



REGULUS

JULY-AUGUST 1994

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

MEETINGS AND EVENTS HORIZON

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CONTRIBUTIONS WELCOME: Articles, notes on observations, humour, poetry, artwork, anything on astronomy or related topics, are invited. Submitted material may be edited for brevity or clarity. Contributions should be sent to the Editor as follows:

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OUR KINGSTON PHONE NO.: (000) 000-0000

Regular Meetings of the Kingston Centre, RASC, are held on the **second Friday** of each month (unless noted otherwise) at **8 p.m.**, in **Room B-201, Mackintosh-Corry Hall, Queen's University**. **Non-members are welcome.** Executive Council Meetings are at 7 p.m.

- Fri., July 8** **REGULAR MEETING. Speaker, Gord Taylor, "Graviational Lenses."**
- Sat., July 9** **GA COMMITTEE MEETING, 2 p.m., at 797 Candover Crescent, Kingston.**
- Sat., July 16** **JUPITER-COMET CRASH BEGINS. (No meeting)**
- Aug. 5, 6, 7** **STARFEST '94—NYAA's 13th Annual Astronomical Observing Convention, Mount Forest, Ontario.**
- Fri., Aug. 12** **REGULAR MEETING. Speaker, Walter MacDonald, "More Tales from a Spinning Astronomer," also reports on May's annular eclipse, July's General Assembly, and August's Starfest '94.**
- Fri., Sept. 9** **REGULAR MEETING—MEMBERS' NIGHT. Bring your slides and summer observing reports.**

SEE ALSO LIST OF SUMMER EVENTS & ACTIVITIES ON PAGE 6.

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ANOTHER SURPRISE: ASTEROID COVINGTON!

By Bill Broderick

It is with particular pleasure that we extend our congratulations to Kingston Centre Life Member ARTHUR COVINGTON. On Saturday, June 11, Arthur joined the ranks of 19 living Canadians who have had an asteroid named in their honour. Asteroid Covington commemorates Arthur's 36 years of work with the National Research Council and his outstanding contributions to Canadian astronomy. Arthur, among his many other achievements, pioneered radio astronomy in Canada.

Arthur's interest in astronomy has been a life-long passion. Born in 1913, he joined the Vancouver Centre while still in high-school. He built and operated his own amateur radio station from 1930-32 and also made his own 13 cm (5-inch) reflecting telescope. These two hobbies would later merge to make him Canada's pioneer radio astronomer.

After graduating from the University of British Columbia with MA and BA, he took his master's degree in physics at the University of California (Berkeley). Returning to Canada in 1942, he accepted a position at the National Research Council, working on the development of radar for the war effort. At the cessation of hostilities, he presented a proposal for investigating the possibilities of cosmic radio noise. This was accepted and by 1946 Arthur was doing his first solar microwave astronomy.

Arthur became a member of the Ottawa Centre around this time. In 1951 he published his first paper in the Journal, RASC, and gave his first RASC speech to the Montreal Centre on the Reception of Radio Noise from the Sun, Moon and Galaxy. In 1954 he became the 1st Vice President of the Ottawa Centre and the first Chairman of the Centre's Observing Group. He served as President of the Ottawa Centre in 1956-57.

Over the years Arthur has had dozens of papers published in the Journal, most connected with his work at NRC, but also many of a historical nature. For a number of years he served on the RASC's Historical Committee, both as a member and as Chairman, for which he received the Service Award in 1981. From 1986-89 Arthur was an active and interested Honorary President of the RASC. He retired from the NRC in 1978.

Arthur moved to Kingston in 1986, transferring his membership to the Kingston Centre, where he has continued to take an active interest in Centre affairs. He attends most meetings and last summer made a substantial donation of \$100 to the Centre book-case fund.

Asteroid 5424 Covington is a sizeable chunk of rock about two or three kilometres across. Three other similar chunks are orbiting around in space, named for people who reside (or have resided) in the Kingston area: Clifford Cunningham (who nominated Arthur and who used to teach at RMC), Terence Dickinson, and David Levy.

You're in great company, Arthur! Our sincerest congratulations.

