

NATIONAL NEWSLETTER

February, 1979

Supplement to the JOURNAL OF THE ROYAL ASTRONOMICAL SOCIETY
OF CANADA

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HQAR YCA

**All fellows of the Royal Astronomical
Society of Canada
are hereby cordially invited to sally forth
for a weekend of mirth making and
memorable astronomy at the
1979 General Assembly
on the banks of the river Thames in
London, in the county of Middlesex, Ontario.
Festivities will commence May 18 and
conclude May 21.**

NATIONAL NEWSLETTER

February, 1979

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Deadline is six weeks prior to month of issue

Project Zubenelgenubi – 1978 **A Public Awareness of Astronomy Programme**

by Gerald Schieven
London Centre

In 1976, an attempt was made by the London Centre of the RASC to bring astronomy to the people with displays in malls throughout the city, and with public star nights. All was volunteer work, and after a month of mall-hopping it became difficult to man the displays. Damage to personal property (e.g., cars, telescopes) was also considerable and led to a difficulty in getting such equipment. It was decided in 1977 to carry on the project but this time to apply for a grant from Young Canada Works to hire members of the Centre and to rent a van so that use of equipment would no longer be strictly volunteer. Obtained were letters of interest from shopping malls, permission from the PUC for the use of parks during star nights, permission from the London Urban Resources Centre for use of facilities when star nights were rained out, and interest from the London Regional Children's Museum who would receive the displays at the end of the project. Accompanied by these supporting submissions the application was made. Turned down for 1977, the grant was approved 1978, and Project Zubenelgenubi 1978 (named after Alpha Libra and a somewhat similar Opportunities for Youth programme of 1973) was born. Seven people – including the writer as project manager to start May 8, two university students to start May 22, and four high-school students to start June 26 – with a budget of over \$12,500 would popularize astronomy with school and other group demonstrations, mall, library and city hall displays, and star nights. Not on the payroll,

but giving enormous assistance, time and energy to the project was Peter Jedicke, President of the London Centre, who also drove the van.

The first three weeks of the programme were used to prepare the actual project; hiring a van, interviewing and hiring people (not enough members from university could be obtained to fill those positions), contacting schools and malls etc., and deciding the how and what of presentations and displays. For the schools, a planetarium-like show (without the planetarium) was decided upon, with posters and a running commentary. Mall displays were to consist of several boards covered with posters, illustrations and drawings. One of the "Zu Cru", an art student at OSFA in Toronto, designed and executed a large number of very fine posters. Also, for the schools, 1500 kits consisting of projects, ideas, a "build-it-yourself" constellation box viewer, and a star finder chart were designed and Gestetnered by the home crew.

The next two weeks were used for the schools. Due to short notice, only nine schools were able to invite us, but nevertheless we gave presentations to over 3000 public and separate school students. The reaction was very good and very often we, and especially the teachers, were surprised by the level and sophistication of many of the questions. This despite the fact, much regretted by many teachers, that astronomy is sadly neglected in the school curriculum.

School ended and the four high-school students began, making seven of us. Immediately we began our displays in the shopping malls. These consisted of the aforementioned boards, plus three small tables covered with books, magazines, assorted RASC publications, a sky chart showing the planets for that evening, a mirror grinding kit (one of the Zu Cru did some grinding while in attendance), etc. A continuous running slide show projected onto a poster board. Except for one mall, there was never a period of more than half an hour when at least one person didn't stop to look. Two of our people were always in attendance to answer questions and give demos.

In the evenings Monday to Friday were our star nights. Several telescopes and Zu people were in one or two different parks every evening to show off the skies. If it rained, we went to the London Urban Resources Centre for a slide show and lecture (although only one person ever showed up for those). These star nights were always well attended, with never fewer than 10 people and sometimes up to 35-40 coming out with an average of 15-20 people per night. For publicity, the daily newspaper ran a list every day of where we would be that and the following night, as well as doing a story on us. All of the radio stations in the city also announced star nights as a public service. Most people were very interested, and some fascinated by the subject, and all enjoyed having a look, especially at the moon (which is to be expected). All were delighted to learn that the bright star they had been in the west was Venus!

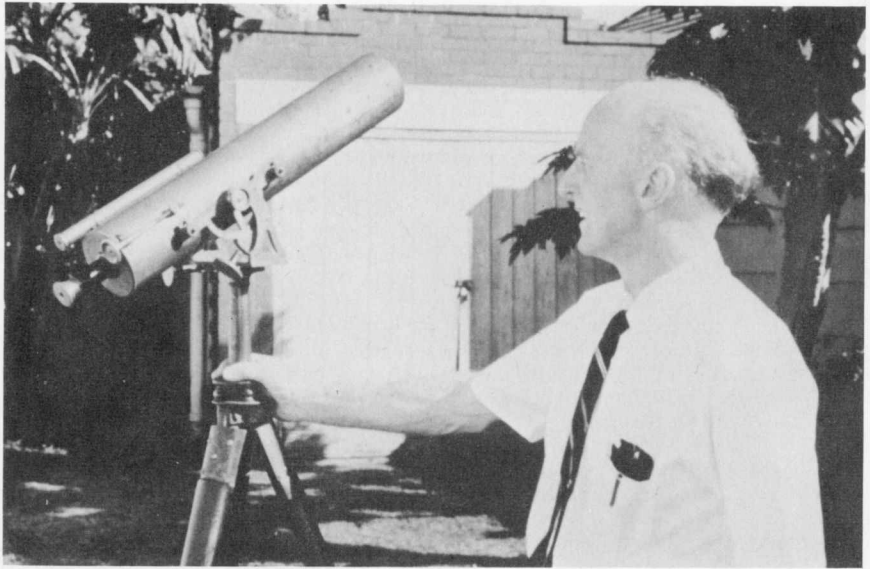
Conclusions

One of our aims was (naturally enough) to increase membership. We have not been overwhelmed, but so far three new members have been signed up with several more intentions and many interested in joining.

