

# NATIONAL NEWSLETTER

October, 1980

SUPPLEMENT TO THE JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY  
OF CANADA

Vol. 74, No. 5



GREGORIAN TELESCOPE BY ROBERT B. TATE

This telescope is on display at the McLaughlin Planetarium on loan from the University of Toronto. As stated within, the Planetarium has recently acquired another instrument by Dollard of London.

## NATIONAL NEWSLETTER

October, 1980

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Deadline is six weeks prior to month of issue

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### Pay Due Respect

All members are reminded that their 1981 fees were due on October 1, 1980. Members of Centres should remit directly to their Centre's treasurer; unattached members should send their fees to the National Office, 124 Merton Street, Toronto, Ontario, M45 2Z2. Please include apartment numbers and specify your postal code.

National fees are \$16.00 for regular members, and \$10.00 for members under the age of 18 years as of October 1, with proof of age required to be eligible for the student rate. As well, some Centres have special fees in addition to the above. Please consult your local treasurer for further details.

Treasurers of Centres are reminded that all membership fees received up to December 31 must reach the National Office by January 15 in order to permit membership lists to be updated in time to mail in the February issue of the *Journal*. It will not be possible to retain membership and receive publications of the Society unless fees are received by January 15.

### Report of the 1980 "Bluenose" General Assembly

**from Randall C. Brooks  
President, Halifax Centre**

This year's General Assembly, termed the Bluenose General Assembly, was once again hosted by the Halifax Centre and was a unique event in the history of RASC. It was the first joint meeting with the Canadian Astronomical Society (CASCA) and, because of the success of the joint aspects of the meeting, may not be the last. The CASCA meeting was hosted by Saint Mary's University and Saint Mary's was the venue for the activities between June 25 and June 30.

Wednesday saw the arrival of a few RASCals and most CASCA members. That evening, SMU hosted a reception in the university's Art Gallery for those who had arrived. Thursday

and Friday were reserved for CASCA paper sessions and a number of amateurs took the opportunity to learn what Canadian researchers are studying. A group discussion on Thursday evening attracted a large crowd. The discussion considered Canadian participation in an international ultraviolet space telescope in the next ten years. The consensus seemed to be that participation in such a project was desirable, if not essential, if Canadian astronomers are not to be left out of development of a space based research program. Retiring CASCA President, Dr. Carman Costain, of the Dominion Radio Astrophysical Observatory in Penticton, gave his retiring address to begin the Friday paper sessions. He gave an interesting account of his days as a graduate student at Cambridge University and the atmosphere which was so conducive to research at the institution.

The RASC's National Council met in the afternoon while people with displays were busy putting the final pieces together and the last of the 200 registrants and guests arrived in time for another wine and cheese reception hosted by SMU. With everyone keyed up for the weekend activities and with friendships renewed, almost everyone attended the informal slide show which has become such a popular event at recent GA's. This was highlighted by the new NFB film "Road to Mauna Kea" which was shown by Dr. Jack Locke of the Herzberg Institute.

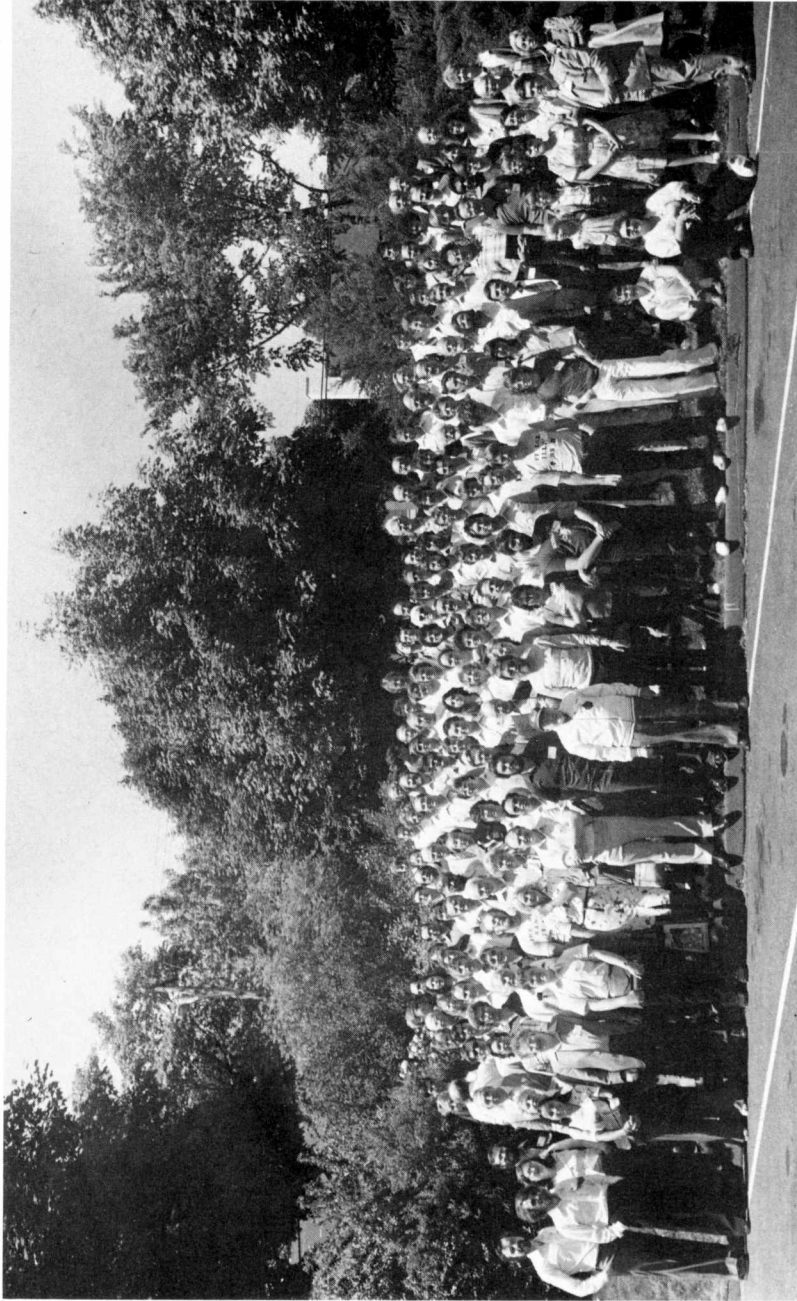
Saturday proved to be a most interesting day consisting of joint events of the two Societies. The invited and contributed paper sessions were a great success. The invited speakers (with topics) were: Dr. Helen Hogg, (Ninety Years of Variable Stars in Globular Clusters); Dr. Thomas Legg, (The Canadian Very Long Baseline Array – A Proposal for a New National Astronomy Facility); Dr. René Racine, (Alii-nui, Kahunas and Menehunas on Mauna Kea, Hawaii – A Candid Glimpse of CFHT by Its Director-to-be); and Dr. Ernest Seaquist (SS433 – A New Stellar Phenomenon?). These were interspaced with 12 papers covering a wide spectrum of topics which were of interest to both amateur and professional. The joint paper sessions gave the professional and amateur a greater appreciation of the others' work and the amateurs had a rare opportunity to mingle with active researchers and perhaps a few gleaned some new subjects towards which they may direct their efforts. The Abstracts of all papers will appear in the *Journal*.

