

AstroNotes

Newsletter of the Ottawa Centre, RASC



Earth Hour Owl at the museum festivities on March 26

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Membership and Addresses.....Art Fraser

The Ottawa Centre is one of 29 centres of the Royal Astronomical Society of Canada – an organization dedicated to the advancement of astronomy and allied sciences.



The Ottawa Centre, formed in 1906, has approximately 400 members. Centre facilities include the Fred P. Lossing Observatory, near Almonte. The Centre also operates an astronomical book library and a telescope loan library. Membership in the Ottawa Centre is \$70 per year for regular members (outside Canada, US \$112) and \$41 for junior members. Members receive the annual Observer’s Handbook, the bimonthly electronic RASC Journal, the Canadian

bimonthly magazine SkyNews, and 10 issues of the Ottawa Centre’s newsletter, AstroNotes. The Centre can be contacted at P.O. Box 33012, 1363 Woodroffe Avenue, Ottawa ON K2C 3Y9; Internet at www.ottawa.rasc.ca

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AstroNotes Editor.....Debra Ceravolo

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An Editor's work

By Debra Ceravolo AstroNotes Editor

Back in December, I decided to combine the December 2010 and January 2011 AstroNotes issues because of an impending road trip to Tucson, Arizona to pick up about 1000 lbs of telescope glass for my telescope making husband. I thought it would be difficult to work on the January issue while driving the 10,000 or so kilometers, so I combined the two issues in December. However, the trip did not transpire for several reasons and it turned out that combining AstroNotes gave me a little break in the action of an editor. But this past March, it was time to go and I found myself doing just what I tried to avoid; creating an issue of AstroNotes in hotel rooms and in the car while on the road. In fact as I write this in the car on an interstate in Somewhere, USA, I thought it would be fun to show you how dedicated I am to make sure you get your AstroNotes on time. When members send me their articles with photos and reports and astroimages, I feel it is important to make sure each issue is completed for the contributors as well as all Centre Members. So here is a photo that my husband, Peter, the telescope maker and glass collector, took with his cellphone just to show you that an editor's work is never done. Does that count for using a cellphone while driving?



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Cover Photo: Earth Hour Owl visiting the Ottawa Centre booth at the Canada Science and Technology Museum on March 26 during Earth Hour. Photo courtesy: Sylvie Létourneau

The Sky this Month - April 2011

Planets in April 2011:

- * Jupiter is passing behind the sun and won't be visible this month
- * Saturn is the best planet to observe in the evenings
- * Venus is nicely visible in the mornings before sunrise
- * Mars will be visible in the morning sky by mid-month
- * Mercury is not visible until the end of the month

April 3 - New Moon

April 18 - Full Moon

April 22/23- Lyrid Meteor Shower

April 29/30 - 4 planets and thin crescent moon visible in the morning before sunrise:
Mercury, Venus, Mars and Jupiter (and Earth)



News around the Ottawa Centre

Upcoming Ottawa Centre Star Parties at the Carp Library

Saturday, May 28 Main Event

Saturday, June 4 Cloud Date

Friday, June 24 Main Event

Saturday, June 25 Cloud Date

Saturday, July 2 Cloud Date

Friday, July 22 Main Event

Saturday, July 23 Cloud Date

Saturday, July 30 Cloud Date

Saturday, August 20 Main Event

Saturday, September 3 Cloud Date

Saturday, September 17 Main Event

Saturday, October 1 Cloud Date

Saturday, October 22 Main Event

Saturday, October 29 Cloud Date

News around the Ottawa Centre

Earth Hour - March 26 - A Report by Mike Moghadam

The Earth Hour event at the Museum on March 26 was a huge success with a terrific public turn-out. At the end of the night, the Museum estimated 750 people had attended.

This event was great for us because it was all about astronomy and we got some terrific exposure. People peeked through our telescopes, stopped at our displays & asked questions and inquired about amateur astronomy in Ottawa. Even the Mayor, Jim Watson came to see. We handed out approximately 200 schedules of upcoming stargazing events at Carp.

I was really pleased with this event because we had a great volunteer turn-out. Thanks to: Frank Bayerl, Geoff Cockhill, John Douglas, Graeme Hay, Peter Hayman, Eric Le May, Sylvie Letourneau, Richard MacDonald, Chris Teron, Bill Wagstaff, Teresa Wagstaff, Michael Wolfson

The indoor displays were well done. Graeme Hay brought his refractor on an HEQ5 mount and had a camera mounted to it. He had an iPad and other gadgets which attracted a LOT of attention. Sylvie L  tourneau, Peter Hayman & myself were at the indoor main display. Sylvie heavily promoted school outreach and must have gathered a 1/2 dozen or more names of people with an interest in the RASC coming to their schools. Her command of French was really helpful at this event. The ever-popular Abee meteorite casting attracted a lot of interest as did our astro-photo display. Geoff Cockhill showed videos and he had 25 chairs set-up that were filled for most of the evening.