Our second aim was to increase public awareness of astronomy. In this respect we have been quite successful. Most people knew little to nothing about astronomy and were able to learn a great deal from us about observing, astrophotography, telescope building, and also on research being done on more theoretical aspects of the subject.

Projects of this type not only inform the public of our favourite subject and the existence of the RASC, but also raise its esteem. More projects like this, whether done on a volunteer basis or otherwise, should be undertaken. Presentations in schools (and to other groups) are always appreciated, especially by teachers in June, since they break the monotony, and also introduce to and stir the imaginations of students to astronomy, which is not well taught (if at all) in schools. Camps, e.g., church camps, boy scout camps, girl guide camps, etc., are also always welcoming this sort of presentation.

I myself am an astronomy student at University of Western Ontario, and working on the project with me were: Karen deJong, an art student at the Ontario School of Fine Arts; Frank Rautenkranz, a physics major from UWO; and Carl White, Mark Sinkins, Owen Ash and Dale Armstrong. All except Karen and Frank are members of the London Centre.



James Barker, a member of the Natal Centre of the Astronomical Society of Southern Africa with a Gregorian Telescope which he mentions in a letter to Professor E. Kennedy of Saskatoon. *Photo by J. Barker.*

More on Gregorian Telescopes

by Professor J. E. Kennedy
University of Saskatchewan, Saskatoon, Saskatchewan

As an outcome of my request for information on Gregorian telescopes housed in museums or archives across Canada, (*National Newsletter*, June 1978), it was a surprise and a delight to receive a letter and a coloured photographic print from James Barker, a member of the Natal Centre of the Astronomical Society of Southern Africa. He is the fortunate owner of an excellent telescope of this design, as shown in the black and white reproduction.

Mr. Barker's telescope is on "permanent loan" to the Durban Local History Museum, an arrangement which permits many individuals to enjoy the beautiful design and workmanship in this instrument executed by John Adams of London around the end of the 18th century. The mirrors are of speculum metal, with the primary mirror 4 inches in diameter and 20 inches in focal length.

Mr. Barker has not been able to trace the previous history of this telescope, found, as he states, in a private house in Durban. He has succeeded in restoring the mirrors to a reasonable state, although it was necessary for him to add small opaque annular rings around the edges of both the primary and secondary mirrors to overcome the turned-down edges. The mounting is altazimuth, with slow motion adjustments on both coordinates. The focus is adjusted by a rod inside the tube, a different arrangement than that of Dr. Scatliff's Gregorian shown in the photographic print published in the June *Newsletter*.

The kindness of Mr. Barker in providing me with the photographic print and details about his Gregorian instrument is appreciated. An exchange of correspondence with an astronomer in another country always proves beneficial; this illustrates once more that astronomy is truly the most international of all the sciences.

Space Odyssey

by Phyllis Belfield
Winnipeg Centre

Early in the spring of 1978 an idea was conceived by Eaton's Department Store and the Manitoba Planetarium. Through months of careful nurturing the concept became a reality on October 17th, with the official opening of "Space Odyssey" by former Astronaut Eugene Cernan, commander of Apollo 17.

For twelve days the magnificent and comprehensive Science/Science Fiction Exhibition, held at the Downtown Eaton's store, delighted and fascinated Winnipeggers with displays of actual articles used during the Apollo moon missions, courtesy of the Smithsonian Institute. From NASA there were models of Apollo-Soyuz spacecraft, of the first Soviet Sputnik, flight plans and manuals used by Apollo 17 Astronauts, lunar rock samples, and a spectacular space photograph display plus many other exhibits on aspects of NASA's space exploration.

In the Starship Theatre, a festival of science-fiction movies was shown which included "2001 Space Odyssey" and "Silent Running". The little theatre was packed twice a day for the Laser Light Show. If one could not gain entrance to the show, there was the attraction of learning how film-makers film scenes of outer-space. Of course there was always the possibility of meeting Darth Vader, the sinister villain from "Star Wars", on his appointed rounds.

The National Research Council of Canada Exhibit explained some of the research taking place at the Algonquin Radio Observatory in Ontario, at Herzberg Institute of Astrophysics and at the Mauna Kea Telescope in Hawaii. The Atomic Energy Commission displayed a reactor model, uranium ore, and a geiger counter exhibit. It was an excellent visual presentation and description of the Atomic Energy work taking place in Manitoba.



Part of Winnipeg Centre's Display at "Space Odyssey 1978" Roy Belfield, President of the Centre, appears in the middle near the Newtonian telescope. *Photo by Phyllis Belfield.*

L6

The Manitoba Centre for UFO Study displayed photographs of saucer-shaped objects, strange coloured lights and burn marks left by UFO's. A slide presentation was shown starting with the history of UFO sightings and leading up to the most recent ones.

