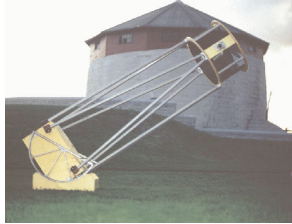




Regulus



The Newsletter of the Kingston Centre of the Royal Astronomical Society of Canada - March 2003



The 61 cm Venor Dobsonian-Mount telescope.

2003 - The Year of The Observatory*

**Our primary goal this year is to find a location to build an observatory for the Centre in general and the Venor telescope in specific.*

Contents of this Issue available at <http://130.15.144.99/rasc/secure/regulus/reg200303.pdf> include:

- * The President's Voice
- * Minutes of Exec and Regular Meetings
- * Cosmic & Event Calendar
- * Dressing for Extreme Winter Nights
- * National Dark Sky Week April 1-8
- * Looking Back 25 Years Part 5
- * Observing with a 30inch Starmaster Telescope
- * How to find Venus in the Daytime
- * Variable Star of the Month

Contents of the 2003 February newsletter available at <http://130.15.144.99/rasc/secure/regulus/reg200302.pdf> include:

- * 2003 Election results for RASCKC Executive Officers
- * Pictures of Robert Venor
- * IAU Circular info

The President's Voice

by Hank Bartlett



It has been a chilling start to the new year and in more ways than one. The past month has seen many nighttime temperatures drop to the -30c level especially in outlying areas of Kingston. At our February meeting there were a few brave astronomers with observing reports but more with armchair reports. Your President only ventured out once on a frosty -15c night for an hour and decided that was enough of that. Hmmmm, I have always been quick to criticize remote observers maybe I should re-think the idea now that I am in my 50s it looks a little more NO, Hank, eyepiece means "eye", get your butt out there, remember the "Astronomer's Rant". My hat or earmuffs are off to all those diehards who did get out there on a regular basis with their snorkels, nose-warmers and other heated paraphernalia to enjoy the beauty of our winter sky.

More chilling than the extreme weather was the Columbia Shuttle disaster. Chilling in the heart rather than the skin this mind numbing type of tragedy brings the family and personal lives to a realistic state of mind. These are real people, not "Buck Rogers" characters but moms, dads, spouses. Perhaps it is time to concentrate as much on the safety of our astronauts as it is the budget under which the program operates. No venture into space can be 100% safe but every possible measure must be taken to ensure that the astronauts return safely to their families.

As the Columbia investigation continues and the event is reviewed back to the launch it is hopeful that NASA will find the cause and that it will not have been the fault of some fiscal decision. It is fortunate that astronomers who were observing this event are able to provide NASA with extra data and imaging. Many satellite and shuttle chasers are learning just how valuable their interesting hobby and efforts can be in a time of crisis. Let us all hope that enough information can be assembled to bring this event to a conclusion so that the Space Program itself can get back on track.

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The Green Hills of Earth

Let the sweet fresh breezes heal me
As they rove around the girth
Of our lovely mother planet
Of the cool, green hills of Earth.



We've tried each spinning space mote
And reckoned its true worth:
Take us back again to the homes of men
On the cool, green hills of Earth.

The arching sky is calling
Spacemen back to their trade.
ALL HANDS! STAND BY! FREE FALLING!
And the lights below us fade.

Out ride the sons of Terra,
Far drives the thundering jet,
Up leaps a race of Earthmen,
Out, far, and onward yet ---

We pray for one last landing
On the globe that gave us birth;
Let us rest our eyes on the fleecy skies
And the cool, green hills of Earth.

Robert A. Heinlein

During February the first Executive meeting of 2003 was held to discuss current projects and funding. We are looking into embarking on a joint venture that will help us with public outreach and the probable recruitment of new members, there will be more on this as it proceeds. The Executive is also working in the direction of securing other types of funding in order to move ahead one day with the acquisition of land for a permanent member observing site and observatory for the Venor. There has been a split of the current funds we hold so as to take the best advantage of investment and donations. Once the investment is settled our Treasurer will provide a detailed report and how you too can help with donations.

A decision was made for the purchase of two 2" eyepieces, a 1.5x Barlow and a narrow band nebula filter specifically assigned to the Venor Telescope. Up until now our Vice-President has been gracious enough to allow Centre members to use his eyepieces when using the scope. Further work has also been completed on the Venor focuser to make it smoother to operate.

Budgets were set for the current year for all committees and Executive positions. Basically these budgets are set by the previous year as a benchmark with more funding allocated if needed and justified by the projects involved. With regard to this the project for motorizing the Venor is in a transition that may see some of the work done by Queen's University students this fall.

To all of you I wish a good start to spring observing in March and I look forward to hearing the observing reports of those of you who can make it to our monthly meetings. If you cannot make it in person you can always send interesting reports or observations to the newsletter editor for publication in Regulus.



Minutes of the Executive Meeting

Saturday February 8th, at the home of Kim Hay & Kevin Kell, Yarker

Meeting called to order at 12:35pm

1. Venor Project: Eyepieces, keeping in line with the \$1,200 after tax budget which was voted in Jan. 2003.
 - Doug will order a 2" narrow band filter, 32mm Omcon, 25mm Ortho, 12.5 Ortho and a 1.5 x Barlow.
 - John will purchase a foam lined box
 - Tom informed us that Queen's U. requires a mechanical model with motors of the Venor mount in order to build/test electronics we would like them to build. This would not be required until September.
2. Donor policy - finalize generic letter of response for those wishing to donate to the Centre. Hank to write up final letter.
3. Queen's Outreach Program - Prof. Judith Irwin attended and made a presentation with regard to Queen's U and RASCKC entering into a partnership under the Trillium Foundation Funding for a public outreach program based through the Queen's Observatory. It was agreed in principle and Peggy volunteered to be Judith's contact for RASCKC. Judith will secure more information from Trillium and Peggy will contact RASC National about working

under their non-profit number. Peggy will report ongoing progress.

