

AUTORA



Volume 37, No. 8

The Royal Astronomical Society of Canada - Windsor Centre

May 2012

Venus Transits the Sun by Rod Clark

On June 5, 2012, the planet Venus will transit the face of the Sun. A Venus 'transit' of the Sun is a most delightful event for the society of astronomers. The last transit occurred on June 8, 2004 when we were able to photograph the Venus night-time sky as it soared above a dazzling, rising Sun. After this coming June date, it will be many years before the orbits of Venus and Earth will again be aligned with the Sun.

In our family, watching a Venus 'transit' could be called, a tradition. In the year 1761, our distant cousin, Edward Saunders, (from our Mother's side of the family) was the captain of the ship, Massachusetts. His ship had been chartered to transport Professor John Winthrop of Harvard College, on an expedition to observe a 'Venus transit' from St. John's, Newfoundland.

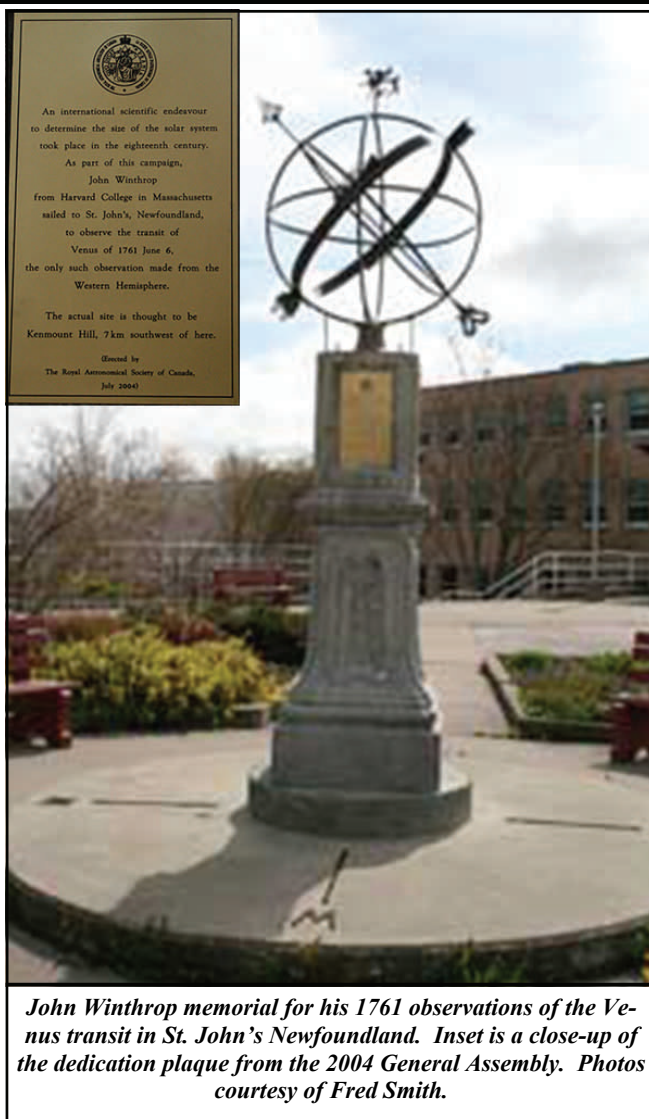
This Venus transit was only the second since the invention of the telescope and Winthrop was equipped with a newly-constructed, brass, ten-inch refractor, along with an octant and a pendulum clock. His plan was to use the Venus image as a parallax-point for finding the exact distance between the Earth and the Sun.

There is a historical memorial in the city of St. John's, confirming this successful scientific event.

Cousin Edward's ship returned to sail with the British navy and took part in several battles during the Seven Years War.

It is with respect that we will continue our family's interests by attending the Venus transit on June 5th.

In our area, our observing window will be short and will occur for 3 hours before sunset.



John Winthrop memorial for his 1761 observations of the Venus transit in St. John's Newfoundland. Inset is a close-up of the dedication plaque from the 2004 General Assembly. Photos courtesy of Fred Smith.

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Calendar of Events

Our next meeting...

Tuesday June 19, 2012

7:30 p.m.

at

Ojibway Park Nature Centre

5200 Matchette Road

Main Speaker...

TBD

Topic...