The Winnipeg Centre of the Royal Astronomical Society of Canada Exhibit was excellent, judging by the many compliments received. On display were various telescopes ranging from the 44-inch Cooke Refractor (1895) to modern day Schmidt-Cassegrains. There were rare astronomical stamp and coin collections, and precious old books, charts, drawings, model radio controlled rockets and a collection of amateur astronomer's equipment. A taped presentation of the splendours of the night sky, and a video-taped production of the 1973 African solar eclipse were shown alternately every hour. A member of the Winnipeg Centre was in attendance at all times, to answer the many questions of the general public.

There was the hauntingly beautiful "Lunaris", a moon dance performed by the Contemporary Dancers; or a way-out Space Fashion Show, to contemplate before experiencing the Zero-Gravity-Chair. One could spend some time chatting to Teco—a real "live" android, who could tell some way-out space jokes.

Eaton's displayed a nine-foot map of Manitoba showing the path of the Feb. 26, 1979 solar eclipse. The Planetarium's "Time Capsule" stretched the imagination to the possibility of many worlds beyond our own. A guest speaker from Princeton University, Dr. Bryan O'Leary, gave a talk on "Space Colonization" at the University of Manitoba on Oct. 18th. On Oct. 20th Dr. Frank Drake, from Cornell University, gave a lecture on "The Search for Extraterrestrial Intelligent Life" at the Convention Centre. Both lectures were very well received.

There were exhibits from the Solar Energy Society, the Winnipeg Amateur Radio Club, the Optometric Society and many many more, too numerous to name.

Eaton's estimated that about two hundred thousand people visited the exhibit site during the twelve day event. While there were one or two disconcerting moments, everyone agreed that the "Space Odyssey" soared to great heights and exceeded all expectations.

Nouvelles des Centres Québécois

de Damien Lemay

CENTRE D'ASTRONOMIE DE MONTREAL

Lors des dernières élections, Monsieur Lucien E. Coallier a été élu président en remplacement de M. Henry Cola.

Un membre bien connu, Monsieur Maurice Provencher, vient de publier la "Carte Alpha". Elle ressemble à la carte Sirius, excepté qu'elle est en français et de meilleure qualité. Elle est faite en plastique solide avec des chiffres graves qui ne s'effacent pas, mesure 8" x 8" et correspond à la latitude de 45° Nord. Disponible de la S.A.M. au coût de \$8.00 plus taxe de 8%.

LE CENTRE DE QUEBEC

Débutant avec janvier 1978, le bulletin du Centre de Québec n'existera plus sous sa forme habituelle. En effet, à l'avenir, tous les articles de fond de ce mensuel seront incorporés dans le *Magnitude Zero* de l'A.G.A.A., permettant ainsi une distribution beaucoup plus grande. Quant aux nouvelles regardant uniquement les membres du Centre de Québec, elles seront incluses en supplément.

Les autres centres de la S.R.A.C. qui échangent déjà (ou qui désireraient le faire) leur newsletter avec le Centre de Québec de S.R.A.C., recevront dorénavant le *Magnitude Zéro*. Il y a tout lieu de croire que cette formule leur plaira.

Fabrication d 'un réticule pour oculaire utilisé clans la photographie astronomique

par Damien Lemay

En plus dun équatorial bien orienté, un oculaire avec un réticule illuminé est un accessoire nécessaire pour faire sérieusement de la photographie astronomique. Sans un tel réticule, le pourcentage de photos réussies demeure faible et les résultats ne sont pas répétitifs, la qualité du guidage variant beaucoup d'une photo a l'autre.

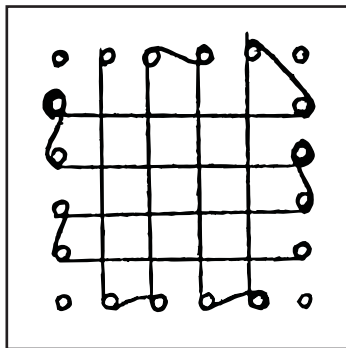
Depuis quelques années, il existe sur le marché pour les amateurs plusieurs modèles d'oculaires pourvus de réticules mais après y avoir ajouté les frais de douane, le coût d'échange entre l'argent canadien et étranger, leur prix de revient se situe entre \$50. et \$80. environ.

Pour un débutant, ou pour un amateur qui prend quelques photos occasionnelles, un tel investissement n'est pas justifié puisqu'il peut ajouter un réticule de sa propre fabrication a un de ses oculaires. A partir du debut de 1977, c'est avec un oculaire tantôt de 30mm, tantôt de 12mm (dépendant de l'objectif utilisé avec la camera), équipé d'un réticule tel que décrit ci-après, quej'ai pris toutes mes photos astronomiques a tongue exposition.

Un procédé photographique est utilisé pour la fabrication du réticule. Il suffit d'abord de faire un dessin en blanc sur fond noir, du réticule que l'on desire reproduire. Faites votre dessin de la dimension qui vous convient le plus. Les traits du dessin doivent cependant être relativement fins et les poussières de couleur pâte doivent être éliminés du dessin.

