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ORBIT
Hamilton Centre RASC
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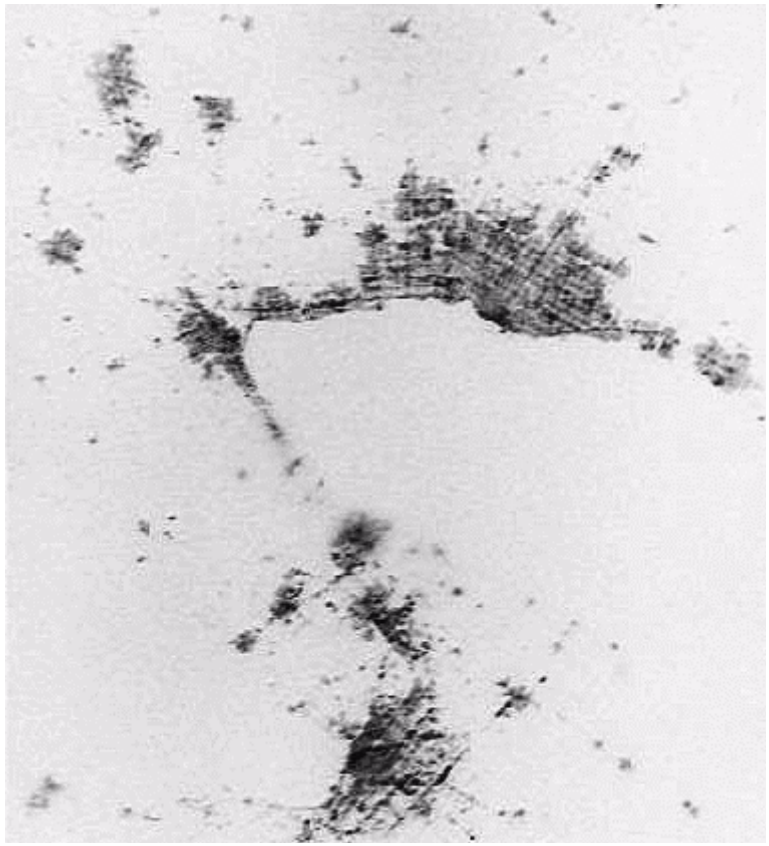
Waterdown, ON L0R 2H0

To:

ORBIT

December 1996
Vol. 29, Issue 11



Light Pollution - Toronto, Hamilton, and Buffalo

The Official Publication of the Hamilton Centre of
The Royal Astronomical Society of Canada

Cover Image - Digitally Processed from International Dark Sky Association Image

EDITORIAL

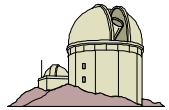
BY COLIN A. HAIG

Holiday time and still cloudy skies! Yikes! We have had a record of rotten weather for observing, but that has just meant its time to focus energies elsewhere, into the Hamilton Centre, instead of into the skies. Please welcome a number of new members that have arrived, and let them know when you will be out observing, so they can experience our facilities. I'd also like to extend a hearty welcome to our Trial Members, and hope that they are finding what they are looking for. As always, if there is something of particular interest to you, you are most welcome to mention it to the club, even take a moment to speak on the matter at the next meeting.

Can you take a moment and help your executive out? A lot of individuals have made great commitments to the Hamilton Centre over past few years, and now its YOUR TURN. A friend of mine passed along a little anecdote about the three kinds of astronomers: The Observational Astronomers who get outside with friends and their telescopes; The Armchair Astronomers who discuss astronomy, cosmology, and enjoy Discussion Groups; and finally, The Missing Mass Astronomers, the ones no-one ever sees, but we know are out there. Which kind are you? I would venture that there are a fourth kind of astronomer - the explorers, leaders, builders and maintainers of the Hamilton Centre. Maybe its time for you to make a state change from Missing Mass to being a Builder. How do you do it? Its easier than emitting photons! Just talk to any member of the executive - we need people to call members, to return phone calls, to share ideas, to donate funds, supplies, and equipment. And to ensure that the Centre is giving you what you are looking for - and we all know you only get out what you put in! (You know, Laws of Thermodynamics!).☆

