R E G U L U S

THE NEWSLETTER OF THE

ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE

INTERNATIONAL ASTRONOMY DAY 1984 SPECIAL EDITION

MAY, JUNE 1984

SPRING OF 1984 - A SEASON OF CONTRAST FOR THE OBSERVER

What a time of contrast it has been during the spring of 1984!The observer has had to wait in frustration during long periods of bad weather. Then he has been modestly rewarded by clear nights for a certain while - just long enough for him to hope they could continue for another day or so - at least until he could complete a project he has been working on. But alas! He has found that the clouds return to haunt him for another couple of weeks.

Most astronomers in the area found the month of February a time of excruciating disappointment. The bad weather simply would not go away. As a result only about two nights gave us good clear skies.(One night - that of February 16-17, could hardly be counted as ideal for the 'deep sky' observer since a perigee Full Moon occurred that night; planetary observers would scarcely want to count it either: my observing log indicates that the 'seeing' was "not very good.")

February's trend continued into March; in fact, until March 24th there were only a couple of nights that gave us clear skies or a few hours of the unshrouded firmament. But, on March 24th the turnaround came and a magnificent contrast it was. The last week of the month was beautiful. The welcome view of the unclouded heavens continued into April for the first four or five days.

During that period many members of our centre were able to become reacquainted, as it were, with the stars and planets that had seemed almost forgotten. Mercury was sighted a good many times by various members of our group who were surprised at how high it was in the north - west on April 1st when it was in the constellation Aries. The brightening of Mars and the exquisite beauty of the rings of Saturn - now seen at just the perfect angle - could be appreciated once more. The Aurora in the north was "rediscovered" for it was quite noticeable on March 24 - 25, and 27 - 28, and April 2 - 3. The Zodiacal light was so clear on several of those evenings that I was even tempted to try and photograph it. Between April 1 and 3 I saw so many meteors streaming out of Draco that I found myself asking "Is this Delta Draconid Shower intensifying?" and "Is it about to be no longer a minor shower?" What I found most interesting of all about this extended period of good skies was that I had a chance to see Comet Crommelin - finally, though by March 27th it hid become very faint and locating it at all required careful plotting on a good atlas. Solar observations were also a delight during that time with numerous large spots marching across the disk. Between March 24th and April 4th, I found it possible to observe the sun every day but one and to photograph it on most of those days.

As good as the first week of April had been for observing, the second and third weeks again proved very disappointing. That is the way the cycle has been this year. It just seems and is true that of the periods of great contrast, the ones with the horrible weather last much longer. How could we help think

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of our member and good friend in Arizona, David Levy, who happened to mention to me just recently when I was talking to him by phone that he had "just had over 80 straight nights of clear skies."!! Let us hope that some of his spring weather is on its way for the summer of 1984.

A Book Review

A Starhopper's Guide To Messier Objects by Lenore Freeman. Pages iv + 23; 21 cm X 27.5 cm; Everything In The Universe, Oakland, California. 1983. Price U.S. $7.50.

Joining the many books and pamphlets currently available and devoted to the Messier Objects is a very simplified booklet called A Starhopper's Guide To Messier Objects which was originally published in a preliminary edition in 1981 under the title A Shotgunner's Guide To Messier Objects. On light paper of school notebook size, held together by two staples, and in a cover that is only thin paper like the other pages, this booklet is not likely to stand up to much outdoor use at the telescope, especially in places where dewing can be a problem even for books with hard covers and thicker paper.

Even though the objective - that of aiding the beginning observer in locating all the Messier Objects by the "star-hopping" method of starting with an easily located naked-eye star and going from there to the goal of his search - is a very laudable one, this very elementary booklet is not likely to be what such a person needs to become a member of a "Messier Club". It may assist in locating a few of the 110 objects, but the charts are simply far too limited and simplified to help the novice in finding the fainter, more elusive members of the Messier Catalogue. 18 pages of the pamphlet have very rough outlines - just the brightest stars - of most of the constellations which contain Messier Objects; an additional 3 pages show these constellation outlines in relation to each other; finally there is a chart listing all the Messier Objects.