Après plusieurs essais, j'ai adopté la méthode suivante:

- Utiliser un morceau de contre-plaqué d'environ 15 x 15 pouces.
- Recouvrir le contre-plaqué de carton (ou papier) de couleur noir mat. La peinture serait idéale, mais à moins d'avoir un reste en main, il n'est pas justifié d'en acheter à cause de la très petite quantité requise.
- Sur le bord, a intervalles de deux pouces, planter des clous. Leur longueur n'a pas beaucoup d'importance, pour ordre de grandeur, disons 3/4".
- Utiliser une ficelle blanche et former un quadrillage en l'entrelaçant sur les clous.



La figure ci-jointe montre le montage lorsque complété. Notez la façon dont est disposée la ficelle afin d'obtenir des lignes aussi parallèles que possible.

Vous pouvez y aller de vos propres initiatives en y ajoutant d'autres détails, par exemple des petits cercles de diamètres différents qui correspondraient à l'erreur maximum de guidage que vous pouvez vous permettre, dépendant de l'objectif utilisé pour la prise de photo.

L8

Il reste maintenant à photographier ce dessin et après développement, le négatif montrera les lignes blanches en noires alors qu'à la place du fond noir, la pellicule demeurera transparente.

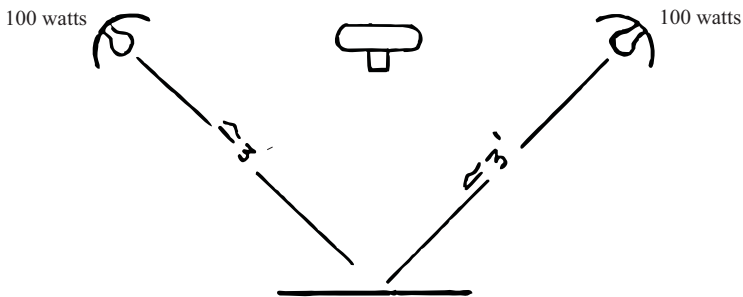
Le type de film recommandé est le High Contrast Copy (HCC) de Kodak, parce qu'il a un grain très fin et aussi parce que la base du film (support mécanique de la pellicule) est beaucoup plus transparente que les autres bases de films.

La vitesse ou sensibilité du film HCC est difficile à définir à cause de ses propriétés particulières. Cependant, pour le besoin de la cause, oubliez votre photomètre et fermez la lentille à F/5.6. Ne jamais utiliser pleine ouverture, par exemple F/1.7 ou F/2.8, car la définition en souffrirait sérieusement.

Eclairez votre dessin avec deux lampes incandescentes ordinaires de 100 watts, une de chaque côté à environ 3 pieds de distance, exposez $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ sec. Après un premier essai, vous jugerez l'exposition la plus convenable.

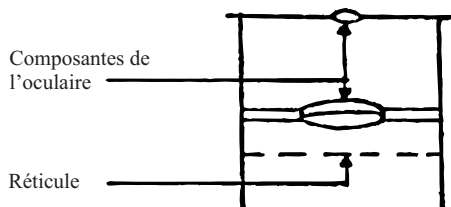
Etant donné que ce film s'obtient en rouleau de 36 poses, je recommande de développer tout le film exposé après quelques essais, ce film n'étant pas utilisable pour la photographie.

Etant donné qu'il s'agit d'une photographie en gros plan, il est souhaitable d'avoir un support mécanique (un trépied par exemple) pour la caméra, pour faciliter la mise au point. La caméra doit être de type reflex pour éviter la parallaxe causée par les autres types de viseurs. L'objectif normal est recommandé. Cadrez de façon à ce que votre dessin remplisse la majorité du champ de vision de votre caméra.



Le développeur recommandé pour le HCC est le D19 mais le DEKTOL est aussi très acceptable. Après avoir préparé une solution de DEKTOL tel qu'indiqué sur le contenant, ajoutez une quantité égale d'eau (réduction 1:1) et développez 5 minutes à 68°F. Les autres étapes sont les mêmes que pour les autres types de films.

Lorsque la pellicule est bien sèche, découpez et la montez au foyer de l'oculaire que vous utiliserez pour guider. Laissez le diamètre du réticule juste un peu plus grand que le diamètre intérieur du baril de votre oculaire. De cette façon, le réticule tient de lui-même. Il arrive cependant qu'il soit un peu déformé, ce qui le met hors foyer en certains points, dans ce cas, redécoupez-le encore un peu jusqu'à ce que vous soyez satisfait. Allez-y de votre propre initiative si cette méthode ne vous convient pas.



Avec un télescope guide de 100 mm de diamètre, une étoile guide de 4^{ème} mag. (ou plus lumineuse) fournit suffisamment de lumière pour éclairer le réticule. Personnellement, avec mon Tasco de 4.5", j'ai utilisé parfois des étoiles aussi faibles que la 7^{ème} magnitude.

Pour ceux qui ne veulent pas s'impliquer dans de telles complications, je pourrais les accommoder a plus ou moins breve échéance (dépendant de leur nombre) pour la somme de \$1.00 maximum.

Nominations for National Council 1979–1980

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.

This year the positions which will be vacant and must be filled are Treasurer, Recorder, and Librarian. The election of these officers will take place at the Annual Meeting at the General Assembly in London in May.

The By-Laws provide that "any five members of the Society, in good standing, may nominate additional 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 of the annual meeting".

