



# Winnicentric

The Journal of the Winnipeg Centre of the Royal Astronomical Society of Canada

## Looking Up by Sandy Shewchuk

My interest in astronomy began when I was a child eight years of age, being fascinated by a map of the Solar System my mother had received in an issue of National Geographic. I can still quite vividly remember parts of that map: about 48 x 36 inches, showing an illustration of the Sun and planets (to scale in size but not in orbital distance) with just a slender arc of the Sun's limb appearing at the far left of the sheet. Below this were all kinds of interesting data: size and mass of each planet, distance from the Sun, supposed composition, and so on. I think the most meaningful pieces of information for me were (1) an awareness of Earth's surroundings and placement in the Solar System and (2) that over one thousand Earths can fit inside Jupiter and almost a thousand Jupiters can fit inside the Sun. Apart from that, the colours of the planets were supremely cool.

Throughout elementary and early high school, I spent much time reading books about the Solar System, following the space program, and writing to various NASA agencies requesting any and every piece of free literature they would be willing to send me. I guess there were many others like me, because my letter writing campaign suddenly came to a halt one day upon receipt of a note stating that budgetary restrictions prevented further free mailing of promotional materials. (At the time I thought this was due to my personal bombardment of requests.) Nevertheless, I had collected piles of literature about the Apollo missions, the Pioneer probes, and comets, much of which I did not understand, and many lovely prints of the planets and the Moon landings (I still have a few scraps of this stuff today). My pursuit of astronomy, however, was pretty much limited to reading and naked eye observing of the Moon--I had no optical aides, and I was unaware that any of the planets could be seen with the unaided eye. Nonetheless, I remember this as a very enjoyable time.

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Deadline for the next issue is  
October 24, 2004

# MEETINGS

**Room 118, St. John's College**

September 10 Friday

**Beginners Session with Stan Runge 7:00**

**Regular Meeting 7:30**

**“From the Cosmic Egg to the Big Bang: A Brief History of Cosmology”**

**By Ron Berard**

As long as we can look back into history, humans have been seeking to understand how the Universe began and how we came to be. As technology advanced, so to did our capacity to observe the visible Universe objectively, laying waste to preexisting mythologies in the process. As modern Cosmological theories advance beyond our technological capacity to test them, are we developing a better picture of where we came from, or a new mythology? An overview of Creation myths, and ancient through to modern cosmological theories will be explored with this question in mind.

Plus: Explore the Universe with Lindsay Price, “What’s New” by Jennifer West, Stephen Smyth will tell us about the Picture of the Month, the Ring Galaxy, Light Pollution Education with Fred Wood and Gail’s Constellation of the Month looks at Cygnus the Swan.

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October 8 Friday

**Beginners Session with Scott Young 7:00**

**Regular Meeting 7:30**

**"The Amateur's Universe"**

**By Jay Anderson**

Jay’s talk is geared to the uninitiated and works its way outward from the Sun using only images captured by amateur astronomers, or professional instruments that are co-opted for amateur purposes. It is designed to capture the imagination of those who think they might want to try their hand in astronomy, but also presents challenging objectives that go beyond photography and into real science.

Also: the regular features: “What’s New” by Jennifer West, “Explore the Universe” Observing Certificate by Lindsay Price and Light Pollution Education by Fred Wood.

PLUS! We will have our Centre elections tonight.



## Members Observing Nights

### Glenlea Observatory



Saturday September 11  
8:00 p.m. to ???  
Your hosts: Jay and Gail

Saturday October 9  
8:00 p.m. to ???  
Your hosts: Fred and Lindsay

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### Public Event

Saturday September 18  
Birds Hill Park



Plan to come out to Birds Hill Park for a public night you don't have to travel very far to get to. We will be in the West Beach parking lot, where there are washrooms and no lights. The park interpreter will do a presentation starting at 8:30 and we will bring out the telescopes for 9:00.

