Regulus

R.A.S.C. Kingston Centre Newsletter
1989-02/89-03 Edition

December, as is always the case, brings the end of the Centres fiscal year. Elections, therefore, were the order of the day for the 88-12-09 meeting of the R.A.S.C. Kingston Centre. After summing up the years events, voting was carried out. These people, some new faces among them, now represent our centre:

David Levy	Honorary President
Denise Sabatini	1989 President
Hein van Aspern	Vice President, 2nd RASC Rep.
Eldon Adams	Secretary
Murray Anderson	Treasurer
Leo Enright	RASC Representative

Our on-going Librarian is David Stokes, the library taking up an ever increasing part of his household. Contact David (in Sydenham) for directions and book availability. It is a sad fact that all of the posts were uncontested, and that so few members took part in the election process. However, it can be noted that the new president is highly qualified, being a Past President of the Syracuse Center.

A topic of interest raised by outgoing President Ruth Hicks was a letter from Roy Bishop about the lack of reasoning ability in university students. It dealt with students being able to think out an answer rather than spewing facts and figures. A test for 1st year finishers on basic celestial mechanics and fundamental astronomy (reprinted later in this issue) was presented to the meeting. I am sorry to say that the students did not fair well on this type of quiz. Discussions of the test were still going on well after the meeting closed. Annual reports were also read, but if you want to know what happens at the meetings I suggest that you attend and take part. Copies of the texts of reports are available to those that want them from the people who wrote them. In closing, you will note that a new editor has also been appointed. Many thanks go out to Leo Enright, who has held this job since the big bang. He has published regularly with little journalistic support from the Centre and has made this letter read around the RASC. I hope this means he will have even more time to gaze at the stars, and I am sure that his prose will show up here from time to time. Clear skies.

Deadlines for newsletter submissions are the tenth day of odd numbered months. Hopefully, the letter will arrive around the first of the next month. Any articles from anyone will be considered and letters to the editor about any relevant topic will be greatly appreciated. Send them to:

Mark Kaye
Box #15
RR1 Inverary
Ontario, K0H 1X0

I use an ASCII Word based word processor, so any similar word on 13 cm disk would be easy for me to translate for typesetting. I will return all disks. If you mail them, I have no idea how they will arrive, so send a printed copy as well. As soon as is possible, I will be getting a modem for article transmissions. Stay tuned for further information.

It was brought to my attention that several of the club's valuable eyepieces are unaccounted for. If you have one or more, please let Murray Anderson know. He has the club scope at present. Any member of the Centre is welcome to put the scope to use. Larry Manual has put a lot of time and effort into upgrading the performance of this 25 cm mirror. A new mirror mount and tube have made the scope into a fine light bucket. Perhaps it is time for the mirror to be sent out and resilvered to match the quality of its surroundings.

The next meetings are 89-02-10 and 89-03-10 (actually 11-01:00 UT). They will take place at 20:00 EST at Queens, Macintosh-Corry, room D-214. There were not any topics scheduled at printing time. The mailing address for the Centre is:

Royal Astronomical Society of Canada
Kingston Centre
P.O. Box 1793
Kingston, Out. K7L 5J6

MK

Sky Calendar

February and March night skies are probably the least viewed of all night skies. This is hardly a puzzle, as one has to have the constitution of a polar bear and gray matter in serious question to do more than a quick glance at the stars. The milky way is much thinner in the winter, as we are looking out of our galaxy through the arms of our spiral. However, there are many of the brightest stars adorning the cold nights and one of the most spectacular arrangements of stars in the entire sky, Orion. It is amazing how much like a stick human this constellation is. Throughout legend, these stars have been seen as a person, usually a warrior (wonderful!) There are few other constellations that are common from one culture to another. Orion is a hotbed of stellar procreation. Depending on the depth of filtering, many different nebulas and star forming regions are visible. I suggest observing on good clear nights or trying one or more of the many nebula filters that are available. Do not forget M42 when showing off the night sky to greenhorns. One would have to be blind or callous not to react to the visual splendor that this Messier object displays. The nearby Rosette Nebula and cluster in Monoceros is also a good object, but more challenging. Try and trace the nebular material all around the cluster. If you can see it all, then the night is very fine.

The winter sky has many open clusters to present to the eyepiece. Scan slowly anywhere through the Milky Way from Cassiopeia all the way down through the sword of Orion and on into Puppis. In Cas. although fairly faint, there are several large population clusters. Once you have found them, try higher power to reduce the skyglow and relax and let the cluster grow in the eyepiece. Especially nice is NGC7789. Moving southward, one will come across the beautiful double cluster in Perseus. It is hard to believe that Messier and friends did not ever see this cluster. Visible to the naked eye, this pair is another good showpiece. Look for all the different colours of stars visible here. Continuing south, into Auriga there are three fine clusters and on into Gemini where there is one more. I always think of these as a group and I have a sweep plan that leads me one to the next. My favorite is M35 because of the density of stars and because of the nearby faint open cluster that has probably been mistaken for a comet once or twice in the past. Another cluster with a hidden gem is M46 in Puppis, here hides a ghost like planetary. M93 ends the cluster search, while quite bright, it is close to the horizon most of the time and suffers accordingly. Do not forget M1 while sweeping Taurus down towards Orion, this object stands up well to higher power. All of the objects mentioned are listed with directions in the Handbook.

