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Winnicentrics

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

ASTEROID IS NAMED AFTER SCOTT YOUNG

The national vice president of the Royal Astronomical Society of Canada, Peter Jedicke, was in Winnipeg on Tuesday, June 17 to announce that the International Astronomical Union has named an asteroid in honour of the Planetarium Producer of the Manitoba Museum, Scott Young. Mr. Young has been an astronomy educator in both Canada and the U.S. He is also the Immediate Past President of the Winnipeg Centre of the Royal Astronomical Society of Canada, and is currently the national 2nd Vice- President.

The International Astronomical Union is the organization which assigns the official names to bodies in the universe. Asteroids are chunks of rock from sand size to mountain size that orbit the sun, mostly in space between Mars and Jupiter. The newly named asteroid was discovered in the year 2000 by Kitt Peak Observatory, and given the provisional name of 2000AT230, and assigned the catalogue number 14698.

Asteroid 14698 scottyoung is about two and a half times as far from the sun as the earth is and makes one revolution every 1,375 days. Right now, it is passing in front of the constellation of Taurus, but its brightness is magnitude 20, which means it can be seen only with medium to large size telescopes.

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Deadline for the next issue is August 24, 2003

MEETINGS

July 11 Friday

Beginners Session 7:00
Regular Meeting 7:30

Gord Tulloch and Ron Berard have been working hard! This month they will be unveiling and demonstrating our newly revitalized web site and leading an open forum on how the web site can be used to benefit our members.

Plus the regular features: "What's New" with Lloyel Hull, "Explore the Universe" Observing Certificate by Lindsay Price and Gail's "Constellation of the Month" looks at Ursa Minor the Little Bear.

August 8 Friday

Beginners Session 7:00
Regular Meeting 7:30

Join Scott Young for a Telescope User's Seminar. Scott will give advice on choosing and using your first telescope. This session is for you if you have just purchased a telescope or are thinking of buying one. Other members of the club will demonstrate their telescopes and show how the different types work. Segments will deal with tips on using computerized telescopes, how to set up a telescope and recommended accessories to buy.

Plus the regular features: "What's New" with Lloyel Hull, "Explore the Universe" Observing Certificate by Lindsay Price and Gail's "Constellation of the Month" looks at Libra the Scales.

Falcon Lake
July 5 – 6

The folks at Falcon Lake have asked us to come out and do a public viewing event on Saturday evening starting about 10:00. They will provide free campsites for us so let Gail at wgail@mts.net or 253-8297 know if you can come out and help with this.

Members Observing Night
August 9
Glenlea Observatory
The sun is setting earlier so we are back to our monthly members nights. The Perseids are coming soon so we may see some meteors and the moon will be up so plan to do some "Explore the Universe". Your hosts this month: Lindsay and Gail

Big Whiteshell
August 16 - 17

The folks at Rennie have asked us to come out and do a public viewing event on Saturday evening starting about 9:00. They will also provide free campsites for us but we need to know how many so let Gail at wgail@mts.net or 253-8297 know if you can come out. Mars will be visible and with luck we'll see some stragglers from the Perseids meteor shower which peaks on the 13th.

September Spruce Woods AstroWeekend
Spruce Woods Provincial Park
September 26 – 28

We will be in the same area as other years, the Winter Use Area. The nights will be cold at the end of September so bring VERY warm clothes. The skies here are very dark so come on out for some great observing. Plan to arrive on Friday evening for a hotdog barbecue and stay until Sunday afternoon. This is free, but you will need a Provincial park pass for the weekend. For more information contact Gail at wgail@mts.net or 253-8297.

OBSERVING NIGHTS IN WINNIPEG
by Robin Woods

In the December 2002 issue of *Sky and Telescope* there was an article titled *Running the Numbers* by Robert Young, who lives in Rome, Georgia, USA. Robert adapted the Drake formula, used to calculate the probability of intelligent life in the universe, to determine how many good observing nights you can expect at a specific locality.

