

# NOVA NOTES

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THE NEWSLETTER OF THE HALIFAX CENTRE OF THE RASC  
c/o 1747 Summer Street, Halifax, N.S., Canada B3H 3A6



NOVA NOTES, the newsletter of the Halifax Centre of the Royal Astronomical Society of Canada, is published bi-monthly in January, March, May, July, September, and November. The opinions expressed herein are not necessarily those of the Halifax Centre. Material for the next issue should reach the editor by August 31, 1992. Articles on any aspect of astronomy will be considered for publication. "Letters to the Editor" or to our resident expert: "GAZER" are also most welcome. The editor can be reached at:

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## Editor's Report

By the time this issue of *Nova Notes* reaches you, the summer will be about half over and NOVA EAST (see article on page 2) will be only a few weeks away. NOVA EAST is a lot of fun; I hope to see you there!

The new feature, the *Constellation of the Month* starts with this issue. Joe Yurchesyn will write this regular feature, but no doubt he would like some help. Are there any volunteers?

Speaking of volunteers, I'm planning on starting another regular feature this fall. It will provide brief reports (less than two columns plus an occasional photograph) about the monthly meetings and any special events. Many Centre newsletters across Canada also report about their meetings. These reports provide an opportunity for members who do not regularly attend meetings to find out what they are missing! If any regular meeting attendees would like to take on this task, please give me a call.  $\Omega$

## GA Notes: by David Lane

Having recently returned from the National General Assembly (GA) in Calgary in which I was the Halifax Centre's National Representative, I thought I should pass on a few of the important highlights to you.

First of all, the proposed fee increase to \$40 was defeated. This occurred primarily because of the use of "proxy" voting on behalf of the members of nine Centres, including Halifax. There were about 300 votes cast, which indicates that 10% of the membership of the society had a "say"; quite impressive! The membership

fees, thus, will remain at \$32 per year for regular members.

That item was the most significant item which occurred at the *Annual Meeting* of the Society, however it was much more *painful* than a simple vote. Extensive discussion on the subject occurred before any voting. During the process, an amendment was presented to change the increase to \$36, but that was ruled "out of order" by President Damien Lemay. The \$40 motion was then defeated. The \$36 motion was re-presented and then also defeated, *albeit* narrowly.

We also have a new President. He is Peter Broughton of Toronto, a former First Vice-President and Publications Committee Chair.

Another important item of business at the Annual Meeting was a presentation of the preliminary results of the National Membership Survey. Glenn Hawley, the Survey Committee Chair, presented lots of data from the first 300 surveys analyzed. The preliminary results concerning the *Journal* (a sensitive subject that this editor has avoided to date) are quite surprising; at least to me. It says that the majority think the *Journal* should stay as it is. It's my opinion (and that of many others that I talked to at the GA) that this does not reflect the opinion of the average member. Since only about 400 surveys have been received, it's apparent that the average member has not taken the time to fill out and send in the survey, hence the "Important Notice" on Page 5. I will ensure that the details of the survey results are published in *Nova Notes* as they become available.

The National Council meetings were very long and I'm not going to bore you with all of the details right now (even if I could remember them!).

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## Astro-Ads

### Parts to Build 8" f/6 Newtonian Scope

Components include an 8" f/6 mirror (good figure), mirror cell, 2.14" secondary mirror (needs aluminizing) with holder, spider assembly, 1 1/4" focuser, 8x50 finder scope with mounting rings. Asking \$250  
Call Dave Lane - 443-5989

### Meade 13.8mm Super Wide Angle Eyepiece

1 1/4" barrel, excellent condition. Selling to upgrade to 13mm Televue Nagler eyepiece. Asking \$105 (65% of new)  
Call Dave Lane - 443-5989

*(Astro-Ads is a free service to Centre members. Non-members are asked to make a small donation to the Centre)*

maybe later. However, one specific motion related to the finances of the Society I will mention.

A motion was brought forward from the floor and passed that requires the finance committee to present a balanced budget to council for approval. This way, council (consisting mostly of centre representatives) can make the decision to accept it as it is, or to make conscious decisions to enter into a deficit situation by increasing spending in specific areas.