**Planning Ahead:** Lunar Eclipse October 27 at Assiniboine Park

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### *News in a Minute:*

Congratulations to Scott Young on his election to National First Vice-President at the General Assembly.

Farewell to 1<sup>st</sup> Vice-President Robin Woods who is moving to Gatineau, PQ. Robin has done a lot of work for the Winnipeg Centre and we will miss him a lot. All the best, Robin and we hope to see you anytime you are out this way!

The Big Whiteshell public observing event was rained out, the first one in living memory that didn't go on as planned.

A glass pyrex dish with a blue lid was left behind at the July 9 barbecue. If it is yours, please contact Gail.

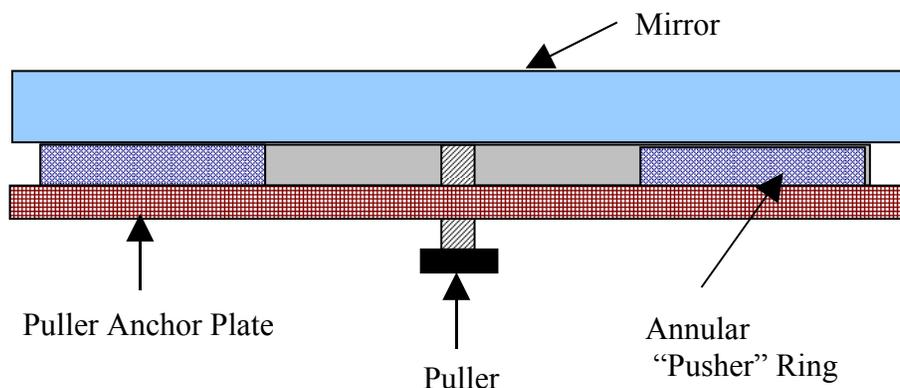
## ATM Journal 9: Flexing Your Way to a Perfect Paraboloid

By Gordon Tulloch, RASC Winnipeg

Yes, I know last time I said we'd look at fixing optical problems, but I thought I'd offer a change of pace in this issue and talk about an interesting way to get a perfect paraboloid figure on a mirror without the figuring process – flexing.

To review, a telescope mirror needs (for a Newtonian design anyway) to have a paraboloidal figure to reflect all of the light coming from the sky to a specific focus. Unfortunately, the mirror grinding and polishing process results in (hopefully!) a spherical surface that then has to have its centre deepened during figuring to produce a true paraboloid. But is there a different way to do it? The answer for many ATMs are flex mirrors, where the shape of the mirror is mechanically deflected from a sphere.

In the June 1992 issue of *Sky & Telescope* Bill Kelley first published a description of the process of pulling the centre of a mirror into a paraboloid. Kelley's method is often referred to as "centre pull" since the mirror is supported at the edge and pulled by a central bolt. Using the right combination of  $f$ /ratio, aperture, and thickness, this method has been reported to produce good paraboloids. In November 2000, Alan Adler published a method which uses a wide annular puller to better distribute the flex tension. Adler's method, referred to as "microflexing" produces significantly better results, although it is a little harder to implement.



*Figure 1 – A simple flex mirror cell ala Kelley*

But is flexing a mirror easier than figuring? This is highly dependent on the mirror maker's tendency to produce a perfect sphere, or some other figure. If you're going to end up having to figure your mirror to get it to a sphere it might be just as easy to go ahead and parabolize it!

Drawbacks of using a flex mirror design consist of:

- ★ You absolutely need to remove wedge from your mirror blank. “Wedge” is a difference in thickness on one side of your blank versus the other side, and will cause astigmatism in a flexed mirror since it will flex differently based on thickness.
- ★ There's the added technical challenge of building a flex cell, although it's been commented that a flex cell is no more complex to build than a 9 point floatation cell and likely easier.
- ★ Normal floatation cells are not possible, possibly leading to problems with figures changing based on attitude (however, this has not been raised as a problem by owners of flex mirror systems).
- ★ Cooling can be impaired by the flexing apparatus not allowing access of air to the mirror.