4. Observatory - John & Peggy informed us of a 3,000 acre park that will be formed north of Hwy 7 that may be of interest to us as an observatory property, they will follow up and keep us posted.
5. The RASCKC reserve fund was defined and split into the following categories.
 - observatory fund \$10k - this will be an ongoing fund used to eventually buy property and equipment for the RASCKC observatory. This money will be locked into a higher return investment in order to help it grow. Having this as a separate fund we maybe better able to encourage donors to channel their money into this project.
 - endowment fund \$500 - this will be used eventually to provide operating expenses for the RASCKC, offsetting charges and costs to the membership.
 - special projects fund \$1.5k - used to procure equipment, services or fund special projects that the RASCKC shall undertake from time to time. This year for example this fund will be used to purchase the Venor telescope accessories.
6. the President was informed that he is to do a physical audit of all RASCKC equipment. This has been logged onto the Tudu List.
7. Committee budgets - mostly the same as last year (\$100) would stand with the exception of the following -
 - Library - \$200.00 - new acquisitions
 - Public Relations - \$300.00 - upcoming events and ongoing promotion
 - Education - \$500.00 - next printing of ETU
 - Newsletter - \$1,300.00
 - Observing - \$200.00 - telescope maintenance
8. Easels for Astronomy Day - Kevin to build prototype, cost and come back for total order
9. 2nd edition Expanding Their Universe - production costs vary - will do an initial print run of 20 copies by the end of February.
10. Meeting adjourned 16:30



Minutes of the Regular Meeting

Friday February 14th, Stirling Hall Theatre D, Queen's University

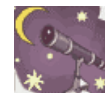
Meeting called to order at 7:35pm

1. Vote in new members
2. Moment of silence for the crew of Columbia and a short slide presentation
3. Doug does "what's Up?", a starry night presentation
4. Jan Wisniewski presents "How to do a Messier Marathon"
5. 20 minute break
6. Observing reports from the audience
7. Reports from Council:
 - Venor project is acquiring two 2" eyepieces and a nebula filter
 - Doug is ordering a large roll of Baader film to sell to members to make solar filters
 - CCD group meetings on hiatus
 - Kevin is building a prototype easel
 - March newsletter submission deadline is Feb 21
8. The meeting adjourned at 10:15pm



RASC Kingston Cosmic & Event Calendar 2003

Created by Kim Hay



<i>Date</i>	<i>Event</i>
March 1, Saturday	Member's Observing at Doug Angle's contact Doug Angle
March 2, Sunday	New Moon at 21:35 est.
March 3, Monday	The Royal Astronomical Society of Canada formally acquires its name, after permission of King Edward VII, 100 years ago
March 4, Tuesday	Public Observing- Dusk at Murney Tower, King Street. Sunset at 17:58 pm est. (weather permitting) contact Tom Dean
March 11, Tuesday	1 st Quarter Moon at 2:15 est.
March 14, Friday	Regular Centre Meeting 19:30 pm Stirling Hall Theatre D. Guest speaker: Dr. Gregg Wade (RMC) Magnetic Activity of the Sun and Stars
March 18, Tuesday	Full Moon at 5:34 est.
March 20, Thursday	Spring Equinox 20:00 est. (The Ground hog was correct- Spring arrived)
March 21, Friday	Queen's University Kingston Public Lectures in Astronomy : Dr. Paul Wiegert "Standing on the shores of space: the prospects for interplanetary and interstellar travel"
March 24, Monday	3 rd Quarter Moon 20:51 est.
April 01, Tuesday	New Moon 14:19 est.
April 1-8 Tuesday-Monday	National Dark Sky week see http://members.kingston.net/rasc/lpa.htm
April 06, Sunday	Daylight Saving Time Begins 2:00 edt
April 08, Tuesday	Public Observing- Dusk at Murney Tower, King Street. Sunset at 19:40 pm edt. (weather permitting) contact Tom Dean
April 09, Wednesday	1 st Quarter at 19:40 edt.
April 11, Friday	Regular Centre Meeting 19:30 pm Stirling Hall Theatre D. Guest speaker: Dan Falk (author of Universe on a T-shirt) The Quest for the Theory of Everything
April 16, Wednesday	Full Moon at 15:36 edt. Largest Full Moon of 2003
April 22, Tuesday	Lyrid Meteor peak 1:00 edt.
April 23, Wednesday	3 rd Quarter Moon at 8:18 edt.
May 01, Thursday	New Moon at 8:15 edt. Farthest Lunar Apogee of 2003 4:00 edt.
May 05, Monday	n-Aquarid Meteor Peak 17:00 edt. International Astronomy Week (through May 11)
May 06, Tuesday	Public Observing- Dusk at Murney Tower, King Street. Sunset at 20:16 edt. (weather permitting) contact Tom Dean
May 07, Wednesday *note change of date*	Regular Centre Meeting 19:30 pm Stirling Hall Theatre D. Guest speaker: Dr. David Levy- "Shakespeare's King Lear and the Eclipses of 1605: A Cosmic Unit of Science and Art "
May 10, Saturday	Astronomy Day Display at Frontenac Mall all day To help out Contact: Don Cooke (Astronomy Day Chair)
May 15, Thursday	Total Lunar Eclipse –most of the umbral phase visible in all of N. America Full Moon at 23:36 edt.