The constellation outlines leave a great deal to be desired. There is no attempt to state the scale of any of these maps; the Coma Berenices 'map' happens to be larger than the one for Cassiopeia. These 'maps' have no indication of direction (though for most of them the top of the page is roughly to the north) and there are no lines of Declination or hours of Right Ascension and no indication of the ecliptic or celestial equator. Inconsistencies appear in naming the stars: it would appear that the intention was to use the Bayer system to name only the α- and β- stars of each constellation, but in Ursa Major, Lyra, and Pisces only the first one is so named and in Triangulum neither is named. The Arabic names are given for some of the bright stars which are marked, but again inconsistencies are easily seen: in Corvus, Gienah is not named but Algorab is; Ras Alhague in Ophiuchus is named but its counterpart, Ras Algethi, in Hercules is not. The Pegasus 'map' on page 13 includes seven of the brightest stars of Andromeda - virtually the whole constellation as if it were part of Pegasus. Although the dots for the stars vary considerably in size, presumably according to magnitude, there is nowhere in the booklet any indication as to what the different sizes indicate: is the smallest dot intended to show a fifth or an eighth magnitude star? A novice observer might use only this booklet to find M42, but it is difficult to conceive how he would succeed in "starhopping" from the bright stars of Andromeda to M76 in Perseus, as he is directed to do,

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or from the stars of Corvus to M83 in Hydra, or even from the bright stars of the Big Dipper to M106 or to M81 and M82.

On the chart at the end of the book, the section listing "Popular Names" for 20 of the Messier Objects could be very helpful for beginners, but the column under the heading"V" (which is explained below as meaning "Visibility Indices"), without a full explanation about what this means, is totally useless for the person likely to be using this booklet. Also,some of the Messier Objects are probably fainter than indicated in the "magnitude" column; M76 is not as bright as eleventh magnitude. In addition, most recent Messier lists (including the Observer's Handbook since 1980) have listed M102 as equated with NGC5856 and not the same as M101; the chart still equates these two Messier Objects.

Any amateur astronomers who expect that with this booklet it will be easier than with their star atlases to locate Messier Objects are bound to be disappointed. If they are so new to observing that they do not yet have an atlas, they would be advised to forget about this pamphlet, add a few dollars to its cost, and buy a good quality star atlas. Only a future revision with numerous corrections and additions could hope to make this "guide" a worthwhile observing aid.

Letters From Far Away

In this issue we have correspondence from our observer in Maryland, Gus Johnson, and from our past-president, Angelika Hackett. Mr. Johnson, one of the most skilled and knowledgeable observers on the continent, has sent along two letters about his recent activities, and parts of them are printed below. In the first one, his report on Tele Vue eyepieces will be of interest, as well as the details on how he saw the Horsehead Nebula. The letter was accompanied by five more file cards of his observations. The second letter was accompanied by a photograph of the summer Milky Way showing what is possible with simple equipment and a one-to-two minute exposure on the new Kodak ASA 1000 print film. The description of how the photograph was 'shot' will be of interest to those who are beginning in the exciting venture of astrophotography. Angelika's letter about the well-deserved holiday that she and her husband enjoyed in Mexico was accompanied by three astrophotos, which included areas of the southern sky that we have never seen in Canada.

Swanton, Maryland,
February 23, 1984

Dear Mr. Enright and RASC members:

I hope observing has been good up your way this year. In spite of the strange weather I have done better than I expected, turning in about 70 observations to the AAVSO in Jan. and 50 so far this month. Dec. broke all records for cold, but Jan. was more average. Mid-Feb. enjoyed ten days of delightful warm weather with afternoons sometimes around 10°C. Most of the snow has melted and even the lake has many open places. A few days ago I saw a robin and the first wildflower of spring. Last night, around midnight I heard what may have been wild goose!

A recent acquisition has been one of those short Lumicon "Super Finders" 80mm x 300mm. So short an f-ratio is limited in resolution, but does reasonably well. I think I wrote of my experience with Gamma AND: 2.4-in. 25x not too easy, but when stopped to 1.6-in, it was almost easy (using the 2.4-in. of 500mm f.l.) The. 3.2-in. (80mm) failed at 25x, but 30x did reveal the companion, although not conspicuously.

