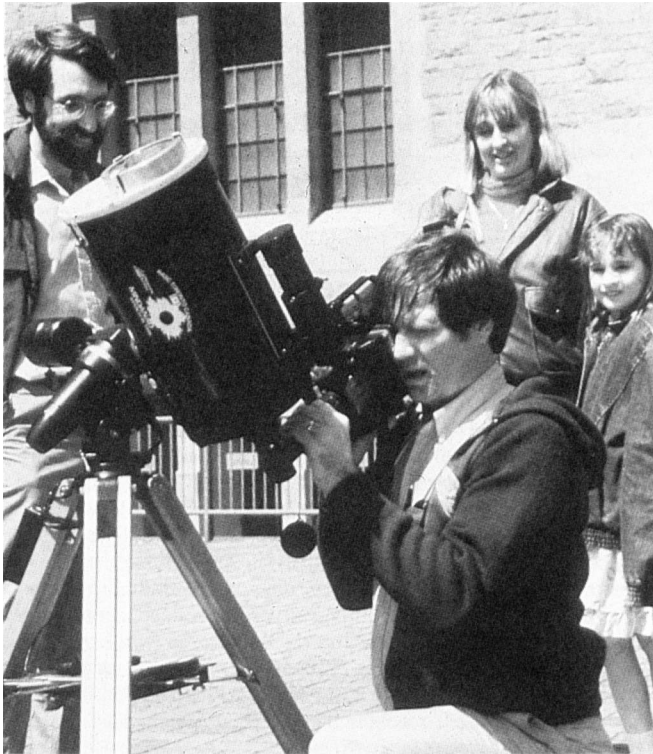

NEWSLETTER/BULLETIN

The Royal Astronomical Society of Canada
La Societe Royale d'Astronomie du Canada

Supplement to the *Journal* Vol. 84/4
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The Centennial Astronomy Week was a major event across Canada despite poor weather in many parts of the country. The Toronto Centre was particularly active with a massive program co-ordinating and promoting activities in the Toronto area. Telescopes set up for solar observing in the plaza of the McLaughlin Planetarium drew a large audience of Earth Day supporters.

NEWSLETTER/BULLETIN

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Deadline for December issue is August 1.

Welcome Patrick

by Ian G. McGregor

I am very pleased to welcome Patrick Kelly of the Halifax Centre as the new editor of the Newsletter. Patrick has been a member of the Society since 1981 and has made the long term commitment to astronomy and the Society by becoming a Life Member. Patrick has been a major contributor to the success of the Halifax Centre in its activities and its growth in size. Since 1984, he has been the editor of *Nova Notes* and made it one of the best newsletters produced by RASC centres. Speaking as an editor (and the RASC *Newsletter* has been my sixth editorship in the past 25 years) I know how important a newsletter is to maintaining a strong organization. The Society has had a series of very dedicated, hard-working editors for the *Newsletter* over the years and I am very pleased this tradition will be continuing.

While not working on *Nova Notes*, Patrick has been keeping up his astronomical interests. He is an active observer and has received the Messier Certificate. He is a frequent contributor at Centre meetings and has actively contributed to Astronomy Day activities. He also volunteers time as a public lecturer at the Halifax Planetarium. In recognition of his contributions to the Centre he has received the Society's Membership Certificate.

I am sure you will join with me in supporting Patrick as he faces the new challenges ahead with the *Newsletter*. A five-year term is a long time and as outgoing Editor, I can tell you the best way to encourage an editor is to make sure there are lots of articles, photographs and news in the "IN" basket. Let's provide lots of encouragement for our new Editor.

Best wishes for a successful editorship, Patrick!

Centennial Astronomy Week A National Wrap-Up

**by Steve Dodson,
National Astronomy Day Coordinator**

Weatherwise the week of April 21-28 was not the best that the Canadian climate has to offer, but nevertheless an important celebration was unfolding across the country during that time – RASC Centennial Astronomy Week. Hopefully RASC members everywhere will remember the rewarding contacts with their local public more than the widespread uncongenial weather.

No observing was reported west of Winnipeg, and lucky Astronomy Week stargazers there and to the East had to look between clouds or through haze for brief glimpses of bright objects. However, it was just clear enough in Regina to permit viewing Jupiter and bright doubles. The best observing weather in the country occurred around Lake Ontario and as far north in Ontario as Ottawa.

The Toronto Centre offered the most successful observing opportunities to their public, in spite of hot, hazy summer weather. Calgary, in stark contrast, suffered December-like cloudy snowy conditions with freezing temperatures although 1100 people, many of them children, did turn out anyway.

