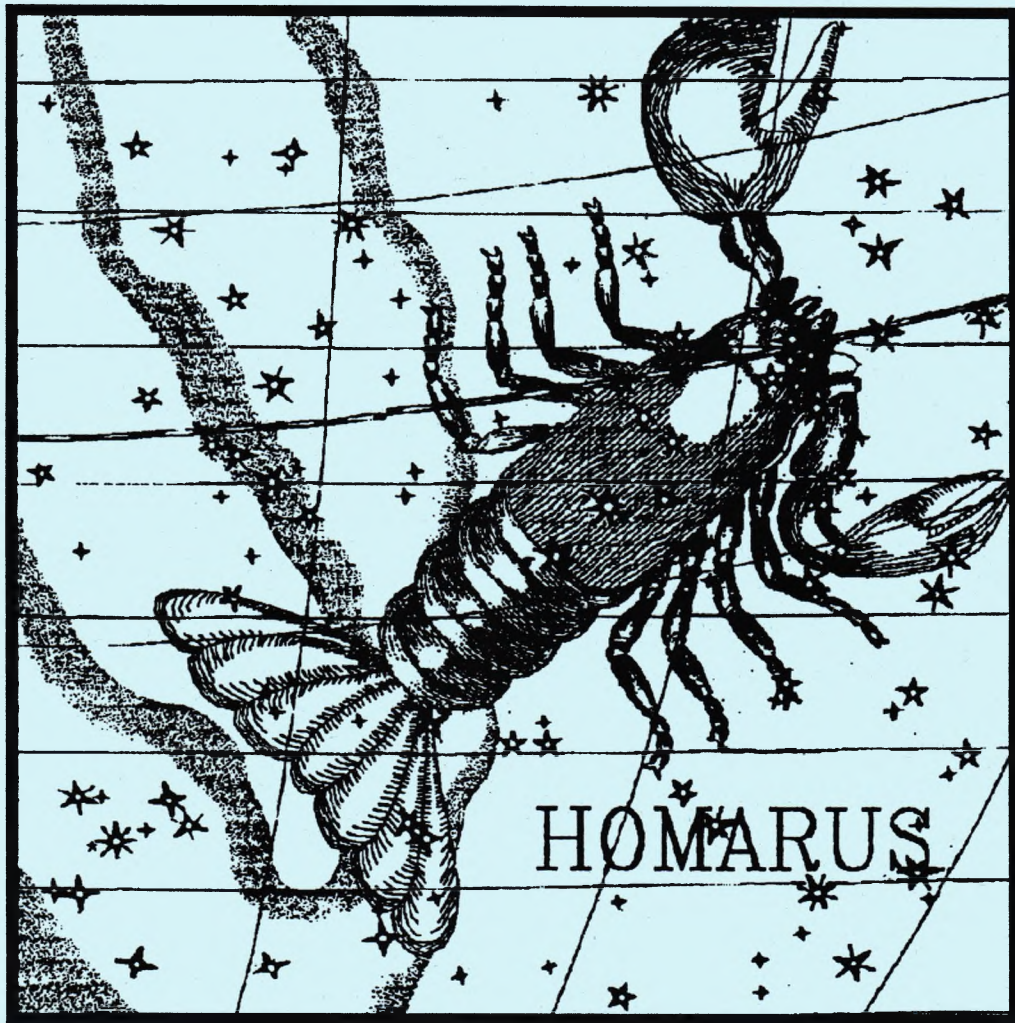


1993

General Assembly

Royal Astronomical Society of Canada



July 1-5, 1993
Halifax, Nova Scotia

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Royal Astronomical Society of Canada
Halifax Centre
President

RR#2 Falmouth, Nova Scotia, Canada, B0P 1L0

June 21st, 1993

Dear General Assembly Delegate:

On behalf of both the membership and the executive of the Halifax Centre, I would like to extend a warm welcome to all of the delegates to this year's general assembly. The Halifax Centre has not hosted a general assembly since 1980 (a year before I joined the centre) and as a result there are a lot of new faces involved in the planning this time around. Nevertheless, the committee that has been delegated with the task of organizing this event has put a lot of time and effort into the preparations, and I am sure that you will be pleased by the results. The greatest resource that any centre has is its members and I can proudly say that the effort shown by our members is second to none!

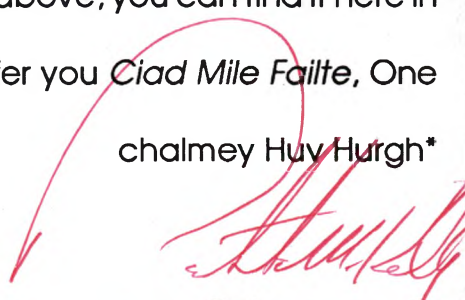
Mount Saint Vincent University is the perfect setting for a G.A. With its quiet, secluded park-like atmosphere, modern facilities and beautiful view of the Bedford Basin I am sure that you will find it an excellent setting to both renew old friendships and make new ones. As those of you who have attended several G.A.s can attest, there is just as much fun at the "unofficial" events (usually held well into the wee hours) as there is at the "official" ones. I hope that you all take advantage of both.

In addition to the "usual" G.A. activities, we have added a few new ones that we hope will catch on to become standard fare at future general assemblies. One of these is the east versus west "Reach for the Stars" trivia contest. This was a highlight of our June members' night last year and we hope that those of you who are not in the council meeting will turn out to root for your favourite side.

While the events that we have planned for you as part of the G.A. will take up a lot of your time, the Halifax Dartmouth area has many sights and activities for those who have a little extra time on their hands. Whether you enjoy fishing, hiking, canoeing, shopping, scuba diving, bicycling, fossil hunting, music, drama, swimming, sailing, antiques, bird watching, night life, geology, fine dining, golfing, history, strolling through a garden or any combination of the above, you can find it here in Canada's Ocean Playground.

Lastly, in the old Nova Scotian tradition, may I offer you *Ciad Mile Failte*, One Hundred Thousand Welcomes!

chalmey Huy Hurgh*



Patrick M. Kelly
President, Halifax Centre

* For those delegates not yet fluent in Klingon: Clear, dark skies!