The Saturday meals were also joint functions with a buffet at lunch and lobster banquet in the evening. A lot of new friends were made while trying to tackle and penetrate the shell of the prehistoric creatures of the sea for which the east coast is so famous. Dr. John Percy, retiring RASC President, delivered the after dinner address – "In Praise of Smaller Telescopes". The festivities ended with the traditional presentation of awards. This year's recipients were Stan Mott of Ottawa (Service Award) and David Levy now of Tucson (Chant Medal). The citations for these awards will appear in the *Journal*.

Sunday morning saw the completion of the RASC paper sessions and the afternoon was reserved for the most important event of the General Assembly. This is the Society's annual general meeting at which new officers are installed, the constitution revised, reports of the committees received and the general business of the group carried out. Following Dr. Percy's summary of the state of the Society (he concluded that it is very healthy in most respects), the incoming President, Dr. Ian Halliday took the chair and completed the business for another year.

The remainder of the activities were less serious and included the annual song competition begun by the London Centre, another buffet at a local yacht club, and a trip on the famed *Bluenose II*. After disembarkation, Dr. Helen Hogg was observed to be wearing an ear to ear smile and on querying she said "... never had such fun!" For those with shakier sea legs, there was a cruise on a motor launch to view the sites of the harbour. Participants had a choice of a trip to the Annapolis Valley and Black Hole or to the Bedford Institute of Oceanography on Monday. As only the Halifax Centre can, we arranged the Fundy Tides so that people could see the low and high tides in a most dramatic fashion and we also arranged to have Jacques Cousteau and his ship *Calypso* at BIO! Except for the final day, the weather was perfect.

Finally, but not least, the Display Competition was renewed with entries from across the country. Centre pride and inter-centre rivalry is one of the driving forces for this competition and results in some fine displays. In addition there were a number of exhibits not intended for



The assembled delegates to the first joint meeting of the Royal Astronomical Society of Canada and the Canadian Astronomical Society at the "Bluenose" General Assembly in Halifax.

the competition of which the most impressive was perhaps the scale model of the 3.6 metre CFH Telescope at Mauna Kea. The winners of the various categories of the competition were:

	<i>Category</i>	<i>Title</i>	<i>Name</i>
1	Centre Display	Centre Activities	Winnipeg Centre
2	Individual	Solar Photos	Damien LeMay
3	Radio	Radio Sun	Rob Dick, Ken Tapping, Chip Wiest, Jim Zillinski
4	Optical	X-Cygni	Rob McCallum, Mike Roney Doug Welch
5	Atmospheric	Meteor Plotting	Rob McCallum
6	Design Project	Microprocessor	Brian Burke, Doug George
7	Open	Photo S.N. Search	Rolf Meier

In all there were 24 competitors including displays from four centres. Once again the Ottawa Centre's very active observing group has taken the majority of prizes but with some planning perhaps your Centre can displace them next year.

The members of the Halifax Centre were pleased to be able to host the 1980 Bluenose General Assembly with the Dept. of Astronomy at Saint Mary's. We hope you will make an effort to travel west next year and experience another important aspect of RASC activities – a General Assembly. The invitation has been extended and "Victoria's the One in '81".