For slightly more challenging objects, try NGC891 in Andromeda. This is an edge on galaxy that sports a dust lane. What size scope is needed to see the dust lane? I have seen it in a C11 at 150X. It was an impressive sight. NGC2403, in Camelopardalis, is not a hard target, but its size can make it difficult from light infested areas. While here, move about 10 degrees north and slightly east to NGC2655, an easier target because of the bright centre. Galaxy hunters are harder pressed to find bright zenith targets in the winter, luckily for them, spring is full of these little wonders. Nebula viewers have a lot to choose from though. As mentioned, Orion is a good place to look. If you tried the Rosette and found it easy, then see how much of the Horsehead is visible. Conditions have to be spectacular to see the dark nebula, but much of

the faint emission stuff around the eastern most star of the belt is visible. Make sure that you are not viewing ones breath. This can make even the dullest star into a beautiful nebula, so be careful. Gently heating the eyepiece helps remove these unwanted guests. Other nebuLas worth trying for are NGC2392 in Gemini. If you see a clown though, I will send for the padded van. NGC2261 in Mon. is an interesting one. This is graphic proof that seeing is not always believing. Of course M45 is a great target for faint emission nebula. This is a huge object, that few eyepieces can see all of. Conditions have to be fine in order for scattered light not to make a mess of the light from the cluster. A good thing that the cluster is pleasing by itself (but hardly challenging is it?)

Events to Look forward to. Juno is welt placed for its 89-02-21 opposition. One would have to look at this object night after night to be sure of its motion. Regulus and Antares go through a plethora of occultations this month, and March as well. Of course this information is only good for travellers to Australia and the like. The same goes for both eclipses. Oh well, it would have been cloudy those days anyway. 89-02-01~12:58/14:20 UT the Moon occults Tau Scorpius. I must be missing something important, because I figure the Sun rises at 12:23 UT, meaning this happens after sunrise. However, as far as I figure, on 89-03-03~11:00 UT the moon occults Tau Sagittarius during nightfall.

March is a good month to try a Messier marathon, it being possible to see almost all of the catalogue in one night. Be prepared for the cold, replace lost fluids and use about five more layers of clothing than you would normally use outdoors. As for the planets, Jupiter is well placed for early seeing, being near the meridian at sunset. Mars is fading fast, as it falls away from us in our celestial tag game. Although a sight at its fall opposition, clouds did a number on this one for me. Venus is on the way out of the morning sky as Feb. begins and along with Mercury, will be out of sight for March. Saturn is in the early morning sky, best wait for a few months till it is warmer, as well as higher. Uranus and Neptune will be trucking along with Saturn throughout the year. 1989 is a special year for Neptune viewers, as later on this year, Voyager II will fly by on its trip to the stars. I wonder what secrets it will reveal and how many new satellites? 89-03-20~15:28 heralds the arrival of spring. The sun stands over the equator, on its northward journey. Of course, we will still be in the dyeing gasps of winter for the vernal equinox.

MK

Exercises

This is a test that our Society President, Roy Bishop, gave to his first years students at Acadia. This was given to people that had finished the course, not frosh. Bishop was discouraged that his students could not reason, instead preferring facts and figures that could be memorized. I suppose that this is a sign of the pressure that the teaching world is under to push students through rather than to make them scholars. (Teachers country wide will chuckle in despair.) Students arrive at the university level unprepared to use their brains. Oh well, be thankful, I hear that 3 out of 4 of them can read and write.

1. If you stand facing north at night, due to Earth's rotation a star a few degrees east of the north celestial pole appears to move:
   1. right 2. left 3. up 4. down 5. does not move
2. When the Moon is seen low in the eastern sky just before dawn, what is its phase?
   1.waxing crescent 2. full 3. waning gibbous
   4. new 5. waning crescent
3. The Moon crosses the Victoria meridian approximately every:
   1. 12.5 h 2. 25 h 3.7d 4.27d 5.29d
   (prompting several people to look up the longitude of Victoria!!)

4. Suppose you are in Victoria. If, toward the northwest, you see a first quarter Moon near the horizon, what month is it?
1. August 2. March 3. December 4. June 5. September
5. A waning gibbous Moon is located near the vernal equinox in the sky, what season is it?
6. Assume it is midnight in Victoria and the Moon is near the meridian and very high in the sky. What month is it?
1. August 2. March 3. December 4. June 5. September
7. Most locations in space (locations selected at random anywhere in the Universe) receive an amount of light:
1. much greater than daylight on Earth
2. comparable to daylight on Earth
3. comparable to moonlight on Earth
4. comparable to night-time starlight on Earth
5. much less than night-time starlight on Earth

As in university text books, answers will not be given, but I welcome (and I am sure Bishop will as well) discussion on the questions and the ideas that they raise. I remind you that astronomy is still a science that requires the use of math and in fact, the proper use of facts and figures can lead to a greater understanding of the Universe. But do not forget that the beauty of the heavens is what prompted us to become amateurs and that beauty is what we should show to others to help get them interested in the skies. By the way, the score on many of the questions was roughly equal to the statistical mean for guessing. Does that say anything?