SCIENCE AT A DISCOUNT

Hank Jokinen and Gary Merrett, owners of **My Science Project** store in Belleville, are pleased to offer a 10% discount on purchases to RASC members. Bring your RASC membership card with you to claim your discount on a wide selection of science-related products, including books, posters, science kits, astronomical and gift items. **MY SCIENCE PROJECT, 180 North Front St., Belleville, Ontario K8P 3B9. Phone: (613) 967-0120.**

ECLIPSE REPORTS

By Bill Broderick

At the invitation of staff at Presqu'ile Provincial Park, I and several members of the Belleville Astronomy Club set up telescopes, suitably filtered, for public viewing on a beach on the south side of the park. Except for some scattered clouds, the sky was beautifully clear and the temperature cool but fairly comfortable.

Besides my 4.75-inch refractor, I also set up a pair of binoculars on a tripod, uncapped one side, and projected an image of the eclipse onto a large white tent-card on the ground. Those waiting their turn at the telescope could watch the progress of the eclipse as easily as if they were viewing it on a movie or TV screen. A number of children placed sheets of paper on the card and traced outlines of the various stages of the eclipse. They seemed to get a real thrill out of watching the moon slowly cover the sun and being able to make a lasting momento of the occasion.

Besides showing people the eclipse through the telescope, I was kept busy as well with two slide presentations in which I showed slides of an actual total solar eclipse, also slides of the 1991 RASC eclipse expedition to Mexico, shots of the lunar eclipse of last November, and other astronomical subjects. These seemed to be well received.

We also had on hand about 100 eclipse glasses. With the permission of park authorities, we offered these to the public for a small voluntary donation. All but 15 were sold in this way, netting over \$90.00, which was duly turned over to our Treasurer.

The drama and excitement of watching the moon cover the sun, of seeing our surroundings become progressively darker and darker, and feeling the five degree (C) or so drop in temperature as the eclipse approached maximum, was truly tremendous, as was also being able to pick out Venus in the daytime sky. Only a few managed to see Venus, but those who did had an experience they won't soon forget.

David Stokes observed the eclipse from Selkirk Shores State Park in New York, near Pulaski, at approximately 43°42' N, 76°35' W, where the time of central totality was 13:28 EDT. At 13:00 EDT the wind was light from the west off Lake Ontario and the skies were clear throughout the event. During total annularity the wind dropped and picked up again some 20 minutes later when the temperature was about 9.5° C.

David reports that he measured the temperature changes with a Davis Weather Monitor II, powered by a 9-volt battery. In this mode, the instrument can show barometric pressure and "inside" temperature, which becomes outside air temperature when used outside. The instrument was at ground level in partial shade.

The maximum rate of temperature drop (about three degrees C per minute) was between 5 minutes before and 5 minutes after centrality. The minimum temperature of 8.8° C was reached about 13 minutes after centrality, a 5 degree drop in about 25 minutes.

David writes that an analysis of this "crude" data is difficult because heat loss from the ground is a function of wind velocity which dropped to zero during "totality". During "totality" only 11% of the sun was visible for most of six minutes and the ground would lose heat by radiation until the rate was balanced by increasing sunlight which occurred some 10 minutes later.

<u>Time</u>	<u>Temp C</u>	<u>Temp F</u>
<u>Minutes</u>		
- 13	13.8	56.9
- 9	13.6	56.4
- 8	13.4	56.1
- 7	13.2	55.8
- 5	12.9	55.2
- 4	12.7	54.8
- 3	12.3	54.1
- 2	11.9	53.5
0	11.3	52.3
+ 1	10.8	51.4
+ 2	10.3	50.6
+ 3	10.2	50.3
+ 5	10.0	50.0
+ 7	9.3	48.7
+ 9	9.2	48.5
+ 12	8.9	48.1
+ 13	8.8	47.8
+ 14	8.8	47.8
+ 16	8.9	48.1
+ 17	9.3	48.7
+ 32	12.0	53.6

Data supplied by David Stokes

NEWS AND NOTES

NEW MEMBERS

A warm welcome is extended to the following new members who joined during May and June: ALLAN DARCH (Kingston), ARUN DOSAJ (Madoc), JOHN R. HANSEN (Westbrook), GREG LISK (Trenton). We are most pleased to have you all with us.