Outdoors there were six or more telescopes set-up. Volunteers were completely surrounded. Bill Wagstaff showed up with our newly donated telescopes which was really nice. I left the Museum at 11:15pm and went to say goodbye to Tim Cole in the HSH observatory. After a long evening with a never-ending line-up of people waiting to peek through the HSH refractor I was surprised to see that he still had 30 people jammed in to the observatory. Tim was full of energy and enthusiasm. Tim's passion did not wane one bit throughout the evening.

It looks like Earth Hour has become another major event for us. Next year will be even better.



Photo of telescope volunteers by Sylvie L  tourneau.

Ottawa Centre meeting report - March 4, 2011

By Estelle Rother -Recorder

Mike Moghadam opened the March meeting. He issued an invitation to speakers for the meetings. Contact meeting chair Bill Wagstaff at bill.meeting.chair@gmail.com. The cover of the March/April Sky News featured Sanjeev Sivarulasa's image of the Orion Nebula (M42). The same issue had Pierre Martin's article 'A meteor Shower Adventure' and 'The Wrap' is a series of astronomy articles in the Ottawa Citizen written by Brian McCullough.

Gary Boyle began his Ottawa Skies report with the bad news that in February there were only 4 clear nights. Even poor weather conditions are an observation and Gary logs them. The new moon, lunation 1091, would occur this evening. With the moon out of the way, this would be a good weekend for a Messier Marathon but not in Ottawa where the weather forecast promised rain, freezing rain or snow. Weather permitting, March is the one month where it is possible to observe all 110 Messier objects without interference from the sun. Orion is setting in the western sky. Leo is a spring constellation known for its many galaxies. Many galaxies can also be seen in Virgo. Early farmers in Egypt knew that when they saw Sirius rising in the August morning sky that the change of seasons would come and it was time to harvest their crops. When they saw Leo rising in the evening, they knew it would be getting warmer and it was time to plant their crops. The Leo Trio of galaxies (M65, M66 and NGC 3628) are 35 million light years away and are visible at low power in the same telescope field of view.

March 11 at 11 pm would be the time to view the lunar X. This is actually the illumination of the sun at a perfect time when the sun is just starting to rise over the crater Werner. To see this, the moon must be 41.9% lit. Gary issued observing Lunar X as a lunar challenge. The next full moon would occur on March 19. This would be the largest appearing moon of the year. The spring equinox would occur on March 20 at 7:21 pm. Gary showed an image taken by Rolf Meier of the Zodiacal Light and Jupiter. The Zodiacal Light is visible in March in the western sky and in September and October in the eastern sky. At these times we are seeing the dust in our solar system. Saturn would rise in the eastern sky around 8 pm. Its rings are now 10 degrees open. Venus would appear low in the east in the early morning. Jupiter's missing belt is returning and the planet would disappear from view by the end of the month. NASA Science issued a report explaining that the sunspots had disappeared for 1 1/2 years because the sun's internal conveyor belt had slowed. This belt is located about 300,000 kilometers below the surface of the sun.

Gary reminded us that beginning on March 13, with the change to daylight savings time, we should only subtract 4 hours from Universal Time to get our local time.

Sylvie Letourneau gave a 10 minute astronomy news update. Al Scott's talk about buckyballs discovered by the Spitzer telescope led Sylvie to research the telescope. The Spitzer Space Telescope, a NASA-JPL-Caltech project, was launched in August 2003 to study the sky at infrared wavelengths. The supply of liquid helium, used to cool the telescope would limit the duration of the mission. A minimum 2.5 year duration mission was planned but the supply of liquid helium only ran out in 2009, giving scientists 6 years to use all 3 of Spitzer's instruments: infrared camera, infrared spectrograph and multiband imaging photometer. Only the camera is still operational. Spitzer is continuing with its warm mission now that the liquid helium has evaporated. The telescope was launched to overcome ground based problems of infrared radiation from the telescope and the atmosphere that would interfere with the measurements. Also the atmosphere is opaque to incoming infrared radiation. With Spitzer, scientists could now observe stellar nurseries, the dusty parts of galaxies, disks of forming planets and organic material.