We also now have a new official RASC Seal (which is very similar to the one that I've been using on the first page of new format of *Nova Notes*, which I stole from the '92 Handbook!). In addition, a new "logo" has been approved, in black and white and colour. I can't remember the colour scheme; you'll have to purchase one of the new RASC promotional items that will be coming out this fall to find out! The logo gives quite a bit of freedom to the artistic types who want to create new designs for Centre or other logos (see Logo Contest in this issue) which still embody *Urania* in the design.

As you can see, its not all fun and games at a GA!; Pat and I had to endure through about 10 hours or Council and Annual meetings! More details will be published later when the meeting minutes become available. Ω



### Nova East '92 Star Party (August 28 to 31, 1992): by Doug Pitcairn

Once again, the *Halifax Centre of the RASC* and the *Saint John Astronomical Society* will be jointly hosting **NOVA EAST**. I have included a schedule of events which is on page 3. **NOVA EAST** is held in **Fundy National Park** in New Brunswick, which is located on the south coast. It is accessible from Highway 114 at either Exit 430 of the Trans Canada Highway or through the City of Moncton. Follow the "beaver" signs! Once in the park, detailed maps are available from the park information offices. The weekend's events centre at the Micmac Group Campsite.

There is a small registration fee of \$10 for this event, (all proceeds from which will be used for purchasing the various prizes and buying food for the corn boil), and there is, of course, the usual Park

entrance fee of a few dollars. Those who choose to camp at the group campsite will not have to pay camping fees, as these are waved in lieu of our Public Observing Sessions.

There are two kinds of accommodations available. For those who prefer camping, we have a large site in the Micmac Group Campground. For those who prefer to be a bit more civilized, there are two inns in the park. One is **Fundy Park Chalets** which has 29 housekeeping units. It features a licensed dining room and lounge, coffee shop, shower, B&W TV and heated pool. Rates are about \$71 per night (1992 prices) Phone: (506) 887-2808 or (506) 433-2084. The other is **Caledonia Highlands Inn and Chalets** which has 44 units, showers and color TV. Rates are about \$70 (1989 prices). Phone: (506) 887-2930. In addition, there are several motels in the small village of Alma, right beside the park.

As this event is listed in both *Sky and Telescope* and *Astronomy* magazines, we are starting to draw people from all over. In addition, the park publicizes the public star shows and talks, so we hope to have a good turnout for all of the events. The later date this year will hopefully assure us good clear skies, as this is the best observing "window" our weather allows. Last year, there were many 8 inch and larger telescopes, as well as various homemade gizmos and scopes. Don't be shy if you have no scope, there is always an eyepiece to look through. I never met an owner of a large scope who didn't like to show off views. Anyone will find lots to do at night and during daylight hours. The Park is one of the oldest in Canada,

### Centre Logo Contest

*Calling all artistic types!*

The *Halifax Centre* Executive has decided to start a "logo contest" with the purpose of obtaining a new *Centre* logo.

The logo should be easily reproducible in many forms, since it will be used in *Centre* publications and also in *Centre* promotional items.

Send in your entries to the *Centre* address or give them to a member of the *Centre* Executive at any meeting!

and is well established with dozens of walking trails and entertainment facilities for all ages, including an excellent golf course, restaurant, lounge, swimming pool and playground right in the park.

We have a slide projector, so if any of you have slides that you would like to show, bring them along. Slide shows will take place informally at the campground on evenings that are "clouded" out!

As with any star party, the more who attend, the better it is. We are having some new NOVA EAST '92 T-shirts made up and will have them for sale again this year. I hope to see you there.  $\Omega$



## Halifax Solar Observations Published in Chinese Publication

*Dr. Murray Cunningham*, our Honorary President, wishes to report that our member in China, *Dr. Zhentao Zu* and his wife have recently completed a book entitled *The Ancient Study of Sunspot in China and its Modern Application*. This book contains a picture of *Dr. Cunningham* illustrating his visual observations from Halifax of the Sun in a basin of oil.

The text from the book, kindly translated from Chinese by *Dr. Jiang Min*, is reproduced below.

