R E G U L U S

THE NEWSLETTER OF THE
ROYAL ASTRONOMICAL SOCIETY OF CANADA -- KINGSTON CENTRE

JANUARY, FEBRUARY 1988

ANNUAL MEETING: OFFICERS FOR 1988

At our Annual Meeting which was held on December 11, 1987, the following Executive Officers were elected for 1988:

Honorary President: Dr. A. Vibert Douglas
President: Ruth Hicks
Vice-President: Hein VanAsperen
Secretary: Eldon Adams
Treasurer: Murray Anderson
Librarian: David Stokes
Newsletter Editor: Leo Enright
National Council Rep: Hein VanAsperen
Alternate Rep: David Stokes

All our members extend a sincere "Thank you!" to Mrs. Hicks for her efforts as President over the past year and we know she will do just as well in the same capacity for the coming year as she accepts the challenge of leading our group for 1988.

As usual the Annual Meeting provided the occasion for looking back on the past year and forward to the future. Reports from our Executive officers showed that the past year had been a very successful one and 1988 promises to be a very interesting one as well. Already we have instituted a new meeting format with the Executive Council meeting at 7:15 p.m., that is, three-quarters of an hour before the regular monthly meetings begin in order to clear away the business affairs that occasionally have taken too much time from the regular speaker and his or her presentation.

To those members who have taken on the tasks of our Executive Council members for the coming year, we say, "Your offering your time and talents, whether for the first tine or the "dozen-th" time is much appreciated and we look forward to what you can do to maintain this as one of the most active Centres of the Society."

CITATION FOR MR. HEIN VAN ASPEREN THIS YEAR'S WINNER OF THE R.A.S.C.-KINGSTON CENTRE'S MAJOR AWARD THE DR. A. VIBERT DOUGLAS AWARD

[EDITOR'S NOTE: The following is the text of the citation prepared by your editor and read by our Centre President on the occasion of the award presentation at our December Annual Meeting.**]**

Mr. Hein Van Asperen has contributed generously and enormously to the Kingston Centre over the past number of years. He has served for three consecutive years as Alternate Council Representative or National Council Representative, and in the current year he is serving as the Vice-President of the Centre. His presence has been felt in a very positive way because of his contribution at National Council.

Hein has made numerous presentations at meetings of our Centre in order to share his knowledge and expertise with other members of the group. He has for years been an active solar observer, and his remarkable drawings and precise observations of sunspots and solar activity from day to day have often added considerably to our observing reports. The night-time sky, also, has been the target for many of his observations, as he puts to good use his Questar telescope. A solar eclipse expedition in 1984 was an additional special event that he experienced and reported to our Centre.

His high-precision calculations and methodical procedures for solving complicated problems of positional astronomy have become well known. Indeed, some of his calculations for the solving of age-old navigational problems were worthy of the attention of our naval authorities.

At three of the past General Assemblies there have been exceptionally good entries of his in the display competitions, all of them constructed with the diligence and care for detail which Hein puts into everything that he does. In addition, at one of the General Assemblies, he presented a well-received paper outlining his work in solving a classic navigational problem. Readers of our Society's National Newsletter have also recently noted an article of his concerning eighteenth century telescopes built by Jan Pieters van der Bildt.

Hein's contribution to our Centre has involved considerable time and effort. Only a few members of our Centre members have to drive as far as he does in order to attend our regular monthly meetings; yet, Hein misses very few of them. Indeed, he is one of the most eager supporters of Astronomy Day activities and the numerous other ventures undertaken by our organization.

For these and other reasons, we are proud to present the Dr. A. Vibert Douglas Award, the major award of the Kingston Centre, to Mr. Hein van Asperen.

THE PRESIDENT'S REPORT FOR 1987

by Ruth Hicks

[**Editor's Note:** This is the text of the report given by our President at the Centre's Annual Meeting on December 11, 1987.]

The R.A.S.C. Kingston Centre is enjoying an increase in membership. As the interest in amateur astronomy increases, so are people joining various Centres for the information and fellowship with people of similar ideas.