CONTENTS: THIS MONTH

MEMBERSHIP APPLICATION

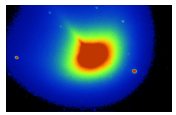


Application for Membership in the Hamilton Centre of the RASC. Annual membership officially commences October 1. We welcome people of all ages, skills, and interests in things Astronomical. Please make your cheque payable to: "RASC Hamilton Centre" and mail to the Treasurer c/o the address on the back. Associate membership is for those in other Astronomy Clubs. Please state the club. Full members receive: The Observer's Handbook ($20 value), Journal of RASC ($70 value), SkyNews ($22 value), and many other great privileges, including discounts on popular magazines, supplies and cool stuff. There is a Free 3 month Trial available - send no money! Info: Leave a message at: (905) 689-0266. ☆

MEMBERSHIP INFORMATION	
NAME:	
ADDRESS (1/2):	
ADDRESS (2/2):	
CITY:	
POSTAL CODE:	
DAY PHONE:	( )
EVE PHONE:	( )
E-MAIL:	

PAYMENT OPTIONS		
ADULT	**@ $49.00**	
ASSOCIATE	**@ $30.00**	
YOUTH (under 21)	**@ $35.50**	
VOLUNTARY DONATION:		
TOTAL:		
Circle one:	**NEW Member**	**RENEWAL**

Hamilton Centre Info & Observatory



From Hamilton or Guelph:

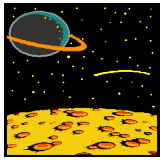
- Hwy 6 north of Hamilton, take Concession 7 East.
- Proceed eastbound on 7E, cross Centre Rd.
- Continue on 7E, keep going past the rail tracks
- proceed nearly to the end.
- Our gate is on the south side on the last lot (south west).

From Mississauga or Milton:

- Britannia Road past Hwy 25, Guelph Line, Cedar Springs to end
- South 1 block on Milborough TownLine to Concession 7 East.
- Our gate is on the south side on the last lot (south west).

NAME	Phone	Email Address
Observatory	689-0266	http://ad-here.com/RASC/
Astronomy emailing list	subscribe	bigbang@ad-here.com
Past President: Roger Hill	878-5185	roger@ad-here.com Fax: (905)878-3974
Secretary: Dave Coulson	634-4436	
General: John Kezys	648-5542	kezys@operatns.mohawkc.on.ca
Education: Carmen Martino	643-7283	
President: Rich Petrone	547-2589	petrone@ physun.physics.mcmaster.ca
Councillor: Les Nagy	387-0690	lnagy@netaccess.on.ca
1st VP:Mike Jefferson	648-8919	
Curator:Ellen Ricks		
Librarian/Recorder: Ray Badgerow	692-4184	667883@ican.net
Editor: Colin Haig	577-4074	chaig@vizbiz.com

The President's Monthly Report



Where do the months go ? Perhaps a more important question is where do all the clear nights go? Yes another month has quickly passed and I cannot really recall one clear night. I can't believe that I am sitting here writing this article listening to people talking about a possible **tornado** touch-down in the area, in December! Climate change ? (Just kidding) A gust front or intense squall line maybe, but I'm skeptical about the tornado. Needless to say I personally have not had much opportunity to do any observing.

I did attend another successful Discussion Group last month. On Saturday the 23rd, a number of us met at the observatory to talk about the recent **Martian meteor** news. While the discussion frequently ran off topic, I think most of us learned something and came away eagerly awaiting further research into the **Red Planet**.

Along those lines, there will not be a discussion group this month, instead, there will be an **observing workshop**. The time and topic for this workshop will be somewhere in the pages of this issue of Orbit and will be announced at the general meeting. So I definitely encourage everyone to come out to this and every workshop. Unlike the discussion groups this is a time when we can actually go out to the observatory and get our hands dirty observing. The workshops are always an excellent opportunity for new members to come out and learn the ropes (sometimes literally - if you've seen our dome) around the site.

The **CCD group** is eagerly working the bugs out of our system in preparations for the **Comet Hale-Bopp** apparition in the spring, when the Centre will be participating in an invitation only, NASA Internet project. Anyone interested in becoming involved with this project should contact Colin Haig or John Kezys.

