

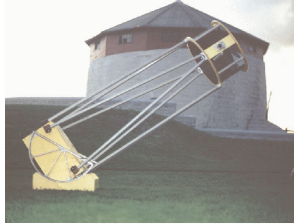


Regulus



The Newsletter of the RASC Kingston Centre

2002 November



The 61 cm Venor Dobsonian-Mount telescope.

2002 - The Year of 61 cm

Annual General Meeting and Elections for 2003 Friday November 8th, 7:30pm Stirling Hall, Theatre D.

All seven of the Executive positions (President, the Vice-President, the Secretary, the Treasurer, the Newsletter Editor, the National Council Representative and the Librarian) are open for election:

The conditions of nomination shall be:

1. that the person nominated shall be a member in good standing of the Centre,
2. that the assent of the nominee shall have been obtained,
3. that at least two who are members in good standing of the Centre shall make the nomination.

Please consider helping out the Center, fellow astronomers and the local general public, by bringing your fresh ideas to the RASC-KC Council. Don't feel gung-ho enough for an executive position? Then think about volunteering to Chair a committee in 2003 or be a member of a group/committee.

We have in 2002:

- Amateur Telescope Making (ATM) Chair
- Astronomy Day Chair
- Awards Chair
- CCD Group
- Education Group
- Fall-N-Stars Chair
- Light Pollution Abatement Chair
- Observing Chair
- Publicity Chair
- Sky is the Limit Festival Chair
- Social Activities Chair (includes BBQ's Awards Dinner, etc)

Committee/Group Chairs/coordinators are appointed from volunteers by the new incoming Executive elected at the November Annual General Meeting and Elections for 2003.

Some of the project ideas we have for 2003 are:

- create a users manual for each piece of our equipment
- extend links to Queen's student population
- build a whole bunch of easels for display use
- produce more educational material (powerpoint lecture sets)

2002 Annual Awards Dinner Saturday, November 23, 2002

Speaker: Dr. Paul Wiegert (Queen's University) on "Solar System Dynamics"
<http://www.astro.queensu.ca/~wiegert/>

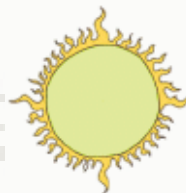
Tickets \$25/person in advance
Purchase at meetings or mail cheques to the RASC mailbox.

Email vegetarian and allergy alerts to Susan Gagnon. Cut off date is November 19th.

As always, a good time will be had, door prizes and various awards presented.

Susan Gagnon <sdgagnon@post.kos.net>

Submissions from Members



TAL Telescopes by Doug Angle

TALscopes is not your ordinary astronomy store. Telescopes are made in Russia, by a factory that used to supply military optics. A look at the Russian web site includes articles on

astrology and Russian mysticism. And they certainly have an unconventional product line. Never the less, I think they are worth a second look.

TALscopes is a retail shop in Kingston, which is also the North American distributor for TAL Telescopes. I spoke with the owners, Martin and Malcolm Bird at Fall n' Stars, and again at their shop.

The first thing you notice about TAL scopes is that they come in a wooden box, not cardboard and Styrofoam like many North American suppliers. The military connection is quite noticeable as the mechanical components are built like a tank using all heavy gauge aluminum and steel, with only the occasional plastic knob.

The next thing you will notice is an unconventional product line. We are used to more or less standard sizes of 4.5", 6" and 8" reflectors and 60mm refractors. TALscopes start with a 2.5" Newtonian reflector. They have several models of Newtonian, refractor and a Kevtsov – a rather peculiar Gregorian type design using a mangin (lens silvered on the back) secondary. They don't make a Schmidt Cassegrain.

I had a chance to evaluate the 6" and 8" at Fall n' Stars. Many times you will hear claims of optical quality in terms of "pin-point star images" Whenever I hear this, I know that the optic wasn't tested to it's limit, because given enough magnification, stars are disks surrounded by diffraction rings. It's only at low power that they show as points. Most telescopes don't perform well enough to give sharp diffraction patterns. When I first looked at the 6" and 8", both scopes had low power eyepieces installed. I thought "this is a bad sign!". However, they supplied a 10mm eyepiece, giving about 200x or 25x per inch. The in focus images showed the classical disk with a well defined diffraction ring. A star test comparing the images inside and outside of focus showed only a hint of difference (the images should be identical). Martin offered a Ronchi eyepiece. When installed in the focuser, this gives an image of the mirror with a series of bright and dark lines, similar to an interferometer image. An ideal optic will show straight, smooth lines. The 8" scope showed a tiny bit of curvature near the edge, a common defect (although usually much larger in commercial scopes). These are very demanding tests, and indicate quite well corrected optics. This certainly speaks well of the manufacturing ability, as the mangin mirror used in these scopes are notoriously difficult to make well.

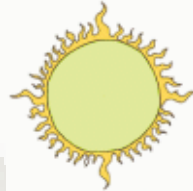
Mechanically, the scopes were good, but not quite up to the standards of the optics. They are well built, all metal construction, with adjustments in key locations such as backlash in the worm drives. The drive consists of a 400 tooth main gear, compared to 100 or 200 teeth on most North American scopes. The mounts are solid, and the tubes are heavy wall aluminum. I did find some play in the rack and pinion focuser. A 10" model coming later this year is rumored to have electric focus on the secondary mirror, which should correct this problem.

One shortcoming is that the controls are short in functionality. Only the 8" even includes a declination drive. None have digital encoders or go-to capability. If you want these, go to another store.

Overall, I was impressed with these scopes. Optical quality is very good, mounts are well built and stiff enough for the size of the scope, without being excessively heavy. Prices are a little high; the 8" is \$2500 compared to about \$1600 for Celestron and \$1800 for Meade SCT's.

