

R E G U L U S

THE NEWSLETTER OF THE

ROYAL ASTRONOMICAL SOCIETY OF CANADA - KINGSTON CENTRE

JUNE AND JULY, 1982

SPECIAL SUMMER '82 ECLIPSE ISSUE

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A MEMORABLE SEASON FOR INDOOR ASTRONOMY

Members of the Kingston Centre who attended our regular meetings over the past three months were treated to a series of interesting and informative speakers whose talks they will not soon forget. In addition some members were also involved in very interesting educational projects which deserve to be mentioned as examples of really living up to our society's aim of promoting knowledge and interest in Astronomy.

On April 2nd, we were very honoured to have Dr. Douglas, our honorary president, present a superb talk entitled "Astronomy In The Bible". It was indeed fascinating to hear of the many celestial references in the Old Testament and to consider how well its authors must have known the ways and the lore of the heavens.

On April 16th we enjoyed a dinner with and a most interesting talk given by Dr. Ian Halliday, (then) our national president. The topic "Meteorite Research In Canada" was one that fascinated everyone present--to such an extent that Dr. Halliday must have wondered if we would ever get to the end of our questions about meteorites.

On April 30th Terry Hicks presented a well-researched talk on the topic "Finding Your Latitude With Great Precision". It was a delight to have an excellent mathematical astronomer talk on his area of special expertise. The following day, May 1st, or Astronomy Day, gave me a chance to work together in presenting our hobby to the public through both a mall display and a public star night. The Mall Display at Frontenac Mall was well organised with exhibitions of equipment, astrophotography, gases, and literature on the society. Public interest was very good with several people asking to join our centre immediately. For arranging the displays and giving hours of their time we must thank Angelika, our president, John Hansen, Ruth and Terry Hicks, David Stokes, Leo Enright, and several others.

The Public Star Night at MacDonald Park was very successful with five telescopes being used to give views of planets, lunar craters, and even a few other objects. Though clouds occasionally interrupted the viewing, the time was well spent with many people pleasantly surprised at seeing Saturnian rings or Jovian moons for the very first time.

The first half of the Kingston-London Speaker Exchange took place on May 28th. Peter Jedicke visited us and talked about recent activities of the London Centre. His interesting talk and slide presentation covered the London Centre's Diamond Jubilee Celebrations, with Bart Bok as their special guest, and his trip to the 1982 General Assembly in Saskatoon. As usual we enjoyed having Peter with us, and hope that the tradition of Kingston-London Exchanges will continue for many more years.

On June 5th four of our members--Angelika Hackett, Terry and Ruth Hicks, and Leo Enright--headed out to Presqu'ile Provincial Park to put on an astronomical display and star night for a large gathering of Cubs. The event was called a Cubaree but the weather for the occasion was far from cooperative with rain deluging the campsite for hours. In spite of the conditions and lack

of power for our slide show, the whole group of Cubs and their leaders heard a talk on astronomy by Leo and at least saw what a telescope looks like.

Shortly after that experience, our centre was again invited to provide a resource person at the Ontario Camping Association's Leadership Camp on May 15th. The event took place on the beautiful grounds of Camp Oconto near Tichborne with summer camp leaders from many parts of the province in attendance, but once again the evening had its pouring rain. Since observing was impossible, the entire evening was devoted to a talk on astronomy in general and celestial events of the coming summer--as well as a slide show--given by Leo Enright.

For our centre it has been a profitable spring with enjoyable talks by very welcome guests and new ventures in meeting other groups of people--all of which provided indoor pursuits that more than compensated for the quite unpleasant weather that was generally taking place outdoors.

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**A LETTER FROM OUR OBSERVER IN MARYLAND**

This month there is another interesting letter, from Gus Johnson of Swanton, Maryland, which I received on June 16th and which I wish to reprint in part. Mr. Johnson was kind enough to send along also the latest issue of The Guide Star, the newsletter of the Amateur Astronomers Association of Pittsburgh, to which he also belongs.