Once you have a flex mirror there are some definite benefits to using the approach:

1. There's no need to parabolize. This saves a ton of time for most mirror makers, and
2. The Foucault test becomes a null test that you can use to complete your mirror. There is no need for extensive quantitative testing of the figure of the surface because if all points on the mirror don't null at once you know you have some work to do with the common polishing strokes.
3. You now have an adjustable figure mirror – you can adjust the mirror's figure IN THE FIELD to adjust for cooling/rising temperatures, something impossible to do with non-flex mirrors.
4. Chances are you're going to be able to produce a much better mirror than with parabolizing techniques, especially if you're a beginner.

Flexing seems to be a good option, particularly for ATM's experiencing some frustration in parabolizing their mirrors, or even fixing problems with a mirror that is undercorrected. In many cases cheap optics of small apertures and long focal lengths have been figured as spheres because the difference between a sphere and a paraboloid is minimal, but in the case where there is a difference, it's handy to be able to fix the problem.

Next time: Fixing Optical Defects



## ELECTIONS 2004!

The October Meeting is our Centre's Annual General Meeting, when we deal with the official parts of running our club and also elect new officers to Council. As usual, there are a number of vacancies we'll be looking to fill, so if you're interested in joining the Council, now's your chance!

The following terms expire at the October meeting:

President - gAIL Wise  
1st Vice-President - Robin Woods  
2nd Vice-President - Lindsay Price  
Treasurer - Stan Runge  
Secretary - Jay Anderson

Councillor - 2 positions open.

The position of Councillor is a great way to join the Council. It involves attending the council meetings (6 or 8 a year) and helping make the decisions about what we do for the year: do we spend money on this or that, what speakers do we get for the meetings, what observing activities do we do, etc. It also involves writing 1 article a year for Winnicentrics on a topic of your choice, and co-hosting an observing session or two for the members. Pretty easy, and it lets you get involved in running this club we all get to enjoy.

The office of Treasurer is appointed by Council; all other positions are elected by the general membership at the October meeting. The Nominating Committee consists of Scott Young (Chair), Stan Runge, and Jay Anderson (three past-Presidents of the Centre). Nominations can be sent to [scyoung@manitobamuseum.ca](mailto:scyoung@manitobamuseum.ca), or via mail c/o Scott Young, 190 Rupert Avenue, Winnipeg, MB R3B 0N2, or through a member of the nominating committee.

Be sure to fill out and mail in the nomination form that is included in this issue.



## The following members are working toward their:

### Messier Certificates:

Eugene d'Auteuil 41  
Murray Rennie 19  
Lindsay Price 32

### Explore the Universe:

Terra Jentsch 17  
Stan Runge 13  
Lindsay Price 78  
Timothy Kennedy 32  
Judy Starr 22  
Ray Starr 21  
Sandy Shewchuk 14  
Eugene d'Auteuil 12  
Murray Rennie 6

### Herschel 400's

Stan Runge 98  
Sean Ceaser 133  
Mike Stephens 92

### Finest NGC's:

Sean Ceaser 67  
Mike Stephens 76

Congratulations to **Ralph Croning and Lindsay Price** on qualifying for their Explore the Universe Certificates!

*The following members have completed their:*

#### Explore the Universe

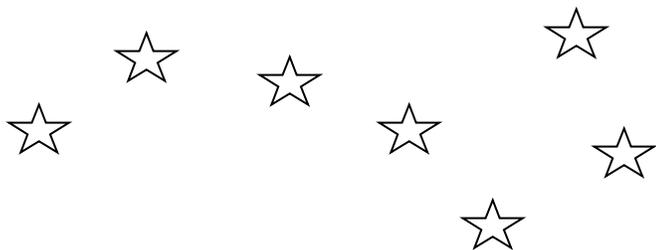
Gail Wise  
Janet Pollock  
Janice Low  
Mike Stephens

