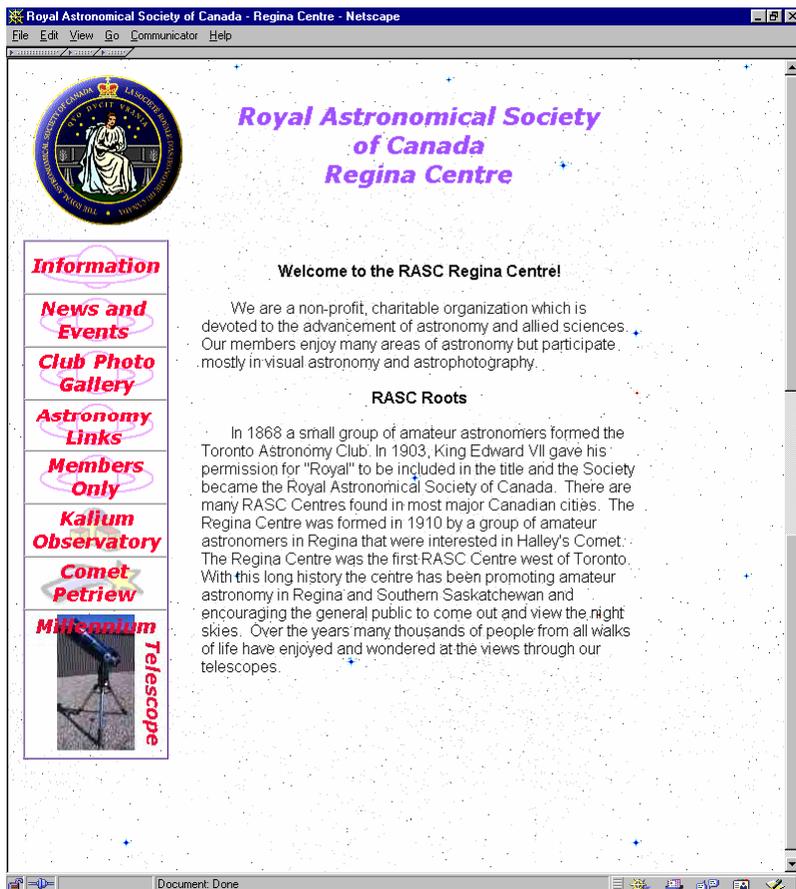


Web Page of the Month



<http://www.regina.rasc.ca/>

Skynews



April 2003

Number 244

<http://victoria.rasc.ca/>

This Month

April 9, 2003

**Ernie Pfannenschmidt:
65 Years of Backyard Mars Observing**

Mars will make its closest approach to Earth in recorded history this August, and Mars observing will be everyone's priority. Who better then, to talk about this subject than someone who has observed the Red Planet for 65 years? Ernie Pfannenschmidt will share Mars observing lore, and his opinions on the tools we need to take advantage of this opposition.

Ernie built instruments for more than 20 years at the Dominion Astrophysical Observatory, and he still writes and speaks frequently on the subject of astronomical instruments. In the current (April 2003) issue of Sky and Telescope, Ernie has an article about a Crutch Tripod for telescopes.

Please Note!

Our on-line tools and resources have changed

...

Web Site: We've moved our web site to: victoria.rasc.ca. Please change your bookmarks.

Email Lists: We've also migrated the RASCvic email discussion list to use our new Domain Name. This does NOT mean you have to re-subscribe to the RASCvic email discussion list. All existing subscribers will continue to receive their email from this list as before. This DOES mean you will need to use a new email address to send messages to the list participants:

rascvic-list@Victoria.rasc.ca

Since we now have our own Domain Name, I have also taken the liberty of creating generic email accounts for the use of some Victoria Council members:

president@victoria.rasc.ca	librarian@victoria.rasc.ca
vp@victoria.rasc.ca	nationalrep@victoria.rasc.ca
treasurer@victoria.rasc.ca	newmembers@victoria.rasc.ca
secretary@victoria.rasc.ca	web@victoria.rasc.ca

If you haven't already done so, please also join the Skynews notification list. This list will notify you by email when the online version of Skynews is available for download from Victoria Chapter's website.