June 8, 1982

Dear Mr. Enright,

I hope observing has been better up your way. After a clear and fruitful April clouds and haze set in and May turned out among my worst months for observations and June is continuing the same. Perhaps it is attributable to effects of the central American volcano. It is unusual for the temperature to reach 80 to 82°F in mid-summer, but numerous days in May were up to 86°. Spring rains did not come and I was worried about forest fire, but in the last two weeks, some 4½ inches of rain have fallen, helping much, but not the observing.

I did manage to attend the last AAAP meeting of the 1981-82 year, but found no extra copies of the "Guide Star", so had you made a copy from mine. It was a good meeting, with the speaker, an observer who chose to sketch his observations, rather than use photography. He has drawn some thousand objects and has a unique collection. I was intrigued by his sketch of Zeta Herculis, resolved with 124x on a 4-in. reflector! That star had resisted my good 6-in, with higher magnifications. Now (according to the RASC Handbook) it is at 1.3". I must try again and harder. The AAAP's Truman Kohman appeared on p. 564 of the June "Sky and telescope"; his fellow observer, to partook in the observations described, visited me here last year with a borrowed Questar 7. I would like to have tried it on close doubles, but he couldn't stay, but at least I had a fine view of the sun.

Congratulations on nearly completing the observations of the whole Messier list. I have not seen nearly that many, but as of late 1979 about 84 of them. If clear nights weren't so few I

could take more time to just enjoy the sky, instead of pursuing the variable star observations and seeking for supernovas, although wandering amongst the galaxies, comparing the view with sketches, charts and photos is almost as much fun as just unencumbered observing. I just recounted and found that I have about 92 objects on my Messier list.

Clear skies,  
Gus.

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#### **FOR YOUR COMPENDIUM OF ESOTERIC FACTS**

Did you know that one of the world's great architects (and Britain's most famous architect) was also one of the outstanding astronomers of his time?

Most people know of Sir Christopher Wren as the man who was responsible for the design of over fifty churches in the city of London, including his great masterpiece which was St. Paul's Cathedral -- a building that has remained a marvel since the seventeenth century. What most people do not remember about Christopher Wren (the 350th anniversary of whose birth is celebrated on October 20th this year) is the fact that he was a leading astronomer of his era and made substantial contributions in the field of astronomy. He was a professor of astronomy at two universities including Oxford (from 1661 to 1673). He was also a founder and a president of the Royal Society, and Wren's scientific work was greatly respected by Newton and other scientists of his day. In fact, it was an experiment devised by Wren which confirmed one of Newton's laws of motion.

However, in popular opinion Christopher Wren is almost forgotten as an astronomer, but is remembered exclusively as a architect. In fact, his contributions were substantial in both areas.

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#### **JULY'S UNUSUALLY LONG LUNAR ECLIPSE**

During the night of July 5th-6th this summer, weather permitting, we will be treated to a relatively rare phenomenon. It is a long total lunar eclipse; in fact, as lunar eclipses go, the one of early July this year is a very long one because the moon's path at full moon of the current lunation takes it through almost the precise centre of the earth's shadow. There have been fairly frequent partial eclipses in the past few decades and we have enjoyed even a couple of total lunar eclipses such as the ones of November 29th, 1974 and November 18th, 1975 but both of those were much shorter events than the one we hope to witness this summer. To see an eclipse of the magnitude of the current one, a person would probably have to go back many decades, possibly even a century.

Those who are intrigued by eclipses will likely recall the partial lunar eclipse of mid-July last year and will likely be expecting an eclipse in early July this year, realizing that the "eclipse seasons" which occur twice a year, in most years, come about two weeks earlier from year to year because of the fact that the "precession of the nodes" of the moon's orbits brings these "seasons" about 14 days earlier from year to year.