Est: Eastern Standard Time Edt: Eastern Daylight Time

All Astronomical Information from the Observer's 2003 Calendar, Observers Handbook 2003

Available from your local center or <http://www.rasc.ca/estore>

Submissions from Members



DRESSING FOR EXTREME WINTER NIGHTS

by Ken Kingdon

The Winter of 2003 has had more than the usual amount of cloud cover, and thus afforded rather little observing time in Ontario. Unfortunately, when the skies did occasionally clear, the temperature dropped to the VERY COLD realm, and I (Ken Kingdon) shivered at just the thought of going out stargazing. Sure... I'd wish to be somewhere that's balmy, but then I could not live my life without the winter joys of downhill skiing, cross-country skiing, and snowshoe trekking the backcountry. So... what's a sky-guy supposed to do?

Answer... beat it.

That's easy to say, but clear winter nights like several this winter at -27°C are difficult. Yet, winter has great deep sky objects that are very worthwhile and should not be missed. The Great Orion Nebula M42 was the first deep-sky object that I ever saw, way back on a night in 1997 when out admiring Comet Hale-Bopp. Even in binoculars, it amazed me then and it led me further into astronomy. Six years later, I've seen M42 in a wide range of instruments, but my favourite view of M42 occurred recently with a 300x eyepiece and an O-III nebula filter on a 30-inch f/4.0 reflector. Viewing M42 at -27°C temperature was indeed a challenge, but I and several others were quite comfortable. All of us seemed to use the same formula... 5 thin layers above the waist, 3 thin layers below the waist. Long Johns and a skiing turtle neck are the key foundation layer. Good mitts with thin gloves beneath, and a good "Heidi" hat are essential. A skiing face-mask is really nice if there is even a slight wind.

While "comfortable" during extended viewing of M42, all of us (except Ziggy) got REALLY COLD toes. So I asked Ziggy what boots he was wearing, and he said they were "special snowmobile boots".

Although "layering" is the key to comfortable winter observing, nevertheless cold toes are still the #1 cold-weather problem to beat! So I did some investigating. It turns out that winter boots actually do have temperature ratings, and manufacturers of the better quality boots do affix a tag or label stating the thermal rating. The winter boot that millions of Canadians purchase from say department stores is typically rated for -40°C . This sounds more than adequate for night-time observing at temperatures like -27°C ... so why do our toes still become painfully cold?

The answer is that the thermal ratings apply for a person who is walking, or exerting some effort to produce adequate heat. However, astronomers get cold toes for the simple reason that they are not moving much, and thus not exerting enough effort to stay warm. Hence, the minus 40°C thermal-rated boots are fine for consumers who use them for a walk, but are completely unsuited for astronomers.

For persons who do not exert enough effort to create heat, like icefishermen and snowmobilers, manufacturers produce even better boots with a minus 70°C thermal rating. Not

bad. However, astronomers need still higher ratings than these, because astronomers work at night when the temperature is much colder than day-time. Believe it or not, manufacturers also produce boots with a minus 100°C thermal rating. The minus 100°C boots may be expensive if you buy them at snowmobile stores, but are almost half the price if you buy them at "workwear" stores. Minus 100°C boots are not sold in department stores.

The minus 100°C boots are the ones I elected to buy, and I was satisfied with value vs. the price (about Cdn \$100). They have a removable THICK liner that is interlaced with aluminized strips to bounce escaping heat back to the foot. It's a high-tech boot with all the bells & whistles that I certainly recommend.

Now I can both tolerate and enjoy an extremely cold winter night, remaining every bit as comfortable as a "shirt-sleeves" night in summer. Beat it.

Ken Kingdon RASC - Kingston Centre



National Dark Sky Week April 1-8

by Kim Hay- Chair RASC-Kingston Centre Light Pollution Abatement

National Dark Sky week will be observed both in Canada and the USA. Light Pollution is a problem that not only destroys the night sky for astronomers, but also for wildlife.

This week will be a time, where the moon has just gone past new Moon (April 1) meaning no moon and the skies will be dark. What light there might be is from sky glow from city and town lights. This will be observed along the horizons as a dome of light.

Go out at this time and take a look at the dark night sky and see the stars, the natural light.

Light Pollution can be overcome by installing proper lighting, responsible lighting which is effective in lighting the area where the light is needed and not sprayed all over the yard or area where it can result in light trespass, and produce uneffective lighting.

We can all do our part to eliminate wasteful lighting, and decrease our own hydro bills at the same time, by installing proper responsible lighting.

Proper lighting, is lighting that is shielded and properly aimed at the area that you are trying to light. There are lots of new shielded lighting on the market, and by using a lower wattage light bulb will create the same effect. Using low pressure sodium lighting for your yard lights is as effective in creating the lighting required, than a high pressure sodium light which is ineffective by spraying light up into the sky and not on the ground where it is required.

Light Pollution is the problem, but Responsible Lighting is the Solution.