His formula is:

$N_{good} = 365 \times c \times h \times m \times f \times d$

In the formula:

c is the fraction of cloud free nights = 0.33
h is the fraction of haze free nights = 0.55
m is a factor for moonlit nights (non-interference) = 0.67
f is a family tolerance factor (you can't observe if you are taking your wife out to dinner on her birthday) = 0.20
d is an acceptable discomfort factor (mosquitoes in the summer and -30 with a high wind chill in the winter) = 0.82

$N_{good} = 365 \times 0.33 \times 0.55 \times 0.67 \times 0.22 \times 0.82$

The end result is that he has **7.3 nights suitable for observing per year** - not a very encouraging total.

I thought that I would adapt the formula for my own situation here in Winnipeg. Rather than using Robert's multiplicative procedure, I decided to subtract the number of nights when observing was not possible, or would result in a divorce, and then to multiply the remainder by factors that account for weather and age. My formula is thus:

$N_{good} = (365 - (TCE + VV + WD + SD)) \times CH \times A$

In this formula:

TCEF = Theatre-concert-entertaining-family factor. This is equivalent to the family tolerance factor employed by Robert Young, but allowing, in addition, for the specific problems of living in the lively arts atmosphere of Winnipeg. I included the regular Friday RASC meetings in this category; viewing after beer and pizza is not recommended. I could have added an additional correction for estimated 10 movies we go out to per year, but we don't record them in our family diary. In any event we usually go to the early showing and I can view after we get home - always allowing for the *A* factor (see later).

VV = Vacation and visitors factor. My Pronto fits into a carry-on bag and the tripod goes into my suitcase so that vacations are compatible with observing. Most visitors respond favourably when I ask if they would like to look at the Moon, Jupiter or Saturn, and they are also impressed by double stars such as Albireo.

WD = Winter discomfort factor - subtract 30 days. We know from experience that no year is normal in Manitoba but I think that generally 25% of the nights in from December to March are too cold. At
-25°C enthusiasm for observing is low, the risk of frostbite is high and the Observatory Dome at Glenlea won't open. This year, 2003, observing was pretty well impossible from the middle of January to the middle of March!

SD = Summer discomfort factor - subtract 30 days at least! Mosquitoes! From May to August they are a problem. They are supposed to disappear after darkness sets in - but at our latitude we are either dealing with light-insensitive species or it just doesn't get dark enough! Last summer I tried using the LX200 wearing a bug shirt and gloves. It was soon clear that I was going to lose body fluids either by sweating or mosquito bites. I decided that discretion was the better part of valour, packed up and drove home.

CH = Cloud and/or haze factor. According to Jay Anderson (Observer's Handbook 2002, pages 58-59) there is a 40% likelihood of clear skies in Winnipeg during April and May and 50% in July and

August. Knowing from experience that October and November are usually the worst (cloudiest) months I have estimated 50% year round.

A = Age factor. This is to account for those nights when the spirit is willing but the flesh just wants to go to bed. I think that 25% is a reasonable estimate, meaning that I do observe 75% of the time.

M = Moon factor. Our "deep sky" colleagues would probably rule out all but the night of the new moon and two or three nights on either side of it. I like looking at the moon and wish that my artistic skills were such so that I could make to realistic drawings of the terminator and some of the craters. A full moon may mean no viewing of faint fuzzies but at least you can see the outlines of the constellations clearly! So, for me, the moon factor is zero.

Now let's see how it worked out for 2001, January 1st to December 31st.

TCE = -79

V/V = -15 (I carried my Pronto and/or binoculars on most trips but we had cousins from the UK for the whole of August. I did drag them out to watch the Perseids).

WD = -30

SD = -30

C/H = x 0.5

A = x 0.75

M = 0

$$N_{good} = (365 - (79 + 15 + 30 + 30)) \times 0.5 \times 0.75 = \mathbf{79}$$

According to my Observing Notebook I observed on **40** occasions. I have included daytime viewings, such as Astronomy Day (April 28th) and the occultations of Venus (July17th) and Saturn (September 10th), plus several observations of sunspots in this total. So my "observing average" comes out to **0.5** - pretty good.

But how consistent am I? Here are the figures for 2002.

TCE = -76

V/V = - 4 (I did go skiing in February without my binoculars. However, I took binoculars and/or my Pronto on all of our other trips and we had no visitors, other than family - who are easily persuaded to come outside and have a look!