The Helix Nebula (NGC 7293) was imaged with Spitzer to show much more detail than a visual image. This planetary nebula in the constellation Aquarius is only 700 light years away. A white dwarf located in the middle of the nebula is surrounded by a dusty disk. There are pillars, called knots, that are twice the size of our solar system. The dusty disk proved that comets had survived there. The dust is a result of comet collisions. The Helix Nebula is a possible future of our sun in about another 5 million years.

The Andromeda Galaxy, M31, is our neighbor at a distance of only 2.5 million light years. There could be up to 1 trillion stars in M31 compared with the 100 million stars in the Milky Way. There are no spiral arms on the outside of M31. It is thought that M32 has passed through M31 and disrupted the spiral arms. Computer simulations show the same thing as seen in the infrared from Spitzer. This will also happen to our galaxy since it is expected to collide with M31.

NGC 7000, the North American Nebula is an emission nebula in the constellation Cygnus. It is between 1800 and 2200 light years away and is 100 light years across. Visual images show that it does resemble the North American

continent. The Pelican Nebula can be seen to its right. In the infrared images from Spitzer we can see through blankets of dust around young stars in stellar nurseries. About 2000 new young stars are forming in the nebula. Scientists still do not know which massive star is the power source for the nebula. But it is believed to be located in the Gulf of Mexico area.

John Thompson travelled to Easter Island for the July 11 2010 solar eclipse. He found a tour that was staying on the island for 4 days so he could see some of the statues as well as the eclipse. Eclipses occur about every 18 months. For a lunar eclipse, anyone on the right side of the Earth can view it. A solar eclipse can only be seen along a narrow path so to observe one, you need to travel. Easter Island is a triangular shaped volcanic island. There is one town and the only runway is long enough to land a space shuttle in case of emergency. Off the coast of South America, Easter Island is one of the most isolated places on the planet. The group arrived at 3 am after a 5 hour flight from Santiago in Chile. Half of the group were professional astronomers. Most of the others were adventure travellers. There were few other amateur astronomers and only one other Canadian. John showed images of the islands and its statues. They can be 1000 years old. It had rained on day 3 but on day 4, eclipse day, the clouds had cleared by eclipse time. A group of Greek scientists doing scientific work had brought 2 spectrographs. They were looking for 2 lines in the solar corona: a red line and a green line. They particularly wanted to see the green line of iron with 13 electrons stripped off. This could only exist if the temperature in the corona was at least 1.8 million degrees. John showed images of the equipment at the site, the area and the eclipse. He also showed an eclipse video.

Meteor observing is Pierre Martin's passion and the reliable Geminids are his favorite. The Geminids produce high rates and are usually bright. But they vary from year to year. Depending on the presence and phase of the moon, they are not always easy to see. This past December was a good year for the Geminids. Unfortunately the weather was poor in Ottawa so he and a friend headed 1800 kilometers south to Georgia. In addition to clear skies, Pierre was hoping for warmer weather but the farther south he travelled, the colder and windier it got. They stayed at the Deerlick Astronomy Village, a dark sky community. There were two large concrete platforms for setting up equipment. On December 13, Pierre started photographing with a break for supper. He used two Canon cameras set up so each saw a different part of the sky. He used a

Canon 300D with a 24 mm f/1.4 lens to create a composite of all the Geminids between 10 pm and 4 am. He also created a composite taken with a Canon 7D and a 15 mm f/2.8 fish eye lens.

Members' observation reports followed a short break and the draw for door prizes. Paul Comision began with an image of NGC 0040, a circumpolar nebula in Cepheus. He then showed an image of NGC 2099 (M37), an open cluster in Auriga. Both are visible in binoculars. Brian McCullough showed images of the moon. We saw several ducks that seemed to be flying to the moon. Eric LeMay has been imaging with a Canon Rebel XT. He showed images of the Pleiades, the Rosette Nebula and the sword region of Orion. Eric ended with a picture of his Igloo Observatory, a snow structure. John Wayne Ross visited the Kennedy Space Flight Center and showed an image of the moon with the Titan rocket and the Gemini capsule. The moon was in the same phase as when the Apollo astronauts walked on the moon. Read about Wayne's visit this issue. Sanjeev Sivalrurasa showed several images. He used four 10 minute exposures to produce an image of star trails. The Cocoon Nebula is a star forming region that he imaged with a 5.5 inch refractor. With the same telescope and a CCD camera he imaged Stephen's Quintet (NGC 7331). To see more of Sanjeev's images visit: www.universethroughalens.com

Mike Moghadam gave an outreach update. A tentative star party schedule will be posted on the Centre web site. All parties will be held at the Carp branch of the Ottawa Public Library. The museum has requested members with telescopes for Earth Hour on Saturday March 26. International Astronomy day will be held at the museum on Saturday May 7. Day and evening activities are planned. The Cube gallery will feature Nuit Noire: A Festival of the Night Sky. The focus will be light pollution. An opening star party is planned for June 30. An invitation was issued to display your astronomy art. Sylvie Letourneau gave a teacher outreach update. Rob Dick, Brian McCullough and Sylvie presented a PD day workshop to 30 grade 9 to 12 science teachers. They were given a Chapters gift certificate.