Nominations for Council should be sent to the National Office and addressed to the Royal Astronomical Society of Canada, 124 Merton Street, Toronto, Ontario M4S 2Z2 and marked to the attention of the Nominating Committee. Nominations plus a short resume should be submitted no later than March 1, 1979, to allow for the printing and mailing of ballots.

Full details pertaining to nominations are outlined in By-Law 1, Article 11(a), as published in the June 1969 *Journal* pages 155–168.

Oops Again (and Again)

We have found two more errors in the 1979 *Observer's Handbook*, one a simple slip and the other of a more serious nature.

On page 104, the information is correctly given for 1979 (and 1980 for the Quadrantids), not for 1978 (and 1979) as printed.

On page 52, the diagram is backward (as any good observer should know). The editor offers no excuse, other than that the diagram was made from a celestial globe in the wee hours of the morning, immediately after the three "sunrise" diagrams were made.

The editor thanks Peter Millman and Terry Dickinson for being the first to report these errors, and he promises to tighten up the proof-reading procedure for next year.

Reflections

by David Dodge
Vancouver Centre

There are few things more pleasurable than communing with the stars. It gives you a feeling of oneness with the firmament. With only the sounds of the night for company, you have time to reflect on our minuscule place in the universe; time to absorb the visual impression that has travelled aeons, to be absorbed in part and travel on; time to consider the roots of that light; time to speculate when, why, how and if. The ever moving image that we see is just a snapshot, but one full of drama and excitement that will never be fully developed.

Associate Editor Requests Assistance

Can anyone spare copies of the June 1975 and August 1975 *Journal*? Ralph Chou finds he did not get them, and would like to complete his files. Please contact him at 225 Harvard Place, Apt. 1009, Waterloo, Ontario, N2J 4H4, Telephone (519) 886-0293 if you can supply.

'Problicom' – Threshold to Discovery

as presented to
Barry Matthews

The *PROBLICOM* sky survey which started in the fall of 1977 has spread to include observers in the United States, Canada, Europe and South America. The appeal of this photographic survey which allows easy comparison of 35 mm transparencies taken hours, days, weeks – or even years apart, stems from its simplicity. Just as Charles Kowal used a blink comparator to find “Chiron” through methodical blink comparison of photographic plates taken on different dates, so rank amateurs can now take their slides and compare them. This places all who join the venture on the threshold of discovery.

The primary difference between professional blinking and the work of amateurs is that in the former, high-powered instruments are used to photograph relatively small fields in the celestial sphere in order to seek faint objects in areas often not larger than a few degrees square. The *PROBLICOM* approach addresses itself to a search for novae and comets of magnitudes ten or brighter in areas as large as 150 square degrees.

In professional work, glass plates are systematically scanned with microscopic-ocular-type bench blink comparators costing many thousands of dollars. The *PROBLICOM* method uses projection through two ordinary slide projectors, permitting not only the comparing of cardboard-mounted negative film star images, but also the “blinking” of realistic-looking color transparencies where night conditions are truthfully (?) portrayed. Stars in all their many colors appear on a black field.

The elegantly simple principle of comparison blinking is an old one and is the same for professional or amateur work. In the former the light from the photograph to be examined is guided through sophisticated optical trains, so that the identical portions of images from the two negative-plates are presented to the eye alternately in rapid succession. Thus a plate taken last week is compared with one taken – say – a month ago. If no change has occurred the eye will see one static image comprised of two seemingly overlapping images where all stars from both photographs are in perfect register. The two photographs appear as one.

However when an object in plate “A” has moved to a different position in plate “B”, this isolated movement, even if very slight or faint, draws immediate attention to itself in the otherwise motionless field of overlapping star images. The rate at which this back-and-forth blinking movement occurs depends on the rate at which the lights illuminating first one plate and then the other blink on and off. Hence the name “blinking”.

The same concept applies to variable stars, and makes them seem to pulse as they change from nearly imperceptible faintness to larger images, or the reverse. Finally, if a new object has appeared in the later photograph, its presence will become evident through a rhythmical flashing. The Comparison blinking process is easily the most likely approach to astronomical discovery. Without it Chiron – even Pluto – might never have been discovered.

PROBLICOM has now taken costly astronomical tools and methods, and placed them within the reach of any amateur who has a 35 mm. camera and access to a pair of slide projectors. As a result important and beneficial new dimensions have been added such as low cost, color capability, and ease with which larger numbers of photographers can participate in a coordinated search. Of the approximately 42000 square degrees in the celestial sphere amateurs with 135 mm. lenses on standard 35 mm. cameras can cover 150 square degrees in one shot.

Unlike the human eye which can see down only to sixth magnitude, even the lowest cost camera can “collect” light over an extended period of time, provided it is equatorially driven; this allows penetration to tenth magnitude with the longer lens where fast color films are used. High speed black-and-white film can reach considerably further. Persons shooting through any kind of telescopic equipment thus penetrate to much fainter magnitudes yet, and may place themselves in the realm of professional astronomy if they blink these important photographs.

It must be remembered that the ability of any blink comparator to “show or discover” is a function of the photographic equipment used and the length of the exposure rather than the blinking device.

There is another comparison between the established blink comparison methods and the above described method; PROBLICOM – as the name PROjection BLInk COMparator implies – allows several operators or viewers to scrutinize the projected images simultaneously. Members of an entire club can jointly review the results of their own coordinated research.