WD = -30

SD = -30

C/H = x 0.5

A = x 0.75

M = 0

$$N_{good} = (365 - (76 + 4 + 30 + 30)) \times 0.5 \times 0.75 = \mathbf{84}$$

My Observing Notebook credits me with **45** this time. Again my average comes out to about **0.5**, so I am a consistent observer! When I completed the Survey back in November 2002 I reported that I observed about once per week, which turns out to have been a reasonable estimate. I wonder if my score will improve when I finish assembly of my new 8" Dobsonian?

The Winnipeg Centre Executive Council

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Gary Collins, Winnipeg
Bruce Goodwin, Pinawa
Barry Payne, Dugald
Joe Westra, Winnipeg
Joshua Yamada, Dugald

Welcome to our club!

Winnicentrics is published six times each year by the Winnipeg Centre, RASC. *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

Saskatchewan Summer Star Party 2003

The Regina and Saskatoon Centres of the RASC wish to invite you to the **Saskatchewan Summer Star Party 2003,** to be held August 22 – 24 at the Cypress Hills Interprovincial Park, 32 km south of Maple Creek, Saskatchewan.

SSSP provides a delightful weekend for families, but can also meet the needs of the most expert observer with superbly dark skies and excellent chances of dry, clear weather. We offer astronomical activities for all ages and levels in a unique mile-high nature park setting with a wide range of recreational options. Presentations are held in comfortable, air-conditioned convention facilities. Besides the talks and the night viewing and the Saturday Night Banquet, activities include: a wiener roast on Thursday night, tennis courts, golf course (miniature for sure), outdoor swimming pool, hiking trails, ball diamonds, picnic grounds and trail rides. On top of that there are programs at the interpretive centre and various water recreational activities. The park offers certified weekend courses (swimming) for children as well as other programs.

Campsites are freely available, and reasonably priced hotel, cabin and condo units are available by pre-booking with the park. (Make sure you tell them you are with the Star Party when booking accommodations!) For accommodation information, call the Resort at (306) 662-4477 or the Park at (306) 662-5484.

Brochures with registration forms will be available at the July and August meetings, or for more information visit their website at http://prana.usask.ca/~rasc/sssp03.htm

Early Registration (up to July 24, 2003):	*Late Registration and at-the-door:*
Singles - $17	**Singles - $27**
Couples - $28	**Couples - $38**
Families - $34	**Families - $44**

All prices are in Canadian dollars. Pre-registration by July 30 is necessary if you want banquet tickets or to pre-order T-shirts that will be available for pick-up at the star party. You can register at-the-door if you desire, but there is no guarantee that extra banquet tickets or T-shirts will be available. To register or to get more information, contact:

William Hydomako
Registrar, SSSP 2003
135 Manning Cres.
Saskatoon, SK Canada S7L 6J3
E-mail: wm.hydomako@sasktel.net
Phone: 306-384-4781

ATM Journal 4: Fine Grinding

By Gordon Tulloch, RASC Winnipeg

By now you have a mirror that has a spherical figure of revolution, and a sagitta of the correct depth to give you the focal length you desire. We can now proceed with the process of smoothing the surface of the mirror to the point it can be polished - this is known as fine grinding. Using progressively finer grits, the pits and scratches left from the previous grit are removes, resulting in a smooth surface. The progression of grits we use are as follows:

220 -> 500 (25 micron) -> 1000 (12 micron) -> 2500 (9 micron)

Now is the time to be fanatic about cleanliness - each time you progress through a certain size grit, you need to ensure you clean all surfaces thoroughly or you **will** end up with a scratch on your mirror from a grit larger than you are currently using! This means you either have to revert to that size grit and regrind, or at the very least adds significantly to the number of wets you need to go through to remove the scratch. Needless to say, a scratch from rough grit on a polished mirror is a catastrophe that can ruin many hours of work - clean your workspace, move to a new sponge, thoroughly clean out your bucket and your stand, change clothes, take a shower, do what you must to make sure there's no grit hanging about.