Our secretary, Sue Sorensen, is turning in her pen, after nearly six years of keeping records and writing letters. We will miss Sue's comprehensive reports. Thank you, Sue, very much for a job well done. Mark Sorensen has set up, printed and edited our newsletter for some time. Thank you, Mark, for your time and effort.

Year's end is a great time to express appreciation to people who have contributed to the success of the Centre to David Stokes, Past-President, who had answers at his fingertips; to Murray Anderson, who kept our finances in order. Leo, our newsletter editor, who made newsletters from articles and letters submitted, but also filled the spaces himself when there were none received. We are pleased with our newsletter and its editor.

Hein in our National Council Representative, and thanks go to him also as Vice-President for taking aver the chair when necessary.

Congratulations have already gone to our Honorary Vice-President, David Levy, who discovered his second and third comets this year.

To the Sauvageaus and Murray Anderson, I say thanks for taking the post with me at Clubs' Night at Queen's University.

We have tried a couple of different things this year a monthly time to observe instead of two meetings a month and our first Annual Picnic.

In 1988 the sky is our limit; so I wish it clear for you all, and a very happy holiday season.

THE ANNUAL REPORT FOR 1987 OF THE EDITOR OF

REGULUS, THE NEWSLETTER OF THE R.A.S.C. - KINGSTON CENTRE

1987 has been a successful year for Regulus, our centre's newsletter, even though the nunber of issues for the year decreased one. For the first time since my becoming editor over ten years ago,the total number of issues was less than six. Because of my workload mainly in connection with the Society nationally, I found it necessary to combine the May-June and July-August issues. However, I feel that the Centre still has an excellent newsletter.

The average number of articles has not decreased significantly, and Regulus continues to

be quoted in the National Newsletter of the Society with entire articles or excerpts thereof being used Recent National Newsletters, for example, have carried articles on the National Council Meetings and summaries of events heid in Kingston, referral to in the section called "Across the RASC". In a recent issue two book reviews have appeared in Regulus prior to publication in the Journal of the Society.

I have continued using a format that has 75 lines per gage and a horizontal indexing that has allowed considerably more words per line than in a previous format; this fact has meant a tremendous increase in the number of words per page over that seen in some previous years, and I believe it is pleasing and as professional-looking as can be expected in a newsletter that is produced in this way. My own computer has managed to survive several years of the doing the job and, if asked, I hope it can continue. There have been no complaints whatever in regard to the format that is being used, and I assume that the readership is pleased with it aid recognizes that a great deal more reading material is being sent to them per page than in many newsletters of similar format, with a consequent saving on the amount of paper that must be purchased and mailed.

A look at the figures for the number of gages and issues over the past eight years presents the following information:

YEAR	NO. OF PAGES	NO. OF ISSUES	AVERAGE NO. OF PAGES/ISSUE
1980	42	10	4.2
1981	26	6	4.3
1982	59 *	7	8.4
1983	70	6	11.6
1984	50	6	8.3
1985	57	6	9.5
1986	43	6	7.2
1987	33	5	6.6

* - including a 7-page index of the articles of the previous five years.

There have been no complaints whatever about the fact that there were only five issues this year with the aim for six issues per year, aid the practice of producsn9 six per year sans to be a now fully accepted and acceptable compromise (if there is such a thing) between what we would desire for a publication that we Pope is "newsy" aid on the other hand what we can afford and find time to produce with some quality.

It is now over five years since an index of Regulus articles has been published. I am inclined to think that it is questionable whether there is any great urgency in producing one for some time yet. However, I hope to consider the matter over the coming year and may be inclined to follow suggestions if I receive any in this matter.

If I should happen to be chosen as our Centre's newsletter editor for the coming year, I would hope to increase slightly the number of pages for the 1988 volume and to have six issues.

I wish to thank Mark and Sue Sorensen and Ruth Hicks who have done a fine job of photocopying and mailing each issue.

If I am chosen to remain in this position, I shall continue to welcome suggestions concerning the newsletter from any members of our Centre, and to hope that I shall receive from them, the members of our Centre, whose newsletter Regulus is, a supply of articles, letters and any other items, long or short, that could be used.