Standards

All units of measurement used throughout will be metric. Time will often be expressed in Universal. Year-Month-Day-Hour:Minute:Second. A solidus (/) indicates passage of time. Remember that Local Kingston time is behind UT. Eastern Standard (EST) is five hours behind, Daylight (EDT) is four hours. This can cause a date screw-up in the evening for astronomers. Remember that any time after 19:00 EST of X day is X+1 day UT. It can be very disappointing to set up for an occultation on the day after it has happened (the mere fact that it was clear should have been your first clue.) Sky measurements will be in degrees with north being the reference. This takes some practice, especially around the horizon, where everything looks bigger. Some useful gauges: The Moon and Sun are both nearly 1/2 degree. The pointers in Ursa Major are nearly 5 degrees.

MK

88-12-01-22:00/02-04:00

From the Eyepiece

November and December are not the greatest months of the year for observing. It is a pity, because the nights, while not balmy, are still not that cold. But because of the unpredictable and fickle weather it is not often clear. Even worse is the tendency for clouds to roll in just as thermal balance has been achieved. It is a rare night indeed when the sky will be clear all night. I would like to tell you about such a night, but alas, I cannot. What is worse is that there is a fine display for the observer. The autumn sky has some of the finest galaxies and one does not have to wait long for the stars of winter to appear, with out the snow.

How quickly now, falls the night. The sun sets and the stars appear. Still high over head are Vega and Deneb, but the teapot is gone. In fact Vega can be seen any clear night, if you wait long enough. Because the keystone of Hercules would soon be setting, and I had a new 19mm Tele-Vue eyepiece to christen, I pointed the scope towards M13. The 1.2 deg. real field was wide enough to also show NGC 6207, and inspired hope for a good night,because of the nearness to the horizon. At mag. 11.3 this is quite a faint small object. I

I have since learned of a cluster of galaxies not far from M13 that I will probably have to wait until next year to try for (inc. NGC6196). With a quick stop at M57, to get an idea of just how powerful my new eyepiece is (53x), I scanned on up towards the autumn sky. Quite by accident I crossed NGC6992 and because I was a bit turned around for a minute, I could not figure out what this huge object was. I thought I was on the wrong side of Cygnus for the veil. Soon, after following this all the way around in a big disjointed arc I knew exactly where I was.

The more I looked, the more I was pleased with my new purchase. The combination of power and true field width was very fine. I was working with only .2 deg. true field less, but twice the power of my 36mm Plossl. The power is high enough to just split some doubles, (Castor for example) and the field is wide enough to provide a good view of most of M42. The field is distorted in a nonlinear fashion and at first I found this to be a distraction while scanning. A star travelling through the middle of the field would go in a straight path. One more to the edge would trace an arc. Stars would appear to "fall in" to the view, slow down and then "zip out". This is caused by the variable focal length created by the wide field of the eyepiece. When the scope is not in motion, this effect is not noticeable. To accommodate, I move in little .5 deg. jerks, pause and view, then move on. At 200 bucks, this expense could seem like an extravagance, but the eyepiece is 50% of the scope. It does not make sense to scrimp here. I often wonder how many budding astronomers are put off by the lousy view they get from their 20mm Hygens eyepiece sold with 13 other useless accessories along with their first scope. If the manufacturers only just included one good eyepiece instead. I have a friend in Deep River who built his own reflector. He showed it io me and I was not impressed with the view. The next time I visited him, I brought along some good eyepieces. He was ecstatic. He confessed to me that he did not observe, because he could not find anything with the scope anyway. He thought it was the mirrors fault. With good eyepieces, his scope became a fine telescope.

I digress. I worked along just above the ecliptic, through Aquarius and Pisces, looking through an area fairly void of bright deep sky objects. Stopped on NGC7479, a galaxy actually in Pegasus and paused, not a whole lot of detail to this small oval. As usual, I hoped to chance upon a small fuzz that is not on any charts. I did not find any. I can dream though. It took thousands of hours for our HP to find his first comet and my searching still numbers in the low hundreds. After a time I came across M74, (I do know where to look though!) one of the more difficult of Messier objects. It is easy to just sweep past this faint spiral. Quite near is NGC772, another faint spiral, very similar. While I was in the area, I stopped scanning and moved up to M33. This is a fine galaxy, one that I look at when ever its in the sky. This object can be spoiled or obliterated, by any haze or light. I was not afforded a long view before it was spoiled. A roll of late fall clouds quickly put an end to this observing session.

The clouds that rolled in are just one of the many things that can get an observer down. In the April issue, I will talk about the observing in Jan and Feb. Stay tuned for discussions on seeing in Jan. around the centre. Also in the next issue, I hope to start a column of book reviews, both non-fiction and fiction. So if there are any interesting books out there, do not hesitate to review them for me.

MK