In Saskatoon, the originally planned event for April 21 was clouded out until late in the evening and a second star-night was scheduled for April 28. The weather was even worse – it snowed!

Vancouver residents did not enjoy last year's pleasant observing interludes, experiencing instead a total cloud-out all week long. The steadfast astronomers of Halifax, on the other hand, finally got to use telescopes on Astronomy Day, though they had to be quick, tracking the gaps between the clouds from object to object! In the extreme East luck ran out completely with clear skies at St. John's yielding to cloud in time for the observing sessions!

A Magnificent Centennial Extravaganza!

Since our Society grew out of the Toronto Physical and Astronomical Society it is fitting that over 100 active volunteers of the Toronto Centre took advantage of some of the best weather available in Canada to offer 10 days of public activities at eight different sites across Metro. This was a magnificent and highly successful effort to reach great numbers of people and interest them in our activities. Hundreds of Earth Day participants on their way to Queen's Park took advantage of the opportunity to stop on the sidewalk in front of the McLaughlin Planetarium for a look at the Sun through Centre telescopes.

Through strong organization and persistence, Toronto turned out to be the best place for stargazers to be. A timely power failure (Don't underestimate the power of National Office) made 4th magnitude stars visible from the financial district half-way through Astronomy Week! A number of opportunities for viewing the Sun and Jupiter were provided. Cathy McWatters returned with the ever-popular bursting a coloured balloon inside a clear balloon solar demo. Ted Molczan offered Satellite observing (human-launched variety), and a magnitude *MINUS FIVE* fireball provided a spectacular thrill!

Chairman John Ginder reports that "The Toronto Centre obtained a proclamation (see *Newsletter* June 1990) from the Metropolitan Toronto Council declaring the week April 21 to 28, 1990 to be 'International Astronomy Week' in Metro Toronto in recognition of the RASC's century of continuous activity in educating the public about Astronomy." They

also developed and widely distributed a richly informative 12 page Astronomy Week Guide.

The Ottawa Centre conducted an action-packed day of activities, speakers and exhibits at the National Museum of Science and Technology and offered views of numerous deep sky objects through the 16-inch telescope at an open house held at the Indian River Observatory.

The Montreal Centre offered observation of the crescent Moon, Jupiter, and bright star clusters. However, the main focus of activities at the Centre observatory was the theme "Amateur Astronomers in the 1990's / High Tech". Here the latest in electronic observing technology was on display, and David Levy gave two talks about comet hunting.

The Kingston Centre had an excellent public observing program and exhibits in two malls on the go. Clever use of new RASC activity poster made indoor deep-sky observing with Schmidt-Cassegrain telescopes possible. The poster, featuring an image of the Whirlpool Galaxy (M51) was strategically located at a distance from the exhibit area. The "observing session at MacDonald Park was interspersed by a fine display of lightning courtesy of Mother Nature."

Thunder Bay is new to RASC and Astronomy Day, but experienced an excellent response of the community and the local media to their mall exhibit, featuring Bob Bishop's home-made 17-inch reflector. An article and photo featuring Bob and his scope appeared on the front page of the local newspaper, and TV/radio interviews followed.

Another new centre, the Regina Centre, did an excellent job of hosting the public at their new observatory and at museums. Congratulations, Regina!

The St. John's Centre set up a very informative and well-staffed mall display complete with handouts on "Sky News" and "Comet Austin". Two members spoke about these topics and about RASC on a local CBC Morning talk show.

Though not a RASC Centre, the Sudbury Astronomy Club got together with Science North to present 10 days of activities and displays including telescopes, live NASA coverage of the Hubble Space Telescope Deployment via Satellite Dish, astrophotography and how to do it, and an instant make-your-own planisphere activity. The weather limited observing to the crescent Moon and Jupiter.

Where was Astronomy Week Celebrated?

One third of the responding centres used malls as their principal site. The importance of malls this year may have a lot to do with the new national public liability insurance policy, which covers mall exhibits by centres. The energetic army of Toronto Centre presenters used every site imaginable – except for malls!

The Regina and Montreal Centres held their events at their centre observatories. In Calgary and Halifax the public was received at planetaria. The Winnipeg Centre's main event was in City Park, and the Vancouver Centre participated in a large Science Education conference at Simon Fraser University.

Sixty percent of responding centres had activities at a second site. The Kingston Centre set up a shop in a second mall in the neighbouring town of Bellevue. Winnipeg's second site was the Planetarium, and the Calgary Centre set up displays at Fish Creek Provincial Park. Weather kept this operation indoors, but the event was still a success.