I should also like to give notice that after ten years as editor, perhaps within a year or two I may wish to leave this position in order to serve the Centre in some other capacity and I would hope that someone else would consider undertaking the task.

To all of our members I say again: "it is your newsletter and I invite your regular and frequent contributions." I hope that Regulus can continue as a worthwhile method of communication for a group of interested astronomers spread over a vast area of the North American continent but centred on Kingston, Ontario.

SOME THOUGHTS FOR SERIOUS CONSIDERATION

After reading two articles in the January issue of Sky and Telescope, I thought about their implications and wondered how many other amateur astronomers have pondered them in

a similar way.

One was the article entitled "Do Black Holes Exist?" (page 28). The question was asked seriously; there was nothing facetious, no hidden implication, in this title. The other one was the review of the recently published book, "Quasars, Redshifts, and Controversies" by Halton C. Arp, a thought-provoking review by Geoffrey Burbidge (page 38) that, along with its accompanying explanations and articles, occupied almost six pages.

Both articles made me wonder if we sometimes take too much for granted, if we sometimes assume that what is theory is proven fact and if, in our casual repeating of what is the best theory available, we force ourselves into thinking that these theories will inevitably be the proven facts of history in a short while. We forget that the theories are not ours; we did not formulate them and even if we had, they are still attempts at explaining a universe that is often difficult to fathom or explain at all; they are not proven solutions; they are not verified conclusions at all. They will not all inevitably and in a short while be the proven facts of science.

Black holes, as the author of the first of these articles states, are postulated by some of our best theories; some astronomers have saggested areas of the galaxy in which a black hole may well exist. Other scientists, let us not forget, have suggested theories that do not include black holes; though their views may not be in the ascendancy at the moment, there are arguments in favour of such views and such arguments are far from being universally rejected.

Halton Arp's book is about someone - the author himself who advanced theories that were not well received by his colleagues. For years astronomers had postulated that the enormous redshift seen in the spectral lines of certain chemical elements of distant galaxies was a "Doppler redshift" and that it indicated speed of recession; such studies of the spectra of hundreds of galaxies seemed, to most astronomers, to indicate that the extremely remote galaxies were receding faster than their closer counterparts, and, in general, the further away a galaxy was the faster it was receding from us and from other galaxies. This was the basis of our theory of the expanding universe. Into this scene came Halton Arp. With some fairly solid (though, of course, not totally conclusive) evidence, Arp, a number of years ago, began advancing the idea that the observed redshift was not necessarily a "Doppler redshift" and it might not necessarily mean enormous recessional speeds. The rejection of his ideas by the astronomical community into which he had been previously accepted was quick and almost total and devastating to his career and position among North American astronomers. One can scarcely read the record of events that transpired without being reminded of Galileo and the way in which his newer ideas were "received" in his time. Incredible though it was, Arp was flatly denied access to the large telescopes on which he had worked for years. He was ostracized by the astronomical community. He was not listened to, but rather rejected out of hand, in spite of the research that he had brought forward to support his views. His work remains controversial to this day. There seems as yet to be no answer to the questions about the distances of certain quasars, especially those quasars that seem to be physically attached to certain galaxies. Some of them even seem to lie within the boundaries of galaxies. Yet the spectra of the quasars would seem to indicate that they are at enormously greater distances than the galaxies to which they are attached. To some, this mystery seems to defy explanation by any other way than to postulate that the observed redshift in the quasars is something other than a "Doppler shift", as Arp suggested.

The "reception" that greeted Arp's ideas should not have occurred. Though they may not have been "mainstream" at the time, they deserved reception as a contribution to a fuller understanding of the universe. Time may tell whether his views or those of someone else are closer to the reality which they seek to explain. Chances are that neither will completely explain the reality they seek to uncover. Our universe is wonderful and complex and fantastic beyond belief; we are discovering this more and more everyday. For someone to think that only his ideas, because they enjoy widespread acceptance at the moment, should be forever paramount is an act of supreme arrogance. Years from now theories that are very widely accepted in the present generation will doubtless be smiled at in a condescending way, just as we smile at the ideas of a geocentric universe or one with spheres within spheres, but such is the way of progress, and without the past theories and ideas with which others could be compared, there would have been little pregress in the history of ideas.