'Deep Sky Companions: The Messier Objects' was the Stan Mott library pick of the month. When you borrow books, please try to return them at the following meeting to give others a chance to enjoy them.

Thanks to Ann and Art Fraser for the after meeting refreshments.

AstroNotes of the Past - Remembering 1996

April Observers' Group Meeting May 1996 by Hilderic Browne

After a twenty-year dearth of spectacular apparitions, it's no wonder Comet Hyakutake is being called the "Great Comet of 1996"- if not the decade. So it was perhaps inevitable that the April 12th meeting of the Observers' Group of the Ottawa Centre deserves to be remembered as the "Great Comet Meeting." Everyone, it seems, photographed Hyakutake and wanted to share their successes. The gathering was ably co-ordinated by Vice-Chair Don Fougère who began by explaining the recommended way of dealing with Carleton University's new parking regulations and with an apology to all those who attended the Messier Marathon/Comet Hyakutake Admiration Festival on March 23rd, and were forced to wade in to the Indian River Observatory through snowdrifts. It won't happen again, he says...at least not before next winter!

Paul Comision's "Cutting Edge" "The Sun's Inconsistent Size" For years, astronomers have suspected that our Sun is slightly variable, correlated with magnetic activity. Now UCLA researchers have evidence of a slight variation in physical size, approximately $\pm 0.4\%$ (0.2%), with the greatest size coinciding with the time of maximum sunspot activity. (Of course from the vantage point of our slightly elliptical orbit, the Sun's apparent size varies anyway through the year, being largest at perihelion in January. This is not the issue here: it's a change in intrinsic size instead.) This is a difficult measurement to make; the researchers measured the intensity across the solar disk at 5250\AA , and defined the "edge" of the Sun as the point at which the brightness fell off to 25 percent of the average. The postulated machinery connecting magnetism and size involves differential rotation of the Sun, which stirs up the depths, causing both magnetic storms and internal heating of the outer layers; this heating is enough to cause the Sun to expand slightly.

Richard Taylor remembered his father-in-law, long-time Ottawa Centre member Dick Tanner, who passed away in a fashion perhaps befitting one who had worked as a professional astronomer, with a breath-taking comet in the sky and a lunar eclipse that evening. Dick was a friend as well as a father-in-law to Richard, and was the one who reintroduced him to astronomy. Last year they bought a used 8" Schmidt-Cassegrain together to explore the night skies a little deeper than naked eyes or binoculars could reach. But Richard says meteor showers will best recall Dick to mind, with the memory of evenings shared by three generations observing from the grounds of the Experimental Farm. Dick was a strong supporter of education through books, so Richard has requested that any donations be directed to the Ottawa Public Library.

Doug George initiated the Comet Celebrations with a few slides of comets past - West, Halley, and last year's De Vico - followed by the one on everyone's tongue Hyakutake! The striking tail so obvious during the comet's close flyby of Earth in late March is an ion tail, originating in the effect of solar radiation on the coma, which is mostly dust and water vapour. The charged atoms are stripped away by the Sun's magnetic field and by the solar wind; the resulting tail often exhibits a braided structure indicating the complex electromagnetic environment in the inner solar system. This tail records blue strongly in photographs and can change perceptibly in a matter of hours. As the comet approaches the Sun, the dust tail can be expected to dominate.

AstroNotes of the Past - Remembering 1996

Doug's pictures were taken with a standard 50mm camera lens, a short telephoto, the newly refurbished 16" telescope at IRO; the last of these, a one-minute exposure, reveals an obvious "bow-shock" arc on the sunward side of the coma.

Rob noted the death during the preceding week of yet another member, Mim Berlind, who joined the RASC in 1929 and was president of the Ottawa Centre in the 1930s.