## Nominations for RASC Officers, 1981–82

The By-Laws of the Society provide for a Nominating Committee composed of the three surviving immediate Past Presidents, whose duty it is to prepare a slate of candidates for the offices of the Society.

Next year, we must elect a National Secretary. If any member wishes to make suggestions in this regard, he should contact the Committee Chairman, Dr. John Percy, c/o the National Office of the RASC, 124 Merton Street, Toronto, Ontario, M4S 2Z2.

The By-Laws provide that "any five members of the Society, in good standing, may nominate candidates for any office, provided that such nomination, accompanied by a letter of acceptance from the nominee, shall be received by the Secretary of the Society, not less than sixty days before the date for the annual meeting".

It would be appreciated if any such nominations, (together with a short résumé) were submitted no later than *April 1, 1981*, in order for the printing and mailing of ballots to be completed as required.

Full details pertaining to nominations are outlined in By-Law I, Article 11(a), as published in the June, 1969 *Journal*, pages 155–168.

## Awards of the RASC for 1981

As outlined in the *Annual Report* of the Society for 1979, awards may from time to time be conferred upon members in recognition of meritorious service or achievement. Recommendation for such awards should in most cases be made through the Council of the local Centre. Members at large may submit recommendations, if they so wish, to the National Office for consideration of the National Council. Centre Councils will, of course, submit recommendations as they see fit, to National Council for final approval.

### **GOLD MEDAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

The Gold Medal of the Society was established in 1905 as an encouragement to the study of astronomy. It is awarded to the graduating fourth year University of Toronto Arts & Science student who has both an A standing in his fourth year and the highest average mark in the two full courses and two half courses in astronomy which are contained in the Astronomy specialist programme, provided this average is over 80%. If no student satisfies these criteria, the award is not made.

### **CHANT MEDAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

The Chant Medal of the Society was established in 1940 in appreciation of the great work of the late Professor C. A. Chant in furthering the interests of astronomy in Canada. This medal is awarded, not oftener than once a year, to an amateur astronomer resident in Canada on the basis of the value of the work which he has carried out in astronomy and closely allied fields of original investigation.

### **SERVICE AWARD MEDAL OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

The Service Award was established in 1959 and, on recommendation of a special committee of the National Council, this small bronze plaque is presented to members who have performed outstanding service to a Centre or to the National Society.

### **KEN CHILTON PRIZE OF THE ROYAL ASTRONOMICAL SOCIETY OF CANADA**

The Chilton Prize was established in 1977 by the National Council of the Society, in remembrance of K. E. Chilton, an active member of the Hamilton Centre. The Prize is awarded annually to an amateur astronomer resident in Canada, in recognition of a significant piece of astronomical work carried out or published during the year.

Nominations (including citations) should reach the National Office by *December 31*. More detailed information on nominating procedures is given in the *National Newsletter*, 71 L47 (October 1977) or can be obtained from the local Centre National Council delegate.

#### **Joseph Ashbrook**

Joseph Ashbrook, long-time editor of *Sky and Telescope* magazine, passed away suddenly on 4 August 1980 at the age of 62. The co-discoverer of periodic comet Ashbrook-Jackson in 1948, Ashbrook's many interests included umbral timings of lunar eclipses, the history of astronomy, and Jupiter satellite timings. The latter work resulted in the tables of the timings of Jupiter's satellites which have been published for many years in *Sky and Telescope*. He was also very active in the AAVSO. Editor of *Sky and Telescope* since 1964, he was largely responsible for its development into one of the leading magazines for amateur astronomers in the world. In April 1980, the international astronomical community honoured him by the naming of asteroid 2157 Ashbrook.

Joseph Ashbrook is survived by his wife and four daughters. A memorial service was held in Weston, Massachusetts on 14 September 1980. He will be greatly missed.

B. R. Chou



## A New Award for Messier Observers!

by Ian McGregor  
Associate Editor

One of the favourite activities of many amateur observers is to observe all the objects in the catalogue of the famous French eighteenth century astronomer Charles Messier.

Charles Messier was a comet hunter nicknamed the "ferret of comets", who between 1759 and 1801 discovered thirteen comets. But despite this amazing record Messier's name is today not associated with comets but with a catalogue of deep sky objects possibly listed by Messier as "objects to avoid" by comet hunters. First issued in 1781 with 103 objects the catalogue was subsequently expanded to a total of 110. The objects themselves are a variety of star clusters, nebulae, supernova remnants, and galaxies, and are identified by their numbers in the catalogue, prefixed by the initial M. (See Page 127, 1980 *Handbook*. Ed.) For example, M1 is the first object in Messier's catalogue and is identified with the supernova remnant called the Crab Nebula in the constellation Taurus.

At a meeting of the Society's National Council on March 29th the Edmonton Centre proposed that a Messier Certificate be awarded to members of the Society who had observed all the 110 Messier objects. This proposal was approved by the National Council and the Certificate will be awarded on the same basis as the Society's Membership Certificate.