While on the topic of projects, there are still rumblings around the club of getting the **radio astronomy section** going again. The are numerous people in the area who are experts in this field, and the club does have some spare equipment kicking around to help get started. Therefore, now might be a good time to get this program going. Anyone who thinks they might like to pursue this can talk to myself or Charles Baetson.

The winter months look to be interesting as far our meetings go. We have a great line-up of speakers booked right through to the summer. Our speaker next month will be Dr. Doug Welch of McMaster University, who will speak on what's what in his **variable star** work.

An important note for our January meeting is that the meeting will not be on the first Thursday (January 2), but will be a week later on Thursday, January 9. Our next discussion group will be on Saturday, January 18 at the observatory. The topic of the evening will be **Weather Prediction for the Amateur Astronomer Using the Internet**. We will discuss the useful and useless aspects of the multitude of weather data available on the World Wide Web, and learn the necessary tools to make use of the good stuff.

Anyhow the combination of crappy weather and a busy schedule have left me with very little to say this month. To those whom I did not see at the meeting, I would like to take this moment to wish you and yours a very happy holiday season.

I hope to see you at some point during the holidays - like hey! Maybe doing some observing?! If not do not miss the January meeting - as I here rumor that Doug has almost got his dance routine down that he hopes to compliment his talk with (maybe we'll see the debut)

So remember to hang by your thumbs and happy observing !
Cheers,
Richard M. Petrone
547-2589
email: petronrm@mcmail.cis.mcmaster.ca

P.S. Do you know any other astronomer types?
Astronomers can be hard people to buy gifts for.
Always wanting big expensive eye pieces or big hard to find telescopes.
What better Christmas present than a membership in the Hamilton Centre.
Either Les Nagy or myself can help you with the various membership options available.☆

WANTED / CLASSIFIED ADS

Astronomy Aids, Telescopes, Items for Sale

WANTED TO PURCHASE: If you have a 3"-to-6" refractor gathering dust and would like to sell it to a middle-aged enthusiast who has rediscovered astronomy in a serious way, then contact me at:tel: (705) 946-5061, e-mail: aioakes@sympatico.ca address: 33 Sault Ste. Marie, Ont.,P6B 1L9
This would be my first serious scope. My budget is limited. I'm looking to use the telescope for lunar and planetary observing. Good optics are a must and a motor drive would we an added plus. Andrew Oakes, RASC Unattached Member ☆

WHAT'S HAPPENING!

Monthly Meetings are held by the Hamilton Centre at McMaster University Medical Centre Ewart Angus 1A6 8pm.
Dec. 5 - 8:00 pm: **Hamilton Centre** Meeting, McMaster Medical Centre, room 1A6, Speaker: Doug George, RASC President

Dec. 13 - 7:30pm: Hamilton Amateur Astronomers, Spectator Auditorium. Dr. Derk Ford on Comparisons of Venus and Mars.

Dec. 22 - 2:00pm: **CCD Workshop** at the Observatory.

Jan. 9 - 8:00pm: **Hamilton Centre** Meeting, McMaster Medical Centre, room 1A4, Speaker: Dr. Doug Welch (McMaster University), Update on Variable Stars

Upcoming Speakers
Feb.6 - Tim Griffis - The Role of CO_2 in Planetary ATmospheres
Mar. 6 - Bruce Collier - The Aurora and AIr Glow
Apr. 3 - Dr. Dennis Shaw - Is (Was) There Life on Mars?

PHENOMENA PAGE

A COLLECTION OF INTERESTING

GPS-Determined Coordinates of Favourite Observing Spots

As some of you have been asking, here are the coordinates for some common locations in and around Hamilton, as determined by GPS receiver.

Binbrook Conservation Area	43° 06' 01" N	79° 50' 11" W
Hamilton Centre Observatory	43° 23' 26" N	79° 55' 22" W
Hamilton City Centre	43° 15' 01" N	79° 51' 21" W

ECU Version 3.0

Dave Lane's Planetarium and Telescope Control program, Earth Centred Universe, has recently been upgraded to Version 3.0. For approximately $70, you get a powerful planetarium and a CD-ROM including all of the Hubble Guide Star Catalogue. This is a significantly enhanced version of the software, and is quite impressive. A shareware version is available. For more info, contact the editor, or visit: http://fox.nstn.ca/~ecu/ecu.html ☆

METEORITES: ROCKS FROM SPACE

BY BOB BOTTS

Meteor, meteoroid, or, meteorite?

meteor - A meteorite in transit through a planet's atmosphere before it strikes the surface.

meteoroid - A meteor before it reaches a planet.

meteorite - Any particle of solid matter that has fallen to Earth, the Moon, or another planet from space.