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I have the 3.2-in. presently mounted right beside the 2.4-in., so I can easily compare views with some borrowed equipment: Lumicon UHC and H-beta filters and TeleVue's 40mm and 32mm. Last night I tried out this arrangement with 15x on 3.2-in. and 15.6x on the 2.4, but in that the H-beta filter considerably reduces star-brightness, its being on the 3.2 still gave dimmer star images than the UHC on the 2.4. At last I saw the California and Horsehead Nebulae! Both filters showed the California, but the H-beta did best. My 6-in. f/7.8 with 40mm TeleVue and H-beta also showed it, but not as well-a bit too much power. This latter combination was used on the Horsehead and it showed the curtain of light extending from Zeta ORI and infrequently hinted at the extending dark horse. It was perhaps a bit easier in my 8-in, at 29x also with H-beta which also showed that dim lighted nebula close to the horse (with averted vision.) I had to keep Sigma and Zeta out of the field. The UHC showed the curtain, but no hint of the horse; no filter showed neither. Not all nebulae benefit. The one close to Zeta ORI, perhaps a reflection neb., was brighter with no filter. The Orion Nebula seemed best with no filter, but the UHC was almost equal, and did emphasize a part less conspicuous with none. As for the Rosette, UHC is best, followed by none, then the H-beta!

The weather forecast called for clear nights Tuesday thru Thursday, but Tues. was cloudy. I'm glad I used 5½ hours to observe last night for today's warm forecast has been taken back, apparently and we are having a blizzard. So I can't check those observations needing further work.

The TeleVues are fine eyepieces. Both should work well for eyeglass-wearers, having considerable eye relief, constricting the field if the observer cones too close. I had that problem with a formerly-owned 32mm Brandon ortho. The 28mm Edmund RKE has that problem, which Edmund counters by including a rubber eye shield. With the UHC filter in place I note that the apparent field of the 32mm constricts, but not so with the 40mm. The apparent field of the 40mm is supposed to be 43°, which seems narrow after being used to 60-70° fields. The sky background can be rather bright with such a low power eyepiece, but when used with one of the filters this is absent, or nearly so, at least with the H-beta. The 40mm would be very fine to be used mainly in conjunction with either of these filters, but if observing often would be without the filters then perhaps the 32mm would be best, but this depends on your particular instrument's f-ratio and your local sky conditions. With f/6 to f/8 my recommendations apply. Used terrestrially the UHC gives a greenish view. The H-beta gives a beautiful rose-coloured view, making me wonder what the sun would look like as viewed behind certain of the reflection sun filters that require no protection at the eyepiece end. Meade sells two 40mm eyepieces, at a much lower price than TeleVue and with almost as wide a field. If to be used exclusively with the filter, the cheaper eyepiece might be just as well; one should be practical, but one could then spend more for a really good eyepiece for the high power end of the telescope. If the observer owns a long refractor, and can't use 2-in. O.D., then an excellent 40mm TeleVue would be a fine choice.

Clear skies, Gus

Swanton, Maryland,
April 5, 1984

Dear Mr. Enright,

At last spring seems to have arrived. The lake has about cleared of ice, but snow is still piled in my yard. Birds are singing enthusiastically and a few flower buds show (Coltsfoot and Snowdrop). To go along with the