<http://victoria.rasc.ca/resources/email/skynews-list.htm>

Cheers, Joe Carr, Webmaster, RASC Victoria Centre

RASC Victoria Council This Month

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cgainor@islandnet.com

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Members at Large:
Bill Almond, Sandy Barta,
Li-Ann Dorrance, Jim Hesser,
Ed Maxfield, Frank Ogonoski,
Blair Pellatt, Bruno
Quenneville, Colin Scarfe

New Members Liason:
Sandy Barta

Every
CLEAR
Friday

Astronomy Cafe

At Sandy Barta's, 2949 Michelson Road,
Sooke, BC
Call 642-0205 for more information or
directions.

And you **WILL** need directions!

The Astronomy Café is an astronomical
conflab and if it's clear (and we are willing
to give up our comfy chairs) we observe
under an unbelievably dark sky.

Newcomers are most welcome.

Come and enjoy!

Please :

**Call or check our website to find out
if it's likely to be clear.**

Apr
25

**New Observer's Group
At Sid Sidhu's:**

1642 Davies Road (off Millstream Lake
Road) at 8:00 PM.
Call 391-0540 for more information or
directions

May
14

May Meeting
University of Victoria, Room 060
Elliott Building

**Astronomy Day
Saturday May 10, 2003
at the Royal BC Museum**

CVSF Star Party

July 25th - July 28th

Yes, We post important,
timely, member-related
news to our email list.

Online information about the RASCvic
and Skynews email lists:

<http://victoria.rasc.ca/resources/email/>

Future Meetings

May 14

Chris Willott, Research Associate at the NRC's HIA

June 11

Falk Herwig, Post Doctoral Fellow at the University of Victoria

And, don't forget Astronomy Day on May 10th!

CVSF Island Star Party

July 25th - July 28th

At the Victoria Fish and Game Association, Holker Road (on the Malahat).

Registration fees: \$15 single and \$20 couple or family with children under 16.

Fee includes tickets for daily door prize draws, lectures and camping on site. One hour or 3 days same price.

Coming soon: Celestron Telescopes

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 **Vancouver Island's source for astronomy**

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Island Eyepiece and Telescope
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sales@islandeyepiece.com

President's Message

A recent newspaper article promoting an event at the Centre of the Universe proclaimed that staff from the Dominion Astrological Observatory would be present, and went on to inform us that the Earth is only 150,000 kilometres from the Sun. Fortunately, the cool temperature that day reassured me that we were not experiencing the ultimate case of global warming.

Incidents like this, and many casual conversations with our friends and associates, tell us that ignorance about our hobby, and indeed about the universe we live in, is rampant. That's why events such as Astronomy Day on Saturday May 10 are so important.

RASC members who bring their telescopes or their enthusiasm to Astronomy Day and to observing sessions at the Centre of the Universe are always struck by the wonder and enthusiasm of people when they get their first glimpse of the lunar surface, the rings of Saturn, or a far-off galaxy.

Those experiences give people new knowledge about where they live, and in some cases, inspires them to join our ranks. Our outreach efforts strike small but important blows against the low level of astronomical knowledge that leads to things like excessive street lighting and poor support for astronomical research.

To keep institutions like the Dominion, er, Astrophysical Observatory going, people need to know about the importance of the work that is done there. In the absence of public knowledge and support, politicians won't fund such research.

When we go to municipal councils in an effort to halt wasteful and unnecessary lighting at night, they and the voters who elect them need to know that astronomy is a great hobby, and that the work amateur and professional astronomers do contributes to better things right here on Earth.

As we learned again in February, space exploration can be dangerous and frustrating. The great discoveries made by astronauts and researchers are now regularly denigrated by nonsense such as the current *Moon landing hoax* stories.

Events like Astronomy Day give us the opportunity to inform the public about the importance of astronomy and space. And on top of that, Astronomy Day is lots of fun.

So when Sid Sidhu and Sandy Barta call for volunteers for May 10, please come and help out. You'll be glad you did.

Chris Gainor

The Cover

Jupiter

On January 15, 2001, 17 days after it passed its closest approach to Jupiter, NASA's Cassini spacecraft looked back to see the giant planet as a thinning crescent.

This image is a color mosaic from that day, shot from a distance of 18.3 million kilometers (11.4 million miles). The smallest visible features are roughly 110 kilometers (70 miles) across. The solar phase angle, the angle from the spacecraft to the planet to the Sun, is 120 degrees.