Rolf Meier showed more pictures of Comet Hyakutake, particularly around the time of its closest approach to Polaris. In some he framed the comet with the dimly red-lit accoutrements of his backyard observatory; others showed Hyakutake among moonlit clouds and even lightning. In a photo taken with a 28mm wide-angle lens, the comet's head is near Polaris and the tail extends into the bowl of the Big Dipper; but visually, it could be traced as far as Coma Berenices! (Even this pales beside a fish-eye image posted on the Internet, where the comet extends over 100!) Rolf remarked that in binoculars, this comet closely resembled Comet Bennett 1970.

After a pause to draw the monthly door prizes (notable among which were some prints of Guess which comet? by Peter Ceravolo), it was Gary Boyle's turn. He chose to partially hide the comet behind some birch trees in Constance Bay, artistically a very pleasing shot. Another interesting innovation was double-exposing the Moon onto the same frame with the comet to help give scale information. Sometimes there are just too many aircraft around, though; one "red-eye flight" went straight through the head of the comet. Just follow the dotted line! Gary's final picture showed an ensemble of objects along the western sky: Hyakutake, the Pleiades, the planet Venus, and the California Nebula. Now he can't wait for 1997 and Comet Hale-Bopp.

Doug Luoma advised that Astronomy Day celebrations in Ottawa would be deferred one week to April 27th at the Museum of Science and Technology.

Peter Ceravolo went to Arizona with Doug George back in February, when Hyakutake was just "a tiny fuzball." Its intense green colour promised a good ion tail to come, and Peter had the idea of making a time-lapse film showing its development. To have any chance of success, clearer skies than Ottawa's were essential; on his return, he immediately booked another trip back to Arizona in March, along with OG Chairman Glenn LeDrew (currently in Australia). Peter and Glenn observed from a decommissioned ICBM site in the mountains east of Tucson. In Peter's words, "The comet exceeded my greatest hopes by an order of magnitude." After 12 nights taking four-minute exposures with a custom f/2.3 Maksutov-Newtonian, assisted by a CCD autoguider (and backed up by open-loop ephemeris-guided tracking software, which proved to be unnecessary: Murphy must have been otherwise engaged!), he might have been feeling a little cranky: "After the comet got past the polar area, the dust tail kicked up and obliterated the ion tail...boring!" What a shame. Peter showed just a few of his many hundreds of exposures; they show great detail, the complex braiding of the tail, and "disconnection events." He will be combining the complete series into a video and interactive CD-ROM software. Coming soon to a theatre near you?

My Visit to the Kennedy Space Centre

By Wayne Ross

The myth goes that the world was thought to be flat and until the 15th century. Sailors and geographers were to have believed the world ended beyond the vast mare incognita surrounding the known world where “there be dragons!”

I'm standing at a place where one can confidently say, “This is the end of the world.” There are no bed sheet clad apocalyptic visionaries pacing back and forth outside arrivals and departures with placards proclaiming the ‘end is nigh’. In fact, this place is rather like an industrial park indiscreetly scattered throughout a nature preserve.



Photo: Wayne Ross with Discovery's launch pad in the background

Merritt Island is one of a mere few contemporary ‘ends of the world’ where spacecraft and astronauts hurtle from this world to explore the solar system and occasionally, the galaxy and universe.

The Apollo 17 launch and the Skylab-Soyuz dockup made a lasting impression on me as a child. It was largely through the human exploration of near space, that I developed an insatiable curiosity about the mare incognita of space that our planet exists in. Once again, I am finding myself awestruck at the Kennedy Space Centre.

Merritt Island is home to NASA's Kennedy Space Centre adjacent the US Air Force's Cape Canaveral Air Station. Rockets and spacecraft have left from each of these locations etching some of the most important and interesting stories in human history into legend. The ill-fated Apollo 1 was sitting on a launch pad on the Cape Canaveral side of this dual space complex when tragedy almost curtailed the Apollo program. Nearby, concrete pads echo the accomplishment of Alan Shepard hurtling into space atop a rejigged nuclear missile to become the first American in space. The twin

Voyagers departed from The US Air Force side of the complex as did the Mars rovers, Spirit and Opportunity.



Originally, America's space program was launched, literally, from the Cape. However, since Apollo XIII, a division of labour has been observed; people go into space from the Kennedy Space Centre while robots ² leave from Cape Canaveral.

Photo: Gemini capsule atop a Titan rocket looking to the moon.

The Saturn V rocket, which lofted the Apollo missions to the Moon, was simply too big for the launch pads at the Cape so new real estate was needed. In the late 1960s, two launch pads were built on Merritt Island: 39A and 39B. 39A is rather dull and boring name for a place from where human history was forever changed. Apollo XI lifted off from 39A in July 1969.