For more information on Light Pollution and Solutions please visit the following websites:

RASC Kingston Centre Light Pollution Page
<http://members.kingston.net/rasc/lpa/lpa.html>

Royal Astronomical Society of Canada Light PollutionPage <http://www.rasc.ca/lpa/lpa.html>**International Dark-Sky Association:**<http://www.darksky.org/>**American Astronomical Society:** <http://www.aas.org/>**Astronomical League:** <http://www.astroleague.org/>**Sky and Telescope magazine:** <http://skyandtelescope.com/>**NATIONAL DARK-SKY WEEK SET FOR
April 1-8, 2003**

A grassroots effort to highlight the beauty of the night sky and to draw attention to the ever-increasing levels of light pollution across the United States caused by poorly designed lighting, has the endorsement of the American Astronomical Society (AAS) and the International Dark-Sky Association (IDA).

The AAS and the IDA believe that the opportunity to experience the natural night sky should be available to every citizen of our nation. This natural resource, which inspires our attempts to understand the cosmos, should be protected through the use of well-designed lighting systems that put light where it is needed and not waste energy through unnecessary illumination of the sky. Properly designed lighting systems provide safety and convenience without polluting one of our greatest natural assets.

This is the second year that Jennifer Barlow, a high school student from Virginia, has organized this grassroots campaign. "The night sky has been forgotten by many," she says, and she hopes that National Dark-Sky Week will encourage people to "look up" and appreciate its wondrous features. As we reestablish that connection, we hope to raise awareness about how to reduce light pollution and protect our heritage of dark skies.

The American Astronomical Society and the International Dark-Sky Association encourage all Americans to use the evenings of April 1st to April 8th 2003, from 10 pm to 12 am (ET & MT) and 9 pm to 11 pm (CT & PT) to attend public star parties, visit their local planetarium or public observatory, or simply go outside to a safe, dark location to enjoy the wonder of the night sky. Learning the constellations, observing the planets, wondering about the stars and the Milky Way are one of the most basic of human experiences and should be enjoyed by all.

National Dark-Sky Week is also endorsed by the Astronomical League, a non-profit federation of 250 astronomical societies and nearly 20,000 members, and by Sky and Telescope magazine.

More information on National Dark-Sky Week is available at <http://www.nationaldarkskyweek.htmlplanet.com/>

LOOKING BACK 25 YEARS**Part V:****Kingston Centre Events Of March
And April 1978****Reminiscences By Leo Enright and
David H. Levy****Part A: Perspective From Leo Enright****Overview**

In four previous articles we have attempted to present an account of the main events of the Kingston Centre in 1977 and the first two months of 1978, or at least, to record the events, as we remember them, from a quarter-century ago. During the latter part of 1977, I was honoured to serve as president of the Centre and was very pleased to see the increase in new and diverse activities undertaken by a growing group of dedicated amateur astronomers. The fact that David Levy had become an active member of our group, following our introduction to each other at Queen's Clubs Night on October 4th, was very important for the Centre. Almost immediately his interesting talks at Centre meetings and his contributions in other ways were evident to all the members. All of those trends, described in the previous articles, continued into the spring of 1978.

Our Meetings Of March And April 1978

Though we did not attract outside guest speakers, such as the current and future National Presidents whom we had heard in the previous several months, the meetings of March and April 1978 did supply us with interesting and challenging invitations to observing projects for all the members. On Tuesday, March 7th, David Levy gave what was his third talk to our Centre since his becoming a very valued member of the group just five months and three days previously. His topic was Observing Variable Stars, and even then it was quite obvious that the speaker was a meticulous observer of many kinds of variables, though we had no way of knowing at that time that his book, **Observing Variable Stars**, then over a decade in the future, would become a standard guide for many such observers throughout the world. David reviewed the characteristics of the basic types of variables, and spent some time especially on the semi-regulars, the irregulars, and the eruptive types whose cataclysmic actions are among an observer's most remarkable targets. Like the talk on the Great Comet of 1861, which he had given just over a month previously, this one was engaging and stimulating, and it concluded with a very sincere invitation to Centre members to involve themselves in variable star observations and to form a variable star group within the Centre.

Two weeks later on Tuesday, March 21, we held our Annual Meeting to elect the slate of officers who would serve as the executive for the year beginning September 1, 1978, just as we had done on March 29 of the previous year. Having completed a year as president, I was quite happy to see someone else serve in that capacity, and I had announced that I would not run for the office of Centre President. Prior to the meeting date, it had been announced that members could bring their telescopes and set them up outside Ellis Hall for observing. At least the moon would be good target, if the weather cooperated. On the night of the meeting, the weather failed to cooperate, and the planned observing session had to be cancelled. The list of officers elected for the 1978-1979 year was as follows: President: Dennis Belanger; Vice-President: Mike Payette; Secretary-Treasurer: Enrico Kindl; National Council Representative: Doug Baker; Queen's University Astronomy Club Liaison Officer: David Levy; Newsletter Editor: Leo Enright. A cancelled observing session meant that there was time to discuss some tentative plans for the coming summer and for the coming year.

At the next meeting, on Tuesday April 4, I gave a talk to the Centre on the topic: "Faint Light In The Night Sky". I was able to discuss five different kinds of faint light that may be seen under various conditions and at different times of the year: (1) Zodiacal Light, (2) Counter glow or Gegenschein,

(3) Interplanetary Light, (4) Nightglow, and (5) Integrated Starlight. That night weather conditions again prevented us from observing in the Ellis Hall dome after the meeting.

Other Kingston Centre Activities

During March and April of 1978, several comets were in the news. In early March, another Comet Bradfield had been discovered, the third comet of the year 1978, and though at that time it was still too far south to be visible from Ontario, it was predicted to become visible, possibly "naked-eye" visible, in Capricornus, Aquarius, and Pegasus by early April.