The sharing of projectors (Kodak Carousels or similar makes) becomes an easy task when most photographers own such equipment. It makes possible an organized sky survey, and permits a sky survey by amateurs with more time at their disposal than is possible for the professional with more sophisticated equipment, which is thus released for more specialized purposes.

The standard 135 mm. telelens used with the camera horizontal records a field one hour wide in R.A., (15 degrees). The field is 10 degrees high, or in declination. (The equivalence of R.A. and Dec. in the above reference is of course illustrative only, not exact. Ed.) If we consider the northern sky to contain some 30000 square degrees we are well on the way to covering the celestial domain visible to North American observers, with some “backup”.

To establish a meaningful search all participants in the program are assigned four coordinates. These are spaced at six-hour intervals around the 24 hour right ascension clock, so that the patrol work can be performed on a year-round basis by all “blinkers”. The assigned declinations usually vary and depend on the observer’s latitude.

A PROBLICOM surveyor may be given the following four coordinates: 02:30 + 35°, 08:30 + 55°, 14:30 – 15° and 20:30 + 05°. There are also “superblinkers” who have undertaken to photograph larger areas. They are assigned four “melonslices” in R.A.; for example 03:30, 09:30, 15:30 and 21:30. These “longitudes” are photographed all the way down from +85° through + 75°, + 65°, +55° and so on, down to as far south as the location permits. Blinkers in Florida can reach –55° or better.

Backup photography is vital to the undertaking. If an observer in Connecticut is assigned certain coordinates it may well be that in the month of May he will not be able to shoot his area(s) at all due to inclement weather. That is where the backup in Texas comes in. With favorable climate and seeing conditions he may have clear skies all month long and be able to cover the area(s) in question.

Shooting once a month and blinking as soon after the photography as possible is considered to be adequate participation. Any additional work is welcome and shooting more than once a month increases the chances for discovery, as does the photographing of extra areas of one’s own choice.

Looking at *Norton’s Sky Atlas* one can see the rectangular boxes near the celestial equator constituting one hour in width (R.A.) and ten degrees in height (Dec.). The survey uses this book as its basic chart and as a convenient graphic tool. As one travels further north or south, and near the latitudes of +65° or –65°, the single frame shot with the 135 mm. lens records the equivalent of two hours in R.A. but still only 10 degrees in declination.

With an increasing number of PROjection BLInk COMparators being built and put to use, a fine array of improvements are being made over the first model assembled by the writer. To permit aligning the two projected images, one of the two projector platforms at least must be provided with some means for mechanical adjustment vertically, horizontally, and in angular position etc. Occulting or interrupting the lightbeams offers additional scope for novel developments.

Profiles of participants in the survey vary: they range from teachers of earth sciences to doctors of medicine, from students to stockbrokers. All share a love for the stars and a need to perform some useful work within the avocation of their choice. “I have become an addicted blinker!” writes one, while another confides: “–my wife has become a blinking widow. Good thing she can’t get her hands on you!”

L12

The thrill of anticipation for the unexpected, the knowledge that one may truly make a discovery at any given time, add excitement to the project.

**** A \$250.00 discovery prize will be given to the first person discovering a new nova, comet, or asteroid. ****

Further details may be obtained by contacting:
Mr. Ben Mayer,
1940 Cotner Avenue,
Los Angeles, CA.
90025 U.S.A.

or from Barry Matthews and Damien Lemay of the *National Newsletter* Editorial Staff. Drop a line to the National Office of the RASC.

From the Eastern Centres

by Barry Matthews
Eastern Region Editor

The recent opening of the Ottawa Centre's 600 foot interferometer Radio Telescope reflects the observational interests of that Centre. Some more detail is given in the accompanying article by Ken Tapping.

We note with extreme pleasure that Dr. Arthur Covington, the internationally recognized Radio Astronomy Pioneer opened the telescope. It is indeed encouraging to see professional astronomers of international reputation cooperating with the amateurs on projects of this magnitude. Ken Tapping himself on the staff of the National Research Council, and whose series on amateur radio telescopes appeared in last year's *National Newsletters* (Vol. 72, Pages L5, L22, L38, L60) was the guiding light and provided the expertise and knowledge to have the world's largest amateur radio telescope successfully completed.

Further east we hear from Halifax via their own newsletter, *Nova Notes*, that they have "furthered the advance of Astronomy and other related sciences" as laid down in the objects of the Society by assisting in the setting up of a new Centre in Moncton, N.B. This makes it truly a National Society having Centres "from sea to sea". We have a few members in the Northwest Territories and the Yukon. Perhaps we need someone from Halifax to get up there and carry on the good work!

Now just a word to the other Eastern Centres. I am not receiving all your Newsletters, and I can't print what I don't receive. Any member of the Society may submit material for the *National Newsletter* either by sending it along to the editorial staff, or through your centre newsletter, but we need your contributions to make the *NNL* as National as the Society itself.

The Ottawa Centre's Radio Telescope

from Ken Tapping
Ottawa Centre
per Barry Matthews

On the 28th October the Ottawa Centre's radio telescope became operational. It was switched on by Canada's pioneer radio astronomer, Arthur E. Covington.

Situated at the Indian River Observatory, which is operated by the Centre, the instrument is of the "phase switched interferometer" type, possessing two antennas, 45 by 15 feet in size, separated by over 600 feet. The present operating wavelength is 1.7 meters.