Registration Kit

Your registration kit should contain the following items:

- ❖ G.A. Program Booklet (you should be reading it now!)
- ❖ Special G.A. Issue of NOVA NOTES (non-Halifax Centre only)
- ❖ Name Tag (see below for details)
- ❖ Mount Saint Vincent University pamphlet
- ❖ Map of Nova Scotia
- ❖ Halifax Visitor's Guide
- ❖ Nova Scotia Arms and Emblems Booklet
- ❖ Nova Scotia Flag Pin
- ❖ Note pad

Your Name Tag

A sample name tag is shown below. The icons on it indicate which events you have paid for. From left to right these are: the wine and cheese party, the Bluenose tour, the annual banquet, the tour to downtown and Peggy's Cove and the Nova Scotia Tattoo. Non-registrants who are attending any of these events will have their name tags labeled as "Non-participating delegate" and are eligible to attend only those specific events indicated on their name tags.



1993 RASC GA

Sponsored by the

Halifax Centre

Astronomer Joe

Peggy's Cove Centre (Fog Chairman)



Registration Desk

The registration desk will be open the following hours:

Thursday, July 1st	16h00 - 21h00	
Friday, July 2nd	09h00 - 12h00	
	13h00 - 17h00	
	19h00 - 21h00	
Saturday, July 3rd	09h00 - 12h00	(if necessary)

Unique Postal Service

If you are planning on taking the tour to Peggy's Cove, why not mail yourself a postcard from the only post office in the world which is located in a lighthouse? (If you are not going, you could always ask someone who is going to post one for you!)

Restaurants

For those of you who prefer to have your meals off campus, here are a few of the nearby eating establishments located on the Bedford Highway in Rockingham.

Wandlyn Inn
Ranch & Reef
Dunkin Donuts

House of Mei Mei
China Town

Turn right when leaving the university to get to the Wandlyn Inn; it is just a few feet down the road. For the rest, turn left and drive a little further!)

In addition, Kempt Road in the north end of Halifax is home to the local "hamburger alley" and there are also a few eating establishments (including a McDonald's) located in the shopping area at the intersection of Lacewood Drive and Dunbrack Street. You may want to drive a few kilometres to the town of Bedford where there are numerous restaurants of various kinds, including the locally famous (and highly recommended) Chickenburger, which is located at the intersection of the Bedford Highway and Dartmouth Road (Trunk Highway 7).

Parking

Visitor parking is \$3.25 per day but is free on holidays and weekends (i.e: Thursday July 1st, Saturday July 3rd and Sunday July 4th). Permits can be obtained at the Mount Saint Vincent conference office desk, located adjacent to the G.A. registration table. The most convenient parking lot is located right beside Evaristus Hall (the residence).

Items For Sale

Halifax General Assembly T-shirts, Halifax Centre pins, and other items will be for sale at the registration table, during registration and also at the table outside the display room on Saturday and Sunday. The 1993 G.A. T-shirt features the constellation of "Homarus the Lobster" (as depicted on the front of this program booklet) which is printed in phosphorescent ink! Sizes available are medium, large and extra-large with all sizes selling for \$15.00.

Taxis

Halifax is reputed to have the highest ratio of taxis per capita of all cities in Canada and the United States. This means that you never have to wait too long to get one. Several of the largest metro taxi companies are: Ace-Y Taxi 429-4444 or 422-4433, Casino Taxi 429-6666 and Yellow Cab 422-1551.

Metro Transit

The Metropolitan Authority operates Metro Transit, the regional public transport system. The basic adult cash fare is \$1.20. There are two routes that serve Mount Saint Vincent University during the summer months. Both have stops located along the Bedford Highway in front of the university.

Route **12 Flamingo** runs from the Lacewood Terminal (at the top of Clayton Park), down Flamingo Drive to the Bedford Highway, along the Bedford Highway to the Bayers Terminal (at the Bayers Road Shopping Centre) and then to the Water Street Terminal (downtown) via Young Street and Gottingen Street.

Route **80 Sackville** runs from Lower Sackville, through Bedford, along the Bedford Highway to the Bayers Terminal (at the Bayers Road Shopping Centre) and then to the Water Street Terminal (downtown) via Young Street, Robie Street and Spring Garden Road.

You can transfer to other buses to take you just about anywhere in the metro area. Transfers are issued on request when you enter the bus. Complete bus maps and schedules are available at the registration desk.

Questions? Need help?

Look for the folks wearing the Nova Scotia Tartan ribbons on their name tags. They are members of the organizing committee and they will be glad to assist you.

The Art of Comet Hunting: Part II

David H. Levy

More than twenty years ago, my first published article appeared in the R.A.S.C.'s *National Newsletter*. Called "The Art of Comet Hunting," it made the point that the search for comets is more of an art than a science, and that it has attracted the fancies of several observers. They included, I wrote, "William Brooks, who, in the late 19th century, hunted in his yard with a nine-inch refractor and picked up over twenty comets, Charles Messier, better known for his 'non-comets', Leslie C. Peltier, who between 1925 and 1954 gathered twelve comets and an assortment of novæ, and David H. Levy, who between 1965 and 1970 has found nothing — absolutely nothing."

This year's Ruth Northcott lecture will be an update of that early paper. After seven visual discoveries and twelve photographic ones shared with Carolyn and Eugene Shoemaker, I wish to share my ideas on what comet hunting really is: a bit of art, a bit of sport, and occasionally some science. The lecture will recall my early years in Montreal, and then in Wolfville, Nova Scotia, where through many happy hours at the telescope I had the chance to think about what comet hunting is really all about. It will also recount some little known comet tales; the calculation of the orbit of one of Messier's comets by a friend in prison awaiting the guillotine; the comets found by Barnard after a dream about discovering comets; and the discovery of a pair of comets following the same orbit because I declined to watch a total solar eclipse.

Comet hunting is a special activity that combines patience, observing skill, and patience. This lecture will give its audience a feel for what it's like to look for comets in the darkness, and what it's like to find one.