*As for "storing oil in basin" to observe the black spots on the Sun's surface,*

*since it is successful to "reflect on water", it is logic that "reflect on oil" will have the same effect. In May, 1985, Dr. R. M. Cunningham, Chair of the Royal Canadian Observation Society, Halifax Branch, wrote to me saying that in a flat pan filled with vegetable oil he could see clearly the image of the Sun reflected in the oil surface. Figs. 3.1 and 3.2 (Editor's Note: figures not shown here) show how he did the experiment, and the image of Sun in the oil pan respectively. It is a pity that there was no black spots while he was doing the experiment. So his effort was not rewarded! Nevertheless, the experiment indirectly proves that oil pan reflection can be used for observing the black spots.  $\Omega$*

Date	Time	Event	Location
Friday August 28th	All day	Arrival and camp setup	Various locations
	21:00 - 23:00	Public observing (3 or 4 volunteers)	Assembly Hall
Saturday August 29st	Morning	Free time	Anywhere
	12:00 - 14:00	Corn boil and weiner roast	Micmac Campsite
	14:00 - 17:00	Scope setup Group photo session Swap shop & gab session	Micmac Campsite
	17:00 - 19:00	Private suppers	Wherever
	19:30 - 21:00	Public talks <b>The Constellations</b> , new old ways of seeing them <i>ML Whitehome &amp; G Palman</i>  <b>Stellar exotica</b> : Weird and wonderful things "out there" <i>D. Pitcairn</i>  <b>Telescopes and Binoculars</b> (in case of clouds)	Assembly hall
21:00 - 23:00	Public observing (3 or 4 volunteers)	In front of the Assembly Hall	
Sunday August 30th.	All day	Free time	Anywhere
	21:00 - ??	Private observing (it always clears on Sunday!)	Micmac campsite
Monday August 31st.	All day	Departures and farewells	Various

### NOVA EAST '92 Schedule of Events

## Constellation of the Month: Hercules

by Joe Yurchesyn

*Hercules* is one of the most famous mythological Greek heroes. He was the son of Jupiter and Alcmena, and tutored by the centaur Cheiron. Juno was jealous of him, and her cunning plans resulted in *Hercules* being subjected to the will of his half brother Eurystheus, who ordered him to perform twelve difficult tasks - the "Labours of Hercules"- all which were successfully completed. When he died, he was made immortal, became reconciled with Juno, and married her daughter Hebe.

The name of Alpha ( $\alpha$ ) *Herculis*, Rasalgethi, is Arabic for "Head of the Kneeler". The "Kneeler" is the boisterous ancient Greek hero and unruly demigod Heracles, or *Hercules* to the Romans. The star pattern is one of the earliest to be defined and named, and from the most ancient times was identified with great national heroes or gods. In Babylonian

lands it was associated with the sun god Izhubar, with the mighty hunter Nimrod, and with Gilgamesh of the Flood legend. To the ancient Phoenicians, it represented the sea god Melkarth. Eudoxus and Hipparchus refer to it as "The Kneeling One" or the "Man on his Knees", while the Greek poet Aratus calls it "Kneeling One".

Aratus seems to admit that the origin of the meaning of the "Kneeling One" had been lost, even to Greeks of his time. In art of the time (450 BC), Heracles is often depicted kneeling in the act of stringing his great bow. The Romans usually show Hercules standing, carrying his great club and often a lion-skin shield. The legend of the twelve labours suggest some possible connection with the symbolism of the Twelve Signs of the Zodiac.

Positioned just south of the head of Draco, and between Boötes and Lyra, *Hercules* lies upside down on the central meridian at the end of twilight during late July. The solar system, is moving toward *Hercules* at 19

kilometres per second. However, after accounting for the rotation of the galaxy, the net movement is toward the Cygnus.

*Hercules*, an original constellation dating back to antiquity, is the 5<sup>th</sup> largest constellation, covering 1,225<sup>o</sup>, or 2.97% of the sky. It is a rather large constellation not blessed with 1<sup>st</sup> or 2<sup>nd</sup> magnitude stars, but rich in stars shining at 3<sup>rd</sup> magnitude and less. This makes the constellation somewhat elusive, until one picks out the central "Keystone" asterism. Lying between the rich plane of the galaxy in Cygnus and the realm of galaxies near Boötes, *Hercules* holds a mixture of globular clusters and faint galaxies. The best offerings are M13 and M92, two fine globular clusters; NGC6210, a planetary nebula; 95 Herculis, a double star with striking colour contrast; and  $\alpha$  Herculis (Rasalgethi), a semi-regular variable star with a brightness changes between magnitude 3.1 and 3.9, over an approximate period of 90 days.