A crescent Io, innermost of Jupiter's four large moons, appears to the left of Jupiter.

Cassini collected its last Jupiter images on March 22, 2001, as the spacecraft continued the final leg of its journey to a July 1, 2004, appointment with Saturn.

Cassini is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, Calif., manages Cassini for NASA's Office of Space Science, Washington, D.C.

Image Credit: NASA/JPL/University of Arizona

<http://saturn.jpl.nasa.gov/gallery/jupiter-flyby/index.cfm>

Address Change? Information Incorrect?

Telephone: (416) 924-7973 (toll-free at (888) 924-RASC in Canada)

Fax: (416) 924-2911

E-Mail: rasc@rasc.ca Website: www.rasc.ca

Postal Mail: RASC, 136 Dupont Street, Toronto, ON, M5R 1V2, Canada

The deadline for the next issue of *Skynews* is

April 25, 2003

Get your *Skynews* early and in colour. Tell Laura, our Treasurer, that you get *Skynews* on line and we won't mail you a copy.

2mass Continued

clouds. "A lot of great stuff that will be discovered with this survey hasn't been conceived of yet," Stiening said. "The best is yet to come."

By identifying interesting targets, finding stars for calibration and providing data analysis techniques, the survey's data will be a boon to future infrared space missions, including NASA's Space Infrared Telescope Facility, scheduled for launch in April.

The Two Micron All-Sky Survey is a collaboration between the University of Massachusetts and the Infrared Processing and Analysis Center. The Center developed the software system that converted the nearly 25 terabytes of raw digital data into images and catalogues. The University of Massachusetts was responsible for design, construction and operation of the survey cameras and telescopes. The project was first proposed in 1991 by Dr. Susan Kleinmann at the University of Massachusetts, and the Center director at that time, Dr. Charles Beichman. Previous infrared sky surveys by Caltech include the first such survey, by Drs. Robert Leighton and Gerry Neugebauer, and the first all-sky survey from space, by the Infrared Astronomical Satellite. JPL is a division of Caltech.

The survey is primarily funded by NASA's Office of Space Science, Washington, D.C., with additional funding provided by the National Science Foundation.

Additional information about 2MASS is available at:

<http://www.ipac.caltech.edu/2mass> and

<http://pegasus.astro.umass.edu/GradProg/2mass.html>

National GA in Vancouver

Information about the 2003 General Assembly is now available online. See the message below which was posted to the RASCals list.

Information and the application forms for both the conference and accommodation are available online. The National Office will mail a general information brochure to Canadian members with the annual report early in April.

Clear skies, Bonnie

The registration website for the 2003 GA is now available!

www.rasc.ca/ga2003 or from the activities link on <http://www.rasc.ca/>

Craig Breckenridge

2003 GA Chair

2mass Continued

and NASA's Jet Propulsion Laboratory, Pasadena, Calif. "It also makes astronomy more open to the public, providing beautiful pictures and serving as a powerful educational tool."

The survey was conducted at infrared wavelengths, which are longer than the red light our eyes can see. Infrared wavelengths penetrate dust better than visible light, making them an effective tool for detecting dust-obscured objects both inside and outside of our Milky Way.

"For the first time in history, we can, in effect, step outside our galaxy and see it in detail, as it would appear from above," Skrutskie said. "We can also see the texture in the distribution of galaxies outside the Milky Way. Before this survey, astronomers tried to connect the dots, but nearly one-third of the galaxies were obscured by dust. Now, we can connect all the dots."

"The idea of a survey is an old human activity, but the Two Micron All-Sky Survey has a modern twist," said Project Manager Rae Stiening at the University of Massachusetts. "Just as English admiralty sent Captain Cook and others to map the world, this new survey has mapped the nearby universe." The project used two dedicated 1.3-meter (51-inch) telescopes, one at Fred Lawrence Whipple Observatory, Mount Hopkins, Ariz., the other at the Cerro Tololo Inter-American Observatory in Chile. Operations began in Arizona in June 1997 and in Chile in March 1998. Since observations concluded in February 2001, scientists have been processing and validating data to complete the analysis of the entire sky. The atlas was compiled from 120 million images containing 14 trillion pixels, or data measurements. The survey produced catalogues brimming with nearly half a billion objects.