The stroke used for fine grinding is the standard one-third diameter centre over centre stroke we used in rough grinding. Start with the tool on top, but see below for notes on how to zero in on the correct focal length. Follow the exact same procedure you did on rough grinding, making sure to be as INconsistent as possible to avoid astigmatism in your final result. Do a few strokes, rotate the tool 30 degrees (or so), walk around the stand 30 degrees (or so), do a different number of strokes, and repeat. When the grit is exhausted (it will last longer than the rough grit, and be quieter as you progress to higher grits) you will hear and feel it. Flush the disk and tool with your sponge, recharge the grit, and repeat. Each grade of grit requires an average of 10 wets before moving on to the next finer grade.

You will know when you are done when you examine the surface of your mirror and there are no pits larger than the size of your grit. It helps to use your Sharpie (or more correctly, another Sharpie to avoid contaminating the surface with large grits) to mark the pits to ensure they disappear. Do a Sharpie Test (as discussed last time) to ensure the mirror remains spherical as well from time to time. Also, remember to re bevel your edges to avoid chipping the edges of the glass!

There is a chance as you go to finer and finer grits that the tool and mirror will stick to each other - the immediate fix when this happens is to firmly pull back in the opposite direction to the direction you were pushing when they stuck to break the seal. Failing this, stick the whole mess into a pail of warm water and soak. If they don't come apart, stick them into the freezer and let the different coefficients of expansion force them apart. Never try to pry them apart, as this will scratch the mirror. The chance of sticking occurring is less with a tile tool than a solid glass tool, which is one of the reasons tile tools are recommended.

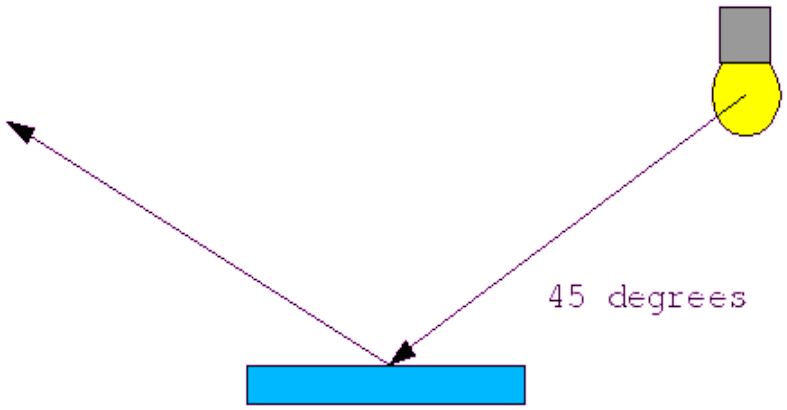
When you complete a grit, measure your focal length. Unfortunately, the previous method of using feeler gauges won't be effective. Two techniques are useful:

•One a sunny day, wet the surface of the mirror and try to obliquely reflect the image of the sun from the mirror to a flat screen - when the image is in focus, the distance from the mirror to the screen is your exact focal length. **Note: Be careful, even an unsilvered mirror can cause serious eye damage if you flash the image into someone's eyes.**

•Alternatively (because it's never sunny when you need it to be), use a flashlight on the wetted surface of the mirror to find the radius of curvature of the mirror, which is twice the focal length. Aim a flashlight at the mirror and hold it close to your eye - move it back and forth. **Inside** the radius of curvature, the image will move in the **same** direction as the light. **Outside** it will move in the **opposite** direction. When you can't tell which way it's moving, you're at the radius of curvature. Divide by two and you have your current focal length.

Divide by the derived focal length by the diameter of your mirror to get the focal ratio. If you discover you have under/overshot the market, simply reverse the positions of the mirror and tool and grind until the focal length is correct. Note that the focal length can change significantly with 120, less with 220, and very little at all with finer grades. Check your focal length often and make adjustments. Alternate tool on top (TOT) and mirror on top (MOT) to ensure that the focal length remains the same - common wisdom says alternate one for one but I find TOT is less efficient at grinding than MOT so I usually do two TOT to one MOT.

When it looks like all the pits have been dealt with, you can determine if you're ready to move on to polishing using inspection (no pits visible using a magnifying glass) as well as the glancing light test. Any smoothed optical surface will reflect an image if seen at a glancing angle. Using an unfrosted light bulb, hold the mirror level and at a glancing angle to the light bulb (see figure)



The smoother the surface, the further the incident angle can be from the horizontal. A properly smoothed mirror will reflect a reddened image of the filament of the lamp at and angle of 30 degrees to 45 degrees from the horizontal. If all looks good, we're ready to move onto the polishing process.