The heart of the constellation is the "Keystone" asterism. Lying on the western edge of the keystone, and 2/3's up, is the famous globular cluster M13. A typical member of its class in absolute terms, M13, at magnitude 5.86 and 17' diameter, is the 5<sup>th</sup> brightest globular in the sky. Discovered in 1714 by Edmund Halley and later by Charles Messier in 1764, it was preceded by M22 in 1665, and M5 in 1702, both being globulars comparable to M13.

M13 is a collection of at least 500,000 stars in a 160 light year (ly) diameter sphere, lying some 24-30,000 light years distant. The most recent study appears to indicate an age of about 10 billion years. Through a 3" or smaller telescope, the cluster appears as a bright roundish nebula about 10' in diameter. A 4-6" telescope begins to resolve the brighter outer members of the cluster. An 8" telescope begins to resolve the brightest stars, which stand out like sparkling diamonds in front of the misty glow. These brightest stars are 11<sup>th</sup> magnitude red giants with luminosities of 2,000 Suns. The Sun would appear as a 19<sup>th</sup> magnitude star at the distance of M13.

### Halifax Centre Member Services

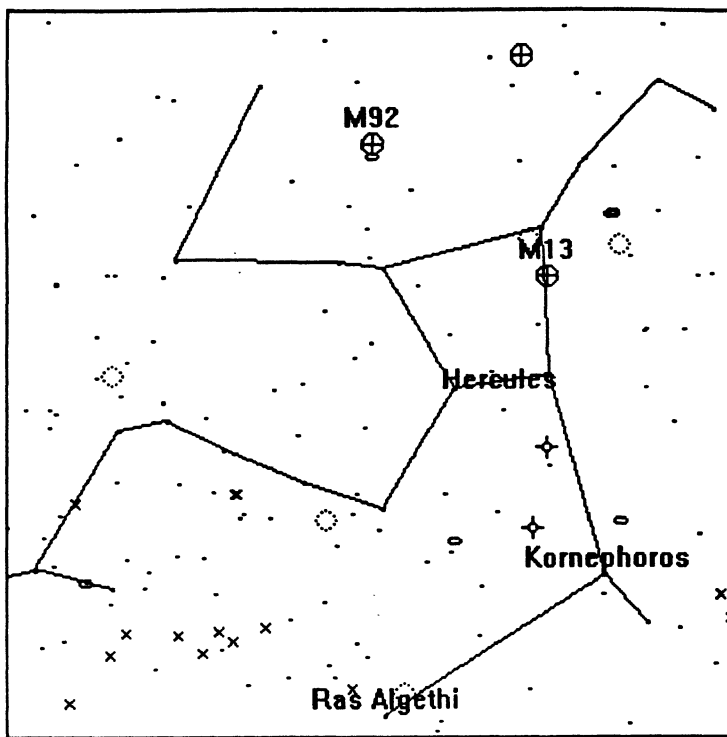
The *Halifax Centre of the RASC* provides many services to its members. Meetings are held on the third Friday of each Month (except for the summer months) at 8pm at the *Nova Scotia Museum*. Coffee, Hot Chocolate, and snacks are provided.

The *Centre* owns several telescopes (a Celestron 8, a Questar 3.5", the "Green Machine" (a small rich field telescope), and the "Halverson" (a 10" equatorial)) which are available for loan to members (subject to the Centre Telescope Policy). Contact the **Observing Chairman** for details.

The *Centre* has a library which is available to members at meetings. Books are loaned from meeting to meeting.

The *Centre* has two dark-sky observing sites, one at Upper Beaverbank (20km north of Sackville) and one at Dollar Lake Provincial Park (east of the airport). Maps to each site are periodically printed in Nova Notes (see the March/April issue). Observing sessions are currently unscheduled, but generally take place on any clear moonless night between the times of ¼ and ¾ Moon. Call the **Observing Chairman** or the **Editor** to find out if anyone is going out.

Nova East, the largest star party in Eastern Canada, is co-hosted each summer by the *Halifax Centre* and the *Saint John Astronomical Society*. This fun filled weekend (usually in late August) includes public talks, dark sky observing, public observing, and a corn boil/weiner roast. We haven't been clouded out yet! Contact Doug Pitcairn for details.



The globular M92 was discovered by J. E. Bode in 1777 and Charles Messier in 1781. This beautiful rich cluster, a major show piece in any other constellation, is overshadowed by the splendour of M13. Located 6° north of the east side of the "Keystone", it is 9° away from M13. It is more compact than M13, and at magnitude 6.5 and 11' in diameter, it is slightly smaller and farther away than M13. It may also be a few billion years younger than M13.