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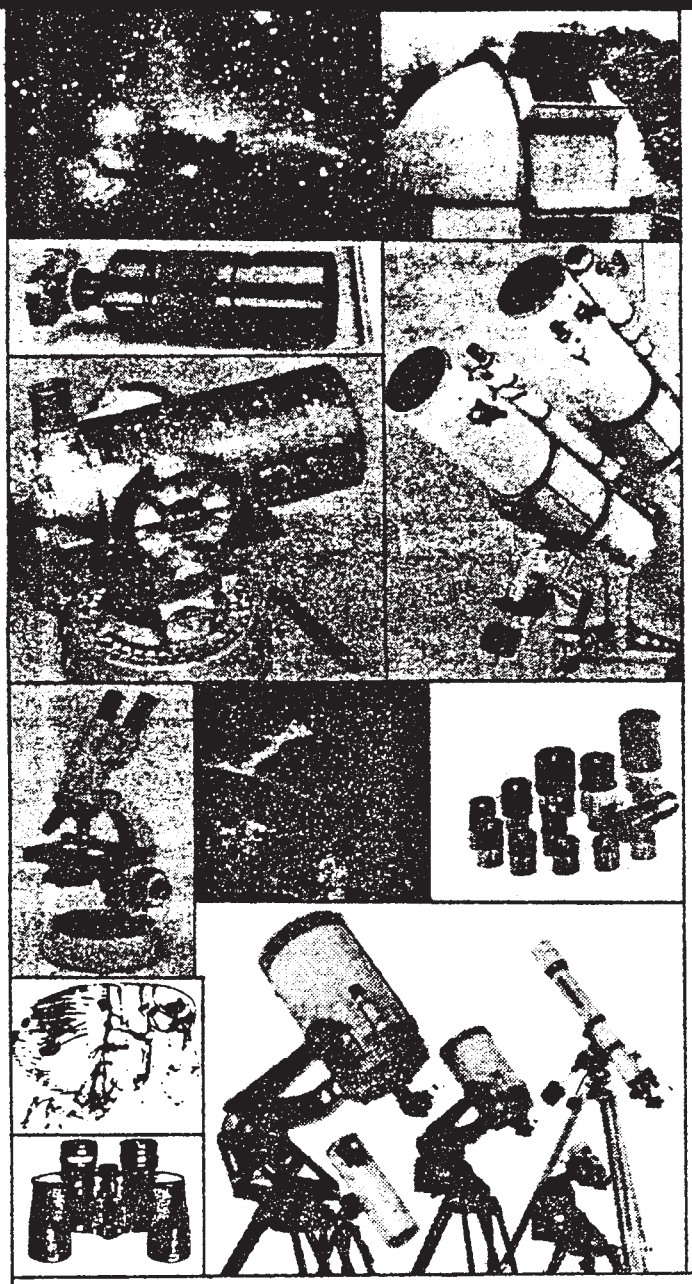

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poor observing of March came over 5-in. of rainfall and snowmelt and another 1.6-in. came yesterday.

In my last letter I may have mentioned trying something different in astrophotography. Since then I obtained some extra prints and am enclosing one so you can let the other members of the centre see if they are so inclined and so equipped that with minimum expenditure, they can take some rather detailed photos using mostly equipment they may have on hand and deemed not suitabled for astrophotography. I used a Unitron altazimuth mount which has slow motions and a bracket for piggy-backing and the black-hat method of starting and ending the exposures. I have written up this method for "Astronomy" for it should be of interest. The new ASA 1000 film is so fast that field rotation is slight with a 2 minute exposure; so altazimuths can be used if they have slow motions. I put a star out of focus and tried to keep the guide star on the cross-hairs at 56x. A finder eyepiece could be made to serve as a cross-hair, wrapping it with cereal box cardboard so it can be made to fit a focusser, if need be. Probably 45-60x is best for guiding. A rising area at 56x can keep one busy with adjusting in both directions, so a high power is not advisable. Even when I lost the guide star a few times, the dim stars and Milky Way did not suffer, when I photographed Aquila. Altair and the bright edge stars showed my mistake, but otherwise I got sharp detail. One minute apx. shows the North America! Field rotation is well-nigh invisible in one minute. The enclosed photo shows very little trailing of the foreground pine trees proving that it was quite a short exposure. With an equatorial, aligning anywhere within a few degrees of the pole is quite adequate and guiding should be quite unnecessary as drive errors should not be obtrusive in exposures so short, and over-exposing of the background is likely to occur. Astrophotography could become too easy, the hardest part being waiting for a suitably clear night. I have not tried the Kodacolor VR 1000 print film with the equatorial as yet. Using the altazimuth is a bit more of a challenge. Guiding a southerly exposure like the one enclosed is almost too easy, as the main attention is to the azimuth motion.

Clear (warm) skies, Gus Johnson

P.S. April 6th

What is that white stuff falling outside? Can it be that spring has again been postponed? What a climate!