The bonanza of astronomical discoveries already made by the survey includes:

- Hundreds of brown dwarfs, or cool, failed stars; enabling scientists to define new classes of stars
- Maps of the Milky Way's structure and dust distribution, and large-scale structure in the nearby universe, inside and outside our Milky Way
- Observations of galaxies hidden behind the disc of the Milky Way
- Details about the Large Magellanic Cloud, a satellite galaxy of the Milky Way
- Numerous dust-obscured galaxies and quasars in the distant universe
- The largest database ever of location, brightness, colour and position of asteroids

For the next two years, scientists will conduct an extended Two Micron All-Sky Survey mission, reviewing and delivering more content of the raw data to the public. They will also process and release more sensitive observations made during the survey, including images of the entire Large and Small Magellanic

Continued on page 12

General Meeting Minutes

March 12, 2003, 7:30 pm at UVic

Welcome: Chris Gainor welcomed everyone to the March meeting.

Don Enright at the Centre of the Universe moved to take a new job in Calgary. We wish him well. We're sending a "RASCals at the Centre of the Universe" t-shirt and have a card for everyone to sign.

We have a new web master, Joe Carr. The web site has a fresh new look with added features. To make the site easier to find, Joe has changed the URL to: victoria.rasc.ca/. Thanks so much for the seven years of work on our web page, David!

Library and Telescopes: The library doesn't get much use — please support this service. Please let Sid know of any books that would make a great addition to the library.

School Visits: Sid's organizing a visit to Roger's School on April 10th. He's got some volunteers lined up but can always use more resources; let him know if you can make it.

Astronomy Day: Don't forget the big day — Saturday, May 10th.

Treasurer's Report: Lauri reported that we are in good financial shape with over \$6,000 in total funds. She's drawn up a budget for this year — please see her if you want a copy.

This Evening's Speaker: Raja gave a marvelous talk spiced up with 'movies' of colliding galaxies.

The meeting adjourned for coffee in the upstairs lounge.

Bruno Quenneville, for the Recorder

Congratulations!

March 23 2003

"An international lighting award was given to Calgary, Alberta, Canada for exceptional energy conservation. 40,000 Calgary streetlights are being converted to fully shielded to reduce glare and energy waste. The city is reducing power consumption from 200 to 100 watts each, eventually saving 2 million dollars per year in energy costs."

The change has definitely made a difference in my neighbourhood. :-)

<http://www.darksky.org/newsroom/pres-rel/pr030323.htm>

Ciao, Roxanne Calgary

The Space Place



Musical Satellites

If light were sound, then chemicals would play chords. Water: C major. Cyanide: A minor. Chlorophyll: G diminished 7th. (Please note that the choice of chords here is only for the sake of illustration, and not meant to reflect the actual spectra of these chemicals.)

It's a loose metaphor, but an apt one. Musical chords are combinations of frequencies of sound (notes), while chemicals leave unique combinations of dips in the frequency spectrum of reflected light, like keys pressed on a piano. Spectrographs, machines that recognize chemicals from their "chords of light," are among the most powerful tools of modern chemistry.

Most earth-watching satellites, like the highly successful Landsat series, carry spectrographs onboard. These sensors measure the spectra of light reflected from forests, crops, cities, and lakes, yielding valuable information about our natural environment. Current satellites do this in a fairly limited way; their sensors can "hear" only a few meager notes amid the symphony of information emanating from the planet below.

EO-1 could change that. Short for "Earth Observing 1," EO-1 is an experimental NASA satellite in orbit since 2000. It's testing out a more advanced "spectrometer in the sky"-the Hyperion hyperspectral imager. How good is it? If Landsat were "chopsticks," EO-1 would be Gershwin's "Rhapsody in Blue."

The Hyperion sensor looks at 220 frequencies in the spectrum of visible and infrared light (0.4 to 2.5 microns) reflecting off Earth's surface. Landsat, in contrast, measures only 10. Bryant Cramer, who manages the EO-1 project at the Goddard Space Flight Center, puts these numbers in perspective. "If we flew Landsat over the northeastern United States, it could readily identify a hardwood forest. But using hyperspectral techniques, you probably can . . . tell the oak trees from the maple trees."

Future earth-watching satellites may use Hyperion-like instruments to vastly improve the environmental data they provide. EO-1 is paving the way for these future missions by taking on the risk of flight-testing the sensor for the first time.