See Talscopes above the FuseTek building, at 599 Norris Court in Kingston.

[Http://www.talscopes.com/](http://www.talscopes.com/)



Looking Back 25 Years Part III: The Kingston Centre in September and October, 1977.

Reminiscences by Leo Enright
and David H. Levy

Part A: Perspective from Leo Enright Overview

In the two previous articles in this series, there was an attempt to offer an understanding of what the life of the Kingston Centre was like twenty-five years ago, particularly, in the case of the first article, regarding activities in the first five months of the year, and in the second article, concerning those during the months of June, July, and August. During that year, 1977, which was particularly important for the Kingston Centre, there had been a number of first-time events, and there were significant changes that became lasting traditions within the Centre. To review but a few of them, there were discussions regarding the Centre's owning its own telescope and observatory, organized observing sessions outside the city, Centre activities during the summertime (that is, outside the time of "regular sessions" classes at Queen's University), positive changes in the size, content, and frequency of publication of the newsletter, and at the time of the "annual meeting" of March 29th, the election for the first time in the Centre's history of an executive not composed entirely of members of the Queen's community.

The conditions that spawned change and growth and the implementation of new ideas during the first eight months of 1977 continued during the months of September and October. This article will show what some of those events were, and it should provide a continuing basis for comparison with the present-day activities and practices of our Centre.

Meetings And Other Activities In September And October, 1977

Following the month of August, 1977, during which our group had held three meetings (!), all of them beginning at 9:00 p.m. EDT in Room 222 in Ellis Hall, namely on Tuesdays August 2, August 16, and August 30, the month of September, being a shorter month, was going to be one with only (!) two regular Centre meetings. They were to be at 8:00 p.m. on Tuesdays September 13 and September 27. As the one who had been elected, in March, as president of the Centre for the "coming school year", I would be planning the agenda and acting as chairman for the first time at the meeting of September 13.

The agenda for that meeting included a discussion of our plans for the coming year and reports on the summer activities that had taken place during the previous three months. (See the previous **Regulus** article of this series for the list of summer activities that had taken place.) Part of the meeting's discussion was about a very serious attempt that should be made to increase our membership. The first major initiative in that effort would be a representation of our Centre at the annual Queen's Clubs Night which would be held at Grant Hall on the evening of Tuesday, October 4. (This event was a long tradition at Queen's, a chance for the leaders of all the clubs and groups that were active on campus to talk to students, particularly first-year students, about the benefits of joining the group, a chance to recruit and "spread the message" -- from groups as diverse as the Young Progressive Conservatives to the curling club, the orienteering club and the sailing club.) There was also a discussion of further improvements that could be made to the newsletter and of the fact that the time had come, as had already been the case for most Centre newsletters across the country, to give our newsletter its own distinctive and recognizable name.

The second meeting, on Tuesday September 27, had five main items on the agenda. The minutes as recorded by the secretary, Sue McDougall, show that we had several new people who had not attended previously. As president, I was able to report having gone to two meetings of science teachers in Frontenac County with astronomy presentations that included giving them information about the existence of our group in the city. Three of the new attendees at this meeting were the result of those meetings that I had arranged with the science teachers. Notices of the meeting that had been posted in the Queen's Journal and had been aired on CFRC radio accounted for some other new faces at this meeting. The upcoming Queen's Clubs Night, on October 4 and now just one week away, was again discussed, and I promised to attend and bring some posters for display at that event. Members were invited to submit articles for the newsletter, including reviews of some important astronomy books that had been recently published. One member, Chris Sargeant, volunteered to write a review. A motion was passed to subscribe to Astronomy magazine. A copy of the publication, **Deep Sky Objects** by Jack Newton, was purchased for the membership from the president. (We could now say that a Centre library had been established.) Two members, Denis Belanger and Doug Baker, volunteered to write a review of the book, **The Whisper and The Vision**. This fascinating new book by Dr. Donald Fernie, an astronomer at the David Dunlap Observatory, (whom I had known fifteen years earlier when he was the professor for an astronomy course I had taken at The University of Toronto) described the arduous journeys that many astronomers had undertaken in the eighteenth and nineteenth centuries in order to complete certain valuable observations in remote parts of the world. The reports from the penumbral lunar eclipse of the previous night, September 26-27, were very short because only two members, Enrico Kindl and Chris Sargeant, had been able to see it amid the persistent clouds in the area. A report from the vice-president, Doug Baker, about the National Council Meeting in Toronto on September 24, contained an item about the concern of the Society regarding the duty that Canadian amateur astronomers had to pay when importing telescopes and other astronomical equipment. In that regard, a motion,

proposed by Enrico Kindl and seconded by Sue McDougall, called for Centre members to write individual letters to their MP's requesting the removal of, or the reduction in, those duties, and the time for completing this letter-writing project was to be added to the next meeting. As a result of recent invitations issued by the president, there was an announcement that the guest speakers, who had agreed to talk to us at upcoming meetings, were: (1) Dr. Alan Bridle of the Astronomy Group in the Queen's University Physics Department who would speak to us on November 8 about his involvement in the Very Long baseline Array (VLA) of radio telescopes in New Mexico, (2) Dr. Alan Batten, of the Dominion Astrophysical Observatory and the Herzberg Institute of Astrophysics, and also the current RASC President, who would speak to us on November 22 on the topic: "Close Binary Systems", and (3) Dr. John Percy of the University of Toronto Astronomy Department, First Vice-President of the RASC, and author of the recently published "Percy Report" on the State of the Society, who was confirmed as the speaker for December 6. A special meeting to discuss the "Percy Report" and its application in our Centre was called for 6:30 p.m. on October 11, an hour and a half before the beginning of the next regular Centre meeting.