Besides being unusual for having one very long lunar eclipse, this year, 1982, is unusual for two other reasons. It is one of the exceptional years which has three, not two, "eclipse seasons". When one of the seasons occurs early in the month of July, the two closest seasons always manage to be "squeezed into" the same year, one of them occurring, at least partially, in

early January, and one of them happening, at least partially, in late December. That is the case in 1982--but not only are there three "seasons" this year, but each one of them has a total lunar eclipse (and all three are within the one year) and that coincidence is extremely rare. In fact, it will not occur again until the year 2485 which is over five centuries away. (Remember to tell your grandchildren that you were alive in the year of the three<sup>to</sup> lunar eclipses.) The dates of the three events this year are January 9th, the July one, and December 30th. Not only are the January and December ones shorter, "less central" ones, they are also far less favourable for viewing from the western hemisphere. The January one was best seen from Asia; the December one will be best seen from the Pacific though Canadians may catch a glimpse of part of it.

For several reasons then, this eclipse is a very special one. It should also be mentioned (since I almost forgot) that it is the central eclipse of seven eclipses in 1982--which is the most possible number of eclipses that can occur in any one year.

In order to assist those who may want to catch this very special event, an outline map is included with this newsletter to show the times of the various parts of the event. To assist these who are unfamiliar with Universal Time, the translation has been made into Eastern Daylight Time and into hours, minutes, and seconds. The time of mid-eclipse given on the chart is accurate. Times of other events are accurate to within about 5 seconds. Some of the stars in the constellation Sagittarius (in fact, in the "handle of the teapot") have been drawn in. At mid-eclipse the moon will be four degrees north of the star Nunki ( $\sigma$  Sagittarii). First and last contact with the penumbra are shown, even though they will both be unobservable. Penumbral darkening of the moon is usually not observable until the moon is much closer to the umbra. Observers should watch for slight penumbral darkening of the moon about twenty minutes before first contact with the umbra. For observers in our area, the moon will set shortly after its last contact with the umbra. In addition even if the weather is good, the latter part of the umbral phase will be a severe challenge to observe properly because of a number of factors. The moon will be very low in the sky, the morning twilight will be bright and long-lasting, and, in fact, sunrise will occur before moonset.

It is certainly hoped that many of us will have a chance to enjoy this very special lunar eclipse. Perhaps we will be able to interest some "first-time" observers in enjoying it also, because it is an event that can be appreciated even without any optical aid.

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#### REPORTS AND OTHER ITEMS

1. The latter part of the spring, as most of us know too well, has been "horrible" for observing. We seem to have been flooded with rain and cloudy weather. During late April and early May I managed to see the planet Mercury on eleven different dates and to photograph it once. On June 11th, I also managed to have a good observing session with Terry Hicks in Kingston and was pleasantly surprised to note that even under city light pollution, M51 and M57 could be seen with a 4" telescope. However, much of May and June were "rained out".
2. For those who might still be interested, I can report that the erratic magazine delivery is continuing true to the style reported in the second last newsletter. For one periodical, whose initials are "S" and "T", I can say that the June issue arrived on May 26th (which is very gratifying) but as of late June, my May issue has not yet arrived.

3. Our hearty congratulations go to David Levy for having four of his photographs of the landing of Space Shuttle appear on the cover of the latest issue of The Strolling Astronomer, the Journal of the Association of Lunar and Planetary Observers. David, I have also learned, has recently been involved in a program of teaching astronomy in the schools of Las Cruces, New Mexico.

We look forward to having him visit us in August and September and to his sharing his "astronomy experiences from the land of the clear, dark skies"

4. Your editor has spotted another error in the Observer's Handbook. If you wish to find it-here it is: Messier's Catalogue on page 148 lists M62 as being in the constellation Ophiuchus, but the "Messier summary" on the following page lists M62 as being in the constellation Scorpius.

If there are any to have not seen this "far southern" globular cluster, perhaps you should try to locate it with your telescopes.

Finding M62 on your star maps will help to explain to you why the mistake mentioned above could have been made by the compiler of the catalogs.

5. It was very disheartening to learn that, as of June 26th, the Toronto Star intends to drop the astronomy column. For over four decades a tradition of astronomy writing has been established and maintained by Peter Millman, Helen Sawyer Hogg, and, within the past year, Terrence Dickinson. It is sad to see it go.