"TBD"

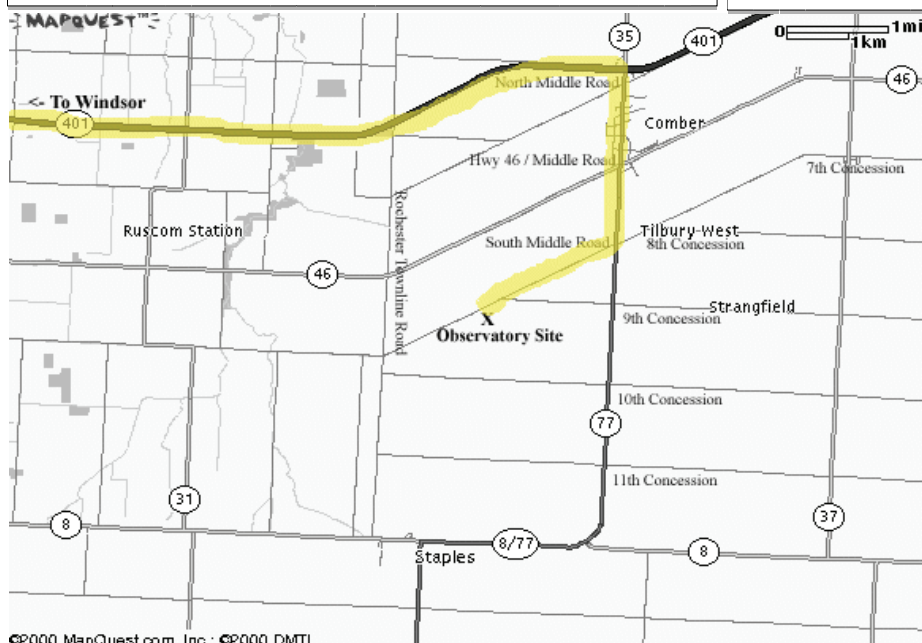
Activities...

Open House Night at Hallam: The next open house night at Hallam is on Saturday May 26 at 9:30 p.m..

Venus Transit: Come out to Hallam Observatory on Tuesday June 5 and watch Venus transit the disk of the Sun. The event starts just after 6:00 p.m. and will still be in progress when the sun sets just after 9:00 p.m..

Council Meeting: The next meeting of Council will take place on Tuesday June 12 at 7:30 p.m..

June Picnic: The Windsor Centre will hold our annual picnic on Saturday June 16 at Hallam Observatory. The picnic will be "Pot Luck" style with the Centre providing BBQ'd hot dogs and hamburgers. We ask that you bring a side dish or dessert.



Hallam Observatory Site

Directions: The map at left shows the Comber area and it includes the major highways (401, 77, 8 and 46) that are in the area of the observatory.

The most direct route from Windsor is "highlighted" on the map which is to take Highway 401 East to Highway 77 South to South Middle Road. Turn right onto South Middle Road and go about 1 kilometer and just after the point where Concession 9 joins it (it is hard to see this intersection) you will find the observatory site on the South side (left) of the road. 3989 South Middle Road.

If you hit the Rochester Tawnline Road (you come to a stop sign) you have gone too far.

Submissions

Aurora is published monthly except for July, August and December. The September, October, January, March and May issues are full newsletters (usually 6 pages) with a number of member submitted articles. The November, February, April and June issues are short flyers (2 pages).

Submitted articles can be of any length from a paragraph to multiple pages. I can scan pictures and/or diagrams (both prints and film) to support your article and the originals will be returned to you.

Submission deadline is the 1st of the month.

Editor: Steve Mastellotto Email: mmastellotto@cogeco.ca

Membership

The Windsor Centre of The Royal Astronomical Society of Canada meets on the 3rd Tuesday of every month (except July and August) at the Ojibway Park Nature Centre. In addition to regular meetings the centre hosts a number of observing nights, a picnic and a December social. Members receive a copy of the Observer's Handbook, a subscription to SkyNews magazine and access to the Centre's library and telescopes. Optionally the RASC Journal is available in print form—online version free.

Annual Membership Fees: Please see the RASC website at www.rasc.ca for current rates.

Contact Greg Mockler at (519) 326-7255 or visit our website at: <http://www.rascwindsor.com> for more information.

April 2012 Meeting Minutes by Dave Panton

The monthly meeting of The Royal Astronomical Society of Canada - Windsor Centre was held at the Ojibway Park Nature Centre on April 17, 2012.

Windsor Centre **President Paul Pratt** chaired the Meeting. Paul asked members to review the minutes from the last meeting and requested a **motion to accept the minutes**. Pierre Boulos made the motion, Brian Thomas seconded and it carried.