Eleven degrees north and 1° east of M13 lies the globular NGC6229. It is small, about 3' across, but at magnitude 9 it is a fine sight through almost any telescope.

While observing M13, look 1.5° north northeast to locate NGC6207. (I have been able to glimpse it on one occasion with my 60mm, believe it or not!) This object is an Sc type spiral galaxy tilted about 45° to our line of sight. Not being impressive in its own right, the pairing offers one of the sky's best examples of extreme depth of field. At 14 Mpc, the galaxy lies about 2,000 times more distant than the globular. Users of large instruments may wish to try for several galaxies 2 magnitudes fainter than NGC6207, roughly 1° west southwest of M13.

Hercules contains three planetary nebulae, the brightest being NGC6210.

Located 4° northeast of Beta (β) Hercules, NGC6210 is 14" in diameter, and appears visually at about 8<sup>th</sup> magnitude.

The double star 95 Hercules consists of twin 5<sup>th</sup> magnitude stars, separated by 6.3" at position angle 258°. A startling colour combination of "apple green" and "cherry red" was reported by F.G.W. Struve in 1829, and Secchi in 1855. In 1856, Piazzzi Smyth perceived them as both white, while in the following year Admiral Smyth, Dawes and others reported the green and red! In 1862-63, Captain Higgins reported the colours to fade and then revive. In 1878, Pickering's observation agreed with that of Struve in 1829. W. Herschel observed them to be bluish-white and blue in 1780, and J. Herschel and South called them bluish-white and reddish in 1824. The stars' spectra are A7 and G5, and are now reported to be both yellow. Do you agree?

*Star colours, even in the case of strong contrast pairs, are delicate and elusive, with disagreements among experienced observers being the rule rather than the exception. Similar changes have also been reported with α Leonis, 70 Ophiuchi, α Hercules, α Delphini and ζ Cancri.*

The variability of α Hercules was discovered by Herschel in 1795. It is also one of the largest known red giant stars, and one of the few for which an angular diameter (0.03") has been measured. At the assumed distance of 430 ly, this translates to a real diameter of 560 million kilometres, or 400 times that of the sun. With the probable exceptions of Betelgeuse or Mu (μ) Cephei, this may be the largest size known for any star visible to the naked eye, being greater than the mean orbital diameters of the larger asteroids.

Just a little something to ponder, when you next gaze in the direction of M13. Now if I could just figure out why Hercules is upside down?... Ω

### Important Notice

If you have not already done so, please fill out your **National Membership Survey** which was inserted into the April/May 1992 **BULLETIN**.

At the Calgary General Assembly, it was announced that only about 400 of our national membership has responded to date. **The society needs your opinions to plot the future course of the RASC!** Even if you are a new or non-active member, your opinions are still needed. If you do not feel knowledgeable enough or do not have the time to answer the entire survey, answer what you can and send it in.

The deadline for submissions has been extended until the end of 1992, but the sooner you send it in, the earlier the results can be analyzed.

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### Notice of Meetings

**Date:** Regular Meeting - Friday, September 18th: 8:00pm.  
**Place:** Lower Theatre, Nova Scotia Museum, Summer Street, Halifax.  
**Topic:** This month is Report Month. There will be several reports about the summer's astronomical activities, including the Calgary GA, Nova East, the Highland Star Party, and Stellafane.

**Date:** Regular Meeting - Friday, October 16th at 8:00pm.  
**Place:** Lower Theatre, Nova Scotia Museum, Summer Street, Halifax.  
**Topic:** Terry Craig of Dalhousie University will be speaking on the topic of Solar Neutrinos.

### Public Observing Session

A public observing session will be held at Dollar Lake Provincial Park on Friday, August 21st (rain date August 22nd) at dusk. See the map in the March issue. Some volunteers will be needed to assist us with telescope duty. Call Doug Pitcairn if you are able to help.

### Nova East 1992 Star Party

Nova East '92 will be held on August 28 to 31 at Fundy National Park in New Brunswick. Full details are found elsewhere in this issue.

### 1992 Halifax Centre Executive

Honorary President	Dr. Murray Cunningham	
President	Patrick Kelly	798-3329
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2nd Vice-President	Mary Lou Whitehorne	865-0235
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