Requirements for Eligibility for the Messier Certificate

- 1 The applicant must have observed all 110 Messier objects.
- 2 The applicant must have located each of these objects without assistance from other observers.
- 3 The instrument(s) used, the observing site(s) used and the time period over which the

*This is to Certify that*

\_\_\_\_\_

*of*

\_\_\_\_\_

*has observed and recorded the One Hundred and Ten  
Messier Objects as described in the Observer's Handbook  
of the Royal Astronomical Society of Canada.*

*Presented this* \_\_\_\_\_ *day of* \_\_\_\_\_ , 19 \_\_\_\_\_

\_\_\_\_\_

*Centre President*



\_\_\_\_\_

*National Secretary  
Royal Astronomical Society of Canada*

observations were made are not critical but for records the applicant should list these on his application.

- 4 Supporting sketches, photographs, or observational records made by the applicant are not required but the application form must be witnessed by two Centre members who can vouch for the applicant's observational record.

In addition to the reference above, lists of the Messier Objects can be found in "*Deep Sky Objects*", by Jack Newton (Gall Publications, 1977), "*The Messier Objects*" by J. Mallas et al., and "*Messier's Nebulae and Star Clusters*" by K. Jones.

For further information on the Messier Certificate contact Mr Mark Leenders, Observing Chairperson, Edmonton Centre R.A.S.C., #1404 Vanier House, Michener Park, Edmonton, Alberta T6H 4N1.

## Here's News a Hundred Years Old

by Peter Broughton, Archivist

One evening in July, I was very surprised to receive a phone call from a lady who told me an amazing story of a trunk full of astronomical and optical equipment, and correspondence addressed to Mr. A. F. Miller. Her husband had found the trunk while doing excavation work about fifteen years ago and she had been trying to find out more about its owner and the purpose of the contents off and on ever since.

I arranged to visit the DiFlorios at their home near Toronto the very next evening. There I learned the whole story and saw the items which had been rescued from oblivion. The site where Mr. DiFlorio had been working had previously been a gravel pit, and more recently a dump. His job was to fill in the dump and level it. When he saw the trunk, he opened it, took out a handful of old letters and postcards, closed the trunk and went on working. It is now buried, perhaps fifty feet deep, under thousands of tons of earth and waste, beneath a park at Erin Mills Parkway and North Service Road in Mississauga.

The DiFlorios kindly let me see all the items and arranged for photocopies to be made for our archives. Most of the material, about twenty-five pieces, is correspondence dating from the 1880's to Allan Miller from other early members of the Toronto Astronomical Society and from people in England and the United States, including Browning and Brashear, well-known instrument makers. Miller (1851–1947) was an outstanding amateur astronomer and pioneer spectroscopist. He became president of our Society in 1918 but his name appears frequently in the *Journal* right back to the beginning in 1890.

This newly discovered material shows the flourishing state of astronomy in southern Ontario even before that date. Picturing our Society prior to the beginning of the published transactions has always been very hazy. Now we have been given a glimpse through the mists of time. Thank you Mr. and Mrs. DiFlorio for sharing this information.

## Gregorians are Still Turning Up

from Prof. Ed. Kennedy  
Saskatoon Centre

The cover photograph this issue is from the McLaughlin Planetarium, and is of a Gregorian telescope made by Robert B. Bate and his son Bartholomew Bate of 17, The Poultry, London, England. Largely because of their compactness this type of telescope became popular between 1740 and 1850. They were more easily produced than the Cassegrain design because of the difficulty of figuring the convex secondary of the latter.

This model is on loan to the McLaughlin Planetarium from the Department of Astronomy, University of Toronto.





Since the latter photograph was received a second instrument has been acquired by the Planetarium. This one is by the famous Peter Dollond, circa 1780. Both primary and secondaries in this instrument are of speculum metal, as was usual at that period.

## **Totality at Voi**

**by Randy Attwood  
Toronto Centre**

On February 16, 1980 the moon's shadow once again swept across the surface of the earth and twenty-eight members of the Toronto Centre's solar eclipse expedition were in Kenya in East Africa to witness the event. Our site was near the town of Voi directly on the centre line of the path of totality. There we witnessed over four minutes of totality under clear skies.

Our group left Toronto on February 9 for the two week safari and eclipse expedition in the national parks and game reserves of Kenya. Here we enjoyed many games drives and photographed countless wild animals in their natural habitat.

Our plans were to view the total eclipse from the Voi Safari Lodge in Tsavo National Park in southern Kenya. Here an international group of observers from Japan, Yugoslavia, the United States, Belgium, Italy and other countries had gathered because of its choice location. We decided to choose a site away from the Lodge itself and after examining several locations decided on a dirt airstrip about nine kilometres from the Lodge. This site offered a clear horizon and adequate room to set up equipment though the lack of any nearby shade was a factor that concerned several members. This was not something many had considered in Manitoba in 1979!



“We did it!” – The members of the Toronto Centre’s successful expedition to Kenya to observe the February 16, 1980 total eclipse of the sun. *Photo by R. Attwood.*

On eclipse morning the first group of observers left for the site at 7:00a.m. Andreas Gada, Robert May and myself arrived early to set up some larger equipment near the north end of the runway where the number “20” was marked out in concrete and painted white, like two sidewalks, five metres in size. We set up here to allow easy observations of shadow bands on the white surface.