ABOUT THE 1993 RUTH NORTHCOTT MEMORIAL LECTURER

David H. Levy was born in Montreal, Canada, in 1948 and educated at Acadia University (B.A. 1972), and at Queen's University (1979, M.A. in English; Thesis title: *The Starlight Night: Hopkins and Astronomy*). Since then he has moved to Arizona where the clear skies have led to considerable success in finding comets. He is currently an observer with the Palomar Asteroid and Comet Survey and an adjunct scientist with the Flandrau Planetarium. David has done over 100 major public lectures in several countries on astronomy and has had over fifty articles published in scientific magazines and journals. He also writes five regular columns of which one, "StarTrails" in *Sky and Telescope*, is his only current monthly effort. The following is a list of David's discoveries, publications and awards.

DISCOVERIES

Visually, with backyard telescope:

- * Comet Levy-Rudenko, 1984t, November 14, 1984
- * Comet Levy, 1987a, January 5, 1987
- * Comet Levy, 1987y, October 11, 1987
- * Comet Levy, 1988e, March 19, 1988
- * Comet Okazaki-Levy-Rudenko, 1989r, August 25, 1989
- * Comet Levy, 1990c, May 20, 1990 (This widely visible object was considered the most spectacular since Halley in 1986).

* Periodic Comet Levy, June 14, 1991

Photographically, with Eugene and Carolyn Shoemaker:

* Periodic Comet Shoemaker-Levy 1, 1990o

* Periodic Comet Shoemaker-Levy 2, 1990p

* Comet Shoemaker-Levy, 1991d

* Periodic Comet Shoemaker-Levy 3, 1991e

* Periodic Comet Shoemaker-Levy 4, 1991f

* Periodic Comet Shoemaker-Levy 5, 1991z

* Comet Shoemaker-Levy, 1991a1

* Periodic Comet Shoemaker-Levy 6, 1991b1

* Periodic Comet Shoemaker-Levy 7, 1991d1

* Periodic Comet Shoemaker-Levy 8, 1992f

* "String of Pearls" comet - March 25, 1993

* Comet Shoemaker-Levy, 1993h

* Discovered Asteroid 5261 Eureka, the first Martian Trojan asteroid, with Henry Holt, June 1990

BOOKS

* *The Joy of Gazing*. Montreal: Montreal Centre, R.A.S.C., 1985.

* *The Universe for Children: How Astronomy-minded Adults Can Teach Children to Love the Sky*. Oakland: Everything in the Universe, 1984.

* With Steve Edberg, *Observe: Comets*. Astronomical League, 1985.

* With Steve Edberg, *Observe: Meteors*. Astronomical League, 1986.

* *Observing Variable Stars: A Guide for the Beginner*. Cambridge, England: Cambridge University Press, 1989.

* *The Sky: A User's Guide*. Cambridge, England: Cambridge University Press, 1991.

* *Clyde Tombaugh: Discoverer of Planet Pluto*. Tucson: University of Arizona Press, 1991.

* *The Man Who Sold the Milky Way: A Biography of Bart Bok* : Tucson: University of Arizona Press, Scheduled to be released September 1993.

* With Steve Edberg, *An Observing Guide for Asteroids, Comets, and Meteors (working title)* ; Cambridge, England: Cambridge University Press, in press.

MAJOR AWARDS

* Dean's List, Acadia University, 1971.

* Chant Medal, Royal Astronomical Society of Canada, June 1980.

This was awarded for the observational work on variable stars and in other fields and is the highest RASC award to an amateur astronomer. The citation appears in the October 1980 issue of the *Journal of the R.A.S.C.* , p.308.

* Asteroid 3673 Levy, named by Dr. E. Bowell, April 2, 1988.

* E. E. Barnard Award, Western Amateur Astronomers, 1988.

* Leslie C. Peltier Award, Astronomical League, 1988.

* G. Bruce Blair Award, Western Amateur Astronomers, 1990.

* Walter H. Haas Award, Association of Lunar and Planetary Observers, 1990.

* Amateur Achievement Award of the Astronomical Society of the Pacific, 1993.

Paper Session Schedule

Paper Session I

Saturday Morning 09h00-11h25

09h00	Opening Remarks	
09h10	Dr. Douglas Hube	The Fireballs of February 10, 1993: Cluster or Coincidence?
09h25	Jack Newton	CCD Colour Imaging
10h10	Coffee, Tea and Cookies	
10h40	Mary Lou Whitehorne	Nova Scotia Planetarium Feasibility Study: Preliminary Results
10h55	Ruth Lewis	Responsible Lighting: Worthy of Praise
11h10	Paul Gray	Annual Quadrantid Meteors – Reports of the 1992/93 Showers
11h25	End of Session I	

Paper Session II

Saturday Afternoon 13h30-15h45

13h30	Alan M. MacRobert	Monster Telescopes of the 1990s
14h00	Dr. David G. Turner	Demonstrating Cluster Main-Sequence Fitting to Best Advantage
14h15	Michael S.F. Watson	The Great 1994 Annular Solar Eclipse
14h45	Coffee and Tea	
15h15	Scott Young	The CCDs of Santa Barbara
15h30	David Lane	The Earth Centered Universe: A Sky Atlas Computer Program for Amateur Observers
15h45	End of Session II	

Paper Session III

Sunday Morning 09h00-11h15

09h00	Martin Connors	Short Ride on a Fast Machine: Some Interesting Resonant Asteroids
09h30	Dr. Roy Bishop	Rating Binoculars for Astronomy
09h45	F. Graham Millar	The Irish David and Goliath
10h15	Dr. Randall Brooks	Who Really Made the First Telescope?
11h15	End of Session III	

The Fireballs of February 10, 1993: Cluster or Coincidence?

Dr. Douglas P. Hube	Peter Brown
Edmonton Centre	London Centre
University of Alberta	University of Western Ontario
First Vice-President	International Meteor Organization

At approximately 6 P.M. MST, Wednesday, February 10, 1993, a fireball was observed moving toward the northeast in the vicinity of Edmonton, Alberta. Observations collected during the subsequent several weeks were adequate to predict a fall zone. While collecting eyewitness reports, it became apparent that a second fireball had occurred within minutes of the first, with an entry point at roughly the same latitude but further west, and a southeasterly trajectory.