The evening of March 9th provided a rare chance to see a very young moon in the evening sky, and though I tried valiantly to see it after a short snowmobile trip to what I hoped was a hilltop with a favorable prospect to the western horizon, I missed the chance, because of clouds, to see the moon with certainty, though I did definitely see Venus which was only two degrees away from the slender (but unseen) lunar crescent. The following evening, I spotted the still slender crescent a mere eight minutes after sunset, and a few minutes later Venus, and at the end of twilight, as I later wrote, I thought "I saw the Zodiacal Light more clearly than I had ever seen it before." It would be a number of years before I would be absolutely sure of seeing a young moon that was less than twenty-two hours old. Though I thought that my sightings of Venus were quite early ones after that planet's entry into the evening sky, I subsequently found out that Enrico Kindl had seen it about a week earlier.

Besides Bradfield's comet, by late April, amateur astronomers in Canada had another comet to which they were turning their attention. On April 26, Ottawa Centre member Rolf Meier spotted the first of his comets discovered from the Ottawa Centre's Indian River Observatory at Almonte, Ontario. Comet Meier (1978f) was the sixth comet discovery of that year. Because of his persistent and dedicated searching for comets, a search that eventually led to four discoveries, Rolf was awarded the Society's Chant Medal in 1979.

Our Honorary President, Dr. A. Vibert Douglas had an article published in the April 1978 issue of the R.A.S.C. Journal. It was a report of a meeting that she had attended the previous summer in Edinburgh, Scotland - a meeting of the International Astronomical Union's Commission On The History And Philosophy Of Science. As always, our honorary president showed why she was a recognized authority on the history of astronomy in the twentieth century; she had indeed worked side-by-side with some of those who had made that history, and had herself been one of them.

It is most interesting to compare the major articles in leading astronomy magazines of twenty-five years ago with our current understanding of the same topics. For example, in an article which I wrote for the Regulus predecessor of April, 1978, I recommended that Kingston Centre members should read an article that appeared in *Sky and Telescope* of the same month, one which "speculated on the possibility of rings of Neptune", and which told about claims for their discovery long before the discovery of the rings of Uranus.

In summary, I am delighted to be able to recall, and share, this period of time 25 years ago as one of enthusiasm and innovative growth in the Kingston Centre.

Part B: A Perspective from David H. Levy

In March 1978, the ice was still pretty thick over Lake Ontario between Amherstview and Amherst Island. Occasionally I recall walking onto the ice, and enjoying a quiet hour or two with nature. It was a cloudy time;

however, on April 5 I was able to set up my telescope and make some observations of variable stars. R Coronae Borealis was slightly down from its maximum, at 6.8. During this period Saturn was also a prominent object in the night sky (March 8); on March 23 (the 19th pre-anniversary of my marriage to Wendee!) I enjoyed a brief 20-minute observing session near Queen's. Exactly one month later a faint Homogeneous Arc Aurora was visible in the North.

This was actually a quiet somewhat depressing period. I was getting ill with mono, and trying to complete my Master's thesis in English at the same time. The night sky, and the Kingston Centre, were both welcome breaks.



OBSERVING with a 30-inch STARMASTER TELESCOPE by Ken Kingdon

During winter 2002-03, I (Ken Kingdon) have had the pleasure to enjoy the company of Mike Wirths at his "Equuleus Observatory" at Perth, Ontario. We have observed with his new 30-inch Starmaster f/4.0 reflector. This scope is described on page 56 of the new edition of Terry Dickinson's excellent book "The Backyard Astronomer's Guide" with these words: "The 30-inch Starmaster is perhaps the finest big telescope money can buy. The views are consistently breathtaking".

For our readers, I thought I should attempt to describe some of the views we have seen. This article is compiled from Mike Wirths' and my own observations.

This big scope is actually no larger than a 25" Obsession. With motorized GoTo controlled by a StarCommander plus its tracking ability, this is one serious sky machine. On Oct. 14, 2002 the "first light" object was M42 Orion Nebula. Mike reported the colour as steel blue with the northern fringe having a marked gold/orange colour. The outer "wings" were distinctly pinkish, with 25 stars (reddish like proto-stars) in the Trapezium area. M42 shows pink colour. All the Trapezium stars are bright, even the 5th and 6th E & F stars, plus a 2nd sort of "trapezium" of tiny, but distinct, stars reddened by the dust and material itself of M42 nebula, so that they appeared as like red dwarfs. This 2nd "trap" is located about two Trapezium dimensions away, and is invisible in most medium to large scopes. The real-time view, especially with an O-III filter surpassed any CCD image that I have ever seen. An O-III filter really emphasized the many complex filamentary dust lanes and dark nebulae.

Moving on, M57 Ring Nebula had colour on the ring's edge. NGC 891 had a prominent central bulge and dust lane that did not require the typical averted vision. Veil Nebula was awesome with 17mm Nag and OIII. Stephan's Quintet was all visible, like looking at a CCD image. IC 418 the Spirograph Nebula in Lepus, a.k.a. the "Raspberry Nebula", was obviously pink edged... a real "wow" object. It has a very sharp little annulus of pink surrounded by a bright central star. Another "jaw dropper" view was NGC 2359 "Thor's Helmet"; without the OIII it was easy to see, but with the filter it literally filled the eyepiece with far reaching tendrils of nebulosity, well beyond the inner loops depicted in most CCDs. Several planetary nebulas were quite colourful and interesting; NGC 1535 ... holy cow was it ever bright! Eskimo Nebula in Gemini, even with bad

seeing, showed hints of the filaments in the "fur collar", but was nonetheless still small. Cat's Eye Nebula had a different type of blue than usual - peacock blue with purple tinges around the edges. Horsehead Dark Nebula was "screamingly easy". Not only was it large, but we also managed to glimpse the actual direction of the horse's head, and not just the usual notch observed in the past. M1 had good filamentary structure when using an OIII on it, as well as a bar of brighter light in the core of it, however, even with such large aperture, M1 can still disappoint if seeing is not excellent. Several interacting galaxies showed the details between them. We remarked for comparisons that a CCD image of NGC 891 taken with an 8" scope looks much like views from Mike's old 25" Obsession, while a CCD image using an 11" scope looks more like the real-time view of a 30".