By 9:00 am. the rest of the expedition had arrived and reported the Lodge was a hive of activity as hundreds of observers gathered to view the sky spectacle. Our equipment included two six-inch reflectors, a 16 mm movie camera, a C-90 telescope, a Questar, and a variety of smaller photographic systems all pointed up at an angle of nearly 70°.

The sun’s altitude increased and the temperature rose to an uncomfortable 35°C as the time of first contact approached. Anne Waterhouse had brought several cases of soda water for us which she somehow kept cool during the entire eclipse. Before we knew it, it was 9:53 and first contact.

“She’s underway, folks!” exclaimed Ralph Chou as he prepared to shoot the eclipse with a Questar. (As an optometrist Ralph is especially concerned with eye safety during eclipses and he presented a paper on the subject at the Halifax GA.)

During the 90-minute period of partial phases there was an incredible sense of anticipation as we slowly watched the sun’s disc being covered by the moon. About 30 minutes before totality a twin-engine plane flew over our heads and landed a few hundred metres down the runway. The ensuing dust cloud from the touchdown drifted omniously by to the south. The fun part of the partial eclipse period was seeing how many pinhole cameras you could make with your fingers and equipment to project several crescents onto a flat surface.

Until about ten minutes before totality, the surroundings look perfectly normal. Then suddenly your mind tells you that something is very strange. The shadows on the ground begin to go fuzzy, the surroundings take on a dull appearance and the sky darkens. Then three minutes before totality it hits you like a sledgehammer. This is real – the continent is Africa and the sun is really disappearing! You knew both of these facts beforehand but one was just as unbelievable as the other until this instant. You check your camera one last time and threaten it with instant destruction if it jams during the next five minutes.

In the west the black velvet shadow of the moon starts to rise above the horizon. Its not as evident as last year but its there. Then you feel the coolness – the temperature has plummeted to a point where you now feel cold! A little cloud has the audacity to pass in front of the crescent sun three minutes before totality. We all yell it away.

Sixty seconds to go. Then you remember what you missed last year. “Shadow bands?”, you call out hopefully. “Yes”, cries out John Morris! He is not kidding. Our number “20” is covered with shimmering ripples and you swear you were looking at the bottom of a swimming pool. We all see them as we count down the seconds.

Thirty seconds to go. Filter off the camera for the diamond ring. Look at those shadow bands! Now the sky darkens faster and faster as the velvet cloth climbs in the west to meet the sun. If you put your thumb in front of the last blob of the sun, you can already see the corona. Mare Orientale is letting through the last bit of photosphere. Fifteen seconds. Oh, the diamond ring! Everything is going so fast! Here we go!

### TOTALITY!!!

And it is the most incredible transformation you’ve ever seen. A dark sky, a salmon coloured horizon which stretches up some 20 degrees, all the way around, and overhead there is this big black hole in the sky. As you automatically take your exposures of  $1/1000$ ,  $1/500$ ,  $1/250$ , ...  $1/2$ , 1, 2 seconds you can’t grasp what has happened. This is so great! The screams die down after 20 seconds because this scene deserves quiet observation and solemn concentration.

The silvery corona is gorgeous. All the pictures you have seen of eclipses are misleading. They can’t compare with the real thing. From the pink prominences in the chromosphere out through the inner and outer corona, the detail is incredible. To comfortably view the spectacle I lay down on the ground since the sun is 70 degrees above the horizon. As I bring the binoculars to my eyes, a flock of birds fly between me and the eclipse. When I realize the way this event has affected me I can’t imagine how confused they must be. Meanwhile Venus and Mercury are so bright they seem to pop out at us.

“Fantastic, I was just overwhelmed seeing my second eclipse,” recalled Ian McGregor. “Your first one leaves you in a state of shock. You can’t prepare yourself for it. I had been teaching people about them for nine years before last year in Manitoba when I saw my first. It’s nothing like you can imagine.”

Robert May noted two big differences between this eclipse and the one last year. “It was a lot warmer this time and the sky was much brighter. The surroundings made the eclipse more exciting.”

Anne Waterhouse saw her first eclipse in Kenya. “It happened so fast. It was very exciting, the thing I remember about it was its beauty. The diamond ring was what surprised me. I had no idea it would look like that, you can’t describe its brilliance, the sheer light at the end of totality. And the length of the streamers was very surprising.”

One minute left. The moment you dread is approaching. All you can do is try and absorb everything you can see about you on a magic tape inside your head for thousands of future replays. But with this four minute eclipse, you have the time. It’s much brighter than last year, the corona is bigger and there is more light around the horizon, because of the smaller size of the moon’s shadow on the earth’s surface. One could have still read a newspaper in that dull light. There are fewer obvious prominences this year but the detail in the corona makes up for that. The silvery tinsel is made up of several sharp streamers that seem to trail off into the dark sky as delicately as silk in the wind. The contrast of these milky wisps with the hard jet black moon leaves one breathless.

Like a rude awakening the western sky brightens and the western limb of the moon explodes with a gorgeous diamond ring which lasts a good 20 seconds – a sight I will never forget. It is over!