ALL THE STARS IN THE RASC SKY (THE CENTRES OVER THE YEARS)

Over the years the RASC has grown from a club in Toronto to national organization status with Centres in 22 cities across the country. The following information was gleaned from Peter Broughton's book, Looking Up--A History of the Royal Astronomical Society of Canada:

<u>Name of Centre</u>	<u>Formed</u>	<u>Name of Centre</u>	<u>Formed</u>
OTTAWA	1906	WINDSOR	1944
HAMILTON	1909	C.F. de MONTREAL	1947
VICTORIA	1909	HALIFAX	1955
REGINA	1910	CALGARY	1958
WINNIPEG	1910	NIAGARA	1960
MONTREAL	1918	KINGSTON	1961
LONDON	1922	ST. JOHN'S	1965
TORONTO	1928	SASKATOON	1969
VANCOUVER	1931	KITCHENER-WATERLOO	1980
EDMONTON	1932	SARNIA	1981
QUEBEC	1942	THUNDER BAY	1988

The Saskatoon Centre also had a brief existence from 1947-52. As well, a Centre existed in Peterborough from 1909-17 and Guelph from 1911-50. Our Kingston Centre, formed in 1961, is one of the younger Centres of the Society.

AN INVITATION

Anyone who would like to drop in for a visit over the summer (or any other time) is cordially welcome. Our observatory is always open to visitors, particularly if they're astronomers (amateur or otherwise). The map below shows where we are. Just call first to make sure we'll be here--(000) 000-0000.

Coming from Kingston, take either the Deseronto Road or Marysville Road north to the 7th Concession, then west on the 7th. We are about 3 kilometres from the Marysville Road.

From Belleville-Trenton, take the Shannonville Road north to the 5th Concession (2 kilometres north of Blessington), then east 2 kilometres to the Milltown Road, north and east to Read, and north on the Read Road to the 7th. We are 1 kilometre from the corner. Watch for blue mailbox on south side.

BILL & GISELA BRODERICK



ECLIPSE PHOTO

Leena Lajunen, store manager of My Science Project in Belleville, followed one of the suggestions for observing the eclipse which we had offered in an information sheet, and managed to get a nice photo too. During the eclipse she used a card to project a pinhole image onto another card on the ground. Also, she noted that sunlight shining through leaves on the bushes beside the lane behind the store was producing multiple pinhole images of the eclipse. She got a camera and managed to take a picture, which turned out pretty good. Interestingly, some passers-by, evidently put off by some of the "scare" publicity, refused to even look at what was happening. Anyway, nice going, Leena!

ECLIPSE GLASSES A NICE FUND-RAISER

The RASC 1991 Eclipse Expedition Committee, chaired by Michael Watson, ended up with a surplus of about \$10,000.00 after all expenses had been met. With these funds several thousand eclipse glasses were purchased and distributed to the Centres along with brochures on the 1994 annular eclipse. Kingston Centre received 500 of these and managed to sell most in the days leading up to and including May 10, netting over \$700.00. All of this money gets to stay with us, which is a very nice windfall for the Centre.

10 COMMON MISCONCEPTIONS ABOUT THE ECLIPSE

1. What time of night does the eclipse take place?
2. Looking directly at the sun is dangerous so I'm going to look at the reflection in a pail of water.
3. What's the date of that annual eclipse?
4. Hey, you'll ruin your eyesight looking at those pinhole images!
5. Being out-of-doors during an eclipse is dangerous for your eyes.
6. Keep children and pets indoors during the eclipse.
7. If No. 14 welder's glass is OK for viewing the eclipse, why not No. 12?
8. The only safe way to watch the eclipse is on TV.
9. Watch the eclipse? Why?
10. What eclipse? It didn't even get dark!

COMET PIN A BIG SUCCESS!

Congratulations to Christine Kulyk and friends for their String of Pearls Comet Pin idea, which is proving quite successful. So much so, in fact, that they've had to have a second batch made up. If you would like one, you'd better get it soon because when they're gone, they're gone. The pin is quite attractive, certainly a conversation piece, and could well become a collector's item.

WORDS TO PONDER

"Earth is the cradle of humanity, but one cannot remain in the cradle forever."