Paul noted the Aurora newsletters are all archived on our website at www.rascwindsor.com.

He announced the following coming events:

- **Earth Day** this year to be held at Malden Park Sunday April 22nd from 10:00 a.m. to 3:00 p.m.. We will have the usual booth and displays. Local content (photos etc.) are requested and helpers are needed to man the booth.
- **Canada South Science City** is holding a fund raiser at the Caboto Club on Wednesday April 25th. The speaker will be Robert Rice, a paleontologist speaking on the discovery of 190 million year old dinosaur nests and eggs and their meaning as to these animals lives.
- **Hallam Open House** will be held Saturday April 28th starting at 8:30 pm.
- **Science Rendezvous** will be held May 12th at the University of Windsor Student Centre from 10:00 a.m. to 4:00 p.m.. Members with telescopes capable of safely viewing the Sun are welcome.

Paul then introduced guest speaker **Dale Partin** from the Warren Astronomical Society in Michigan. Dales topic: *The History of Cosmic Ray Astronomy*.

Becquerel was the first to notice a mysterious fog on photographic plates when exposed to uranium. The Curies further discovered and named two more elements that exhibited similar behavior, Polonium and Radium. They coined the term radioactivity for the phenomenon.

Their equipment, clever in it's simplicity included the electro-scope a device that hung gold leaf from an electrode which when charged by static electricity caused the leaves to repel one another. Air with it's slight moisture content became conductive under radiation causing the charge to be lost and the leaves to return to normal. Over time without apparent radiation the same thing happens but more slowly.

A slightly more elaborate device with wires similarly repelled from one another was flown in a high altitude balloon in the thirties. A camera recorded the wire spacing which rapidly diminished with altitude indicating there were mysterious cosmic rays coming from somewhere out in space and were more intense with altitude. The amounts were 25x at 33,000 feet and 160x surface intensity at near the top of our atmosphere. Hess won a 1936 Nobel Prize for his work.

The Geiger Muller tube was invented to instantaneously detect radiation by triggering an electrical charge with passage of cos-

mic waves and was soon set up first in pairs and then arrays to try to determine the direction of the sources of cosmic rays. These were the first cosmic ray telescopes.

There were other ways of detecting cosmic rays including regular photographic film which could record the passage of cosmic rays by showing the path of atoms or their components struck by cosmic rays. This was also done in cloud chambers where chilled vapours of alcohol would also show condensation trails of atoms hit by cosmic rays. Their paths revealed information about their type and structure.

Enormous particle accelerators were developed to reveal a great deal more about the structure of atoms and further, their individual components.

Dale brought with him two cosmic ray detectors, about the size of a big cookie with wires connected to an amplifier and computer that could show and let us hear the clicks of cosmic rays passing through them (and all of us it turns out) at our meeting. He explained how they can be set in line and connected so that only a cosmic ray passing through both at virtually the same time can be used as a telescope albeit with limited resolution.

The source of cosmic rays is from material being drawn into the active nuclei of distant galaxies.

Paul thanked Dale for his interesting presentation, widening our view of radiation and particle physics but primarily providing information for those who may be interested in pursuing this unusual branch of amateur astronomy.

Paul introduced a visitor **Mike McBride** who had flown in from Thunder Bay to attend the 25th reunion of members from the **Nova Astronomy Club** one of Windsor's early astronomy clubs.

50/50 Draw, won by Pierre Boulos, Pierre turned his winnings back to Windsor Centre.

Director of Observing Report, Steve Pellarin: Steve announced he had gone CBC Radio and other local media to announce his public observing event to be held at Malden Park this coming Saturday evening. He will have his 28 inch Dobsonian set up for observing at the event and asked for volunteers to assist by bringing additional telescopes.

Venus, Steve pointed out is a great target due to it's current position in the sky and it's easily seen crescent shape, even in binoculars. **The Sun**, with suitable filters fitted to telescopes is also very interesting with a series sunspots easily seen in a small telescope. Steve showed videos taken by various space agencies in a variety of wavelength the Sun's most recent coronal mass ejections are simply awesome.

Mars is still quite close to Earth and has lots of cloud features in it's thin atmosphere. Recent images of Mars by an amateur in Pennsylvania revealed a "bump" in the atmosphere just over the

(Continued on page 5)

Hallam Happenings by Dave Panton

March this year was wonderfully warm and pleasant. Al Des-Rosiers began to mow the observatory lawn and frogs in the ditches began their mating songs. A couple of great clear nights were spoiled by heavy ground fog that closed in very rapidly.