It is suggested that the two events may have been related. At least two, and possibly three, additional fireballs occurred during the same evening. Published fireball statistics collected over many years indicate higher than average activity in February.

CCD Colour Imaging

Jack B. Newton
Victoria Centre

This paper, illustrated by many slides demonstrating use of the latest versions of computer software to enhance imaging processing (including "Maximum Entropy"), discusses:

- balancing a CCD camera using a grey card in sunlight;
- the types of filters suitable for standard red, blue and green tri-colour imaging;
- the infrared leak experienced when using traditional blue and green filters and the missing Oxygen III line in conventional films;
- the capabilities of the Santa Barbara Instrument Group's new colour wheel and ST-6 CCD camera;
- identifying asteroids and comets using tri-colour imaging;
- amateur/professional collaboration in the use of a CCD in astrometry.

Nova Scotia Planetarium Feasibility Study: Preliminary Results

Mary Lou Whitehorne
Halifax Centre
Chairman, Nova Scotia Planetarium Advisory Committee

The Nova Scotia Planetarium Advisory Committee (NSPAC) has contracted with a consulting firm to conduct a study to examine the feasibility of a new planetarium for Nova Scotia. Phase I of this study is currently under way. Areas considered in this study include themes, physical content, programming, operational status, location, potential market penetration for such a facility, capital and operating costs, revenues, and sources of support for a planetarium.

Responsible Lighting: Worthy of Praise

Ruth Lewis
Calgary Centre

The Light Pollution Committee received the green light from National Council at the February 6th meeting to provide a first class certificate to recognize firms using quality lighting for displays or for security. Some examples of the "good stuff" will be shown together

with the certificate which will be available to any centre wishing to use this positive approach in getting our message across. Suggestions for publicizing same will be offered.

Annual Quadrantid Meteors - Reports of the 1992/93 Showers

Paul Gray
Halifax Centre

Every year on January 3/4, the Earth passes through a stream of particles which cause the Quadrantid meteor shower. This shower is only young, being first observed in the early 1800s. It is known to be very short in duration and at times very strong. A few members of the Halifax Centre have braved the cold Canadian winter these past two years to observe this shower and have produced some interesting and encouraging results.

Monster Telescopes of the 1990s

Alan M. MacRobert
Sky & Telescope Magazine

After nearly a half century of stagnation, the construction of record-breaking telescopes – dwarfing the Palomar 200-inch – is booming worldwide.

Demonstrating Cluster Main-Sequence Fitting to Best Advantage

Dr. David G. Turner
Halifax Centre
Saint Mary's University

Most published monographs dealing with the concept of open cluster main-sequence fitting make use of cluster colour-magnitude diagrams which have not been corrected for the contaminating effects of differential interstellar extinction. In this author's experience very few open clusters are completely free of these effects, which must be removed from the observational data before proceeding to a main-sequence or, more properly, a zero-age main-sequence (ZAMS) fit. The situation is so bad that many professionals in the field have published unwarranted statements about the accuracy of the cluster distance scale based upon the seemingly low reliability of cluster ZAMS fits. Yet there are many open clusters where even the annoying effects on stellar colours of rapid rotation and unresolved duplicity are not obvious in their reddening corrected colour-magnitude diagrams. For these clusters it is readily demonstrated using simple overhead transparencies that internal relative distance uncertainties of no more than about 2% are very easy to attain. A set of such overheads produced for general classroom use is demonstrated here.

The Great 1994 Annular Solar Eclipse

Michael S.F. Watson
Unattached Member
Second Vice President

On Tuesday, May 10th 1994, an annular solar eclipse of unusually long duration will trace a path through the United States, southern Ontario, and the Maritime Provinces of New Brunswick and Nova Scotia. The eclipse will be seen as partial throughout virtually all the rest of Canada.

This event provides a rare chance for Canadian astronomers to observe one of Nature's most interesting geometric curiosities in their own backyards. As well, it provides Centres and members of the Society with an opportunity to bring exciting live astronomy to the public.

In this paper, the author, who is chairperson of the Society's 1994 Solar Eclipse Committee and a veteran of numerous solar eclipse expeditions, will discuss the forthcoming eclipse, with particular regard for the following topics:

1. Local circumstances for various locations throughout the country.
2. Safe and interesting methods of observing the eclipse.
3. Solar eclipse photography, including unusual photographic effects and composition.

The CCDs of Santa Barbara

Scott Young
Winnipeg Centre

Santa Barbara Instruments Group (SBIG) has been producing amateur-level CCD cameras for a number of years, and these cameras have been in use at the Glenlea Astronomical Observatory (GAO), Winnipeg, since 1989. The use of the three ST-4 CCDs and one ST-6 CCD camera will be discussed, and I will present many of my experiences, trials and tribulations of working with these CCDs. The application of the two models of cameras to scientific imaging (especially photometry) will be explored, and some preliminary results of projects currently under way will be presented.

The Earth Centered Universe: A Sky Atlas Computer Program for Amateur Observers

David Lane
Halifax Centre

A full-featured sky visualization program for Microsoft Windows, developed by the presenter, will be described.

Short Ride on a Fast Machine: Some Interesting Resonant Asteroids

Martin Connors
Edmonton Centre

Resonances with Jupiter determine much of the structure of the Asteroid Belt. For example, the Kirkwood Gaps arise due to the pumping action of Jupiter on asteroids having a suitable period. Some asteroids are injected onto Earth-crossing orbits due to this resonant pumping. The case of 3:1 resonance brought us a near visit by 4179 Toutatis in December 1992 and the orbit of this asteroid is interesting to examine. The 1:1 resonance creates the Trojan asteroids, in a location predicted by Lagrange in 1772.

Jovian Trojans were discovered in 1906, and the one of Mars in 1990. 2063 Bacchus may have once been an Earth Trojan. The statistics and orbital motions of these interesting objects may be studied using inexpensive personal computers.