What are they and where do they come from?

Meteorites are rocky or metallic bodies that reach Earth from space. Many originated on asteroids and some from comets. Some came to the Earth from the Moon and about a dozen are thought to come from Mars. Stoney, iron, and stoney-iron meteorites have distinct histories and reveal the ages, compositions, internal strictures, and sizes of the small bodies from which they originated. Chondritic meteorites have changed very little since solids condensed from the solar nebula 4.6 billion years ago. Other types show evidence of igneous processes, which indicates that the parent body must have went through considerable change over time.

The major source for the meteorites impacting the Earth is the asteroid belt between Mars and Jupiter.

Most meteoroids spend much of their lifetimes in space as dust-sized particles or as small boulders up to several meters across. Most were broken from larger objects 10 to 500 million years ago.

They impact with the Earth at speeds of 5 to 25 km/sec. Smaller ones burn up in the atmosphere as meteors, while larger ones occasionally reach the surface. The Moon has no atmosphere, so that even micro-meteorites strike the lunar surface.

The meteorites that originated on the Moon or Mars are the result of large impacts that threw ejecta into space where they eventually collided with the Earth.

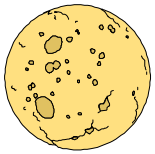
What role do meteorites play?

Early in the history of the solar system, (about 4 billion years ago), meteorite impacts played a much more significant role than they do now. Earth as well as the rest of the solar system experienced an intense period of bombardment during the first billion years of its' existence. Since asteroid impacts brought so much material to the planets, we can think of them as building blocks in their development. Presently the Earth receives about 50 million tons of new matter each year. ☆

SPACE CALENDAR

Courtesy of NASA

HTTP://NEWPRODUCTS.JPL.NASA.GOV/CALENDAR/



There's Something Happening Just about Every Day!

[Note: M = Magnitude, Occ. = Occults]

December 1996

01 - New Kennedy Space Center Visitor Center Opens, Florida
02 -[Nov 30] Mir Spacewalk
02 - Asteroid 2563 Boyarchuk Occults PPM 239880 (9.9 M Star)
02 - Asteroid 628 Christine Occults PPM 208874 (8.9 M Star)
02 - 25th Anniversary (1971), Mars 3 Mars Orbit Insertion / Mars Landing
03 -[Dec 03] First Galileo Image of Callisto
03 -[Dec 03] Scientists Find Possible Ice on the Moon
03 -[Dec 03] Mars WebChat
03 -[Nov 30] Asteroid 471 Papagena Occ. PPM 98650 (10.7 M Star)
03 - Asteroid 1512 Oulu Occults PPM 207747 (8.3 M Star)
04 -[Dec 03] Mars Pathfinder Delta 2 Launch (Mars Lander/Rover)
05 - RASC Hamilton Centre Meeting 8pm MUMC 1A4
05 - LMV Launch
05 -[Nov 30] Asteroid 324 Bamberga Occ. PPM 099084 (10.6 M Star)
06 -[Dec 03] Space Shuttle Columbia Returns to Earth (STS-80)
06 - Comet Wilson-Harrington Perihelion (1.000 AU)
07 - Possible Mars Occultation of SAO 118840 (8.8 M Star)
08 - Asteroid 4068 Menestheus Occults PPM 206100 (9.7 M Star)
09 - Asteroid Kalliope at Opposition
09-11 - AAS National Conference and 43rd Annual Mtg, Houston, TX
10 -[Dec 03] Bion-11 Cosmos Launch (Russia)
11 -[Nov 29] Cosmos Tsiklon-2 Launch (Russia)
12 - Galileo Lecture, Pasadena, California
13 - Geminids Meteor Shower Peak
14 - Iridium-1 Delta 2 Launch
14 - Asteroid 134 Sophrosyne Occults PPM 206897 (8.7 M Star)
14 - Tycho Brahe's 450th Birthday (1546)
15 - Galileo, Orbital Trim Maneuver #16 (OTM-16)
15 -[Nov 30] Cosmos Cosmos Launch (Russia)
15 - Mercury At Its Greatest Eastern Elongation (20 Degrees)
15 - Asteroid 279 Thule Occults PPM 097044 (9.5 M Star)
15 - 30th Anniversary, Audouin Dollfus' Discovery of Saturn Moon Janus

