

AURORA



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The Royal Astronomical Society of Canada - Windsor Centre

December 2005

Your WINDSOR CENTRE Council for 2005-2006

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Calendar of Events

Our next meeting...

Tuesday, January 17, 2005 8:00 p.m.
at
K of C Maidstone Recreation Centre
10720 County Road 34 just west of
beautiful downtown Maidstone

Main Speaker...

Pierre Boulos

Topic...

Looking at Saturn:
Cassini and Huygens

Coming Events

Astronomical Events:

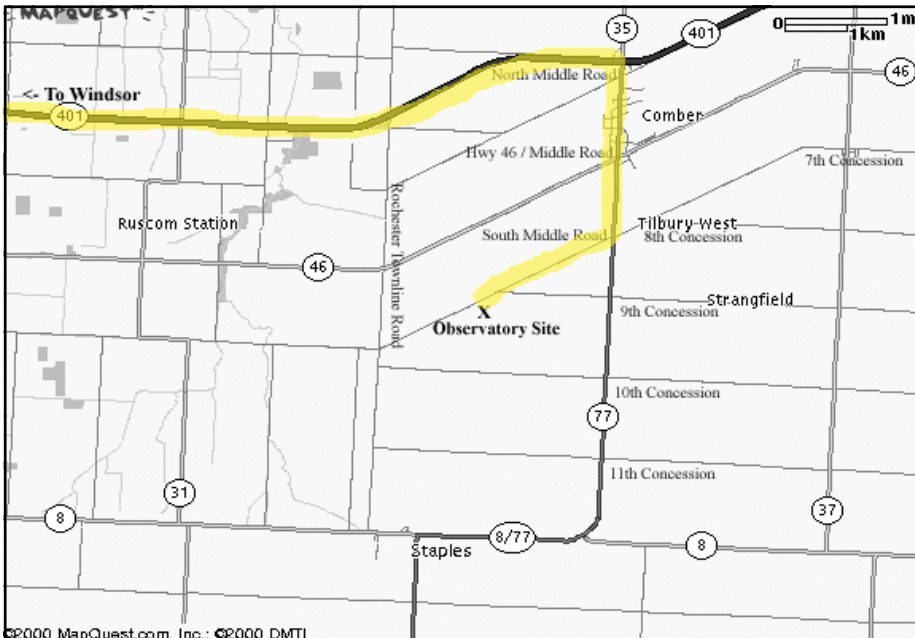
Jan 01, 2006	insert a leap-second on your watch
Jan 03	Quadrantid meteor shower
Jan 04	Earth at perihelion
Jan 14	Full Moon
Jan 27	Saturn at opposition
Jan 29	New Moon

Open House:

January 7th	7:00 p.m.
February 4th	7:00 p.m.
March 4th	7:30 p.m.

Council Meeting:

February 14, 2006 7:30 p.m.
At Steve Mastellotto's house at 12861 James Cres-
cent in Tecumseh.



Hallam Observatory Site

At left is a map showing the Comber area and it includes the major highways (401, 77, 8 and 46) that are in the area of the observatory. I "highlighted" the most direct route from Windsor on this map which is to take 401 East to Highway 77 South to South Middle Road. While on South Middle Road you will cross an old railway right of way and just after the barely discernable point where Concession 9 joins it you will find the observatory site on the South side of the road. If you hit the Rochester Townline Road (i.e. you come to a stop sign and have to turn left or right) you have gone too far. On most clear nights someone is usually out there observing but if it happens to be a clear, moonless, weekend night you should have many observing buddies.

Submissions

Aurora is published monthly except for August. The September, November, January, March, May and July issues are full newsletters (usually 6 pages) with a number of member submitted articles. The October, December, February, April and June issues are short flyers (2 pages) with one short article. 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. I will accept Emails at the address below, floppy disks, CD's, or written submissions.

Editor: Ken Garber Email: kgarber@cogeco.ca
Ass't: Dan Anzovino Email: danzovino@sympatico.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 K of C Recreation Centre in Maidstone. 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, the RASC Journal, a subscription to SkyNews magazine and access to the Centre's library and telescopes.

Annual Membership Fees are Regular - \$55.00, Youth - \$34.25 and Life - \$1100.00. ** NOTE New Rates **

Contact Ken Garber at (519) 966-3478 or visit our website at: <http://www.mnsi.net/~rasc> for more information.