I don’t know why we felt responsible for what had happened but we didn’t mind taking credit for it. “We’ve done it!”, we would say, hugging and kissing with a few glassy eyes here and there. The built up emotions find a form of release somehow. Still, it is understandable since we had just experienced an extraordinary event. For a short four minutes, each of us found ourselves taking part in a precise cosmic orientation with the sun, the moon, and the earth.

The celebrations continue, the group picture is taken and miraculously, the clouds cover up

our sun a few minutes later. We were luckier than we realized – our original alternate sites were all clouded out! But we saw it!

And if eclipse chasing is a disease, we all have contracted terminal cases. See you in Indonesia in 1983!

## The Cepheid Variable X Cygni

by Mike Wesolowski  
Saskatoon Centre

X Cygni (X Cyg) is one of the brightest members of the well-known class of variable stars, the Cepheids. The name is derived from  $\delta$  Cephei, the first known variable of this class. Some of the brightest Cepheids are Beta Doradus, Zeta Geminorum and Polaris.

X Cyg is easily located near  $\epsilon$  Cyg, and is visible all year round, although it is necessary to rise before dawn to see it in the early part of the year. The range in magnitude is about 5.8 to 7.0, so that it is always visible in binoculars. With a period of 16<sup>d</sup>39, the light variation is more leisurely than that of  $\delta$  Cephei (range 3.5 to 4.4, period 5<sup>d</sup>36). Observations made every 2 to 3 days will suffice to construct a light curve over a period of a month.

The light curve shown combines all of the observations made by the author during the fall and winter of 1979–80. It is a typical light curve for a Cepheid, with the rise to maximum occupying about 1/3 of the period, with a slower fall to minimum.

Observations of X Cyg and other Cepheids are especially valuable, as Cepheids are evolving quite rapidly (relatively speaking). According to a mass-period relationship, the Cepheids with the longest periods are the most massive, and are therefore evolving most rapidly. Any change in the interior of the star due to evolutionary processes would probably manifest itself as a change in the period of the star, so astronomers are particularly interested in those Cepheids having periods in excess of 10 days.

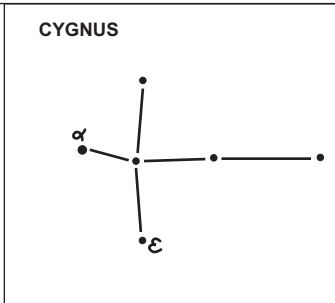
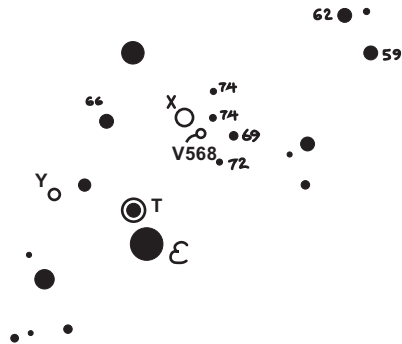


FIG. 1. Finder Chart for X Cygni



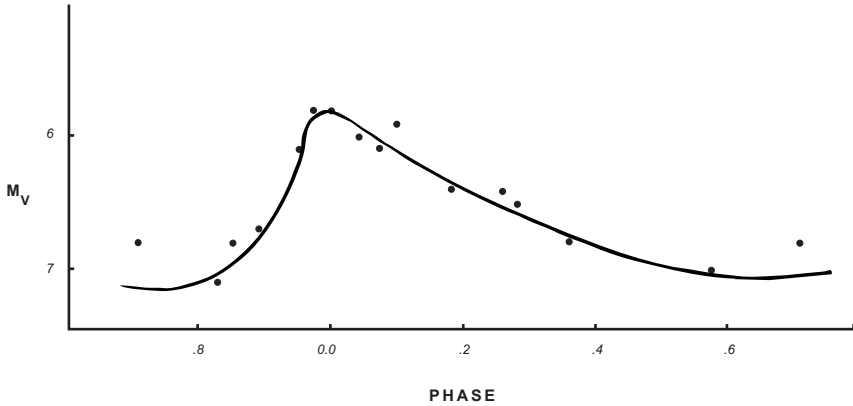


FIG. 2. Light Curve of X Cygni

Members are urged to make use of the accompanying chart to observe X Cyg, preferably at frequent intervals over a long period of time. Any and all observations should be sent to the author, c/o the Saskatoon Centre, so that they may be forwarded to the appropriate people. All observations should include the date, time of the observation to the nearest ten minutes (CST), estimated magnitude, comparison stars used, and the instrument used.

## Northwest Astronomical League Holds Convention

The NWRAL Convention this year was hosted by the Spokane Astronomical Society at the Whitworth College Campus in Spokane, Washington, August 1, 2, & 3. Approximately 80 delegates from the member groups of the region were in attendance, embracing members from the Olympic Astronomical Society, the Pocatello Astronomical Society, the Portland Astronomical Society, the Seattle Astronomical Society, the Southwest Washington Astronomy Club, the Spokane Astronomical Society, the Tacoma Astronomical Society, and Goldendale Observatory.

The structure of the Convention was almost a duplicate of what has become traditional at RASC General Assemblies. Registration was on the Friday evening, while the Regional Council held their meeting following a dinner. This was followed by an observing session on the Baseball Diamond of the campus, complete with telescopes from a Questar to a 12½ inch instrument brought out by truck.