Those who think that their widely held ideas and theories are the ones that could never be replaced in any form or any part should rid themselves of their enormous delusions, for such is what they have - delusions that are matched in size only by their supreme arrogance.

The message of science for the past two millennia is surely that we should not be too certain of ourselves when we are exploring and considering new and frontier fields of research. Sometimes those who join the quest in what appears to be a most unorthodox way are the ones who will eventually add to everyone's knowledge in a way that the so-called "experts" of their day could never have predicted.
We ourselves would only be joining in and contributing to the arrogance and smugness of certain sectors of the scientific community, if we think significant contributions cannot come from people and places that "the establishment" often ignores. Let us promise ourselves that we will remain open to all who, with honesty and dedication, bring their talents and ideas to the pursuit of truth and understanding of our universe.

INTERNATIONAL ASTRONOMY DAY - SATURDAY, APRIL 23, 1988

This year our Centre will be celebrating **International Astronomy Day** for the sixth time, and although we have not the visible presence of Halley's Comet in our skies as we did in 1986, we do have many objects on which to focus our attention, and, of course, once again there is the opportunity to promote and advance our interest in astronomy.

On this occasion thousands of amateur and professional astronomers will again be sharing with the public their interest in the fascinating science of astronomy; and, as announced in our **National Newsletter** and in the **Observer's Handbook** on page 29, the date this year is **Saturday, April 23.** All Centres in our Society will be joining with astronomers around the world in marking this special occasion.

We scarcely need to be reminded that astronomy is the most ancient of the sciences, and that in the just few years there has been an enormous outburst of interest in many aspects of astronomy.

Since its inception fourteen years ago, International Astronomy Day has grown considerably with more Centres in Canada becoming involved each year. At the same time many more countries around the world have joined in making it a truly international event. In North America, last year, at least thirteen astronomical organizations joined in sponsoring the event and in issuing a joint news release for the occasion. In some places an Astronomy Weekend was held.

Many Centres of our Society will surely take advantage of this year's event to present correct and realistic information about the celestial objects viewed by the astronomer, as well as information about light pollution and other topics of current interest.

In recent years many kinds of activities have been undertaken by Centres, both large and small. Certainly in 1988, there will be many new ventures attempted, along with the ones that have, in the past, repeatedly been successful in "Taking Astranomy To The People" for that is the aim of this enterprise. During the day, many Centres will be organizing displays at shopping malls, hosting "open houses" at observatories and planetaria, and organizing public solar observing sessions where, weather permitting, people will safely observe the solar disk. For some Centres, such as our own, mall displays have become very extensive covering current topics in astronomy, exhibits of equipment and observing projects, presentations of information that teachers could use in astronomy courses, exhibits of astronomical art or stamps, presentations of astronomy via games (such as popular astronomical versions of Trivial Pursuit), and demonstrations of relevant computer programs. Most importantly of all, the displays are accompanied by the astronomers themselves who can, or at least try to, answer the many questions about their equipment, projects, or the latest astronomical discovery.

THE MAJOR THEMES FOR THIS ASTRONOMY DAY

In planning their displays and other activities, Centres have been urged to consider some form of presentation on the two main themes being stressed this year:

INTRODUCING CHILDREN TO ASTRONOMY
and
LIGHT POLLUTION IS A SERIOUS PROBLEM.

A 1985 book by well-known comet discoverer, Kingston Centre member, and R.A.S.C. Chant Medal winner, David Levy, bore the title, The Universe For Children. The subtitle was How Astronomy-minded Adults Can Help Children To Love The Sky. It contained many

suggestions for presenting the wonders of the heavens to children in acceptable and non-threatening ways.