Outside the whole scene at Hallam has changed. Our landlord, Moe Trepanier has removed the ruins of the old collapsed corn crib out by the road. All the debris piles from the dead ash trees were burned and the whole area is now plowed. The new more open sky appearance is really great.

In the observatory the electric focuser on the C14 failed to operate and required minor repairs. That was the easy problem to solve. Much more serious ones were ahead in our computer controlled telescope system.

Our March open house sky was overcast but still brought out ten people. On trying to show them how the telescope is controlled by the computer the system crashed and on short notice we could do little to salvage the situation. These are situations where having the projector and screen in the warm room saves a disastrous night and turns it into a success. Visitors left, satisfied they learned a bit about amateur astronomy. Some will undoubtedly return.

Going through the usual reboot, uninstall and reinstall programs (old Sky 6 and new Sky X) did not solve the locking up problem. The telescope will point to the correct targets in the sky but once in a while the yellow target circle goes somewhere else and the system will not respond to further commands. A procedure to recover from the situation was worked out and recorded in the log book for future reference. This of course, is not a solution to the problem.

Debates whether the problem was within the mount itself or in the software could go nowhere without further trials. Larry Burgess came to the rescue by bringing his laptop computer to the observatory, loading Sky 6 into it and successfully driving the mount with computer set up in the dome. It pointed perfectly to fifty objects in the night sky. This gave us pretty strong evidence the problem was not in the mount.

Another trial was done in similar fashion by Mike Pataky with his new high capacity laptop computer loaded with Sky X. In this trial, seventy five points were successfully pointed to, again without a hitch. The evidence was becoming ever more clear, all was well with the mount in the dome but not in the warm room computer.

Steve Mastellotto did scans of all kinds through out the warm room computers darker corners and found nothing amiss. Then Sky X was then reloaded and used to point to 75 targets as was done successfully with Mike's laptop computer. At target #28 the mysterious error noted above recurred. The telescope pointed to the desired target but the yellow circle went elsewhere. However, in this instance the system did not crash and went on to point to a total of 75 targets.

Now the question is do we assign the problem's cause to software glitches in Sky X or to an internal problem within the computer?

Sky X is great when it works well but like all complex programs it can drive users to distraction by occasionally refusing to respond to commands or behaving inconsistently. Usually one can recover without need to shut down and re-boot. Evidence now points to a suspicion our computer may have developed a problem with a faulty section of RAM that is only accessed once in a long while causing the system to lock up forcing a total system restart.

Probably we will have to use the system until it completely crashes and then look for a solution, perhaps requiring



"Super Moon" image by Matt McCall from Hallam on May 5, 2012.

ing a computer replacement.

In spite of these difficulties it was used to take some great planetary, double star and open cluster images through March and April. Further, it was used (with some difficulty) in hosting about 50 adults and children from a school in Blenheim and then again the following night (April open house) for about fifteen visitors. Both nights were clear and it pointed to all targets, refusing only to point to the Moon after viewing Venus until sent to Mars first! The final target was Saturn, a huge hit with everyone.

A comment we hear again and again from visitors is: "We had no idea there was such a great facility in Essex County".

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horizon in the upper right quarter. It may be evidence of an impact of some sort on the side not visible at the time of impact. Observers have been alerted to look for evidence as the Martian surface rotates into view from Earth.

Steve showed a great shot of **Saturn** taken by Brian Thomas from Hallam observatory. Saturn is high in the night sky and presents a wonderful view now that it's rings are tipped up and details are easily visible. He also suggested observing planets with a variety of color filters (they are threaded and screw into the bottom of most eyepieces). They can highlight detail not otherwise observable.

Comet Garradd in the Northern sky has been visible for months. It is not a very exciting target but worth observing.

In May the **Eta Aquarid** meteor shower sometimes produces the wonderful sight of long bright trails with smoke left in their wake. The cause is their unusually high velocity. Look for them May 5th and 6th.

Pierre thanked Steve and **adjourned the meeting** at 10:00 p.m..



Randy with students & family from St. Joseph's Elementary School in Blenheim on April 27th at Hallam.

The Royal Astronomical Society of Canada

LONDON CENTRE

Summer Star Party

June 22-24, 2012

Camp Timken

Iona, Ontario

Semi-rustic
No prepared RV sites
Limited Power
Water

Bunkhouse
Coffeeshop
Limited Showers
Saturday BBQ

Registration fee is \$50 including camping for one person, or \$75 for a family.