WINDSOR CENTRE Year-End Financial Report by Treasurer Ken Garber

REVENUE	Rounded off
Membership fees (regular)	\$ 1,671.00
Membership fees (life)	\$ 60.00
Donations	\$ 437.00
Educational Activities	\$ 910.00
Bank Interest	\$ 4.00
Publication Sales Handbooks	\$ 15.00
Calendars	\$ 502.00
Obs Guides	\$ 48.00
Other	\$ 80.00
Other Sales / Surplus Equip't	\$ 1,135.00
Observatory Fees	\$ 1,220.00
Meeting Income 50/50 + coffee	\$ 403.00
TOTAL REVENUE	\$ 6,485.00

EXPENDITURES

Library	\$ 157.00
Publication Purchases	\$ 523.00
Meeting Costs	\$ 986.00
Annual Dinners	\$ 306.00
Astronomy Day	\$ 50.00
Office Admin	\$ 295.00
Observatory Insurance	\$ 1,393.00
Observatory/Site Expenses	\$ 978.00
TOTAL EXPENSES	\$ 4,688.00
PROFIT/LOSS	\$ 1,797.00
LIQUID ASSETS	\$ 7,370.00
CAPITAL ASSETS	\$75,000.00

Looking for an astronomical gift for a friend or relative??

We have a limited supply of the 2006 Observer's handbook (and a few 2005's) and the Beginners' Observers' guide.

Contact the treasurer if you're interested.

Dictionary Recognizes Astronomers compiled by Bert Huneault

As I browsed through my Canadian Oxford Dictionary (Second Edition) recently, I was pleasantly surprised to see that it includes many astronomers' names. So, I thought it might be fun as well as informative to look up a few of those names and perhaps refresh our memories or learn something new about these famous scientists. The following information is quoted verbatim from the dictionary.

Copernicus, Nicolaus (1473-1543), Polish astronomer. In his *De Revolutionibus Orbium Coelestium* (1543) he rejected Ptolemy's epicyclic theory of planetary motion, proposing a simpler model in which the planets orbited in perfect circles around the sun; his work ultimately led to the overthrow of the established geocentric cosmology.

Flamsteed, John (1646-1719), English astronomer. The first Astronomer Royal at the Royal Greenwich Observatory, he produced the first star catalogue, *Historia Coelestis Britannica* (1725), which gave to positions of nearly 3,000 stars.

Fleming, Sir Sandford (1827-1915), Scottish-born Canadian civil engineer. Chief engineer for the construction of the Intercolonial Railway, he was appointed chief engineer for construction of the CPR in 1871 and surveyed a northerly route and a southerly route through the Kicking Horse Pass ; Canada's adoption of international standard time in 1884 grew out of his papers on time reckoning, and he also designed the first Canadian stamp, the threepenny beaver, issued in 1851.



Fraunhofer, Joseph von (1787-1826), German optician and pioneer in spectroscopy. He observed a large number of fine dark lines in the solar spectrum and plotted their wavelengths. These (Fraunhofer lines) were later used to determine the chemical elements present in the spectra of the sun and stars.

Galileo, Galilei (1564-1642), Italian astronomer and physicist. He discovered the constancy of a pendulum's swing, formulated the law of uniform acceleration of falling bodies and applied the telescope to astronomy, observing craters on the moon, sunspots, and Jupiter's satel-

lites; his acceptance of the Copernican system was rejected by the Catholic Church, and under threat of torture from the Inquisition he publicly recanted his heretical views.

Gamow, George (1904-68), Russian-born US physicist, who worked on the theoretical background to the big bang theory and the nature of the genetic code.

Hubble, Edwin Powell (1889-1953), US astronomer. In 1929 he demonstrated that the distance of a galaxy is directly proportional to its observed velocity of recession from us.

Kepler, Johannes (1571-1630), German astronomer. One of the founders of modern astronomy, he discovered the three laws governing planetary motion that are named after him; he also made discoveries in optics, general physics, and geometry.

Lovell, Sir (Alfred Charles) Bernard (b.1913), English radio astronomer and physicist. He founded the radio observatory at Jodrell Bank, England (1951), and directed the construction of the large radio telescope there, now named after him.

Shapley, Harlow (1885-1972), US astronomer. He studied globular star clusters, using Cepheid variables within them to determine their distance; he then used their distribution to locate the likely centre of the Milky Way, and went on to suggest its structure and dimensions.

Tombaugh, Clyde William (1906-97), US astronomer. His chief interest was the search for undiscovered planets, and his extensive examination of photographic plates led to his discovery of the planet Pluto on 13 March 1930.

Van Allen, James Alfred (b.1914), US physicist, who discovered the Van Allen belts surrounding the earth.

The above are just a few of the illustrious names I came across while leafing through the pages of the Canadian Oxford Dictionary. Next time you open a dictionary, why not check out the names of your favourite astronomers or physicists... You might find it quite informative.

Getting to know our Sun by Bert Huneault

What's your sign? by Rod Clark

The following data are from The New York Public Library Science Desk Reference (c.1995)

Located at the centre of the solar system, the Sun's sphere of hot gases comprises 99.86% of the entire solar system's mass.