—KONSTANTIN TSIOLKOVSKY

"That's one small step for man, one giant leap for mankind."

—NEIL ARMSTRONG



THE STRING OF PEARLS COMET PIN

*Specially created to commemorate this July's historic
encounter between planet and comet*

An original design, the colourful 3/4" by 3/8" lapel pin depicts:

- Jupiter in orange and almond
- comet fragments & highlighting in gold-coloured metal
- a midnight blue background

\$5.50 each

(Quantity discounts available)

For more information or to order,
phone Christine Kulyk at (000) 000-0000, or send
cheque or money order (payable to Mary Patton) to:
Comet Pin, XXXXXXX, Kingston, ON XXX XXX.
Please add 8% Ontario PST and \$2 shipping per pin.

Concept by Christine Kulyk, Carole Greig and Mary Patton
Original Design by Carole Greig

SUMMER LINE-UP OF EVENTS AND ACTIVITIES

Summer 1994 promises to be a busy one astronomically speaking, with lots to keep us busy. What follows is by no means an exhaustive list—see Sky & Telescope and Astronomy Magazine, etc., for more goings on. However, one could certainly reach the point of exhaustion trying to keep up with it all.

Saturday, July 9, 2 p.m.: G.A. COMMITTEE meets at home of Ruth and Terry Hicks, 000 XXXXXXXXXXXX, XXXXXXXX. Anyone who would like to be involved in planning the Kingston G.A. (tentatively scheduled for 1997) is welcome to attend. For further details and information, call chairperson Peggy Torney, (000) 000-0000 (XXXXXXXXXXXX).

Saturday, July 9, evening: BON ECHO PROVINCIAL PARK Public Observing Session with telescopes provided by members of the Belleville Astronomy Club. All members of Kingston Centre are invited to come and participate. (A few people can be squeezed into tents if anyone would like to stay overnight.) For further information, call Joe Shields, (000) 000-0000 (XXXXXXXXXX).

Monday, July 11, evening: PRESQU'ILE PROVINCIAL PARK Evening Astronomy Program with Public Observing. For further information, call Steve LaForest at the Park Office, (000) 000-0000, or home (000) 000-0000 (XXXXXXXXXX). NOTE: Steve would like to make copies of any good, interesting astronomical slides that anyone may have, for fleshing out his slide program. If you can help out here, he would appreciate hearing from you.

Wednesday, July 13, evening: SANDBANKS PROVINCIAL PARK. Slide show and talk followed by public observing session. For more information, Denise Sabatini and Leo Enright, (000) 000-0000 (XXXXXXXXXX).

Saturday, July 16: JUPITER-COMET IMPACTS BEGIN.

Friday, Saturday, Sunday, August 5, 6, 7: STARFEST, Mount Forest, Ontario. For more information, contact The North York Astronomical Association, 26 Chryasa Avenue, Toronto, Ontario M6N 4T5.

Monday, August 8, evening: PRESQU'ILE PROVINCIAL PARK Evening Astronomy Program and Public Observing. Anyone who would like to help out with the July 11 and August 8 programs is welcome to come out. For more info, call Steve LaForest as above.

Wednesday, August 10, evening: CHARLESTON LAKE PROVINCIAL PARK. Terence Dickinson's annual Slide Show and Talk followed by a public observing session. Everyone is welcome to come out and lend a hand at this annual event.

Wednesday, August 10, evening: SANDBANKS PROVINCIAL PARK. Slide show and talk presented by Denise Sabatini and Leo Enright followed by public observing. For more information, contact Denise and Leo as above.

Anyone who can help out with the public observing sessions at any of the above is most welcome. You just need to show up in good enough time to set up your equipment before it gets dark. You do not have to pay Park admission; just tell the gate attendant why you are there and you will be directed to the observing site.

Do have an enjoyable and safe summer. If you can lend a hand with any of the above, please do so. Summer is a wonderful time to help others to a beginning of an appreciation of the wonders of the night sky, and doing so can enhance our enjoyment as well. See you all in the fall.