One week later was the Centre's next major event -- Queen's University Clubs Night which began at 8:00p.m. on Tuesday October 4 in Grant Hall. At first, the place was a massive scene of confusing comings and goings involving what seemed like hundreds of students transporting such things as canoes, kayaks, sailboards and posters and signs of every description imaginable. The scene was gradually sorted out into a semblance of order as the tables that were arranged around the perimeter of the large hall, were occupied by the various groups that put their organizations on display for the imminent influx of the students who would soon make their way around the building. At the table assigned to the astronomy group, I set up some posters relating to astronomy and had, as a "handout" on our table, a page of information about the many benefits of membership in the RASC, a "handout" which, with a few revisions, has been used for almost 25 years. The executive represented the Kingston Centre: I was there as President for the 1977-1978 "school year", Doug Baker was there as the Vice-President, and Sue MacDougall as the secretary/treasurer. A surprisingly good number of new students talked to us about their interest in astronomy. Among them was a person whose name I quickly recognized as an active member of the Montreal Centre, and I explained to Doug and Sue later that having him as a member of our growing group would be a genuine coup; they were unaware of his dedication to astronomy and of his accomplishments, even at that time. He told me his name was David Levy and he would be a graduate student in the English Department for the next two years. He wanted to join the Kingston group and hoped to be able to come to our upcoming meetings. I told him when and where they were held and expressed a sincere wish that he would attend our next meeting. I am sure that afterward Doug and Sue could detect my very real joy that our Centre would have, for at least two years, a member who, I knew, was passionate about astronomy and loved to observe the night sky. I was quite sure that he would be there at our next Centre meeting one week thence.

The third regular meeting of the "school year" was on Tuesday, October 11. The agenda included several

reports. One of them was on what appeared to have been a successful Queen's Clubs Night at Grant Hall one week previously. Another report was about the mention of our "Bad Mosquitoes" Contest in Sky and Telescope magazine. (Word travelled fast, especially if our vice-president made sure that a copy of the newsletter was sent to the major astronomy magazine!) At the meeting, I gave a short talk reporting on the 1977 General Assembly in Toronto, mentioning the highlights of each of the papers given, and giving a brief outline of the Northcott Lecture by Terrence Dickinson, a talk about "Re-working The CETI Equation". Then time was provided at the meeting for members to write their individual letters to MP's regarding the federal duties on imported telescopes and other astronomical equipment, and stating our request that such duties be removed on objects that were not otherwise available in Canada. The secretary reported receiving a letter from RASC Edmonton Centre member, Mark Zalcik, requesting that meteor shower observers contact him to learn about a new method of recording meteor showers. (Members should know that Mark has remained at the forefront of this kind of observing for these many years!) Announcements were made about events to be observed in the near future: (1) the total solar eclipse of the next day, October 12 which would be seen as a partial eclipse in Eastern Canada, (2) an eclipse of the Saturn's moon Iapetus by Saturn on October 19, and (3) the Orionid Meteor Shower on the night of October 20-21, for which plans were made that Kingston residents should meet at Ellis Hall at 10:00p.m. to go to Fort Henry Hill to observe it. Because of cloudy weather, the group did not go up to the dome, as was often done, in order to observe for a while after the meeting.

The next regular meeting was on Tuesday, October 25. As the president, I reported on the executive meeting that had been held in order to discuss our Centre's written response to Dr. Percy's Report. The winner of the humorous "Bad Mosquitoes Contest" was announced; it was our Vice-President Doug Baker. His entry, and other entries as well, would be published in an upcoming newsletter. There were five observing reports and two short talks. The reports were: (1) slides of the partial solar eclipse of October 12 taken by the President from his observing site at Sharbot Lake. Mike Kennedy also reported seeing the eclipse, in spite of many clouds in the Kingston area. Enrico Kindl and David Levy promised to bring their photographic efforts for the eclipse to a later meeting. (2) All members had missed seeing the eclipse of Saturn's moon, Iapetus. (3) The observing trip to Fort Henry Hill was extremely disappointing because of the weather; only one or two Orionids had been seen. The president's report of observing Orionids at Sharbot Lake was not much better. (4) However, there was a report of an Aurora, that was quite spectacular from Sharbot Lake at about moonset on October 18. (5) There had been good weather for the observing group that had met at the dome on October 18. Participants had observed a near-graze of a star by the moon, an event that would have been an occultation if seen from northern Ontario. The first of the talks was by our new member, David Levy. He gave an interesting introduction to variable star observing, with the hope of starting a small variable star observing group within the Centre. David explained the different types of variables that exist and what is required to make a magnitude estimate of their current brightness. He told our Centre members about his membership in the AAVSO and the variable observing program that he was following.

The second short talk was by Denis Belanger who explained the operation of the photometer that he had built, and answered questions about its construction and operation. The observing reminders were about the upcoming Taurid Meteor Shower on November 4, the Leonids on November 16, and the Geminids on December 13, and about three upcoming dates that should be good for observing various phenomena of Jupiter's satellites. For future plans, there were two announcements: one about buying RASC T-shirts from the Ottawa Centre, and one about obtaining from the Centre secretary the required entry forms for the Observing and Display Contest at the 1978 General Assembly which was to be held in Edmonton -- only eight months away and not too early to plan a photographic display!!