The pollution of our night sky by artificial lighting continues to be a matter of very serious concern to many of our Centres and to individual members of our Society. Many kinds of materials are available to inform the public about the problem of light pollution.

A PUBLIC STAR NIGHT - April 23-24

As in the past, weather permitting, our Centre will organize a public star night.

In the early evening the moon, at exactly first quarter and in the constellation Cancer about three degrees north of M44 (Praeaepe or the Beehive Cluster), will be the favorite target as many members of the public have their first glimpse of lunar craters. Foremost among the planets, brilliant Venus will be easily seen in Taurus, west of the moon and northeast of the Hyades cluster.

For those who can linger at the observing site until midnight, Saturn will make its appearance, rising in the southeast in the constellation Sagittarius, and with it will be the planets Uranus and Neptune. Of these three planets, Saturn, the perennial favorite at public star parties, is just east of M20, the Trifid Nebula and its nearby open cluster M21. Its rings are very favorably tilted (26°) and the planet, now less than two months from its next opposition, will be a treat for many observers. Uranus, the planet about which we learned so much two years ago because of the Voyager spacecraft, is less than two degrees southwest of Saturn, and just north of M8, the Lagoon Nebula. Just a few degrees to the east of Uranus is the most distant of the giant gas planets, Neptune, which will be found about two degrees northeast of the magnificent globular cluster, M22.

Those of us who will be pointing out Uranus and Neptune should follow them in the days and weeks prior to April 23 in order to be able to identify them readily under a sky that will be brightened somewhat because of moonlight.

There are many other objects that can be pointed out in the spring sky - famous double stars and numerous star clusters.

Let us continue our excellent traditions established over the past six years by making **International Astronomy Day 1988** the best one ever - a memorable event both for our Centre and for those with whom we will share our interest and enthusiasm for the sky.

FOR YOUR COMPENDIUM OF ESOTERIC FACTS

You may have heard of amateur astronomers who have been prolific observers of variable stars with hundreds or even thousands of estimates recorded annually. Many North Americans have marvelled at the lifetime feat of Leslie Peltier, once called the world's greatest non-professional astronomer, who submitted over 130,000 variable star estimates to the AAVSO (the American Association of Variable Star Observers). Did you know that even this man does not hold the alltime record for variable estimates? It is held by the late Reginald DeKock of South Africa who filed **160,777** reports on variable stars! The mind boggles!

BOOK REVIEW

Uranometria 2000.0 Volume I The Northern Hemisphere to -6° by Wil Tirion, Barry Rappaport, and George Lovi. Pages 261 plus xlii; 31cm X 23cm. Willmann-Bell, Inc., Richmond, Va. 1987. Price (U.S.) $39.95 (hard cover).

A significant achievement was realized in the field of celestial cartography during the pest year. The publication of the first of two volumes of a major new star atlas occurred in August, and its popularity was such that within two months the first reprinting took place. **Uranometria 2000.0** is the work of the outstanding cartographer Wil Tirion, and the product of his stellar mapmaking labours ever since his completion of SkyAtlas 2000.0 six years ago.

Your editor who, for years, has owned an atlas that invites comparison, namely the AAVSO Variable Star Atlas, had not considered purchasing the this new one immediately, but was thrilled to receive one as a Christmas gift. Immediately one notices that this is a well-bound book, and that an enormous amount of planning preceded its publication. The book will lie flat when opened. There is a lengthy introduction that reviews the history of celestial cartography for the past four centuries, and the index which the owner will use to locate the correct map for his/her area of interest is the one at the back of the book giving in two pages the north celestial hemisphere divided according to the star charts in the atlas; to have given as an index only a listing of areas of the sky broken up in blocks of R.A and Dec. for each chart, as is usually done, would be inconvenient and cumbersome because of the great number of charts in the whole atlas.