Rating Binoculars for Astronomy

Dr. Roy Bishop
Halifax Centre
Editor, Observer's Handbook
Acadia University

Although binoculars are one of the most common optical instruments and are indispensable for visual observers of the night sky, most observers do not know how to rate binoculars in terms of their most important performance criterion: the *amount of detail* binoculars will reveal in a celestial object. The frequently-cited "Relative Brightness" parameter is a totally

inadequate measure of this key aspect of binocular performance. However, a quantity closely related to the little-known Zeiss "Twilight Performance Factor" is both a good measure of the ability of binoculars to make celestial detail visible, and is easy to calculate.

The Irish David and Goliath

F. Graham Millar
Halifax Centre

Lugh, with a slingshot, threw one of his father's thunderbolts at Balor, striking him in the eye on the back of his head and killing him. The Irish story exists in several versions, the protagonists having different names, which are to be found in the Sanskrit dictionary; hence the myth must be very ancient and also central Asian. It is based in astronomy: the identification of the heroes with the constellations has been aided by scenes on artifacts, principally the Gundestrup Cauldron. Lugh was the constellation Boötes, his father was Hercules, a source of meteors, the sling was Corona Borealis, and Balor was Orion. By reference to the precession of the celestial pole, it is determined that the myth was formed about 3150 B.C.

The folktale is international, found from Western Europe and Egypt to India. It is seen as an early expression of dualism in the mid-Asian religions.

Who Really Made the First Telescope?

Dr. Randall Brooks
Halifax and Ottawa
National Museum of Science and Technology

The history of the invention of the telescope has been investigated several times since the mid-17th century and the same names keep arising: Roger Bacon, Leonard Digges, Giovanbaptista della Porta, Hans Lippershey, Zacharias Jansen, Jacob Adriaenszoon (Jacob Metius) and even Galileo. The most authoritative source (van Helden) concludes, in the absence of definitive proof for any of the above, that Lippershey should hold the honour. Recently, Colin Ronan has put forth the case for Leonard Digges based on the accounts of his son, Thomas, who apparently carried on his father's attempt to build a telescope and a newly discovered manuscript by William Bourne. This paper will review Ronan's evidence and will consider its significance in the history of science and technology. If Thomas Digges was successful in making a telescope, what might it have looked like given the quality of 16th century optics. What might one have observed with such a device – indeed is there any evidence that Digges – father or son- – ever made observations with the device?

Dear G.A. Delegates;

Hosting a General Assembly requires the combined efforts of a lot of people. The Halifax Centre is fortunate to have some really dedicated individuals who spent many hours working hard to prepare for and run this G.A. Without them we could not have done it and so the G.A. Organizing Committee wishes to thank the following people for their contributions to the successful running of the 1993 Halifax General Assembly:

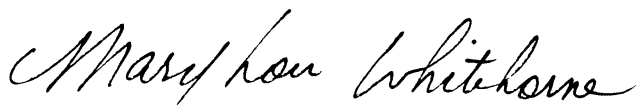
Jason Adams	Paul Gray
Ian Anderson	Tom Harp
Roy Bishop	Reg Henderson
Larry Bogan	Doug Hube
Randall Brooks	John Jarvo
Peter Broughton	Patrick Kelly
Peter Brown	Dave Lane
(Bluenose II Operations Officer)	Shawn Mitchell
David Chapman	Doug Pitcairn
Frances Cody	Norm Scrimger
(M.S.V.U. Conference Officer)	Brian Segal
Nat Cohen	Clint Shannon
John Connelly	Bill Thurlow
Tom Crosman	Dave Tindall
Ralph Fraser	Mary Lou Whitehorne
Rosemary Freeman	Joe Yurchesyn

Special thanks must go to our own Nat Cohen, who designed and individually hand cast each and every one of our sterling silver prize medallions. We think that these are very unique and valuable mementos of the 1993 Halifax General Assembly and we know that the winners will treasure them for a lifetime. We doff our hats to Nat!

I have probably forgotten a few (forgive me, please!) volunteers in the rush so if your name has been overlooked it was not deliberate. The Conference Office of Mount Saint Vincent University has been most helpful and cooperative; their expertise smoothed many bumps along the way.

To all the volunteers, committee members, delegates, contributors and supporters, thank you for making this a memorable General Assembly!

Sincerely,



Mary Lou Whitehorne
1993 G.A. Organizing Committee

List of Delegates

Adams	Halifax	Hurley	Windsor
Anderson	Halifax	Jarvo	Halifax
Auclair	Unattached	Jones	Halifax
Baker	Vancouver	Jutting	Niagara
Bennett	Windsor	Kelly	Halifax
Berrys	Unattached	Kulyk	Kingston
Bishop	Halifax	Lane	Halifax
Bogan	Halifax	Lee	Windsor
Broderick	Kingston	Lemay	Québec
Brooks	Halifax	Levstein	Kingston
Broughton	Toronto	Levy	Montreal
Buchanan	Ottawa	Lewis	Calgary
Chapman	Halifax	MacDonald	Kingston
Cohen	Halifax	MacGuigan	Vancouver
Coldwell	Halifax	MacRobert	Sky & Telescope
Conners	Edmonton	May	Toronto
Connolly	Halifax	Millar	Halifax
Crosman	Halifax	Mitchell	Halifax
Cunningham	Halifax	Nason	Toronto
Darroch	Halifax	Newton	Victoria
Dick	Ottawa	Norman	Halifax
Dodge	St. John's	Palman	Halifax
Enright	Kingston	Parker	Halifax
Evans	Non-member	Pitcairn	Halifax
Falk	Halifax	Runge	Winnipeg
Fleming	Sarnia	Scrimger	Halifax
Fortier	Unattached	Segal	Halifax
Fraser	Halifax	Shannon	Halifax
Freeman	National Office	Shepley	Windsor
Gill	Non-member	Short	St. John's
Goodman	Calgary	Smith	St. John's
Gosse	Non-member	Sosnkowski	Toronto
Gray	Halifax	Thurlow	Halifax
Gupta	Vancouver	Tindall	Halifax
Hall	Ottawa	Turner	Halifax
Harp	Halifax	Wagner	Ottawa
Harrington	Toronto	Watson	Unattached
Hawley	Calgary	Whitehorne	Halifax
Henderson	Halifax	Wight	Hamilton
Hicks	Kingston	Wojtowicz	Halifax
Hlady	Winnipeg	Young (Jim)	Saskatoon
Holmes	Vancouver	Young (Scott)	Winnipeg
Hube	Edmonton	Yurchesyn	Halifax