"Cutbacks" may be the reason given, but I have stated that I have not noticed any severe "cutbacks" being the case for dropping any columns devoted to astrology or horoscopes.

6. This is the "Amazing! Have You Noticed". Section

PART A      Amazing! Have You Noticed!

Have you seen the ad for the new 29" Dobsonian telescope for less than three thousand U.S. dollars? Yes, you read those numbers correctly! 29"! It must be true. David has even looked through one of them. The "Aperture Revolution" continues in full force!

PART B      Amazing! Have You Noticed!

Have you noticed the vicious ads? And I mean "vicious", "with teeth bared"! They are the ads in which the two major telescope companies, the ones to make very fine Schmidt-Cassegrain products ("No names, please; but the initials are "C" and "M".), are attacking each other. Have you noticed how the charges have been hurled back and forth? It is now an enormous market and apparently all the stops have been pulled out in an attempt to corner it.

7. The cloudy wet weather in May and June has been ideal for mosquito families who want to raise healthy, vigorous young ones. They have certainly come along in fine proliferation.

Does anyone know where observers can buy insect repellent by the barrel (at world price)? Or, even by the gallon?

8. Here is the list of meeting dates.

July 9th, 1982	Discussion of Summer Plans
July 23rd, 1982	Still open
August 13th	Still open
August 27th	A talk by David Levy: "Practising Astronomy In The Shadow of Kitt Peak"
Sept. 10th	A talk by David Levy: "Astronomical Experiences"
Sept. 24th	Still open
Oct. 15th	NOTE THE CHANGE OF DATE
Oct. 29th	NOTE THE CHANGE OF DATE

All members are invited to make contributions to forthcoming meetings. At one of the meetings this summer or fall, we look forward to hearing David Stokes give a presentation at the topic: "Arabic Star Names".

Please keep the above list of dates handy in a place where you can refer to it and remember that the meetings take place at 8:00 p.m. in Room 222 in Ellis Hall on University Avenue.

9. There are a few celestial events that are well worth planning for in the coming months-
  - 1) The first on your list for July should be the total lunar eclipse of July 5th-6th. See elsewhere in these pages for more information.
  - 2) Among the bright planets of the evening sky, Mars is the one to watch this summer. It has now started to move eastward in the sky and will move more rapidly against the celestial background as the summer progresses. On July 10th at 0<sup>hr</sup> U.T. the Red Planet passes 3 degrees south of Saturn; on July 21st (at 19<sup>hr</sup> U.T.) it passes only 1.6 degrees north of the star Spica; finally, on August 10th, just one month and one hour after bypassing Saturn, it swings past Jupiter, this time 2 degrees south of the great giant planet.
  - 3) In the morning sky Venus remains bright and spectacular. On July 18th and 19th it forms a very interesting configuration with the old moon.
  - 4) Mercury reaches greatest western elongation on June 26th, and so, for the last two weeks of June and the first week of July, it may be possible to spot this fleeting planet in the morning sky before sunrise.
  - 5) Three times during the coming months the moon, near first quarter phase, passes the bright planets Mars, Saturn, and Jupiter in the evening sky. On some of these dates there will be very interesting configurations in the evening sky. The first of these configurations occurs on the evenings of June 28th and 29th. The second is on July 26th and 27th, and the third is on August 24th and 25th.
  - 6) Several summer meteor showers may be worth noting. The Delta Aquarids peak about ~~August~~<sup>July</sup> 28th and often provide bright and slow-moving yellow meteors. The famous Perseids peak on August 12th. We should watch for them in the evening on August 11th, 12th, and 13th especially before moon rise which occurs about at midnight.
- 10 Here again is our centre's address:  
(Remember your newsletter editor would be happy to receive material for these pages.)

R.A.S.C. - Kingston Centre,  
Box 141, Station A,  
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**CLEAR SKIES!**

**GOOD OBSERVING!**

*L. Edmunt.*

# Total Lunar Eclipse of July 5-6, 1982