The project was started in July 1977 by members of the Centre's Observers' Group. Work parties operated every weekend and the electronics was entirely built by the group. Due to the

support given by local industry and by RASC members, the total cost was kept down to about \$1,500.

So far the instrument has been used to observe the sun, two supernova remnants and two radio galaxies. When adjustments are complete, the sensitivity limit should be below 20 flux units.

At the Indian River site, the Ottawa Centre also operates a 16 inch reflecting telescope. This was the instrument used by Rolf Meier when he made his recent comet discovery.

Le concours de la S.R.A.C., 1979 London, 18–21 mai 1979

Règles générales

1. Les concurrents doivent être des membres en règle de la S.R.A.C.
2. Tout le travail doit avoir été fait au cours des cinq ans (5) précédant le 1er mai 1979.
3. Toutes les entrées doivent être originales et ne doivent pas avoir été soumises à un autre concours antérieur de la S.R.A.C.
4. Chaque entrée ne peut être faite que dans une seule catégorie.
5. Chaque concurrent ne peut soumettre qu'une entrée par catégorie.
6. Les formulaires obligatoires de participation seront en circulation le 1er janvier 1979 et doivent être retournés avant le 1er mai 1979. Les renseignements ainsi que les formulaires de participation peuvent être obtenus du Centre de London de la S.R.A.C., Assemblée Générale '79, P.O. Box 842, Station 'B', London, Ontario, Canada, N6A 4Z3.
7. Les entrées doivent être exposées à l'Assemblée générale de 1979 à London, bien que les concurrents ne doivent pas nécessairement être personnellement présents.
8. Les juges décerneront les prix dans les différentes catégories, à leur discrétion. Les prix ne seront pas nécessairement décernés à chaque catégorie et, au gré des juges, des prix multiples peuvent également être décernés. Tous les facteurs pertinents tels que l'équipement et les conditions d'observation, ainsi que l'expérience des participants en question sont pris en considération dans le jugement. La clarté et l'originalité de la présentation sont très importantes.
9. Les prix de groupe seront partagés parmi les participants.

N.B. Veuillez nous informer de toute condition exceptionnelle ou hors de l'ordinaire exigée par votre projet. Nous ferons notre possible pour que votre projet soit présenté comme vous le désirez mais si vous ne nous avisez pas suffisamment à l'avance, il sera difficile ou impossible d'effectuer des arrangements spéciaux au dernier moment.

Catégories du concours

- I. *Exposition du centre*: Comprend l'astrophotographie, les projets et les activités du centre et sera jugée sur le sujet comme sur la présentation. Une exposition par centre seulement est permise.
- II. *Techniques ou équipement d'observation*: Comprend les rapports ou démonstration de construction ou de mise en œuvre de systèmes ou de méthodes d'obtention ou de réduction de données de tout genre.
- III. *Radio-astronomie amateur*: Comprend tout projet non professionnel impliquant des longueurs d'ondes de radio; construction dans des buts spéciaux ou application de tels équipements.
- IV. *Libre*: Tout projet d'astronomie qui, d'après le concurrent, n'entre dans aucune des autres catégories.
- V. *Eclipse solaire ou activité solaire*: Nous espérons qu'il y aura un grand nombre d'entrées sur l'éclipse du 26 février!
 - A. Photographique
 - B. Visuel

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- VI. *Projets extra-célestes* (Deep Sky Project): Comprend le traitement de tout objet ou phénomène existant généralement hors des limites de notre système solaire.
A. Photographique B. Visuel
- VII. *Projets sur le système solaire*: Comprend des objets ou phénomènes lunaires, planétaires, cométaires ou autres, existant dans les limites de notre système solaire; à l'exclusion spécifique du soleil même.
A. Photographique B. Visuel
- VIII. *La meilleure chanson*: Une catégorie "spéciale", avec ses propres juges. Les paroles doivent concerner l'astronomie ou la S.R.A.C. et être originales. Une entrée par centre est permise. Les membres du centre doivent présenter la chanson en direct, au moment du jugement, samedi soir à minuit. Kazoos, harpes, ocarinas et autres instruments d'accompagnement seront permis. Il y aura un trophée spécial dans cette catégorie.

Editor's Note: The English version of these rules appeared in the August, 1978 *National Newsletter*, Vol. 72, No. 4, Pp L57-58.

1979 General Assembly, London

Programme

Friday, May 18

- 1200 hrs. Registration and Display Rooms Open, Delaware Hall.
1330 hrs. Astronomical films.
1430 hrs. NATIONAL COUNCIL MEETING.
1900 hrs. Wine and Cheese Social Gathering, Delaware Hall.
2000 hrs. *M147 Session*; film and slide presentations, followed by a visit to Hume Cronyn Observatory.

Saturday, May 19

- 0900 hrs. Papers I, Engineering.
1130 hrs. Photo session.
Opportunity for delegates to visit *Canada Wide Science Fair*, Althouse College.
1430 hrs. Buses depart for tour of Elginfield Observatory, followed by an outdoor dinner at Weldon Park, including observing.
2400 hrs. Song Contest Judging.

Sunday, May 20

- 0900 hrs. Papers II, Middlesex College.
1400 hrs. ANNUAL MEETING, followed by NATIONAL COUNCIL MEETING.
1830 hrs. SOCIETY DINNER, Great Hall. Ruth Northcott Lecture by Dr. Gerard K. O'Neill. Awards of the Society.