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B3K 3Z6

Cunningham, Dr. Murray
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Darroch, Margie A.
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Dartmouth, Nova Scotia
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Falk, Michael
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Halifax, Nova Scotia
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B4C 1E1

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27 Brookdale Cres. Apt. 125
Dartmouth, Nova Scotia.
B3A 4N5

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RR#1
Truro, Nova Scotia
B2N 5A9

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11 Hickman Drive
Truro, Nova Scotia
B2N 2Z2

Jones, Tony M.
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The G.A. organizing committee would like to thank the following contributors of prizes and/or financial assistance:



ARC Science Simulations

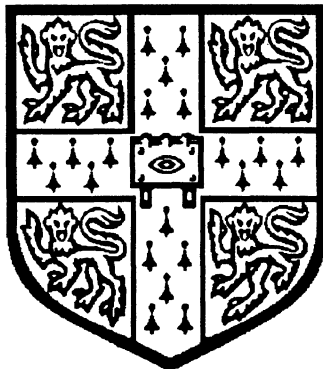


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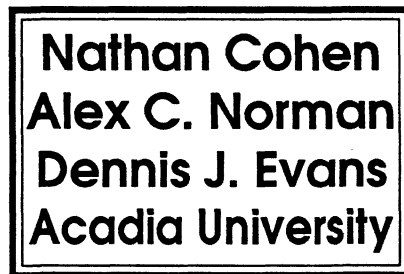
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Lumicon

- Q. How many quantum physicists does it take to change a light bulb?
 A. One. Two to change the light bulb and one to renormalise the function.
- Q. How many Vulcans does it take to change a light bulb?
 A. Approximately 1.0000000000000000
- Q. How many astronomers does it take to change a light bulb?
 A. Change a light bulb? What's wrong with the dark?
- Q. How many creationists does it take to change a light bulb?
 A. Only one. And you better believe it takes him no more than seven days.
- Q. How many evolutionists does it take to screw in a light bulb?
 A. Only one, but it takes eight million years.
- Q. How many deans does it take to change a light bulb?
 A. Two. One to assure the faculty that everything possible is being done, while the other screws the bulb into a faucet.
- Q. How many academics does it take to change a light bulb?
 A. None. That's what their research students are for.
- Q. How many Martians does it take to screw in a light bulb?
 A. One and a half.
- Q. Why did the physicist fall out of the tree?
 A. Because he was dead.
 Q. Why did the second physicist fall out of the tree?
 A. Because he was stapled to the first physicist.
 Q. Why did the third physicist fall out of the tree?
 A. Peer pressure.

A very brief "History of Time"
 May all be compressed in this rhyme.
 Fluctuation, inflation,
 Quark soup condensation
 Then galaxies, stars, bioslime.

Said Einstein to Schrodinger's cat:
 "You have grown most exceedingly fat."
 Said the cat in reply,
 "It is space, sir, not I,
 That with time, has distorted this mat."

Two sodium atoms are walking along the street when one says "Oh, my god, I've lost an electron!"

"Are you sure?" asks his companion.
 "Yes" replies the first sodium atom. "I'm positive!"

There are three types of scientists: those who can count and those who can't.

Three statisticians go duck hunting. A duck flies by, and the first fires a shot but it goes a foot too high. The second tries but his shot goes a foot too low. The third jumps up and shouts "We got it!"

A distinguished astrophysicist had been invited to address a large group of amateur astronomers. Sadly, he decided to address his sophisticated audience at about a grade five level. For one of the listeners, the last straw came when the guest speaker claimed reassuringly: "Now, the structure of the Sun is really quite simple."

Came a voice out of the audience: "From a parsec away, you look pretty simple yourself!"

An exiled scientist was strolling across the Siberian tundra when he found a tiny bird nearly frozen to death. He picked up the bird and carried it until he found a large pile of still-steaming yak dung. He stuck the bird into the pile to warm it. The heat revived the bird and it began to sing. A wolf heard the bird singing, came along and ate it.