Space is limited. Contact Rick Saunders (email below) for more information or to register.

prez@rasclondon.ca

For Sale: Celestron 14 XLT optical tube assembly. Mint condition. Only used 3 times. Bought new in 2009 but always used Hallam since then. Original items include Losmandy D mounting bar, 2" diagonal, 2" 40mm Elux eyepiece, 9x50 finder, and original shipping carton. Star Bright XLT coatings. Also included are ADM dovetail bar for top of scope, Dew Shield, and Spike-A Bahtinov mask. No dents or scratches... perfect condition. Asking \$4,200. Contact Brian Thomas brithomas@live.ca for more info.



Observing from Malden Park by Matt McCall

On the evening of Saturday, April 21, a public observing night was held in Malden Park. Steve Pellarin and I set up his 28-inch telescope *Leviathan* near the Matchette Road entrance, with our president Paul Pratt arriving at dusk along with the first visitors. As we waited for more people, we enjoyed the view of a crescent Venus through the eyepiece, its cloud tops reflecting brilliant white sunlight, bright enough to hurt the eyes if stared at for long.

Finally some inquisitive members of the public stopped to see Steve's massive scope. After showing off Venus, it was now dark enough to move to Mars and M42, the Orion Nebula. The 'sword' of Orion filled the field of view and was a good target, even when it went low in the haze above the horizon.

With the telescope pointed high in the south, visitors climbed a ladder to reach the eyepiece where the red planet appeared just big enough to show detail. The huge mirror actually resolved the dark Syrtis Major feature on the tiny disc, as well as the polar ice cap, even when seen from the west end of Windsor. Steve chose a good spot to put his trailer to block one of the only top-down light fixtures that was even working, the large amount of landscaping being done around the park likely required city crews to cut power to the other lights and the entrance sign, to our benefit.

A little shriek of amazement came from one of our visitors when we turned to Saturn, in all its ringed glory. We pointed out what the gap in the rings was as the Cassini Division, which was just visible even through occasional thin cloud cover. However, the surprising sight of the night was the ability to see six moons around the planet at once. Titan as the largest disc of light, far to the west, much smaller Rhea less distance away, and Dione, with bright Enceladus barely discernible just below as a tiny pinprick of light, right above Saturn in our viewpoint. Iapetus was faint and farther away as it orbits in a distant, high inclination, and Tethys could be easily found to the east of the ring plane.

The entire Nova Astronomy Club showed up, consisting of

RASC Windsor members and colleagues from around Ontario on their 40th anniversary reunion, for a night out on the town going telescope-hopping! They headed to Dan Taylor's backyard observatory outside town before it got too late, and after all the high winds and cold air here, everyone left for a good night's sleep ready for the Earth/Astronomy Day event the next morning on the other side of the park.



Top Photo: Windsor Centre members Dan Taylor, Randy Groundwater, and Joady Ulrich are seen here with Michael McBride (second from right) of Thunder Bay, Ontario. The purpose of the visit was the upcoming 40th Anniversary meeting of the Nova Astronomy Club, which was held on April 21st.

Bottom Photo: Paul, Matt and Tina set up for Earth/Astronomy Day at Malden Park just behind Steve's *Leviathan* telescope.

Apollo 8 was the major factor behind the first Earth Day in 1970 for those interested in the space exploration side of astronomy. The iconic first colour photo of 'Earthrise' above the lunar horizon, taken after the astronauts entered orbit around the far side of the Moon on December 24, 1968, influenced the modern environmental movement. Many today have no idea it may not exist in its current form if not for that mission. Tina returned from the night before to join Steve, Paul, Art and I to hand out flyers and keep *Leviathan* from turning too much in the wind. Astronomy Day at our table was a success!

The next day, the 23rd, I went back to the top of the tallest hill on the other side for naked eye observing of Venus and a slender crescent Moon. The latter slowly descended into the light pollution as night moved in, but Earth's twin sister looked big and stunning above the steel industries of Zug Island.

The oscillating noise from the southeastern side's blast furnace wasn't traveling as loudly as it usually does, so I was able to take in the sight of setting Venus with a plane and I-75 traffic in the distance, without

annoying vibration in my ears. The planet's magnitude even through atmospheric distortion surprised me and I was visualising it over again as I drove home, remembering I couldn't get back on E.C. Row due to the Parkway construction.

In the end, it was a good few days of promoting and doing astronomy, and even deep in the city, observing can still be rewarding!