Continued on page 6

Night Sky as UNESCO Heritage

I am proud to inform you that Wednesday 12 March 2003 at 15:55 local time the Italian Parliament approved a Resolution which "commits the Italian government to promote at UNESCO the night sky as heritage of humanity, to act in any international seat, in particular during the Italian presidency of the European Union, in order that the night sky be declared a considered an environmental heritage to be protected, with the aim to allow to the present and future generations the possibility to continue to know, study and admire the starred sky and its phenomena".

I think that this could be a step of fundamental importance to restart the process at UNESCO. As UNO member state, Italy in perspective could make the first truly official steps to propose UNO or UNESCO to declare the night sky a heritage of humanity.

cinzano@inquinamentoluminoso.it

<http://www.inquinamentoluminoso.it>

Best regards, Pierantonio Cimzano

International Dark-Sky Association – Italia Direttore Scientifico

2mass

The Sky's the Limit: Grand Finale for Twin-Telescope Survey

The celestial harvest from astronomy's most thorough high-resolution digital survey of the entire sky, completed by twin infrared telescopes, is now online for scientists to scrutinize and the entire world to savor.

An atlas of about 5 million pictures from the grand finale of this milestone in modern astronomy is available at: <http://www.ipac.caltech.edu/2mass/gallery>

"The public will 'oooh and aaaah' at the pictures, while scientists will mine the data for decades, learning a great deal more than we currently know about our Milky Way galaxy, its hundreds of millions of stars, and the millions of galaxies in the nearby universe," said Dr. Michael Skrutskie, principal investigator for the Two Micron All-Sky Survey. Skrutskie, with the University of Virginia, Charlottesville, was formerly with the University of Massachusetts, Amherst.

"This survey will change the way astronomy is conducted and the types of experiments that can be carried out, because astronomers can now sit at their desk and have data for any spot on the sky literally at their fingertips without going to a telescope," said Dr. Roc Cutri, the survey's project scientist at the Infrared Processing and Analysis Center of the California Institute of Technology

Continued on page 11

Messier Marathon Continued

For the record, here are the first ten graduates of the Montreal Centre's Messier Club, in order of graduation, as of 1968:

- Tom Noseworthy (before my time)
- Prof. Ted Morris (McGill mathematician who added several of the "missing Messiers")
- Constantine Papacosmas (still active in the Montreal Centre)
- Geoffrey Gaherty (moi)
- Dr. Henry Lehmann (director of the Verdun Mental Hospital)
- Chuck Giffen (a Yank)
- Larry Anthenien (another Yank, from San Jose CA)
- Alf Capper
- Dr. George Fortier
- David Levy (wonder what ever happened to him?)

It's interesting to note the presence of Chuck Giffen and Larry Anthenien, both Americans, who joined and completed the Montreal Messier Club. It really was the only thing of its kind in those days, so any American who wanted recognition for completing their Messiers had to do it through the Montreal Centre. One of the "early adopters" of the Messier Club idea was Jim Mullaney of the Pittsburgh Amateur Astronomers; in fact he borrowed the entire Montreal Centre observing program, earning his club the nickname "the Pittsburgh Pirates". It was through the Pittsburgh Messier Club that the Astronomical League adopted it, along with the Herschel Club. I corresponded with the current administrators of the AL's Herschel Club, and they were totally unaware that it had originated in Montreal back in the '50s!

Of course, the lady behind all this activity was the late Isabel Williamson, who never actually completed the Messier list herself, because she always wanted there to be something more out there to observe.

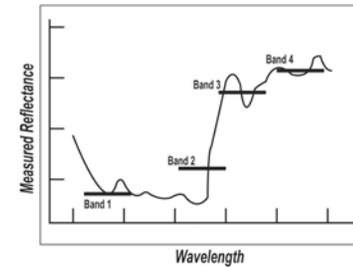
Geoff Gaherty
Toronto Centre RASC
<http://members.rogers.com/ggaherty/>



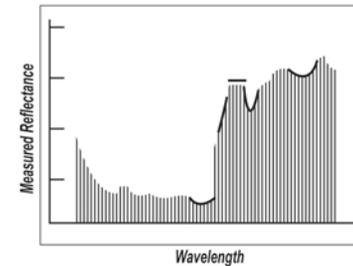
The Space Place Continued

For farmers, foresters, and many others, this new remote sensing technology will surely be music to the ears.