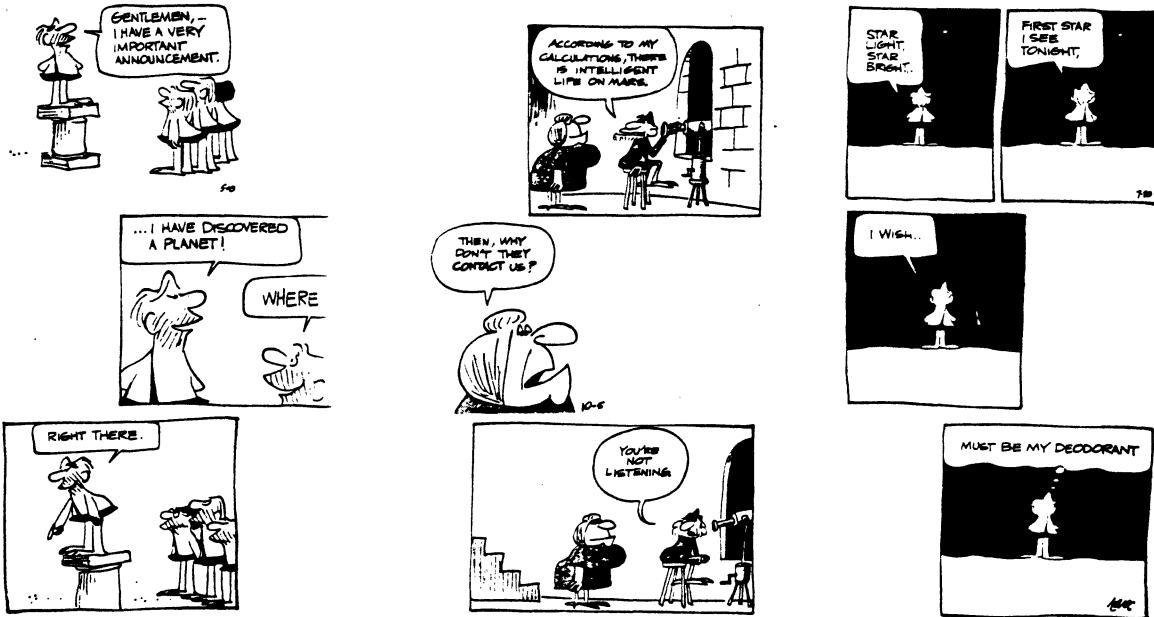
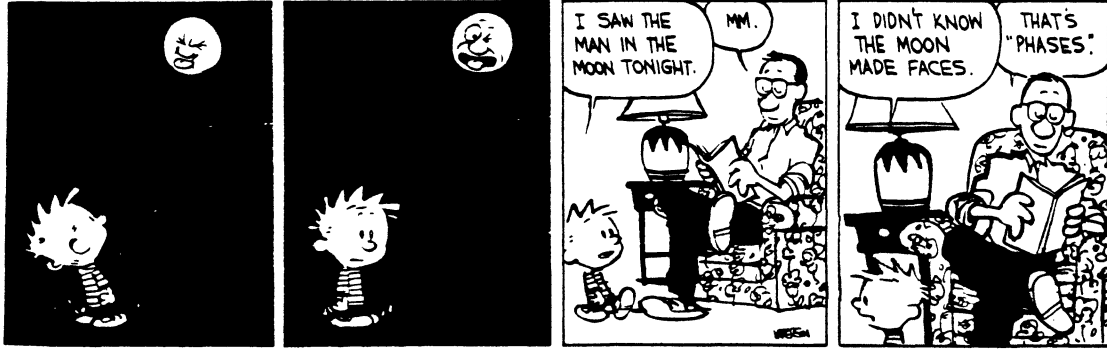
There are three morals to this story:

1. The one who puts you in yak dung is not necessarily your enemy.
2. The one who gets you out again is not necessarily your friend.
3. If you find yourself neck deep in yak dung - keep your mouth shut!

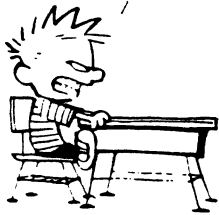
"If a piece of physics cannot be explained to a barmaid, then it is not a good piece of physics."
 - Ernest Rutherford

If the Universe really is expanding, why can't I find a parking space?

A bedraggled and chalky spirit limps up to the Pearly Gates. "What on Earth have you been doing?" asks Saint Peter. "Freshman astronomy," mumbles the spirit. "I taught it for thirty-seven years." Saint Peter swings open the gates. "Come right in. You've been through Hell already."



SPACEMAN SPIFF IS BEING HELD PRISONER BY HIDEOUS ALIENS! WHAT DO THEY WANT WITH HIM?



SPIFF IS SOON TO FIND OUT! OUR HERO IS CALLED BEFORE THE ALIEN POTENTATE!



...WHERE IT BECOMES CLEAR THAT SPIFF IS ABOUT TO BE SACRIFICED...



...TO APPEASE THE EVIL GOD THEY CALL "NOLLIJ!"

UP TO THE BLACKBOARD. HURRY UP.



The sun was setting in the west,
The birds were singing on every tree.
All nature seemed inclined to rest,
But still there was no rest for me.

Chorus:

*Farewell to Nova Scotia, the sea-bound coast,
Let your mountains dark and dreary be.
For when I am far away, on the briny ocean tossed,
Will you ever heave a sigh, and a wish for me?*

I have three brothers and they are at rest.
Their arms are folded on their breast.
But a poor simple sailor, just like me,
Must be tossed and driven on the dark, cold sea.

Chorus

I grieve to leave my native land.
I grieve to leave my comrades all.
And my parent whom I love so dear,
and the bonnie bonnie lass that I do adore.