RESPONSIBLE LIGHTING

RECOGNIZING EXCELLENCE

Below is a copy of the **CERTIFICATE OF MERIT** which the RASC presents to firms and other bodies which utilize responsible outdoor lighting. Such lighting uses the least amount of energy necessary for the task. It does not cause glare nor light trespass. It will likely be shielded, putting the light where it is needed, when it is needed. It does the least amount of damage to the night sky, benefiting not only astronomers but all who enjoy the beauty of star-lit nights.

It will probably be, but does not necessarily have to be, low- or high-pressure sodium (the yellow or pinkish lights which are slowly gaining in popularity because of their relatively lower use of energy). Low-pressure sodium lamps do the least amount of damage to the night sky, especially if properly shielded to prevent up-light, side-light, and glare.

If you know of a worthy recipient for this certificate, please let us know so that we can take steps to present one to them. Let's all become involved in promoting and recognizing responsible outdoor lighting.



CERTIFICATE OF MERIT

Presented by



THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

to

In recognition of their responsible and environmentally sensitive approach to outdoor lighting - enhancing without wasting our valuable resources, creating light trespass, or contributing to unnecessary glare. By so doing, they are also helping to preserve the beauty of the night sky for all to enjoy.

President

Vice-president

International Dark-Sky Association

3545 N. Stewart, Tucson AZ 85716 U.S.A.

Dark Skies and the Bible, from Wade Thompson

Wade Thompson has sent us a short essay he wrote, along with several quotes from the Bible relative to our view of the universe. That view, as seen from a prime dark observing site, is worth preserving for all mankind. While we have had Bible quotations on file for some time in order to incorporate them into an IDA information sheet, Wade's input is so well done that we now issue his essay and the quotes he sent as one of our information sheets. Thanks Wade!

On A Starry Night, by Wade Thompson

On a starry night, one can sense the wonder of the universe and ponder the unknown. It is an inspiration for all of humanity to gaze upon this awesome expanse which gives evidence of a Creator, the Master Astronomer.

Today, however, because of light pollution, we are the first generation who can no longer see the stars in their full glory. Our Finest Artist has created a tapestry that can rarely be seen and enjoyed because of our misuse of nighttime lighting.

One is led to wonder how the Great Artist feels when we no longer appreciate the majesty and the beauty of the starry night sky. Since our Creator sees our lack of good stewardship in all of nature, should we wonder if we will be held accountable?

The Artist And The Tapestry

Then God made two great lights: the greater light to rule the day and the lesser light to rule the night. He made the stars also. God set them in the firmament of the heavens to give light on the earth, and to rule over the day and over the night, and to divide the light from the darkness. And God saw that it was good. (Genesis 1: 16-18)

O Lord, our Lord, how excellent is Your name in all the earth, You who set Your glory above the heavens! ... When I consider Your Heavens, the work of Your fingers, the moon and the stars which you have ordained, what is man that You are mindful of him, and the son of man that You visit him? ... O Lord, our Lord, how excellent is Your name in all the earth! (Psalm 8: 1, 3-4, 9)

The heavens declare the glory of God; and the firmament shows His handiwork. Day unto day utters speech, and night unto night reveals knowledge. There is no speech nor language where their voice is not heard. (Psalm 19: 1-3)

Oh, give thanks to the Lord, for He is good!
To Him who alone does great wonders, for His mercy endures forever, to Him who by wisdom made the heavens, for His mercy endures forever; to him who laid out the earth above the waters, for His mercy endures forever; to him who made great lights,

for His mercy endures forever -- the sun to rule by day, for His mercy endures forever; the moon and stars to rule by night, for His mercy endures forever. ... (Psalm 136: 1, 4-9)

Praise the Lord! For it is good to sing praises to our God ... He counts the number of the stars; He calls them all by name. Great is our Lord and might in power; His understanding is Infinite. (Psalm 141: 1, 4, 5)

"To whom then will you liken Me, or to whom shall I be equal?" says the Holy One. Lift up your eyes on high, and see who has created these things, who brings out their host by number; He calls them all by name, by the greatness of His might and the strength of His power; not one is missing. (Isaiah 40: 25-26)

For since the creation of the world, His invisible attributes are clearly seen, being understood by the things that are made, even His eternal power and Godhead, so that men are without excuse, because, although they know God, they did not glorify Him as God, nor were they thankful, but became futile in their thoughts, and their foolish hearts were darkened. (Romans 1: 20-21)