Conclusions

In 1977 the general thinking in what was still the combined organization of the R.A.S.C.- Kingston Centre and the Queen's University Astronomy Club was that the year's activities really began in September and October when the Queen's students returned for another year of classes, and in this particular year there had been an exceptionally good beginning. The changes that had begun earlier in the year would surely continue, and there would be more changes and more activities undertaken in several directions. The meetings of these two months had more talks that invited meaningful observations, and the list of speakers for upcoming meetings certainly gave promise that the trend would continue. The Centre's newsletter in these two months continued the trends begun earlier in the year, with the significant addition in September and October of detailed minutes of each meeting written by the secretary. It was, indeed, a time for tremendous optimism in the RASC-Kingston Centre, perhaps moreso than at any time since the founding of the Centre sixteen years earlier.

Part B: A Second Member's Perspective From David H. Levy

October 4, 1977, the 20th anniversary of the launching of the world's first artificial satellite, turned out to be a very special night in the life of this Kingston Centre member. That was the night that, as I wrote in my journal for that date:

"... Bev and I went to Clubs Night at Queen's. She visited the scuba club, and I introduced myself, at last, to the Kingston Centre of the RASC." Bev was my first wife, and I might point out that, when we separated a few months later (I was ill at the time), the Kingston Centre became one of my main areas of intense activity; the Centre really brought me out of that difficult time.

I remember clubs' night that year as vividly as Leo does. There was Leo Enright, who looks the same as he did then, offering me information about when the Centre would meet, and what its programs would be, and he told me a bit about his Oso Observatory. I think we became fast friends within a minute of meeting each other, and that friendship has never wavered.

On October 11, I attended my first Kingston Centre meeting. I was all excited about the eclipse that would come with the next day. We didn't have any formal Centre plan for watching it; after all it was a shallow partial, lasting only 52 minutes - but even then I loved watching eclipses. We also heard about a new way of

recording meteors from an observer in Edmonton, but I cannot recall now what its features were.

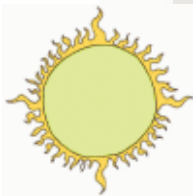
That same evening I wrote to the National Secretary of the RASC, Rosemary Freeman, asking that my life membership be transferred from Montreal to Kingston. The next day I wrote: "A clearing sky allowed me to observe the entire partial eclipse of the sun from 4:45 to 5:30 pm, and I was able to take twelve pictures of the nick-in-the-edge of the sun." That same evening I observed 12 variable stars.

At the meeting of October 25, I delivered a talk on variable star observing. It was called, or started with, "How many variables did you get last night?" I explained how I liked to get interest going in variable stars. I talked about Eclipsing Variables, Cepheid Variables, and Long Period Variables (LPVs). The very next night I observed a possible outburst of SS Cygni.

On the night of October 20-21 when the group went to Fort Henry Hill for the Orionids, I was studying. I did observe the following night, though. It cleared briefly that evening.

On the night of the "near-graze" when some of the group tried to observe from the dome, I observed 87 variables.

What a group the Kingston Centre was then! Almost as friendly and interesting as the group is now.



My Quest for Pluto

By: Ben Angle

I have always had a mild interest in astronomy. I went with my family to some star parties, observing sessions, and astronomy meetings. I had never used a telescope on my own, but I knew

how to. This was the same with star charts, I had only used them once.

This interest in astronomy grew when the 24" Robert Venor telescope was finished. I had participated some in almost every aspect of making it. I was fortunate enough to have it housed in our garage. During late April, I decided to find a difficult object for the first time. The object I chose was Pluto, and keeping in mind I had never found any object but the moon on my own this proved to be enough of a challenge.

I had started with the Observers Handbook, which gives a decent star map of the path of Pluto and has star references for Tirion and Uranometria. I found the right charts and where Pluto would be on them.

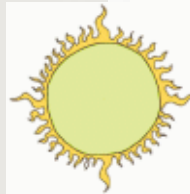
Dad printed a picture of the area from the Digital Sky Survey, so I was able to see what the Pluto field actually looked like, and where Pluto would be in it.

With the preparation done, on May 3 we set up the telescope at dusk and I began looking at the sky through binoculars. I had some trouble finding what part of the sky I was looking at, but after 1 hour of looking I figured it out and was able to continue. Pluto rose about 11:30 but was in trees for another 15 minutes. By the time Pluto rose I had found some useful stars for star hopping. Through binoculars I couldn't see any stars in the Pluto field, but I was able to see what stars to use from the charts. At about 11:50 Dad came out and helped me start to star hop with the scope.

We started at a small square of stars near ζ -op and just above that another square type pattern. This was where Pluto was to be. Getting to this spot took us about an hour and a half, but after that we fairly quickly found where Pluto was because of my star chart study. When we saw Pluto for the first time, we were using a 17 mm Plossl eyepiece at 165x, which showed four stars making a cross. I knew Pluto was just off the end of this cross, and after looking awhile, I saw a very faint object, which the Observer's Handbook showed to be Pluto.

Both of us were rather ecstatic to find it after so long a search, and we observed it for 15 minutes with some different eyepieces.

Since I observed Pluto, I have observed several objects with no help, one of which is the recent asteroid, 2002 ny40. I have also read Nightwatch and many other magazines and books. My interest in astronomy has definitely increased since that night.



An Introduction (Re-introduction?) To Variable Star Observing by Leo Enright

Sometimes a great idea catches on but lasts for only a short while, or it is pursued by only a few people, until it is restarted years later and pursued by a larger number of people. If the timing is right, such an idea may then truly catch on and become a great success. I speak of what initially started twenty five years ago this month.