Chorus

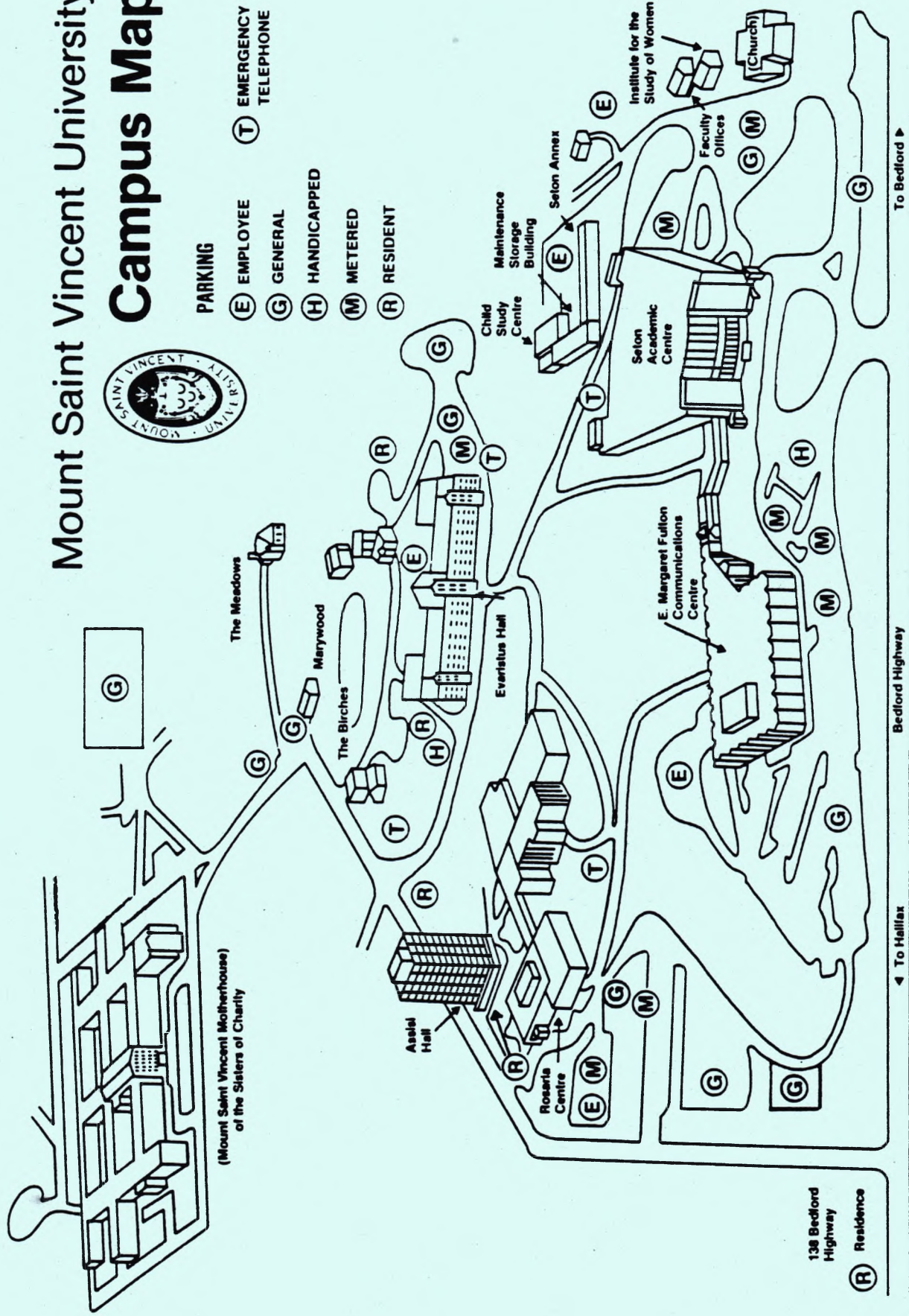
The drums they do beat and the wars do alarm.
The captain calls, I must obey.
So farewell, farewell to Nova Scotia's charms
For it's early in the morning and I'm far, far away.

Chorus

Mount Saint Vincent University Campus Map



- PARKING**
- (E) EMPLOYEE
 - (G) GENERAL
 - (H) HANDICAPPED
 - (M) METERED
 - (R) RESIDENT
 - (T) EMERGENCY TELEPHONE



138 Bedford Highway
Residence

4 To Halifax Bedford Highway To Bedford ▶

Schedule of Events

Thursday, July 1, 1993

16h00 - 21h00	Registration	Rosaria Conference Centre
17h00 - 18h30	Dinner	Dining Hall

Friday, July 2, 1993

09h00 - 17h00	Registration	Rosaria Conference Centre
07h30 - 08h30	Breakfast	Dining Hall
09h00 - 12h00	Committee Meetings	Rosaria R309
12h00 - 13h30	Lunch	Dining Hall
12h30 - 17h30	National Council Meeting	Rosaria R309
13h30 - 16h30	Set-up of Displays	Seton S501
14h30 - 16h30	Reach For The Stars Contest	Vinnie's Pub
17h00 - 18h30	Dinner	Dining Hall
19h00 - 21h00	Wine and Cheese Party	Rosaria Terrace
21h00 - 23h00	Murphy Slide Show, Song Contest and Astrocomical Joke Telling	Vinnie's Pub

Saturday, July 3, 1993

02h55	Possible occultation of 9 Sgr by 24 Themis	
09h00 - 17h00	Registration	Rosaria Conference Centre
07h30 - 08h30	Breakfast	Dining Hall
09h00 - 11h25	Paper Session I (see page 8)	Seton Auditorium A
09h00 - 12h00	Exhibit Room	Seton S501
12h00 - 12h30	Group Photo	Rosaria Terrace
12h30 - 13h30	Lunch	Dining Hall
13h30 - 15h45	Paper Session II (see page 8)	Seton Auditorium A
13h30 - 16h30	Exhibit Room	Seton S501
16h30 - 17h30	Dinner	Dining Hall
17h30 sharp	Bus leaves Rosaria front door to Historic Properties (Bluenose II)	
18h00 - 20h00	Cruise	Bluenose II on Halifax Harbour
20h00 - 20h30	Bus back to Mount Saint Vincent	

Sunday, July 4, 1993

Evaristus Chapel will be open all day for members' convenience.

07h30 - 08h30	Breakfast	Dining Hall
09h00 - 11h15	Paper Session III (see page 8)	Seton Auditorium A
09h00 - 12h00	Exhibit Room	S501
12h00 - 13h00	Lunch	Dining Hall
13h00 - 15h00	Annual Meeting	Seton Auditorium D
15h30 - 17h30	Judging of displays	Seton S501
15h30 - 17h00	National Council Meeting	Seton Auditorium D
17h30 - 18h30	Removal of Displays	Seton S501
18h30 - 20h30	Banquet and Awards	Dining Hall
21h00 - 22h00	Ruth Northcott Memorial Lecture	Seton Auditorium B

Monday, July 5, 1993

07h30 - 08h30	Breakfast	Dining Hall
09h00 sharp	Bus leaves Rosaria front door for tours to downtown and Peggy's Cove	
09h30 - 11h30	Tours : #1 Halifax Citadel OR #2 Maritime Museum of the Atlantic	
11h30 - 13h00	Lunch downtown (on your own)	
13h00	Rendezvous at buses	
13h00 - 17h00	Bus tour to Peggy's Cove	
17h00 - 18h30	Dinner	Dining Hall
17h45 - 18h15	Group Photo Pickup	Rosaria Conference Centre
18h30 sharp	Bus leaves Rosaria front door for Tattoo	
19h30 - 22h00	Nova Scotia International Tattoo	Halifax Metro Centre
22h00	Bus leaves Tattoo for return to Mount Saint Vincent	

Tuesday, July 6, 1993

07h30 - 08h30	Breakfast	
11h00	Latest check out time	