Edmonton,
Mar. 16, 1984

Dear Leo!

We hope that you are well and that winter isn't too severe back in Kingston! I read the latest newsletter with great interest, especially the review of Nightwatch, since it came in a parcel from my parents last month, and I'm really impressed with it.

We've been back over a week now and it’s still the middle of winter with -15 or so, and lots of snow and ice. I guess we'll have to wait a few more months for spring.

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Two and a half weeks of exploring are a great length of time to flee from winter — the longest escape we've managed so far. As usual, the week before a trip being quite hectic, we were finishing various jobs until the very last minute. One frantic evening we marked 69 exams for the Introductory Politics course Bob is teaching.

One of our most interesting flights was from Los Angeles to Mazatlan, during which we flew over the whole length of the Baja California peninsula, and it was so clear that we could follow our route exactly along the map, and even recognize the places we had visited 3 years ago in northern Baja.

La Paz was a friendly place, touristy, but not as badly spoiled as Mazatlan or Acapulco, and much cleaner. We relaxed there for 3 days, browsing around the town and getting acclimatized, and then we were on our way in a rented VW Rabbit, around the southern tip of the peninsula. Amazing, how wild and unexplored the mountains and desert are. Once off the main road (the only paved one), you can drive on sandy paths full of holes and gulleys washed out during the rainy season, wishing you had a 4-wheel drive truck. But that's where the real Baja is, and where you won't find any other tourists. People are so much friendlier in the tiny towns. We put up our tent on the beach under palm trees in El Sargento on the east coast, went into town's only "store", in which an elderly senor sold us a piece of local homemade cheese, and then had "supper" on the beach. Of course, we always had several litres of "agua purificada" with us, using it also for brushing teeth. When the fishermen left at sunset, the beach was completely deserted, except for pelicans and gulls. Our only other companions were several owls in the palm trees, and cows, looking for some greenery around our tent. That night was excellent for sky—observing, and I was glad I had brought my tripod for some interesting astrophotography with my new zoom lens. We saw stars which can never be seen from Canada, but the Southern Cross remained hidden behind mountains.

It was exciting to cross the Tropic of Cancer and reach the point where the Gulf of California meets the Pacific. There, in Cabo San Lucas, we stayed 4 days, taking a boat to the very tip, where sea lions and pelicans crowd the rocks, where a hair—raising drive along back "roads" and then a hike to an old lighthouse revealed the widest and most deserted beaches we have ever seen, and where the view back inland towards the the mountains showed a most barren, unpopulated landscape. Actually, southern Baja is still the most sparsely populated state in Mexico. This is where I had hoped to see the Southern Cross at 1 a.m. or so, but the horizon was always too hazy! Astronomers' lament! At this time of year the whales come down from Alaska to mate and bear their young, but we didn't see any along the coast, as we had last year in Hawaii.

At Todos Santos, half—way back to La Paz, we watched dozens of fishermen bringing in the day's catch on another beautiful beach, and ended up all alone for the night in our tent. Several young puppies followed us and played all around our feet — they were evidently without owner and their mother one of Mexico's thousands of stray dogs.

Here's where we saw what must surely have been Zodiacal Light. I had never been certain what it should look like, but for a long time after sunset this cone of light extended along the ecliptic, all the way to the Pleiades (not quite to the Zenith). And another fantastic night for naked-eye observing, but again, the Southern Cross was behind a mountain!

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We spent 2 more days relaxing in La Paz, and since the ferry reservations office was much better organized on this side of the Sea of Cortez, we got a most luxurious cabin for the 16-hour passage back to Mazatlan (only $20, fare included). We met a group of young backpackers from Germany -- unemployed teachers, of which there are now 30,000 or so using their spare time to explore the world. And at 1:30 a.m. I finally saw the Southern Cross, just above the horizon, in a bit of haze. Not too spectacular, but interesting and worth getting up for! Since it was only one night past New Moon, the sky was dark and I examined all those constellations in the south which I'll only see again during another trip. A few tiny meteors appeared also. The one in Alberta must have been quite a sight! I wonder if it has been found yet.