#### Messier Certificates

Kevin Black  
Alan Sherlock  
Mike Stephens  
Rick Turenne  
Gail Wise  
Ray Andrejowich  
Stan Runge  
Bernie Plett  
Sean Ceaser  
Mike Karakas

#### Finest NGC's

Kevin Black  
Stan Runge  
Gail Wise



If you are interested in using the Warm Room please contact Stan Runge for a key (\$10.00 deposit required). If you would like training on the LX200 Lindsay Price will be running training sessions, but not on Members Observing Nights. You can contact him at 227-4684 or [flprice@mts.net](mailto:flprice@mts.net) or talk to Lindsay at a meeting.

**The Winnipeg Centre****Executive Council**

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*Winnicentrics* is produced by and for the members of the Winnipeg Centre, and any opinions expressed are those of the author. If you have comments, questions or concerns about *Winnicentrics*, you can contact any of

the councilors or write to RASC, Winnipeg Centre, Box 2694 Winnipeg MB R3C 4B3

## Stan Runge Receives Service Award at the National G.A.

The Winnipeg Centre Council unanimously voted to nominate Stan Runge for the RASC National Service Award. Stan Runge has been a long-time member of the RASC's Winnipeg Centre, and has been one of the driving forces behind the Centre's prosperity for over two decades. Stan has served the Centre in every office of Council, including President, First and Second Vice-President, Secretary, Treasurer, Councillor, and Newsletter Editor, and has attended many General Assemblies as Winnipeg's National Representative. Stan is well known to the regular attendees of the General Assembly, as much for his friendly, fun-loving personality as for his astronomical experience and infectious enthusiasm.

Stan has been active in the Centre's outreach and public events such as Astronomy Day and public observing nights, and makes sure that the people who line up to look through his telescope actually see something. Stan has taught many newcomers how to observe, not just shown them an object through his telescope. Stan has also encouraged countless members of the Winnipeg Centre and other Centres, leading them to become active observers and to record what they see through the eyepiece in words, sketches, or on film. Many members of the Centre and the Society at large consider Stan their skywatching mentor.

The Winnipeg Centre is largely due to Stan's tireless efforts at promoting the Centre and astronomy in general to members and non-members alike. It would be difficult to imagine the Winnipeg Centre and the National Council without Stan. We are all very proud of Stan and congratulate him on receiving his National Service Award.



## Smart Stuff, Admin Stuff, and Fun Stuff

### St. John's 2004 G.A.

*By F Lindsay Price*

**A**t the risk of sounding like a broken record, (how many of us remember records?) this year's General Assembly was terrific. The general meeting went smoothly, without acrimonious debate due in large part to the preparation of the national council so that members were informed as to what to expect and the reasons for it. Consequently, the term of national reps was changed from one year to two, and there is effective 1995, a six dollar per year increase in fees. The way fees are organized, this increase may be less, the same, or slightly more for members of the various centres across the country. In recognition of long term work in many different capacities, our own Stan Runge was awarded the "Service Award" at the National Assembly. Way to go, Stan!

To no-one's surprise, amongst the most common topics of interest this year was the transit of Venus, both recent and earlier in history. In St. John's, on this June 04, viewers on Signal Hill were the first people in North America to see a transit of Venus in this lifetime. The Helen Sawyer Hogg Lecture was a review of the trip by Harvard's John Winthrop to view the 1761 transit from Newfoundland, and how the presenter, a present day astronomy professor at Harvard, viewed the 2004 transit with the same telescope that Winthrop used 243 years ago. Some paper sessions added details from different perspectives, and just prior to the wine and cheese party a permanent plaque was unveiled on the Memorial University Campus to commemorate Winthrop's achievement. The other main theme of the assembly seemed to be education, and how the RASC is promoting it, doing it, assisting teachers, and how we might do all of that even better.