At a regular Kingston Centre meeting on Tuesday, September 25, 1977, our new member, David Levy, who had joined our Centre earlier the same month, gave an excellent talk on observing variable stars and invited the members of the group to begin Variable Star Observing Group. He was a skilled variable star observer having learned the craft in previous years while a member of the Montreal Centre, and his talk, though replete with excellent examples of the kinds of variables that were possible targets for long-term study and observation, did not, unfortunately, gather a large number of dedicated observers who have maintained this very fascinating and scientifically valuable aspect of observational astronomy. Nor could it have been because the speaker was not a very experienced, as well as a very skilled variable observer; in fact, on a clear night exactly one week before his talk, while the Centre's small observing group was meeting in the observatory to look at the moon and a nearby star that did not quite provide a graze, David was in Amherstview making eighty-seven variable observations and estimates.

It would be wonderful if our marking the twenty-fifth anniversary of that talk could be the occasion for reviving, in this Centre, an active and dedicated group of members who would be involved in monitoring some of the thousands of variable stars that are worthy of our attention, either from what can be learned through studying them, or from a desire to assist a professional community that needs such information but has not the time to give to this field of astronomy.

Where to begin? There are probably no better resources than some that are readily at hand. David Levy's

excellent book *Observing Variable Stars*, and *The Observer's Handbook of the R.A.S.C.* and *The Beginner's Observing Guide* are all excellent resources.

When to begin? There is probably no better time to begin than in the autumn when all four of the recommended beginning stars listed in *The Observers Handbook* and for which maps are provided, are prominently placed and easily found in the evening sky. Indeed, David's book, available in our Centre Library, is a superb resource, both for the beginner and the experienced variable star observer. *The Observer's Handbook* (for at least the last 40 year, or going back at least to 1962, which is the date of the earliest one in my collection) has provided us with star maps for monitoring the four stars just referred to. The next step is observing all of the ten "naked-eye" variables listed in the Variable Star appendix of *The Beginner's Observing Guide*, all of which stars are easily found in the most elementary star atlas. The next step in one's program could well be what *The Observer's Handbook* provides with its list of 31 Long Period Variable that can be easily monitored by the beginning observer, and there is another list of 14 variables of other types that are only slightly more challenging but can still be easily found by the beginner since they are all "naked-eye" when at maximum and provide excellent examples of most of the main types of variables that abound in our galaxy. (See pages 243 and 244 of the current edition. Don't forget the fact that the Handbook for the last dozen years has also provided a page or two about a very interesting variable that can be monitored by Society members. The current one is SU Ursae Majoris, pages 246 and 247.)

The four beginner's stars so easily found in the autumn sky are these:

1) Omicron Ceti (also called Mira or Stella Mira - The Wondrous Star) is easily found in the "neck of the great sea monster, Cetus", which, in the October and November evening skies, stretches along the southeastern horizon, prostrate above the trees as if just slain by Perseus in the myth of his heroics. Mira is currently easily seen because, even though it regularly dips below "naked-eye visibility", it is currently above that level and should remain so for another month or so. (Its most recent maximum was in August and its long period is about 332 days.)

2) Beta Persei (also called Algol - "the winking demon") and perhaps known in mediaeval times or even in antiquity as a variable star, is easily seen in the constellation Perseus and in the autumn evening sky is just to the right of the Alpha Persei group of stars, as if Perseus is holding up the flashing Gorgon's head which so regularly changes in brightness.

3) Beta Lyrae, the "corner star" of the parallelogram of stars that outline the Lyre is near Vega, the brightest star in the Great Summer Triangle. This star is on the side of the parallelogram farthest away from Vega, and on that side that star that is slightly closer to Vega.

4) Delta Cephei is one of the three stars that form the left-hand bottom corner of the five-sided "stick-figure" that forms the outline of a house (and, to the modern viewer, certainly not the outline of a king on his throne as the ancients, with their more active imaginations, saw in this grouping of stars). It is in the northeastern, evening autumn sky above Cassiopeia. Of course, as the night advances the orientation of the "stick-figure house" changes and in the late evening it is currently almost upside down as it move above the North Star, Polaris.

Among the little triangle of stars that mark the left edge of the floor of the house, Delta is the one that is farthest from the "floor of the house". Its discovery as a variable was extremely significant in the history of astronomy and cosmology, since, in the case of all this and all similar pulsating variables, the relationship between their period of variability and their actual luminosity (no matter in what part of the galaxy they were found, or in whatever other galaxy they were found) provided, through a simple calculation the distance scale of the galaxy (and even the distance to nearby galaxies in which Cepheid variables could be distinguished and monitored). Historically then, this star, as a variable star, was extremely significant indeed in the science of astronomy! Let's keep that in mind as we observe it!

Monitoring the variability of these stars is easy, using the comparison stars given on the maps in the *Observer's Handbook* (page 242 in the current 2002 edition). Remember that decimal points are omitted to avoid confusion with the dots used for stars; the number 41 on these and on all variable star maps means the nearby star has a magnitude of 4.1, and it may be used for comparison purposes with the current brightness of the variable star, which is marked by a small circle with a dot in the middle. Remember also that red stars sometimes tend to appear a bit fainter than they really are, especially to beginners who sometimes star at them a bit too long while taking the estimate - instead of glancing and then looking away and then glancing back.

In regard to the periods of variability of these four stars, there is a very interesting range as we go from one to the other, and one that is very instructive for beginners. **Omicron Ceti** ranges from about magnitude 3.4 (though even that changes from time to time, and occasionally it has been seen as bright as a magnitude 2 star!) to magnitude 9.3 over a period of about 332 days, which is about 11 months. It is easy to understand, because of its range, why it will be necessary to have binoculars for this one as it fades over the coming winter months. However, because of its slow change, it is not necessary to monitor it every night; doing so on a weekly basis is usually sufficient. This star is the prototype of long period variability (usually several hundred days) caused by a star's pulsation.