So now back to courses, assignments, exams, teaching at Berlitz, translating -- what a variety of activities! I really enjoy it and am glad that there is some work to be had; I may try some private tutoring as well.

And now the big news: we're moving to Vancouver!! Bob has a one-year teaching position in the Department of Communication at Simon Fraser University. Exactly where we wanted to end up, and we only hope that somehow we can stay there and won't have to leave again after that year.

All the best to you from,
Angelika and Bob

For Your Compendium Of Esoteric Facts

We know that some comets (unlike the recently seen ones such as Iras, Enke, or Crommelin) have very long tails which stretch across a long distance of the sky. Do you know which one was the longest of all? Of the comets in recorded history it was probably the Great Comet of 1843 whose visible tall extended half way across the sky and whose length is estimated at 800 million kilometers, or somewhat more than the distance between the sun and Jupiter! That is a comet tail long enough to encircle the earth at the equator mor than 20,000 times!

Reports And Other Items

1. During the stretch of clear weather at the end of March and for the first few days in April (see the article on page 1) a number of our members observed Mercury. Daytime solar observations also proved very interesting.

   I found it interesting to note that Angelika saw the Zodiacal Light from Mexico (for certainly that is what it was) at about the same time as it was distinctly visible from this area. My recorded sightings were on Feb. 21, Mar. 24, 26, 27, and 31. Except for the poor weather, it likely would have been seen much more often.

2. Our member in Calgary Paul Brown, and his wife, Elwyn, have reported a new arrival in their family, Julian John Mallory. Congratulations to the proud parents and his sister, Lindsay!

3. All our members are reminded of the General Assembly from June 29th to July 2nd in Hamilton. Are your plans finalized? Check the details on page L16 of the February 1984 National Newsletter.

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4. Here is a list of events which should be considered well worth observing in the nexttwo months:

(1) The planets are a delight in the late evening sky. Mars is very bright and larger in the eyepiece than it has been in a long time. Saturn is stunning; its rings are at just the right angle for good observing. Jupiter rises in the late evening and is at opposition at the end of June. Uranus and Neptune are also at opposition in June and are to be found in the Summer Milky Way, The late spring and summer will be a wonderful time for observing the distant planets of our Solar System. Even Pluto may be seen currently by those who have an 8" telescope and are willing to plan their observing carefully and do it under a dark sky.

(2) Of the Meteor Showers to be observed, the Eta Aquarids should be watched. They are known to be associated with Halley's Comet and they peak on May 4th, the day before Astronomy Day. They are best observed in the very early morning.

(3) The night of May 14-15 gives us another penumbral eclipse. (Remember the surprisingly distinct penumbral shading of the moon in the last such eclipse of December 19th, 1983) The penumbral magnitude will be just slightly less than that seen last December and so it may be another interesting sight to observe and photograph. Try to detect the first darkening at about 3:30 U.T. on May 15th (which is 11:30 p.m. E.D.T. on May 14th). Mid-eclipse is at 4:40 U.T. on May 15 which is 12:40 a.m. E.D.T. Lunar darkening may possibly be observable until 1:30 a.m. E.D.T. or even later.

(4) Don't forget the solar eclipse occurring before mid-day on May 30th. From our location it will be a very interesting partial eclipse. Plan your observations carefully.

(5) Here is our calendar of upcoming events and meetings with the proposed list of speakers and topics:

May 5:		**<u>International Astronomy Day</u>**
May 11:	Sue Sorensen	<u>Famous Women Astronomers</u>
May 25:		<u>Plans For Observing The Eclipse</u>
June 8:		<u>Last Minute G.A. Plans</u> and <u>G.A. Papers</u>
June 22:	Mark Sorensen	<u>The Shape of The Universe</u>
June 29 to July 2:		**<u>G.A. at McMaster University Hamilton</u>**
July 13:		<u>General Assembly Reports</u>
July 27:		To Be Announced

All meetings begin at 8:00 p.m. and are held in Room 222 in Ellis Hall on University Avenue.

(6) Always glad to hear from our readers! The address is:

R.A.S.C. - Kingston Centre,
P.O. Box 1793,
Kingston, Ont.
K7L 5J6

Clear skies!
Good Observing!

Leo