Today, the swing way gantry from that fateful July which astronauts Neil Armstrong, Edwin Aldrin and Michael Collins walked across on the 39A launch tower to board Columbia can be walked across by visitors to the Kennedy Space Centre.

Not far from the operational launch facility of the 39A launch complex is the 39B launch complex. It is currently being dismantled and re-purposed for 'traditional' design rocket launches. Some speculation remains as to its future since the Constellation program and its ARES rocket program has all but been scrapped. In February I saw, to the side of the Vehicle Assembly Building a completed ARES rocket launch tower that was used for the only launch of an ARES rocket; a test launch to evaluate aspects of its performance for further design refinement.

Years ago, when I toured the Kennedy Space Centre, I was fortunate enough to have been in the test article for the Leonardo module for the ISS and watched it being assembled through the glass in a clean room. Last month, I had the opportunity to watch the planned night launch of STS-133 Discovery on her final voyage. Alas, that launch was scrubbed. Almost 40% of all NASA schedule shuttle launches don't get off the ground when planned.



Photo: STS-133 Discovery being prepped for launch

As an alternative, I did get to see STS-133 on the pad being prepped for launch. A remarkable machine, first envisaged by Verner von Braun as a reusable space plane that would sit atop a rocket, but for cost saving measures it would later sit behind fuel and rockets. von Braun's design would have saved the crew of Challenger.

A testimony to the brave men and women of the space program who lost their lives can be found behind the visitor complex. Beautiful and melancholy in tribute, of the three memorials that stand into the sunlight, the largest is etched with the names of astronauts who've been lost shining through the black marble staring eternally towards the 39A and B launch complexes.

The Kennedy Space Centre offers much to experience. Tours continually travel the vast site showing visitors current and past launch facilities. Two museums on site offer glimpses into the history of both the Apollo and Mercury programs as well as milestones in space exploration. The Kennedy Space Centre, near Orlando Florida is a destination well worth visiting.



Photo: Command Module Kitty Hawk from Apollo XIV

Where the world ends, where new worlds begin.

¹ Aristotle nailed it around 330BCE in concluding the earth was a sphere. Eratosthenes remarkably demonstrated the circumference of the Earth to within about two percent of what we know it to be today.

² It just sounds more fun to say "robots" instead of robotic and remote-controlled space craft and probes.

Report on Alsever Expedition(s)

By Eric Kujala

Algonquin Park is host to the Brent Crater. The crater was discovered in the 1950s during a flight over the park. Drill core sampling later confirmed it was an impact crater. The crater is approximately 450 million years old. It is about 3.4 Km in diameter. That is the same size as the Chubb crater in northern Quebec. It surpassed its life expectancy because it was buried in sediment for a good portion of its existence under the Sea of Champlain. After several ice ages it was re-exposed to the forces of erosion with a remaining deposit of limestone filling most of its bottom. The crater is defined by two lakes, Tecumseh on the left and Gilmour on the right.



Photo: Brent crater, Algonquin Park, Ontario

In 2007 Chuck O'Dale and I made a ground exploration to the Brent crater. It is accessible by a trail that leads down from the park's access road. Chuck and I carefully explored the shoreline of this lake in order to find bedrock and shattercones which would further prove it was an impact site. We didn't find any evidence here.

From Lake Tecumseh we portaged to adjacent Lake Gilmour and discovered a piece of breccia. Breccia is a type of rock which has other types of rock imbedded in it. The rocks mix when they are in a molten state immediately after a meteor impact has occurred. This is not conclusive proof but a good clue there was a meteor impact. Had it not been for the low water levels that summer we would never have seen this gem.

Our exploration taught us a lot about impact craters. For example the water's pH levels are more alkaline than normal. This is due to the limestone deposits in the lakes. The water is also clearer. Brent crater still shows signs of a rim. Most impact craters are so eroded that they no longer have an identifiable rim. The bowl shape is still present at Brent. The Brent crater exploration was a good experience that prepared us for our next site.

In 2010 Chuck received an e-mail from a fellow suggesting there was another site in Algonquin Park which could also have an impact crater. The prospect of actually discovering an impact crater motivated us to explore this site.



Eric and Chuck in Chuck's Cessna Cardinal

On August 6, 2010 we embarked on an aerial exploration of Algonquin Park. Our flightplan took us from Rockliffe Airport, Ottawa to Brent Crater at the north end of the park and then south to a lake called Alsever.



Photo: Brent crater



Photo: Roundbush and Alsever Lakes

Alsever Lake is located at the southern boundary of Algonquin Park. It is similar in appearance to Brent with its two distinct bodies of water forming a circular pattern. It has a central peak like Brent and what appears to be an outline.