Monday, May 21

- 0845 hrs. Buses depart for tour of Bruce Nuclear Power Development and Douglas Point Power Station.

La Société royale d'astronomie du Canada Assemblée générale de 1979

Formulaire d'inscription

Université de Western Ontario
London, Ontario, Canada

du 18 mai au 21 mai

LOGEMENT ET INSCRIPTION: DELAWARE HALL

Si vous avez l'intention d'assister à l'assemblée générale de 1979, nous vous prions de bien vouloir remplir ce formulaire, le détacher du *Bulletin* et le renvoyer **avant le 21 avril 1979** avec votre **cheque** ou **Mandat-Poste** (n'envoyez pas votre paiement en espèces) payable à l'ordre de: la Société Royale d'Astronomie du Canada, centre de London, à l'Adresse suivante: Assemblée Générale '79, P.O. Box 842, Station 'B', London, Ontario, Canada, N6A 4Z3.

Toute somme versée à l'avance vous sera intégralement remboursée si vous annulez votre inscription avant le 1er mai. Les frais d'inscription de base couvrent toutes les activités de l'ASSEMBLÉE, à l'exclusion des excursions, des repas, et de la photo de groupe (coût de \$1.00 payable à l'Assemblée Générale).

(En caractères d'imprimerie s.v.p.)

Nom(s): ^{M. Mme}
_{Mlle} _____

Adresse: _____

_____ . Centre ou Affiliation: _____

Moyen de Transport: _____ Date et l'Heure: _____ Désirez-vous être accueilli? _____

INSCRIPTION _____ PERSONNE(S) @ \$10.00* chacun \$ _____

DINER – SAMEDI _____ PERSONNE(S) @ \$ 9.00 chacun \$ _____

**DINER SUBVENTIONNÉ
PAR LA SOCIÉTÉ** _____ PERSONNE(S) @ \$ 3.00 chacun \$ _____

**EXCURSION A LA
PÉNINSULE BRUCE
(CÉNTRALE NUCLEAIRE)** _____ PERSONNE(S) @ \$10.00 chacun \$ _____

LOGEMENT A L'U.W.O. – CHAMBRE A DEUX PERSONNES – \$12.50 par nuit par per personne
(comprenant le petit déjeuner) CHAMBRE A UNE PERSONNE – \$16.50 par nuit.

_____ (1) NUIT(S): du _____ MAI au _____ MAI, pour _____ (2) PERSONNES(S)

(Cochez l'un des suivants) CHAMBRE A DEUX PERSONNES _____ ou CHAMBRE A UNE PERSONNE _____ ; CAMARADE DE CHAMBRE _____.

A \$ _____ (3) PAR NUIT (VOIR NUIT (VOIR CI-DESSUS)

COUT TOTAL DU LOGEMENT (1) x (2) x (3). \$ _____

(Veuillez envoyer votre versement à l'adresse mentionnée ci-dessus)

Un reçu vous parviendra accompagné des détails supplémentaires.

*Les frais d'inscription après le 21 avril 1979 seront de \$12.00.

COUT TOTAL \$ _____

Merci

(English on reverse side)

Royal Astronomical Society of Canada General Assembly 1979

Registration Form

University of Western Ontario
London, Ontario, Canada

May 18th to May 21st

RESIDENCE AND REGISTRATION: DELAWARE HALL

If you are planning to attend the 1979 G.A. then please fill out this form, detach from the *Newsletter*, and mail with your **Cheque** or **Money Order** (only), **Before April 21st, 1979**, **Payable to:** Royal Astronomical Society of Canada, London Centre, Addressed to: GA. '79, P.O. Box 842, Station 'B', London, Ontario, Canada, N6A 4Z3.

Payment in advance and all monies are refundable on cancellation before May 1st without penalty. The basic registration fee covers all ASSEMBLY activities, except tours, meals and the Society group photo, (cost \$1.00) payable at the GA.

Please print

Names(s): Mr. Ms.
Miss Mrs. _____

Address: _____

_____ . Centre or Affiliation _____

Mode of Transportation: _____ . Date and Time _____ .

Do you wish to be met? ____

REGISTRATION _____ PERSON(S) @ \$10.00* each \$ _____

SATURDAY DINNER _____ PERSON(S) @ \$ 9.00 each \$ _____

SOCIETY DINNER _____ PERSON(S) @ \$ 3.00 each \$ _____

BRUCE NUCLEAR TRIP _____ PERSON(S) @ \$10.00 each \$ _____

U.W.O. RESIDENCE DOUBLE OCCUPANCY \$12.50 per night, per (includes breakfast) person,
SINGLE OCCUPANCY \$16.50 per night.

_____ (1) NIGHT(S): MAY _____ to MAY: _____, for _____ (2) PERSON(S)

DOUBLE ____ SINGLE ____ (mark one only) ROOMATE _____ ,

at \$ _____ (3) EACH PER NIGHT (see above)

TOTAL ACCOMMODATION (1) x (2) x (3) \$ _____

Please remit to above address.
(Receipts will be forwarded with further details.)

TOTAL FEE \$ _____

*Registration fee (after April 21st, 1979 is \$12.00)

Thank You

(Français en revers)