It is soon evident also that this is an atlas for the advanced or serious amateur astronomer. Its scale is large - considerably larger than that of any atlas currently in wide usage. In all parts of the sky, one degree in Declination equals 1.85cm. on the charts. The charts are grouped to cover, in most cases, eleven degrees in Declination with an overlapping of one degree onto the level above and the level below. (For example there are the groups covering from 50° to 39°, from 39° to 28°, from28° to 17°, 17° to 6° and so on.) In Volume I, there are nine such declination ranges with the last set of charts (forty-five such charts numbered from 215 to 259 inclusively) covering the equatorial area from +6° to -6°. In these equatorial charts 1° or 4min. in Right Ascension is egual to 1.85cm on the page; the charts in this range, therefore, depict an area of sky 10° X 10° with 2° or 8min. in R.A. overlapping with the next chart on either side. This means that if the 45 charts in this area were laid end to end, they would cover (45 X 10 X 1.85cm = 832.5cm or) 8.325 metres! That is large scale! Certainly, with this atlas the charts of the whale equatorial region could not be spread out on a large bookshelf. On the other hand, this very large scale allows for charts which are relatively clean and uncluttered, yet are able to present great quantities of information. We are told that this atlas shows 332,556 stars to a limiting magnitude of 9.5. By comparison the AAVSO Variable Star Atlas claims to present about 260,000 stars reportedly to about the same limiting magnitude. In fact, on comparing any one region, a person may notice little apparent difference in the number of stars shown, but, obviously, there is a significant overall difference. However, one quickly does notice a number of very significant differences. Uranometria 2000.0 has a slightly "larger scale" - its 1° of sky represented by 1.85cm compares with the AAVSO" 's 1° of sky represented by 1.5cm - a fact that means this new atlas will have a total of 473 charts when Volume II appears, while the older one has "only" 178. (Incidentally the 473 total for Uranometria may not seem correct to those who notice that Volume I contains 259 charts - for what would seem like a total of 518, but, in fact, the 45 charts of the equatorial region between +6° and -6° are included in both volumes.) The major difference between these two atlases is in their presentation of deep sky objects. While the "AAVSO" showed 1249 galaxies, all unlabelled except the Messier objects, and SkyAtlas 2000.0 showed 2500 deep sky objects all clearly labelled, Uranometria 2000.0 presents over 10,300 deep sky objects all **labelled and drawn according to scale.** (M31 is over 5.4cm in length!) Here surely are enough objects for the dedicated observer with a lare telescope to pursue his quest for many years. It includes the over 7800 non-stellar objects listed in the Revised New General Catalogue, and the over 7000 objects in Burnham's Celestial Handbook; of course, there is considerable "overlapping" in these two lists. Also marked are the 50 nearest stars as catalogued by Dr. Batten in the chart that appears on page 177 of the current Observer's Handbook and the 25 stars with the greatest known proper motion as listed in Burnham's Celestial Handbook. Double and multiple stars are shown, as well as many variable stars. At the bottom of each page a key is given for all the types of objects shown in the atlas, as well as the magnitudes indicated by the sizes of the star dots. On both sides and at the top and

bottom of each page are numbers indicating all the adjoining charts - a very helpful addition and one that was missing in SkyAtlas 2000.0.

There is one fact that users will notice very soon if they are unaccustomed to using a star atlas with charts on facing pages (and it is a fact that in recent years most observers have become accustomed to using unbound charts that could be layed out side by side to represent a large section of the sky). Since the charts are numbered in order of Right Ascension for each of the Declination ranges, as mentioned above, they show areas of the sky proceeding from west to east; this means that when the book is opened, the stars shown on the right-hand page are east of those shown on the left-hand page. This is a fact to which most users should quickly become accustomed. The "more natural" arrangement, of course, would have been to arrange the maps from east to west - something that flies in the face of all conventions of celestial cartography. (Such a convention never mattered with publications such as the Atlas Borealis, since its maps were not of a type to be used "at the eyepiece".) However, it is a matter that is worth considering if there are to be future editions of this atlas.

This is not an atlas for those who "just roam about the sky. It is for the serious observer who plans his observing or who concentrates specifically on certain areas of the sky or types of objects in an observing program. For such a person it can help him as no other general atlas or reference book can in both locating and identifying very faint objects. Certain charts show literally hundreds of galaxies such as those in the Virgo and Coma clusters. Very faint planetary nebulae, dark nebulae, quasars, and X-ray sources are listed - enough to challenge the serious observer (even the one who has a large light-bucket under perfect skies) for decades.