Hickson 94 is a group of faint galaxies, with NGC 7588 the brightest. Numerous, they remain faint even with 30" aperture, but the view still holds one's imagination. NGC 2169 the cluster that spells "37" was enjoyed by all (Messier should have tossed out M40 and replaced it with this object, then called it M37 since the "37" asterism is very distinct). Hickson 44 (brightest of all Hickson galaxy groups) in the neck of Leo was nevertheless somewhat disappointing even in the 30", due to their small size and faintness; NGC 3190 is brightest, 3193 is visible, and the distorted barred galaxy NGC 3187 was pretty faint.

NGC 2261 Hubble's Variable Nebula was an astounding view with a distinct bright star and a very bright comet-shape at 280x. This is #33 on the Finest NGC List, an object that really demonstrates the advantage of large aperture... hey, anytime you wish to see a "comet" with a developed "tail", just look at this great object.

NGC 7662 Blue Snowball PN unfiltered at 250x was nice blue and showed some annularity. M46 was a spectacular "night capper". The many uniformity bright stars in this dense OC gave a very striking view, plus NGC 2438, a planetary nebula within M46, was very distinct and added a lot of "interest factor".

In summary, I rate the 30-inch Starmaster as a great "starter" scope... :-). After all, it's GoTo feature makes it easy for anyone to find everything. Furthermore, upon de-clutching the GoTo drive, this scope also points easily because of a solid mount that is silky smooth when moved manually. This is a nice feature for examining the vicinity around an object to see if there are other companion objects nearby. We love this 30-inch Starmaster and we think "it's a keeper"!

Ken Kingdon, RASC - Kingston Centre

How to Find Venus in the Daytime by Kevin Kell



We have had several demonstrations in the field at Starfest, Fall N' Stars and other locations on how to find Venus in the daytime.

This article is a step-by-step guide on using data from the Observer's Handbook to find the position of the planet.

So, let's start by pretending today is Saturday March 15th, at approx 1:00pm est. Open up your 2003 Observer's Handbook to page 80 (after finding it that is!)

Some of the data listed is positional information on the sun and planets. We will need the Sun and Venus.

RA=Right Ascension A Full circle around the planet is 24 hours of Right Ascension. These are equivalent to lines of longitude on Earth.
Dec=Declination. Up or down (+ or -) from the celestial equator, +90 degrees is the all the way up, -90 degrees is all the way down.

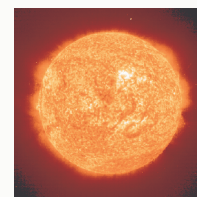
Looking at the RA of the Sun, you will note there is no entry for March 15th, but there is data for March 11 and March 21. We will have to determine how much the sun moves each day, and add it times the number of days, to the position of the 11th.

The Sun

RA March 11 23hours 23minutes
RA March 21 23hours 59minutes

So how much does the sun move in RA in 10 days?

+23hr 59min
-23hr 23min
=====
0hr 36min



How much does it move in one day? 36min/10=3.6 min
How many days between the 15th and the 11th? 4 days
Total amount the sun moves in 4 days = 4*3.6min = 14.4min
Add 14.4min to the position on the 11th
+ 23hr 23min
+ 0 hr 14.4min
=====
23hr 37.4min

Seeing as how your telescope setting circles are not that accurate (usually +/- 20 minutes), you can feel safe in rounding the final decimal place, so we have an **RA position of the sun for 23hr 37min**

Now we do the same for the Declination of the sun.

The Sun

Dec March 11 -3deg 59minutes
Dec March 21 -0deg 02minutes

So how much does the sun move in Declination in 10 days?

3 deg 59min
0 deg 02min
=====

3 deg 57min (note: working in negative numbers may be difficult for some, so drop the negative numbers for now and remember that you will need the negative/positive signs later)

How much does it move in one day? 3deg 57min/10=?

In this instance we want to convert the degrees into minutes to make the calculation easier. One degree = 60 minutes so 3 degrees=180 minutes plus the 57 minutes gives us 237 minutes

How much does it move in one day? 237min/10=? 23.7 min/day

How many days between the 15th and the 11th? 4 days
 Total amount the sun moves in 4 days = 4*23.7min = 94.8min
 Round off to get 95min and add to the position on the 11th
 -3deg 59min (Take away a degree and add 60 minutes)
 +0deg 95min
 =====

becomes
 -2deg 119min
 +0deg 95min
 =====
 -2deg 24min

Seeing as how your telescope setting circles are not that accurate (usually +/- 20 minutes), you can feel safe in rounding the final decimal place, so we have a **Dec position of the sun for -2 deg 24 min**

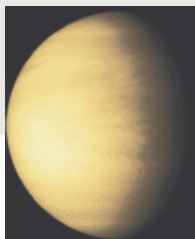
**Summary of the Sun:
 RA 23 hours 37 minutes
 Dec -2 degrees, 24 minutes**

Let's do a sanity check on the answers before we go on... look at the summary numbers. They should lie between the numbers given for March 11th and March 21st. Do they? If so continue on, if not, go back and try again!

