based on just seven images taken within 69 minutes — not only that 2014 AA was going to strike Earth, but also roughly where and when. Mad props for that impressive number-crunching!

Neanderthal Caves

Organized As 'Pleasant Places To Live'

Riparo Bombrini, a collapsed rock shelter in Italy, offers insight into lifestyles of Neanderthals

Neanderthals may have been more like us than previously thought, according to new evidence suggesting they organized their living spaces in ways similar to modern humans.

In an interview with CBC Radio's Quirks and Quarks that will air Saturday, Canadian Julien Riel-Salvatore, an assistant professor of anthropology at the University of Colorado Denver, talked about an excavation project at Riparo Bombrini, a collapsed rock shelter near the Mediterranean Sea in northwest Italy.

The findings, published in December in the Canadian Journal of Archeology, suggest that Neanderthals were not necessarily the savage, simple brutes they're often portrayed to be. Instead, they organized their living spaces more like homes, where they butchered animals, made tools, built fires and slept in different parts of the shelter.

“We tend to have this idea of Neanderthals as these

stereotypical cavemen that must have been different from us because they're not around today,” Riel-Salvatore said. “And what we're seeing, in fact, is that the more we look at the record of Neanderthals ... the more their lifestyle appears to have been similar to those of modern humans at more or less the same time.”

Riel-Salvatore, who did his postdoctoral fellowship at Montreal's McGill University, said three levels of occupation by Neanderthals were found at the Riparo Bombrini site. At a level dating back about 44,000 years, the excavation team found a hearth, or fireplace, located about a metre away from the back wall of the cave. “This is a very strategic placement because that position allows the heat from the fireplace to radiate along the back wall of the cave and along the ceiling and distribute the heat along the rock shelter,” Riel-Salvatore said. 'A pleasant place to live'

At the mouth of the cave, researchers found stone tools and animal bones, which Riel-Salvatore said indicates Neanderthals were keeping items away from sleeping areas that could be hurtful if stepped on or could attract unwanted scavengers or vermin. “So Neanderthals were segregating their activities across space so as to make it a pleasant place to live,” Riel-

Salvatore said. 'The more we look at the record of Neanderthals ... the more their lifestyle appears to have been similar to those of modern humans.'

The team also found evidence of Neanderthals collecting and processing shellfish, a discovery that portrays them as being more in tune with the ecological resources of their environments than previously thought. They also discovered ochre scattered in the shelter, a reddish pigment that is commonly used among Homo sapiens but has so far been rare among Neanderthals.

“We’re starting to get evidence from a few sites across the old world that Neanderthals were occupying sites in a purposeful and organized way,” Riel-Salvatore

said, adding that the most recent site in Italy was particularly surprising because the patterns appeared so quickly.

Neanderthal is an extinct species of human that first appeared about 400,000 years ago and went extinct about 30,000 years ago. Their fossil remains have been found across Europe and in western Asia. “The big difference between them and us is shrinking by the day — literally, at this point,” Riel-Salvatore said. “And so instead of seeing them as this extinct offshoot on the human family tree, we should think of them more as extinct cousins, fairly close relatives.”



from PC & Pixel By Tak Bui