Next time: Polishing

Winnipeg Centre Barbecue Friday June 13th

By Ron Berard

It was a perfectly clear and splendid evening for our Annual Barbeque, held at our Observatory in Glenlea. We had the pleasure of playing host to Alan Dyer, who was in town for a meeting regarding Planetariums. After much feasting and an invasion of flying saucers, okay, frisbees, we set up some scopes for an evening of viewing. In the early twilight, a brilliant moon was the focus of our attention, with a few members taking turns at the eyepiece with their digital cameras. We were treated to a most spectacular lunar event; an aerotransit. A commercial airliner passed across the moon, leaving behind its con trails. An unusually steady atmosphere left the trails to slowly disperse giving everyone a chance to enjoy this spectacular coincidence at the eyepiece for well over two minutes. One of our members was able to capture 3 images of the event as the plane was flying across the lunar disc. Judging from the LED captures, this sequence is a shoe-in for the S&T gallery!

Perhaps we had unwittingly pioneered a new aspect of this hobby. That is, plotting out commercial airline flight paths that bisect the moon. This is certainly less fleeting then an ISS transit and perhaps even more interesting.

photos by Alan Dyer

THREE SIMPLE DEMOSTRATIONS PART 3

By Fred Wood

In this last demonstration you need a telescope.

Many neighbours have re-angled or re-sited their lamps after looking through an amateur astronomer's telescope: occasional star parties will sensitize your neighbours to the existence and value of the environment above. Few will not be moved by their first view of the Perseus Double Cluster: "like opening a jewel box" said one of the author's neighbours, who has installed a switch on her garden light and takes care to turn it off in the late evening. The rings of Saturn seen for the first time so impressed another person down the street that he fitted a lower-wattage bulb to his porch light to cut down glow generally in the neighbourhood. Perhaps you can even arrange for offending security light to be triggered while their owner is stargazing with you, so that the effect can be appreciated first-hand.

Light Pollution is not a problem which we will solve at a stroke, and those working to turn the tide at the beginning the new century should perhaps resign themselves to the fact that not they, but their descendants, will be able to see a truly worthwhile night sky from urban areas and from a sensitively lit countryside – this is an issue for the altruistic and patient! I believe that darker skies will come to many of us in the 21st century: exactly when that desire becomes a general reality depends very much on how many of us make a noise about light-energy waste, and our persistence in doing so. I wish you clear skies.

DON'T HAVE ONE? BORROW ONE!

The Winnipeg RASC owns a number of telescopes which are available for loan.
They consist of:

- a 75mm f16 polarex(unitron) refractor with an alt/az tripod
- a 4.5"f8 newtonian on a dobsonian mount
- a 6" f8 criterion on an equatorial mount
- a 8"f6 newtonian on a dobsonian mount
- a Celestron C8 8"f10 schmidt cassegrain with equatorial wedge/tripod.

All of these telescopes come with eyepieces and finder scopes. They are available on a first come-first served basis, and can be booked for 1 month at a time.
The Celestron requires a 1 year WPG RASC membership to book. The telescopes can be had by calling Ray Andrejowich at 667-6896, and can be picked up at his house or at the astronomy club meetings. Picking up and dropping off at the astronomy club meetings is the preferred method of acquiring, but alternative arrangements can be made with Ray.

The following members are working toward their:

Messier Certificates:

Eugene d'Auteuil 41
Mike Karakas 110
yaaaaayyy Mike ! ! ! !
Robin Woods 84
Lindsay Price 11
Kilmeny Jones 11

Explore the Universe:

Janice Low 37
Lindsay Price 29
Timothy Kennedy 8
Kilmeny Jones 38
Don Radford 39
Sandy Shewchuk 6
Stan Runge 6

Herschel 400's

Stan Runge 93
Sean Ceaser 123
Gail Wise 264

Finest NGC's:

Sean Ceaser 67

Mrs. Jedicke, Stan Runge, Peter Jedicke 2003 Jun 17 at the G.A.O.