Now we repeat for Venus!

Venus

RA March 11 20hours 49minutes
 RA March 21 21hours 37minutes
 So how much does the sun move in RA in 10 days?
 +21h37m
 -20h49m
 =====
 48m



If you have trouble with this calculation, think of it as a clock problem...add 11 minutes to 8:49 to get 9oclock and then add another 37 minute to get to 9:37 for a total of 11min+37min=48min in 10 days = 4.8min/day
 4.8*4=19.2min in 4 days, round off to 19min
 add to March 11th position
 20hr 49min
 + 0hr 19min
 =====
 20hr 68min = **21hr 8min**

Venus

Dec March 11 -17 deg 26minutes
 Dec March 21 -14 deg 29minutes
 So how much does the sun move in Declination in 10 days?
 +17d 26m
 -14d 29m
 =====
 2deg 57min in 10 days = 120min+57min=177min in 10 days = 17.7min/day * 4 days = 70.8min = 71min (which is also 1 degree 11min) in 4 days, add to March 11th position:
 -17deg 26min
 +1 deg 11min
 =====
-16deg 15min

**Summary of Venus:
 RA 21 hours 8 minutes
 Dec -16 degrees, 15 minutes**

Sanity check: do the summary numbers lie between the numbers for March 11th and March 21st?

Interestingly enough, here is a comparison of our figures against those from Starry Night Pro v3

Object	OH	Starry Night	Diff
Sun RA	23hr 37min	23hr 41min	4 min
Sun Dec	-2deg 24min	-2deg 5min	19min
Venus RA	21hr 8 min	21hr 12min	4min
Venus Dec	-16deg 15min	-16deg 7min	8min

I'm not sure what to make from these differences, except to go back and check my work again!

So now we have the numbers. How do we find Venus?

Set up your scope, making sure it is as polar aligned and level as possible. Put your solar filter on and find the sun. Select a relatively low power (x44) eyepiece, so that you can see the entire disc of the sun (the sun is about 30min in diameter). When it is centered and you have done your solar observing for the day, set your setting circles to 23hr 37min RA and -2deg 24min DEC.

Release your scope so it can move freely without disturbing the setting circles, to the position of Venus: 21 hr 8min in RA and -16deg 15min in DEC.

Remove your solar filter, do not adjust your focus (it should be the same for both objects), and you *should* see Venus!

It is important that the time between calibrating to the sun and moving to find Venus is as short as possible (ie don't calibrate on the sun, go in and have lunch, then come back and move to Venus's position... it won't be there! It will have moved in the meantime)

If you don't, try again a couple of times, remembering to put the solar filter back on before you go near the sun. Try using a lower power eyepiece to get a bigger field of view.

Example problem #2

After a few of these you should feel confident enough to liberally round off the numbers and do the calculation in your head!

	The Sun	Venus
RA March 1	22hr 46min	20hr 00min
RA March 11	23hr 23min	20hr 49min
Dec March 1	-7deg 50min	-19deg 34min
Dec March 11	-3deg 59min	-17deg 26min

What is the position of the Sun on March 10th?
 What is the position of Venus on March 10th?

Answers: Next Page

This principle works for all 5 naked eye planets (when they are bright enough) and the brighter stars in as small as a 4.5" scope. Use **extreme caution** looking for any object such as Mercury that is close to the Sun.

Answers:

Sun RA=23hr 19min DEC=-4deg 22min

Venus RA=20hr 44min DEC=-17deg 39min



Observing Group Meetings

These are regular meets at the home of members who volunteer their locations and homes to us on or near a new moon. Contact Kevin Fetter if you are interested

in hosting a session in 2003.

March 1st: At the home of Doug Angle



Public Observing Sessions

These are the public observing sessions, normally held at Murney Tower Park on the Kingston waterfront on King & Barrie Sts. On the first Tuesday after a new

moon. **Check the Events Calendar on Page 3.**



Equipment Loan Program

Members in good standing are able to sign out Centre equipment, including:

- ☆ 25cm (10") f5.5 Douglas Dobsonian Advanced Users

- ☆ 20cm (8") f7 FitzGerald Dobsonian Intermediate Users
- ☆ 20cm (8") f4.5 Barney Dobsonian Intermediate Users
- ☆ 11cm (4.5") f4.3 Bushnell Voyager Starter Users
- ☆ 11cm (4.5") f7.9 Orbitor 3500 Equatorial Starter Users
- ☆ 5 barndoor tracking platforms 1999 February - Starter Users
- ☆ Collimating Tool 2001 August - All Users
- ☆ Binocular Set #1 B&L7x50 1999 April - Starter Users
- ☆ Binocular Set #2 B&L10x50 1999 April- Starter Users
- ☆ Binocular Set #3 Bushnell 7x50 1999 April - Starter Users
- ☆ Binoculars Set #4 Stem 7x50 1995 - Starter Users
- ☆ 19mm Televue Panoptical Eyepiece 2000 March - Intermediate Users
- ☆ Filter Set - ND13, 4 colour, O3 nebula - all 1.25" 2000 September - Intermediate Users
- ☆ Kodak Ektagraphic 35mm slide projector 2000 November

RASC Kingston Centre Meetings

The Kingston Centre RASC meets once a month on the **2nd Friday of each month at 7:30 pm (19:30) in Stirling Hall Theatre D** on Queen's University Campus **unless noted otherwise**. We have adopted a policy of moving any meeting that is held on a holiday weekend.