Saturday was given over during the day to a Papers Session programmed as follows:

- 1 *Variable Star Observing*  
Howard Thomas, Spokane Astronomical Society.
- 2 *Mythology and the Fall Constellations*  
Eilene Starr, Eastern Washington University.
- 3 *Pettinger-Guiley Observatory*  
Steve Mackay and Al George, Tacoma Astronomical Society
- 4 *Star Parties*  
Tom Colwell, NWRAL Chairman
- 5 *Meteor Count Program*  
Dick Linkletter, Olympia Astronomical Society.
- 6 *Portable Planetariums*  
Ken Miller, Pacific Science Centre

7 *Micro Computer Controlled Photometry*

Ed Mannery, University of Washington Observatory

8 *Astronomical Effects on Geology*

Dick Linkletter, Olympia Astronomical Society

9 *Jupiter Flybys*

Dick Nieman, President Spokane Astronomical Society.

One additional unscheduled paper was requested by the chairman; *Some Words about the RASC*, by your Editor, who happened to be present. This may have encouraged (or discouraged) some members of the NWRAL to attend the Victoria Assembly of the RASC in 1981.

The Society banquet was held in Leavitt Dining Hall at the College, where the Guest Speaker was Dr. Ed Olson of the College Faculty. Dr. Olson's topic was "Space and Time", which he developed not only from the strictly scientific view of the astronomer, but also from the philosophical considerations of his background as a theologian.

There were many interesting factors brought to our attention in the Papers Session, as is the normal. We cannot begin to recount them all, but one tiny facet that may be of interest to those of us with telescopes that produce erect but reversed fields came up in Howard Thomas' paper on Variable Star Observing; he holds his charts turned over left-for-right, and transilluminates them with a red flashlight!

During the daylight clear periods some of us had the pleasure of observing the sun through a Hydrogen Alpha filter owned by Howard, as well as direct viewing through a specifically solar six-inch belonging to another of the delegates.

## Of Pleiades and Particles

by Frank Shinn

Someone once brought to my attention a story supposed to be of Greek origin. We are all familiar with the tiny open cluster going under the name of the Pleiades. To-day that name brings to amateur astronomers' minds a magnificent array of sparkling points across the fields of their favorite wide-angle eyepieces, or the spectacular photograph so frequently reproduced in full colour showing the major components buried amidst the glow of excited gas nebulosity.

However, to the naked eye it appears as only six tiny stars, and so the ancient Greeks saw it. According to my story they conferred upon the group the collective name of seven daughters of the gods, the Pleiades. When asked how seven goddesses glowed with the light of only six stars, they explained that one of them had been foolish enough to fall in love with a mortal and she married him. Consequently she was no longer allowed to dwell in the heavens.

The story came back to my mind recently while reading a volume entitled *Particles*, an Introduction to Particle Physics, by Michael Chester. After running through the familiar historic growth of the atomic concept from a first notion of an invisible particle out of which larger forms were built, rather like children's building blocks, or jumbles of ball bearings I suppose, Chester develops it further over the concepts of electrons, protons and neutrons. Then the fun begins.

After a discussion of raisins in a bun, he introduces us to the Impossible Atom. This is the familiar Bohr atom with which I grew up in school. The concepts of electron orbit number, shape, tilt, complicate the picture, to say nothing of electron spin. Complications exceed words; we have to resort to numbers. The Quantum is born!

A few more chapters and any likelihood of describing things precisely flies out the window, Waves of Chance (and Blobs) get into the act.

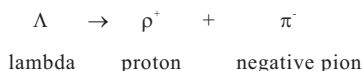
You'll have to read the book (Macmillan Publishing Company, New York.) to find out all the fascinating permutations and commutations of the plot. While Chester describes for us the Virtual Particle in Chapter 13 (Where else?), I looked in vain for any Virtuous Particles.

Of course one doesn't read far these days without running into a few muons and pions. It appears that these are underweight and overweight mesons called by the above shortened

names by their friends and close associates, while the more formal still address them as “Mr. Mu-meson” and “Mr. Pi-meson”. Finally we run into a few superheavyweights called kaons.

Having broken the whole race down into a series of families, it seems that physicists are now busy remarrying them. Only, all the way through, to maintain domestic harmony within the atomic kingdom, the various numbers must always add up to zero. If you have a negative in one place, you must have a positive in another. If you have a 1/3 in one spot, and another 2/3 somewhere else, you’d better introduce them to a minus 1 somewhere by some combination of circumstances or you’ll have a meltdown on your hands. It even goes into the inheritance:

“The decay of the lambda particle is a weak process. About 64% of the time it decays into a proton and a negative pion, the two particles that gave birth to it:”



The family is most productive; we soon find ourselves with a two-page “family tree” of subatomic particles, with all their qualities revealed, “letting it all hang out” as it were.

Enter the Quark. The quark exhausts both words and numbers. To describe it requires resort to flavors; the flavors *up*, *down*, and *sideways*! Sooner or later the latter turns out to be unpalatable, and is identified with the particle’s *strangeness*!