Beta Lyrae has a period that is very regular, and its range is also very regular. The period is usually given as 12.939854 days. Converting this number means we can express it to the nearest second! It would be 12 days, 22 hours, 33 minutes, 24 seconds!! The range is from about magnitude 3.3 to 4.4, and two of the three other stars in the parallelogram mentioned above are used in making estimates. Not really very difficult to do! This is a two-star system involving stars of unequal brightness. The careful monitoring of brightness shows that there are two "drops of brightness" in its cycle, a large one when the fainter star is almost completely blocking the other one, and a smaller one when the geometry of the two eclipsing stars is such that we have the brighter member partially blocking our view of the fainter one.

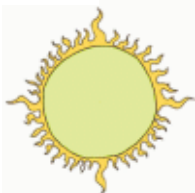
Beta Persei (Algol) over the many many years when it has been observed has been seen to be extremely regular in its range of variability and particularly in its period. The range is from mag. 2.1 to 3.4. The period is given as 2.867315days, and with great accuracy possible, it may be

converted to 2 days, 20 hours, 48 minutes, 56.02 seconds!! Simply amazing in its regularity!! How easy to see that when Bayer recorded this star on his atlas in 1603, the star was not at minimum that night! When at maximum, it is so obviously the second brightest star in the constellation, and therefore, of course, was designated Beta by Bayer. However, when seen on a night of its drop to minimum, it is just as obviously the fourth or fifth brightest star in the constellation!! Very, very easy to monitor!! No wonder it has been seen "winking" for centuries!!

Delta Cephei is also very regular in its cycle. Careful monitoring over many years has shown that it takes about four days to descend to minimum and 1½ days to climb back up to maximum. Its period is about 5.366341 days or 5 days, 8 hours, 47 minutes, 32 seconds!! During that time the range is from magnitude 3.5 to 4.4. Estimates are very easy to make because the comparison stars are so close to Delta. Two of them are the other members of the trio mentioned above (Epsilon and Zeta Cephei) and a third is nearby also, right near the "floor of the house" of Cepheus, as mentioned above. This star is a very important prototype of variable star, a type of pulsating star whose period is much shorter than that of the Long Period Variables (LPV's); their periods are usually from about a half-dozen days to about two dozen days.

Regular monitoring of variable stars provides us with the skill to follow the brightness changes of a nova, whenever one is announced and when we are able to locate it in our skies. My first two weeks' observations of Nova Sagittarii 2002 #3, which was discovered on October 22, 2002, showed me that within two weeks, it had faded by three whole magnitudes, from my observations, which were as follows: Sept.23 - mag. 6.5; Sept.25 - mag. 6.8; Sept.28 - mag. 7.5; Sept.30 - mag. 7.8; Oct. 3 - mag. 8.0; Oct.5 - mag. 8.2. Regular monitoring of variable stars provides us the chance of discovering a nova, just as our Kingston Centre member, Warren Morrison, did when he spotted the nova in Cygnus a number of years ago, or when the same very careful observer also saw the outburst of the recurring nova, RS Ophiuchi. These two significant discoveries by one of our members made his observing skills well known internationally in the astronomical community.

All members of this Centre, who do not already do so, are urged to begin as soon as possible with a regular program of monitoring variable stars. Begin with a couple, or with only a very few, such as the four just mentioned. (New members certainly need not worry about competing with our senior member, such as Ray Berg, or Richard Schmude who regularly monitors a list of 150 or more variables.) Use **The Observer's Handbook** and **The Beginner's Observing Guide** with the above guidelines. Later buy, or borrow from our Centre Library, a copy of the excellent text written by David Levy, our Honorary President, and mentioned above. Let's brighten to fruition, in a very meaningful way, the suggestion given to us by David in his memorable talk to our Centre twenty-five years ago!



FALLING N STARS 2002 Sept 6-8 by Don Cooke

When I arrived at the Vanderwater Conservation Area I really was unsure of what to expect. At the registration tent the first question asked of me was "How many signs did you see on the way in", "Three" I replied. Not bad they stated there was seven. After registering I quickly set up my camp and scope before darkness settled so I would not blind anyone with my interior lights. I then wandered around for a while looking over the equipment of others and waiting for darkness.

There were several members from both Belleville and Kingston that were helpful with tips and printed information. Ken Kingdom and Peg Hurley come to mind but there were several others. But one name, Hank Bartlett, needs special mention.

When Friday night observing started I had the good fortune to be set up with Hank B. on one side and a lady who seemed to be in the same position as me, that is needing help, I have to give Hank full marks for his patience when explaining, showing encouraging and guiding both of us through the basics in setting up and orientating our scopes. He then spent hours showing us how to acquire and interpret observing information and then how to use the information throughout the weekend. Hank also inducted me into the Fireball association. This type of help is priceless for a beginner and only re-enforces one's confidence to participate fully in club activities. This assistance was the "High Light" of my first star party.

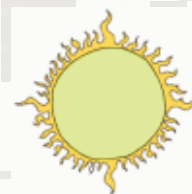
With the above mentioned assistance and encouragement I managed to start on my own Messier List with 7 (seven) objects found and the confidence to continue searching for the remainder. I also saw many objects (far too many to list) in other observer's scopes.

Last but not least I would like to thank the organizers for a fun party, an EXCELLENT meal and great door prizes plus the grand prize, the two volume set *The Night Sky Observer's Guide*, which I now own.

Keep up the great work organizers and Thanks again.