David Levy was there and gave a talk, and having heard him on several occasions, I realized why it is always such a pleasure to hear him speak. His talks usually do not teach us much science, but he seems to remind us, as is necessary from time to time, to step back from the data and the research and to simply look at the night sky, allow ourselves to stand in awe of the beauty and immensity of it and remember why it is that we love astronomy as much as we do.

Every G.A. offers activities other than going to presentations or participating in meetings, and this one was full and exciting. Whether walking and shopping in the historic stores on Water Street, or carousing in the clubs and bars on George Street (fun but not cheap!), St. John's is historic, beautiful and filled with friendly people. Tours were available for the Cabot Tower on Signal Hill, famous for Marconi's first trans-Atlantic wireless radio signal, (which in reality was made from a hospital on Signal Hill, and not from the Cabot Tower itself). A boat trip on the ocean to see whales and birds, with emphasis on the love-able Puffin. One to the Geocentre, a science centre dug into the earth so that the walls which enclose it are the rocks which are its purpose. The raison d'être of the centre is to showcase the geological history and structure of Newfoundland which is largely made of three billion year old rock which is among the oldest on the planet. You watch a film of Gordon Pinsent and then hold out your hand and touch the oldest stone that exists that is not a meteorite. Then you get to the surprises, a room devoted to Titanic lore! It would take hours to see it all and read the information, but it did not end there. In a third room were two large screens, one with the 3D images of Mars from the Rovers, for which they considerately provide the red and blue glasses, and on the other screen is real time images in black and white from the same two vehicles. For astronomers it was fantastic!

Most people there felt that they simply could not wait for the G.A. next May in the beautiful Okanogan valley.

## Looking Up *continued from page 1*

Subsequently, I made a departure from my earlier enthusiasm to undertake the interests of an evolving adolescent: trying to look cool, playing baseball, and sneaking out to the park with friends to make myself ill on a third of a six-pack. Then came college and university studies, leading in due course to a B.Eng. degree. I can safely say that my practice of astronomy was utterly stalled during this period.

My link with the sky was reestablished a few years later through the sport of sailing. Having been invited as a member of the crew racing a Kirby 25 on Lac Saint Louis in the Montreal area, I consequently enrolled in a series of safe boating courses offered by the Canadian Power and Sail Squadrons. The more advanced courses, dealing with celestial navigation, captivated my interest and led me back into the realm of observing the sky, albeit at first with a sextant, but soon also with a decent pair of binoculars. This renewed foray was dominated by learning the constellations and gaining familiarity with the seasonal changes in the sky. Some memorable events from this time are being taught, at a public observing session at the Morgan Arboretum, how to find the Double Cluster; observing comet Hyakutake that same night through someone's enormous Dobsonian; and observing comet Hale-Bopp night after night, even from the light polluted skies of downtown Montreal.

Upon moving to Winnipeg in May of 2000, I soon joined the RASC chapter here. At that point in time I had still never owned or even used a telescope (apart from looking through someone else's eyepiece), and I was looking forward, with some mild apprehension, to the opportunity of borrowing the club-owned equipment. My scope-less situation came to an end abruptly last summer, when an eight-inch Skywatcher Dobsonian was thrust upon me by my wife as a birthday gift. Not only was this a terrific gift, but it freed me of the seemingly perpetual uncertainty of what telescope to buy. I am very pleased with the Skywatcher and am presently employing it toward a slow and irregular approach to the requirements of the Explore the Universe certificate.

Joining the Winnipeg RASC has greatly widened my horizons in astronomy. The geniality and camaraderie in our club are wonderful to experience, and the cumulative wealth of experience and knowledge of the members is invaluable. Clear and dark skies to all!