We knew it had to happen sooner or later. A while back we got into a discussion with our associate editors as to whether the *National Newsletter* could carry an article in which photons were accused of coming in various colours, some red, some blue, etc. Seems they mustn’t show any political stripes, but here we soon have quarks that have three colours each; red, yellow and blue. (Provided, of course, that the balance is such that the result is white and any political leaning is concealed.) Funny, we thought that *white* resulted from combining three primary colours of *light*, which were red, green, and blue; but then I suppose a quark isn’t radiation, or is it?

At this point I’m afraid I began to think of a sort of celestial marriage ceremony where two particles were to be united, no doubt before a Pious. The celestial dome is suitably decorated with red, yellow and blue quarks, all carefully blended so that the resulting effect is virgin white, reflecting the finally-discovered Virtuous Particle, who is to be united in everlasting bliss (or at least until a cosmic ray comes along). No previous incarnation as a Wave is mentioned.

As the happy couple advance through the ceremony, which is calculated to take  $10^{-26}$  seconds, friends of the Virtuous Particle, the mademoiselleons, known to their associate non-intimates as mewons, are gathered near the back of the edifice discussing what he can possibly see in her, while the monsieurons, known to their detractors as morons, are gathered in the adjacent banquet hall discussing if he’ll really settle down after coming all those light years to such an ill-equipped laboratory. Meanwhile the organic synthesizer is accompanying quietly with a ballad that was popular when I was growing up:

“You may not be an angel,  
But until the time when one comes along,  
I’ll string along with you.”

As the crowd disperses (expelled by the fracturing of various atomic hearts in one catastrophic chain reaction) the Carillon Tower can be heard pealing forth as Dr. A. H. Batten is invited to employ his hobby of Campagnological Tintinnabulation. (See *Jour. Roy. Ast. Soc. of Can.*, Vol. 68 No. 6, 334)

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The above is, of course, facetious. I do not question in the least the concepts presented, I know I’m not qualified to do so. I appreciate the fact that we are up against phenomena so foreign to our everyday experiences that there is no common language in which they can be described. As the personal names we bear have no relationship to our characteristics, and only those intimately associated with each of us conjures up in his mind’s eye the appropriate



model when the name is mentioned, so only those intimately working in the fields that we tough in trying to understand this universe of ours really derive an image, or at least grasp a concept, from such imaginative descriptions. It only occurs to me that the concept of a goddess who married a mortal being forbidden heavenly status thereafter was perhaps no more strange to the minds trained in a background belief supporting such an idea, than are the descriptive ideas of colour, flavor, quantum, spin etc. to our disciples of physics.

It also occurs to me that when these concepts are repeated to an audience 2000 years hence, our ideas may not seem any more accurate, or any less naive than the celestial goddess who lost her status.

But I suspect that even then there may be astronomers seeking respite from the taxing calculations of remote distances and intimate reactions in the far more esoteric occupation of creating heavenly harmony on a peal of bells.

## Journal Scoops the>NNL Again

With an Abstract reading: "A brief, popular overview of energy is presented. The various categories and origins of the energy used by man are described. Such a description necessarily involves astronomy. It is hoped that this article will tend to complement the more geocentric accounts of energy which have appeared in recent years." Dr. Roy Bishop attempts to sum up an article that cannot possibly be condensed to so few words. His "Whence Energy?" on page 163 of our *Journal* for June, Vol. 74 No. 3, is surely destined to become required reading for anyone likely to show any concern for the future of mankind. We are sure no amateur member of the Society will want to overlook this just because our rival publication happened to get their hooks on it first!

Dr. Peter Millman's article re the Herschel Dynasty beginning on page 134 of the same issue serves to help us to realize that, even if we are astronomers, we are still human. That is, if we may have the temerity, as amateurs, to class ourselves in the ranks of the starry-minded giants!

The *Journal* is entertaining reading, as well as being informative.

## Summary of Minutes of National Council, June 27–28, 1980

*Canada Wide Science Fair Prizes.* In future prizes to be as follows:

- (a) First prize – \$50, plus a one-year membership of applicable class
- (b) One-year membership of applicable class to two runners-up.

*Cost of Supplement indicates restriction of reports.* Rev. Green noted that the SUPPLEMENT costs about \$1,800 to produce. It was suggested that Secretaries be requested to restrict reports, if possible, to no more than one page. Articles 7(a) and 8(e) prevent the condensing or amending of official Centre reports by the National Secretary.

*Extract from Recommendations of Membership Committee.* That, beginning with the 1982 membership year, regular membership in the Society include a subscription to the *National Newsletter* or a subscription to the *Journal of the Society*, but not both, and that an additional charge be levied for those members who wish to receive both publications.

*Request from Chairman of Heritage Committee of CAS.* Professor J. E. Kennedy has written to National Council requesting assistance in the preparation of an inventory of old astronomical instruments in Canada, including instruments in closely related fields.

*Editor's Note:* We recognize the danger in summarizing Minutes as above. Full copies of the minutes are sent to each Centre, and members should consult with their local executive officers regarding any of the above extracts and obtain the full text. We have merely intended to call attention to a few items which could be of popular interest, without re-hashing matters handled by normal business proceedings. Recommendations or requests outlined above may not have been accepted as of the time of going to press.