Star type: Typical G2-class star

Diameter: 864,000 miles (1,390,180 km); i.e. 109 times the diameter of Earth

Mass: 2.2×10^{27} tons (2×10^{30} kg); i.e. 333,400 times the weight of the Earth

Rotation of surface: 36 days at the poles, 28 days at 30° latitude, and 25 days at the equator

Temperature: Centre of the Sun is about 14 million°K; a pleasant day on Earth is approximately 300°K

Composition: Hydrogen and helium account for 95% of the total elements; 60 elements have been detected on the Sun via spectrographic analysis

Surface gravity: 38 times that at Earth's surface

Density: Average 1.4 g/cm³ (water on Earth = 1g/cm³)

Because the Sun is compressible, the density increases sharply as distance increases downward from its "surface". A total of one cubic foot of its matter from the "surface" would weigh 87.4 pounds (39.3 kg) on Earth; one cubic inch of the Sun's dense core material would weigh as much as forty 100,000-ton aircraft carriers concentrated in an area the size of a thumbnail

Thermonuclear fusion reactions are the Sun's basic source of energy, as hydrogen is converted into helium. The lighter nuclei fuse to create more complex nuclei, releasing heat and light – close to 5×10^{23} horsepower in all directions at one time.

The light from the Sun reaches the Earth in just over 8 minutes.

Astronomers tend to be a little brittle when anyone confuses the 'science' of astronomy with the 'superstition' of astrology. Randy Groundwater has written that, "Astronomy is not astrology and horoscopes are usually placed in or near the comic section of the daily newspaper."

We all know Randy as a kind and generous person so that these words can be accepted as the best that any astronomer can muster in describing the subject of astrology.

But, astrology does have an ancient and a legitimate history. Professor Alexander Gurshtein of the Russian Academy of Sciences has traced the history of 'zodiacal astrology' back to the Babylonians who gave the familiar names to many of the constellations. It seemed obvious to Dr. Gurshtein that the Babylonian zodiac had evolved from the star lore of the previous several thousand years.

We can imagine how those ancient civilizations had first used the appearance of certain bright stars as a calendar for the sowing and harvesting of their crops or for the migration of their game animals. They must have imagined that a significant star arrangement was a representation of the forecast event; Orion as the hunter; Gemini, the twins noting equal night and day at the equinox; Leo marking the Sun's highest position in the summer sky; Virgo holding a spike of corn at harvest time.

As their civilization developed, specialists took over the forecasting of the seasons and just as our consultants do today, they introduced their own lingo and mysticism. It was a short leap of faith to the belief that if the stars can predict the seasons, they should also be able to predict human destiny. Prediction evolved into prophesy and astrology was born.

Through the millenniums, astronomers and astrologists walked in lock-step. Kings and emperors financed observatories for improving the predictions of their astrologists. From the Australian aborigines to the priests of Stonehenge and Mexico, the celestial map was being expanded and gradually, new questions were being asked. There had to be other explanations for the universe and Copernicus, Kepler and Galileo gave the better answers that parted astronomy from astrology forever.

Let us not be too harsh. Astrology has satisfied the enquiring minds of our ancestors in those times before all the glorious technology that makes us so smug. Perhaps in those harsh old days, the season of a person's birth did imprint their future character and perhaps we have inherited some of that genetic stuff that gives our horoscope a smidgen of truth. As Joady has quoted in September's Aurora, "When we try to pick out anything by itself, we find it hitched to everything else in the universe."

Observing at Dan Taylor's

RIGHT: The weather was doubtful but member Randy Groundwater was able to spot Mars just past the Constellation Doritus and the Globular Cookie Cluster.

BELOW: Host Dan Taylor brings 'guest' Mars into view on his backyard telescope.



More Websites of Interest

<http://skymaps.com/downloads.html>

<http://members.cox.net/astro7/SFAStarCharts.html>

<http://www.aavso.org/observing/charts/>

<http://www.astro.wisc.edu/~dolan/constellations/constellationjavalist.html>

<http://www.fourmilab.ch/yoursky/>

http://www.cloudynights.com/item.php?item_id=1052
Mag7

<http://www.rxffish.com/moon-lunar-tide-chart.htm>

<http://www.shetline.com/java/moonphase/moonphase.html>

<http://moon.google.com/> **zoom in close for more detail :)**

<http://www.shatters.net/celestia/>

The Hallam Sky Clock

cleardarksky.com/c/H11m0bONkey.html?1

Time to Renew???

Don't forget that you can renew your membership at the treasurer's desk, by snailmail to the National, or online at the RASC 'store' at <http://www.store.rasc.ca/>



NEW Centre Communications

A Newsgroup/discussion board has been set up for Centre members. Created by Pierre Boulous, the list is called **RASCWINDSOR**.

To find out more about the *rascwindsor* group and to subscribe, please visit

<http://groups.yahoo.com/group/rascwindsor>