Editor's Corner

by Kevin Kell



First: in our ongoing saga of talking about asteroids with local connections (see *Regulus* 2002 July issue) ... and a possible research project for the 61cm Venor telescope... filling in some of the "unknowns" listed in the physical properties below.

6115 Martinduncan

1984 SR2

1984-09-25 by B. A. Skiff at Anderson Mesa

Named in honour of Martin J. Duncan (b. 1950) of Queen's University, Kingston, Ontario. Duncan has made several important contributions to the understanding of the origin and dynamical evolution of small bodies in the solar system, particularly comets and the likelihood that they originated in the Kuiper Belt. He has been involved in the development of two important numerical algorithms that have led to orbital integrations of unprecedented duration.
MPC 27461

Asteroid 6115 Martinduncan (1984 SR2)

Alternate Designation: 1989 CF8

(The following elements will allow you to "plug in data" into various programs like Starry Night to plot a stargram of its location)

OSCULATING ORBITAL ELEMENTS (heliocentric ecliptic reference frame)

Epoch of Osculation (Julian Day, ET)	2452400.5
Epoch of Osculation (Calendar Date, ET)	2002-05-06
Mean Anomaly (deg)	92.43005
Argument of Perihelion (deg)	66.68972
Longitude of the Ascending Node (deg)	316.3604
Inclination (deg)	4.89458
Eccentricity	0.1552401
Semi-major Axis (AU)	2.2264072
Perihelion Passage (Julian Day, ET)	2452088.9584204
Perihelion Passage (Calendar Date, ET)	2001-06-28.4584198
Perihelion Distance (AU)	1.88 0779 524

PHYSICAL PARAMETERS

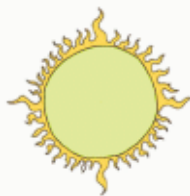
GM (km ³ s ⁻²)	unknown
Radius (km)	unknown
H (absolute magnitude)	14.100
G (magnitude slope parameter)	0.15
Color Index (B-V)	unknown
Rotation Period (h)	unknown
Geometric Albedo	unknown
Spectral Class	unknown
Orbit Solution Data Arc	1984-1999
Observations used in Orbit Solution	80

Second: We've taken up variable star observing in our copious spare time! Look for KKL (Kevin Kell) and HKY (Kim Hay) on the AAVSO data web site. So far we've started small with 1855-22 Nova in Sagittarius, but we're planning on expanding that! If *YOU* are an AAVSO observer, please send us your initials so we can maintain a RASC-KC list and possibly organizing coordinated observing projects! :)

Lastly: a note about submissions from members. I am always looking for more from everyone... even if it is just a paragraph or two about your recent observing experiences. As an example, in our next issue will be a photo essay on the telescope piers that we have built in our back yard, as the more expensive observatory will have to wait a while longer.

Webmaster's Corner

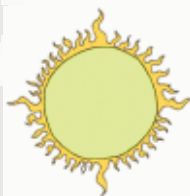
by Kevin Kell



Locally: Imagery from FallNStars 2002, updates galore on minutes, motions, events, etc.

Nationally: Interested in **National Council**? Past meeting minutes all the way back to 1990 are now online! Other new info includes **General Assemblies** back to 1984 with photos and information on who Chaired them, the attendance and who spoke. Note that I am looking for more from 1983 and back!

Kingston Centre Membership Information



Current Membership Total of the Kingston Centre (as of September 30, 2002): 156 (down from 159 last issue)

Welcome our new members!

Zach Dickeson (new youth member) and **George Fortier** (transfer from unattached)

Notes from the Secretary

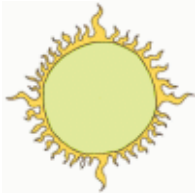
Minutes of Friday July 12th Regular Meeting

submitted by Susan Gagnon

At 19:30 Peggy called the meeting to order and asked for a quick round of reports. The secretary report was brief with a reminder about the Charleston Lake night with Terry Dickinson, August 12. The Secretary also informed the members that the nominating committee has been notified that she will not be running again in November. John as Treasurer reported that we are operating with a balanced budget, and for members to keep an eye out for their renewals in the mail. Kevin reported for Tom as observing chair that the next observing session for members will be at John and Peggy's, Public observing will be Tuesday and the August 16 meeting at Mark's will have an observing opportunity if the weather will cooperate. Our Editor reports the next issue of Regulus will be out the end of August. Other important date reminders were Starfest, Fall'N'Stars, Huronia, Leo also announced that he had some public events coming up in Sharbot Lake August 3 and 16, anyone who wanted to help out should let him know asap.

Kevin gave a brief report on The Sky is the Limit Festival with an estimate of ~400 visitors to the display to talk and observe the sun. Jan will host a CCD meeting July 20th. Camera Building continues and more new parts have arrived. (Yes, last year the CCD meetings were suspended for the summer.) Dave M. brought a selection of books from the library. Hank reminded everyone that you can take out the slide sets to look at without having a school

visit to do. Doug then did the Sky this week, and pointed out some highlights easily seen in the am and pm sky. Leo pointed out that the Perseids had already begun even though the peak is not due until August 12th. Doug then introduced our speaker for the evening who was our own Fred Barrett. Fred gave us a presentation of the evolution of his observatory plans including pictures and rationale for various choices. For variety there were also photos of Fred's buddy Bob's observatory in Kanata, Jan's in Harrowsmith, as well as Leo's in Sharbot Lake. A well rounded presentation, Fred discussed many factors such as existing buildings, space available for the structure, available horizon, available cash, and building to suit your equipment, intended use, and local conditions. The meeting closed with a variety of slides and observing reports. Laura reported that the Tower hill lease was in the process of being amended and we were awaiting it's return. The meeting adjourned at 2140.