We surveyed and photographed as much of the area from the air as we could to prepare for a subsequent ground expedition. It was difficult to assess from the air which way was best to reach the lake but it gave us a good perspective on how big the site was and the general landscape. These are details you do not get from maps.

In September, 2010 we undertook a ground day-trip by car to orient ourselves. We learned from the Algonquin Park authorities that the north end of the site was not accessible due to park rules. There is a utility road used to service hydro transmission lines just north of the site. Only park staff and the native community have access here.

We found an alternate entrance from Ayleen Lake to the south and hiked up a “cart trail” that leads to the Alsever lake area. Unfortunately we took a wrong turn and ended up east of our intended destination. No single map offers a complete and accurate description of the area. The park map indicated a portage route but no cart trail. Other maps did not indicate portage routes. We combined the information from all our maps to come up with a route that would offer our best chance of reaching Alsever.

On Friday, October 22, 2010 we returned to Algonquin Park for a 3-day excursion to Alsever. Along with the necessary camping equipment we brought our trustee 17ft. Old Town Tripper canoe. The trail is an old logging road, which has been abandoned. A ditch was dug to prevent cars from going further down that trail.



We parked the van at the end of the road where the cart trail begins at the southern boundary of the park. The canoe was fitted with cart wheels. This would allow us to carry our equipment down the 4 KM stretch of trail, which would lead to the Ayleen River.

Chuck used a set of trekking poles and a harness to pull the canoe. I carried some of my gear on me and steered from the back to keep it on the trail. The Aylen River intersects the cart trail at one point where there is a foot bridge and then runs northwest parallel to it for 2 KM. The stretch that runs parallel is not navigable, as we would later find out. Our trail hike led us down to a short portage that links the trail to the river. We had to carry our gear and the canoe from here since the portage was too rough for the cart wheels under the canoe. The portage is about 60 meters long. The river on average is about 20 meters wide. It is shallow and has numerous beaver dams and lodges.



We saw a moose grazing shortly before arriving at the portage trail leading to Alsever.. Because it was late in the day we decided to make camp. We made a short visit up our first portage trail Friday evening to inspect the condition of the trail. We found it adequate for us to plan our trip the next day.

Saturday morning October 23, I found Chuck having breakfast in the snow. We prepared daypacks and our canoe for the two upcoming portages. We would leave our base camp as is for the day. Now it was time to haul!



We portaged from the campsite on the shore of the Aylene river north to Pond Lake a distance of about 650 meters. From Pond Lake we portaged about 750 meters to Aylene Lake. This was what we had been waiting for since our aerial exploration in August. It is frustrating to be so close to a site of interest from the air and not be able to inspect it like a ground expedition offers.

Once on Alsever Lake our goal was to find solid evidence this was an impact site. Impact melt, shattercones and altered structures of quartz known as planar deformation features are good evidence for an impact site.



About an hour into our lake exploration we arrived at our target site, an outcropping we had spotted in our aerial exploration. This exposed rock might give us the evidence we were looking for.

The rock is mostly igneous. We found pegmatite in the rock. The outcropping was geologically interesting but did not offer any evidence of an impact site. Although we tried to remain optimistic our prospects for finding the kind of evidence we needed was fading. Impact craters are very different from other geological structures mainly because of the sudden way they are formed. Most geological processes take place over millions of years. Impact craters form in 1 second. The energy release of a bolide colliding into the bedrock is enormous and the heat generated has an effect on the bedrock that does not take place over geological time. Chuck and I both felt this site had not experienced the cataclysmic changes of an impact site.



I took pH level readings of the water in the lake at various points. They turned out to be normal at between 6.5 and 6.8. Although these readings were not done with professional equipment they were adequate to the task.



We headed to the junction of Alsever and Roundbush lakes located at the northern end of the site. There is a marsh here that links the two lakes with a small stream. We chose not to try to go to Roundbush because the amount of the effort it would have required.



We found an island with an osprey's nest on it. Here we stopped for lunch. Chuck took the opportunity to relax on a flat rock. It was a warm and windless day not typical for October.



We concluded our exploration late in the afternoon and headed back to camp the same way we came. It is important to plan your day carefully when exploring late in the year because daylight is short in October. We made sure not to head back in the dark. Trails are dangerous at night. Branches can injure your eyes and you can easily get lost. Lake travel is also not advisable at night. Saturday night was also clouded over and not good for observations. This disappointed me because the park offers excellent dark skies. The Moon was nearly full at this time. It rained most of the night till morning. We broke camp early Sunday morning and skipped breakfast. It was raining and getting colder. The warm sunny conditions we were treated to on Saturday were gone.