2003 Officers and Executive Council

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We also have an email chat list "rascchat". Send your email address to Kevin Kell to be added to the RASCCHAT list.

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Vice President: Doug Angle

Secretary: Brian Hunter

Treasurer: John Hurley

Librarian: David Maguire

Editor: Kevin Kell

National Council Rep: Peggy Hurley

Regulus is published 6 times per year on paper and 6 times per year in adobe acrobat format files. Both are available on our web site. Views and opinions expressed herein do not necessarily reflect the official position of the Royal Astronomical Society of Canada or its officers and members.

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March Print Run=200

The Newsletter of the Kingston Centre of the Royal Astronomical Society of Canada

Newsletter Submission Info: The deadline is usually the 3rd Friday before regular meetings in odd numbered months. The preferred method is E-MAIL, then disk, lastly paper.

E-mail: kell@cliff.path.queensu.ca

Fax: 1-613-533-2907 (with cover page to Kevin Kell) Post: 76 Colebrook Road RR#1, Yarker Ontario K0K 3N0 Canada
ascii or most major word processors (Corel WP8 for windows preferred) via E-mail or cdrom or 3.5" PC floppy disk

Resources Available to Members:

(See bottom of page 10 for passwords)

- **RASC-Kingston Centre Handbook** at:

<http://U99.N144.queensu.ca/rasc/secure/kingstonmanual20030221.pdf>

- **RASC National manual** at

<http://www.rasc.ca/private/rascmanual2003feb.pdf>

- **RASC-Kingston Centre Loan Program** at:

<http://members.kingston.net/rasc/loan.htm>



Variable Star of the Month

by Kevin Kell & Kim Hay

Variable stars, what are they? They are up there, just waiting for you and I to observe them. These stars go through many changes in their lifetime, and are easy to observe with naked eye, binoculars or telescopes of various sizes.

So what is a variable star? Variable stars are stars that change brightness. There are many different variables and all have their unique personalities if you wish. There are four main types of classifications and below is a small table listing the types of variables, but for the next couple of months we will concentrate on the Cepheid Variables, which are pulsating variables that show periodic expansion and contraction.

Type of star	Description
Pulsating	Cepheids, RR Lyrae, RV Tauri LPV, semiregular
Cataclysmic	Supernovae, Novae, Recurrent Novae, Dwarf Novar
Eclipsing Binaries	These are binary systems of stars with an orbital plane lying near the line-of-sight of the observer.
Rotating	Rotating stars show small changes in light that may be due to dark or bright spots, or patches on their stellar surfaces ("starspots").

The Cepheid star that we will discuss and observe this month is Delta Cephei. Its designation is 2225+57 with a period range is 5.36 days and its visible range is from magnitude 3.5 to 4.3. You can observe this variable every, or any clear night, by using the star hopping method or star charts to get you into the field of view of Delta Cep. Delta Cep is located in the Cepheus.

What you are looking for is the magnitude changes of this star, by comparing it to the comparison stars around it. You can look at a star chart or use your computer program to see the magnitudes of the comparison stars, but the main focus will be on your ability to see the magnitude differences of Delta Cephei. <http://www.aavso.org/vstar/vsotm/0900.stm>

Once you do this over several days, you will accumulate data that shows how the star is changing in brightness. What you have is the starting a light curve for Delta Cephei. In the next issue of Regulus, we will discuss what to do with the data you have collected, and how you can contribute your observations to the Canadian contingent of the AAVSO observers.

Our Centre library has a book called "Observing Variable Stars-A guide for the beginner" by David H. Levy, a book well worth the read and a great beginners and resource book for Variables. Contact our Librarian David McGuire <rascexec@cliff.path.queensu.ca> to borrow the book.

For more information on types and charts of variable stars, please visit the AAVSO website at <http://www.aavso.org/>

2003 PUBLICATIONS ORDER FORM

Item	Price per unit (Shipping and taxes included) Regular (Member)	Quantity	\$ Total
*Expanding Their Universe 2 nd Edition - The Teacher's Companion for Secondary School Astronomy 161 pg 2002 NEW!	\$30 (\$24)		
*Worlds to Discover 1 st Edition - Astronomy for Elementary School 154 pg 2000	\$15 (\$12)		
*Slide Set #1 companion for Expanding Their Universe 40 slides	\$75 (\$60)		
*Slide Set #2 companion for Expanding Their Universe 40 slides	\$75 (\$60)		
*Slide Set #3 companion for Worlds to Discover 20 slides	\$35 (\$28)		
*Students Guide to Careers in Space, 2 nd edition 33 pg 1998	\$5 (\$4)		
*Secondary School Combo 1: ETU book, Slide Set #1 OR #2 (Circle choice), Careers in Space	\$100 (\$80)		
* Secondary School Combo 2: ETU book, Slide Sets #1 AND #2 (Circle Choice), Careers in Space	\$160 (\$125)		
*Elementary School Combo : WTD book, Slide Set #3, Careers in Space	\$50 (\$40)		
Beginner's Observing Guide by Leo Enright	\$15		

* Consider a membership in the RASC-KC. A new benefit (2001 March 01) includes a 20% discount on Centre produced material. * 20% discount now extended to members of RASC (other centres included)