# The Perseids

*By Ron Berard*

**S**o how did everyone else's evening turn out? Mine was great. As I expected, the sky was a tad iffy long the eastern horizon, but the clouds were moving south-easterly, so they never became a problem. Transparency was fair to good, with the worst moments being about magnitude 5 at the zenith, and the best was a bit better at approx magnitude 5.5. The Milky Way looked quite bright but faded before reaching the horizon where only magnitude 3 or brighter stars were visible.

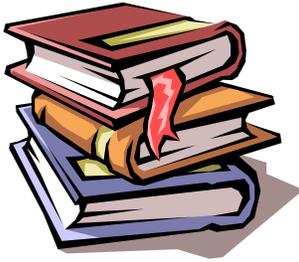
The meteors were quite impressive. Easily the best Perseid shower I've seen. Hardly a storm though, as far as frequency, but there were a number of bright grazers, particularly from the zenith down to the southern horizon. What I noticed was that the brightest ones seemed to come

Bunched up in flurries of 2 to 6 or so within a few seconds, then minutes would go by with nary a spark. There seemed to be impressive activity at around 10:30ish to 11:00, then a few more peaks until about 2:30 or so, then things seemed to quiet down. In fact, between 4:00 and 5:00, it was darn right boring. The moon only brightened the sky a touch, so I don't think it was just because of sky brightness.

I took about 28 photos, covering the sky in successive mosaics, with the shortest exposures being 4 minutes at the horizon, and progressively longer exposures as I worked my way up to 10 minutes at the Zenith. I know I caught a number of bright ones, but it seemed like the best ones were always in the direction I just moved my camera away from. It seemed like most of my pictures had burners go through the field, but it remains to be seen whether they were bright enough to register. I hope to try and piece together a mozaic, however, I figure I'll have a hard time figuring where the various sections will go due to the haphazourd way I ended up covering the sky.

It was awefully humid, requiring me to bring my camera into the van to dry off the lens every few shots, even with my homemade dew shield. The heater component didn't seem to be working. I was loaded for bear and set up all my equipment, but didn't end up using my scope or my big binoculars at all, for fear of missing "the big one!" I had a great time nonetheless, kicking back under the blankets and enjoying the show between exposures.

Hope other people were out.



## *From the Library*

"SUPERSTRINGS - A THEORY OF EVERYTHING?"

Edited by P.C.W. Davies and J. Brown  
Published by Cambridge University Press, 1988, 134 pages,  
Donated to the RASC by John L. Ross  
Reviewed by F. Lindsay Price

This is one of those books that is fascinating because of the mental exercise and "brain stretching" that comes with trying to understand it as we read it. Like "In Search of Schrodinger's Cat" it deals with sub atomic structure and quantum physics. The fun comes from the fact that in the quantum world, that which we take as common sense, may simply not apply. The theory attempts to identify the fundamental building blocks of nature, (the smallest sub atomic particle from which all other particles are made,) AND the basic unit of energy that would unify all the forces of nature, AND link them into a chemical or mathematical formula simple and short enough to be written on a T-shirt. This "The Theory of Everything Written on a T-Shirt", has become a physics buzz word and the title of another book on the same subject, a review of which you will see in a future issue of this newsletter.

The book begins with an introduction of the idea in non-mathematical description that gives it an appeal that the back cover claims is for, "the professional physicist, philosopher, and general reader alike." Following the introduction, so that the reader knows what the rest of the book is describing, there follows transcripts from the BBC 3, radio interview show, "Desperately Seeking Superstrings". During this series the producers interviewed the leading physicists of the day, some of whom are convinced that we are on brink of discovering the Holy Grail of science, and others who believe the scientists researching this simply have a way too much time on their hands.

It gets its fun from the fact that every so often I love to read / hear / see something which is away over my head. It has been said that our goal should be beyond our grasp. This is the 'mental stretching' to which I earlier referred. We always learn something. For instance on page 18, I learnt the name of the shape of doughnut! We talk about spheres, cubes, pyramids etc, but I never knew that a doughnut, (the round kind with a hole in the middle,) is a *torus*! Neat eh?