Report on Alsever Expedition(s) by Eric Kujala

We hastily loaded the canoe and headed back down the Aylen River. Instead of taking the cart trail back as we had done going up we decided to continue down the river to the point where it intersects at a further point. This was a big mistake. The river was blocked up with fallen trees and so we had to haul the canoe countless times over logs and through branches. Fortunately the river was shallow most of the way so we could wade through. It took us more than 3 hours to cover about 1.6 KM to the bridge that leads us back to the car. Driving back home Sunday evening we regaled in our adventure.



Although we did not find any evidence of an impact during our exploration we were satisfied with our attempt.

I proposed to Chuck that next summer I would like to do a day trip back to the site all the way up the cart trail to the top peak of the outcropping right in the middle of the purported impact crater.

I have come up with three scenarios for Alsever in terms of it being an impact site.

1. It is not an impact crater but simply has a resemblance to the Brent Crater site.
2. It is an impact crater but evidence has simply not been found yet.
3. It is an impact crater but any evidence of the fact has vanished.

It might be possible to find evidence if drill core sampling was done. This is how the Brent site was proven at a time when drilling was affordable. Today it would be prohibitively expensive to do so. The cost would not validate the expected results even if it were proven to be an impact site.

Our exploration of Alsever has become a treasure of memories for us and a complete success.

Member's Images

The Cocoon nebulae (IC 5146) by Sanjeev Sivarulrasa



Image Details:

Scope: TEC140 refractor at 1030mm f7.3 (with TEC field flattener)

Mount: Takahashi EM400 equatorial mount (autoguided)

Camera: QSI 583ws CCD camera with Astrodon Gen II filters

Exposure: LRGB 60:30:30:30 (total = 2 hrs 30 mins)

Processing: Nebulosity, CCDSharp, Photoshop CS4

Taken on Nov 10, 2010 under mag 6 skies near Almonte, Ont

Astro Goodies for Sale

Use this space if you have anything you would like to sell to other members. Send submissions to the editor:
astronotes@ottawa-rasc.ca

Meteorites and Tektites For Sale

This is your opportunity to acquire genuine rocks from space. A good assortment of stone and nickel-iron meteorites are available.

Also available: impact specimens from Sudbury shattercones, breccia, etc. Contact: Ron at 842-9125 evenings after 6:30pm or email any time at spacerocks@rogers.com.

Starlight Theatre

Are you on the road to learning the night Sky? You will find our Celestial Sphere videotape and Star Maps perfect for people starting in astronomy. See us after the monthly meetings to talk astronomy or about reducing light pollution. (Yes, I do that too.) We also have products for educators and more advanced observers. You may also contact us at: www.starlight-theatre.ca, 1-800-278-2032, slt@starlight-theatre.ca

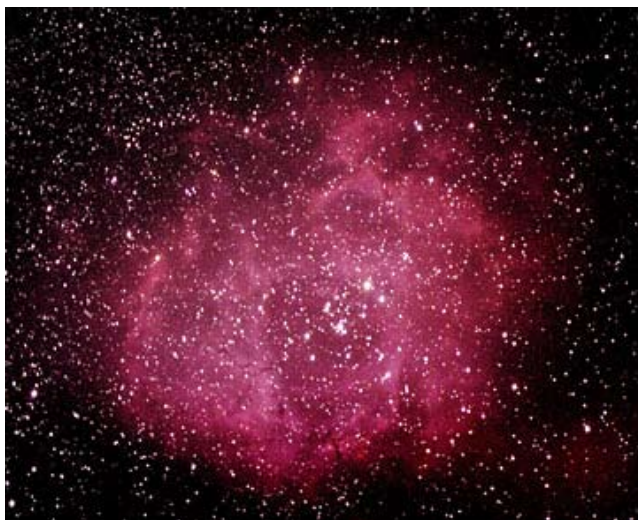
Astro Quote of the Month

Ere the heels of flying Capricorn
Have touched the western mountain's darkening rim,
I mark, stern Taurus, though the twilight gray,
The glinting of thy horn,
And sullen front, uprising large and dim,
Bent to the starry Hunter's sword at bay.

Bayard Taylor - American Writer (1825-1878)

Next Ottawa Centre Meetings

Friday May 6, 2011, 8 PM
Canada Science and Technology Museum
Public Welcome



The Rosette nebula by Eric LeMay

Clear Skies!