15-19 - American Geophysical Union (AGU) 1996 Fall Meeting, San Francisco, California
16 - Griffith Park's 100th Birthday (1896)
17 - Possible Mars Occultation of 86130 (9.0 M Star)
18 - USAF Titan 4 Launch
18 -[Dec 02] Molniya Cosmos Launch (Russia)
19 - Galileo, 1st Europa Flyby (Orbit 4)
19 - Inmarsat-3 F-3 Atlas 2 Launch
19 -[Dec 01] Zeya Start-1 Launch
20 - Comet Kojima Near-Jupiter Flyby (0.1440 AU)
21 - Winter Solstice 14:04 UT
21 - 30th Anniversary (1966), Luna 13 Launch (Soviet Moon Lander)
22 - Galileo, Orbital Trim Maneuver #17 (OTM-17)
22 - Ursids Meteor Shower Peak
22 - Asteroid 36 Atalante Occults PPM 206311 (8.9 M Star)
25 -[Dec 03] Cosmos Proton Launch (Russia)
25 - Asteroid 1994 WR12 Near-Earth Flyby (0.0978 AU)
27 - Johannes Kepler's 425th Birthday (1571)
28 - Asteroid 972 Cohnia Occults PPM 96490 (7.7 M Star)
29 - Jupiter Occults 188551 (7.5 M Star)
29 - Asteroid 2835 Ryoma Occults PPM 095656 (9.1 M Star)
30 - Comet 1996 J1 (Evans-Drinkwater) Perihelion (1.3 AU)
31 - Asteroid 237 Coelestina Occ. PPM 094054 (9.2 M Star)

January 1997
?? - NASA Space Summit
?? -[Nov 28] Clark LMLV-1 Launch
?? - USAF Titan 4B Launch (1st Launch of Titan 4B)
?? - VSOP-Muses-B Launch (Japan)
?? - Apstar-2R Long March Launch
?? - Indostar 1 Launch (Indonesia)

?? -[Nov 26] Early Bird Cosmos Launch (USA/Russia)
?? -[Dec 03] DFH-3 Long March Launch
03 - Earth at Perihelion (0.983 AU from Sun)
03 - Quadrantids Meteor Shower Peak
03-05 - Planetary Violence in Human History Conference, Portland, Oregon
04 - Galileo, Orbital Trim Maneuver #18 (OTM-18)
04 -[Dec 02] Mars Pathfinder, Trajectory Correction Maneuver #1 (TCM-1)
07-09 - ACE Science Workshop, Pasadena, California
07-10 - Conference on the Three Galileos: The Man, The Spacecraft, The Telescope, Padova, Italy
09 - RASC Hamilton Centre Meeting 8pm MUMC 1A4
09 - Jupiter Passes 0.8 Degrees from Neptune
10 - Galileo, Solar Conjunction Begins
10 - Asteroid 1991 VK Near-Earth Flyby (0.0749 AU)
11 - 210th Anniversary (1787), William Herschel's Discovery of Uranus Moons Titania and Oberon
☆

LIBRARY ACQUISITIONS AND MAGAZINE SALES!!!

The December meeting of the RASC will feature a sale of back issues of Sky and Telescope from the Observatory (at last). These are not needed for our collections and all proceeds will be benefit the centre. Bring your money during the break,and make an offer. In additon,the following books have been donated to the library:

Brashear Autobiography donated by Roger Hill
Earth's Envelope (Lobsack) donated by Ray Badgerow
The Planets (Time-Life) " " " "
Feymann on Physics vol 3(Feymann)" " " "

My donations were found on the recycling line and salvaged from the bailer. Come to the library and sign them out. - Ray Badgerow ☆

Have You Borrowed Library Books or Equipment that needs to be returned ?
Take it back No Questions Asked!