What about a catalogue of all the objects in this atlas? Did not SkyAtlas 2000.0 have its accompanying two-volume catalogue published soon after the atlas? Uranometria will, indeed, have its own catalogue in the near future in three volumes. In the meantime, the Revised New General Catalogue should prove a suitable catalogue for most of the deep sky objects. And what of the two-volume arrangement? Do most amateurs at our latitude need Volume II which will be published within a few months? The answer is: "It depends." Most observers at our latitudes should be happy with Volume I for 90% of their observing. In practical terms, -6° Declination shown in Volume I represents the winter sky as far south as the southern edge of the Orion Nebula which is shown at the bottom of chart 226. Those who have specific observing projects that lead them to observe further south may wish in consider Volume II; otherwise they may wish to consider referring to other atlases for such objects.

No doubt there will be a few mistakes that will be detected in Uranometria over the years (I have heard of one already but I do not regard it as serious enough to repeat), and there will be those who will suggest improvements in its design, but it is hard to imagine any serious observer being other than impressed by the enormity of this mapmaking project. Serious astronomers will pride themselves on owning this atlas for years to cone, and they will use it over and over both at the desk and at the eyepiece.

REPORTS AND OTHER ITEMS

1. The weather has been "spotty" over the past two months. It seemed that, following the customary precepts of Murphy's Law, the clear skies came only at the time of full moon. However, there were several genuine treats. One was surely a "near spectacular" comet that was accompanied by another very interesting comet. Comet Bradfield, as it swept toward and through Pegasus in the western evening sky, approached naked-eye magnitudes and sported a fine tail. Joining it and somewhat fainter, but still easily worthy of attention was Comet Borrelly which, in December, marched northward through Cetus and Aries. I managed to photograph both of them on the night of Decenber 23-24. The night of January 14-15 brought a very fine Aurora for over half an hour. Another interesting sight is the variable star, Mira, which has again reached naked-eye magnitudes, and should remain so for several months. The spring-time edition of the Zodiacal Light has again made its appearance in the evening sky; under the cold and very transparent conditions of January 13-14, it was quite evident. Other easily seen binocular objects have included the asteroids Vesta in the constellation Cancer and Amphitrite in Gemini.

2. In the coming months we can look forward to the spring skies with their groups of galaxies, but we should not forget some of the interesting variable stars of the winter skies, and even the two asteroids mentioned in the last section or other ones in the spring sky.

3. Here is our list of meeting dates for early 1988:

Fri. Jan. 8 - Leo Enright: Slide Show Astrophotographic Possibilities

Fri. Feb.12 - Effie Ginzberg: NetNorth, the Society's New Computer Network

Fri. Mar.11 - Possible exchange with another Centre.

Fri. Apr. 8 - ?

Fri. May 13 - ?

Fri. Jun.10 - ?

The meetings begin at 8:00 p.m. and are held in Room C-206 in MacIntosh-Corry Hall at Queen's University. The monthly business meetings of our Centre's Executive Council is held at the same location and date beginning at 7:15 p.m. which is 45 minutes before the beginning of the regular meetings. Items for the business part of the agenda should be taken to any member of the Executive (listed on page 1 of this newsletter).

4. The 1988 membership dues are long overdue; in fact, they were due on October 1. The amounts of annual memberships are as follows: $30.00 for regular membership, and $18.50 for youth membership.

5. All the members of our Centre extend very warm wishes to our Honorary President, Dr. A. Vibert Douglas, on the occasion of her ninety-third birthday which was celebrated in the last week of January. Here's wishing Dr. Douglas many more years of active interest in astronomy.

6. Contributions to this newsletter are always welcome. Mail them to:
Royal Astronomical Society of Canada - Kingston Centre,
Box 1793,
Kingston, Ontario
K7L 536

Clear skies!
Good observing!

Leo Enright