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 Tom Dean if you are interested in hosting a session.

The **October Session** was held at the home of Kim Hay and Kevin Kell in Yarker (see above address) on Saturday October 5th with 7 people turning out to mostly clear skies

November and December sessions are
To Be Announced

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.

2002 Officers and Executive Council

PO Box 1793, Kingston, On K7L 5J6
Infoline & answering machine: 613-377-6029
Email: rascexec@cliff.path.queensu.ca

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

President: Laura Gagne
Vice President: Paul Winkler
Secretary: Susan Gagnon
Treasurer: John Hurley

Librarian: David Maguire

Editor: Kevin Kell

National Council Rep: Peggy Hurley

2002 Committee Chairs

ATM Group Chair: Doug Angle
Astronomy Day Chair: Kim Hay
Awards Chair: Peggy Hurley
CCD Group Chair: Jan Wisniewski
Education Group Chair: Laura Gagne
FallNStars2002: Kevin Kell
Light Pollution Abatement Chair: Kim Hay
Observing Chair: Tom Dean
Publicity Chair: Kim Hay
Social Activities: Susan Gagnon

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. Subscriptions: Members of the Kingston Centre receive Regulus as a benefit of membership. Advertisements are free to members of the Centre. Commercial advertising is \$15/quarter, \$25/half page, \$50/ full page and should be in electronic format.

Contributions are more than welcome. Submitted material will be edited for brevity or clarity. Copyright 2002 All rights reserved. Permission is granted to other publications of a similar nature to print material from Regulus provided that full credit is given to the author and to Regulus. November 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: Box 2033 Kingston Ontario K7L5J8 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/kingstonmanual20011203.pdf>
- **RASC National manual** at
<http://www.rasc.ca/private/rascmanual2002jan.pdf>
- **RASC-Kingston Centre Loan Program** at:
<http://members.kingston.net/rasc/loan.htm>



Kingston Kosmic & Event Kalendar 2002

Prepared by Kim Hay

Month and Date	Event
November 3 (Sunday)	S. Taurid meteors peak 3:00 am (EST)
November 4 (Monday)	New Moon 15:34 pm (EST)
November 5 (Tuesday)	Public Observing Session –Murney Tower 17:30-19:30 pm. (EST) King and Barrie Sts. (weather permitting)
November 8 (Friday)	General Annual Meeting and Elections Stirling Hall, Theatre D, Queens University 19:30 pm. (EST)
November 9 th (Saturday)	STAO (Science Teachers Association of Ontario) Conference in Toronto - we are presenting
November 11 (Monday)	1 st Quarter Moon 15:52 pm (EST)
November 13 (Wednesday)	N. Taurid meteor peak 2:00 am(EST)
November 16 (Saturday)	CCD Imaging at Doug Angle's 19:00 pm (EST)
November 18 (Monday)	Leonid "a" meteor peak 23:00 pm (EST)
November 19 (Tuesday)	Leonid "b" meteor peak 5:36 am (EST)
November 19 (Tuesday)	Penumbral Lunar Eclipse visible in all of N. America 20:34 pm.(EST) Full Moon at 20:34 pm. (EST)
November 23 (Saturday)	Kingston Centre -RASC 2003 Awards Dinner 18:00 pm (EST) (\$25.00 per person)(Olympic Harbour Restaurant for tickets contact Susan Gagnon at the meeting or email at sdgagnon@post.kos.net)
November 27 (Wednesday)	3 rd Quarter Moon 10:46 am. (EST)
December 4 (Wednesday)	Total Solar Eclipse in Africa and Australia New Moon 2:34 am. (EST)
December 10 (Tuesday)	Public Observing Session –Murney Tower 17:30-19:30 pm. (EST) King and Barrie Sts.(weather permitting)
December 11 (Wednesday)	1 st Quarter Moon 2:34 am.(EST)
December 13 (Friday)	KC Regular Meeting, 19:30 pm (EST) Topic- TBA Stirling Hall , Theatre D. Queens University
December 14 (Saturday)	Geminid Meteor Peak 4:00 am (EST)
December 19 (Thursday)	Full Moon 14:10 pm (EST)
December 21 (Saturday)	Winter Solstice at 20:14 pm. (EST)
December 21 (Saturday)	CCD Imaging at Doug Angle's 17:00 PM (EST)
December 22 (Sunday)	Ursid Meteor Peak 13:00 pm. (EST)
December 25 (Wednesday)	Christmas Day – Merry Christmas from the Kingston Centre
December 26 (Thursday)	3 rd Quarter Moon 19:31 pm (EST)
January 1, 2003 (Wednesday)	Happy New Year- Clear Skies from the Royal Astronomical Society of Canada- Kingston Centre
January 2 (Thursday)	New Moon 15:23 pm (EST)
January 3 (Friday)	Quadrantid Meteor Peak 19:00 pm (EST)
January 10 (Friday)	KC Regular Meeting, 19:30 pm (EST) Topic- TBA Stirling Hall , Theatre D. Queens University
January 10 (Friday)	1 st Quarter Moon 8:15 am (EST)
January 14 (Tuesday)	Public Observing Session –Murney Tower 17:30-19:30 pm. (EST) King and Barrie Sts.(weather permitting)

For more detailed information, please refer to the RASC 2002/2003 Calendar, and the RASC 2002/2003 Observers Handbook. Available from your local promotions committee or from National Office, <http://www.rasc.ca>

Effective 2002 January 11th WebSite Passwords for Member-only Secure areas:
RASC-Kingston: user: xxxxx pass: xxxxx RASC-National: user: xxxxx pass: xxxxx