Read about EO1 at <http://eo1.gsfc.nasa.gov> . Budding young astronomers can learn more at: http://spaceplace.nasa.gov/eo1_1.htm



Multispectral Imaging
(few bands)



Hyperspectral Imaging
(hundreds of bands)

Hyperion instrument distinguishes hundreds of wavelength bands, while current Landsat instrument images only a few.

By Dr. Tony Phillips

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Your Roadmap

Govert Schilling a Dutch astronomer gave in his book (De Salon van God) a way to cope with distances.

As it is nearly impossible to get intuitively a good impression of the enormous distances in the Universe. Let us try the following on an imaginary scale model — maybe this will help.

In our scale model we imagine the Sun as a little ball with a diameter of one centimetre (as big as an aspirin tablet). The real diameter of the sun is 1.4 million km — this makes our scale 140 billion : 1

On this scale the Earth is literally smaller than the point of a very fine needle (one tenth of a mm). The distance of the Earth to the Sun on this scale is a bit more than one metre; the Earth and the Sun will fit on your kitchen table.

The distance from the Sun to the outer planet Pluto is, at this scale, 43 metres.

The whole solar system is now within a circle with a diameter of 100 metres (a soccer-field).

When we now calculate how big a light year is in our scale model, we have to divide 9.46 trillion km (this is the distance light travel in one year) by 140 billion; we get 67.6 km, the distance from our needle-point in Victoria to Duncan.

Henk M.

Call for Images

2004 RASC OBSERVER'S CALENDAR

I am receiving submissions between April 15 and April 30 — they must arrive by April 30, 2003. I look forward to seeing an assortment of submissions from members for the next edition of the Observer's Calendar!

I will acknowledge submissions accompanied by a return email address, and will return original slides and negatives.

I encourage all members of the RASC to submit astronomical photos for consideration for publication in the 2004 RASC Observer's Calendar. Images can be of any type — deep-sky or solar system; prime-focus, piggyback, or fixed-tripod; film- or CCD-based.

Please send electronic images (under 2 megabytes in size) by email to gupta@interchange.ubc.ca. Mail larger images **on CD** to the address below. Submit film-based images, or make available on request, as 8- by 10-inch prints or as original negatives or slides.

Continued on page 8

Call for Images Continued

For further information about submissions, please contact me by email or by phone at 604-733-0682.

Mail prints, negatives or slides, and CDs to:

Rajiv Gupta

2363 18th Ave. W.

Vancouver BC V6L 1A7

Rajiv Gupta, Editor, RASC Observer's Calendar

Messier Marathon History

Alan Whitman wrote to the National RASC email list:

Tonight the ninth Okanagan Centre member completed his Messier list (that number includes several of us who don't have official RASC Messier certificates because we belonged to the Okanagan Astronomical Society when we completed our lists decades ago).

And Geoff responded with this bit of history:

That, of course, was my case, since I was the fourth person to graduate from the Montreal Centre's Messier Club (the first such in the world) back in 1959.

Luckily I still had my observing records from back then, so all I needed to do when I got back into astronomy in 1997 was to observe the four objects (M40, M91, M102, M110) that had been added to the official list since 1959. But since I'd been out of the hobby for several decades, I redid the whole list as a refresher course. I also had a head start on the Finest NGC list because, after graduating from the Messier Club, I joined the Montreal Centre's Herschel Club.

In those days the Herschels were a bit of a joke, since so few people had observed the whole Messier Catalog that nobody gave much thought to what lay beyond. But, being a teenager, I took the joke seriously and actually observed a bunch of Herschels. They were a real challenge in those days since the available atlases were very poor. Norton's plotted a bunch of Herschels, but gave no information on them beyond their class in Herschel's eight-fold system. And of course, there weren't enough stars in Norton's to help much with starhopping. The Skalnate Pleso Atlas added a bunch of stars, but used NGC numbers instead of Herschel numbers, and didn't label a lot of DSOs that it plotted. So I had to correlate the Herschels, as plotted in Norton's, with the NGCs and blanks, as plotted in Skalnate Pleso, all by hand. No internet and no reference works that listed either the Herschels OR the NGC, or, at least, not in the Montreal Centre or McGill libraries.

Continued on page 9