The Regina Centre set up a second exhibit of telescopes at a museum in Moose Jaw, and presented a talk on astronomy by Peter Broughton. The Halifax Centre held general interest talks and provided Hydrogen-Alpha and white light solar observing at the Astronomy Department of Saint Mary's University.

The Kingston Centre set up at a third site for observing in MacDonald Park. In spite of

haze they offered almost every type of observing for the public from sunspots to star clusters.

The Toronto Centre, once again, set up events at a third site, and a fourth site, and a fifth . . . In fact they virtually blanketed the huge Metro area with astronomical happenings!

Conspicuous by its absence!

Rodney Austin's eagerly awaited comet eluded all public gatherings that I know about. Apparently our experience at Science North was typical as we gathered with a few members of the public and members of the Sudbury Astronomy Club at 4:00 AM on the morning of April 25. A star or two was visible overhead, but the northeast horizon remained shrouded in fog. A few days later the thin gas tail appeared so tenuous in my 10 x 50's at a dark country site that I'm sure the observation could not be repeated at more convenient sites.

Long Distance Connections

This year for the first time your national astronomy day coordinator distributed a report form far and wide to encourage the early submission of a report. This wrap up article is based on the reports sent in on this form, as well as on additional longer reports received. I also posted this report form on the Astronomy Forum of the Compuserve Information Service. As a result I received an electronic response which must set a distance record!

This distant response came from an area which had much better weather than any site in Canada - Central California. Many Messier objects were revealed to visitors by members of the Tri-Valley Astronomical Society of Livermore, California! Another highlight was the showing of deep sky slides by Jack Marling. Thanks to well-known astrophotographer Lee Coombs for a fascinating report!

The strategy of distributing report forms had another remarkable effect. The number of RASC centres sending in reports jumped by 150 percent! Last year's national wrap-up in the *Newsletter* (October 1989) was possible only because I cornered participants from each non-reporting centre at the General Assembly in Sydney and interviewed them about their Astronomy Day activities. If any statements in this report contradict experience at your centre (or if your centre is not mentioned) it may be that the centre did not appoint an Astronomy Day Recorder or coordinator to send in a report. The report form was sent to the secretary of each centre. If yours was among the non-reporting centres you might enjoy volunteering for this capacity in time for Astronomy Day 1991!

The consensus is that the effort to set-up and staff these Centennial Astronomy Week offerings was well worth it in terms of better public knowledge of Astronomy, the participating centre, and the activities of its members. Centre participants seem to have enjoyed meeting their public, and the Centennial was celebrated in style!

Astronomy Workshop '90

The Edmonton Centre RASC and other astronomy groups in Alberta are presenting Astronomy Workshop '90 from October 19-21 at Camp Maskepetoon on the shore of Pigeon Lake in Alberta.

The Workshop is a combination of star party and instructional workshop with the emphasis placed on instruction. Seminars are planned for all experience levels of astronomy and, based on the 1989 Workshop, there will be more beginner seminars. Guest speakers include John Dobson from San Francisco and Father Lucien Kemble from Saskatchewan. Registration price of \$60.00 includes seminars, food and accommodation. Contact George Moores at (403) 436-2855 for more information.

L'astronomie au Canada français

par Marc A. Gélinas
Rédacteur francophone

AGAA: L'Association des Groupes d'Astronomes Amateurs (AGAA), qui regroupe plus de trente clubs à travers le Québec, a tenu son assemblée générale annuelle le 18 juin 1990. L'AGAA a reçu un coup dur en avril 1990 quand le ministère québécois des Loisirs Chasse et Pêche a coupé de moitié la subvention donnée à l'organisme. L'AGAA a dû congédier le secrétaire qui assurait une partie de la permanence. Dorénavant il y a un répondant pour prendre les messages et le directeur général (qui lui-même occupe ses fonctions à temps partiel) y donne suite lorsqu'il est de service.

Ce n'est qu'un début, car l'an prochain, le Ministère annonce que la subvention sera totalement supprimée. Une autre subvention, assurant le salaire du rédacteur en chef du *Québec Astronomique*, n'est pas touchée. Par contre, à cause de la somme de travail effectuée au niveau du *Québec Astronomique* par la permanence de l'AGAA, la revue est touchée. L'assemblée générale a décidé de hausser le prix de l'abonnement au *Québec Astronomique* d'un montant de 4.50 \$.

D'autre part, un nouvel exécutif a été élu à l'AGAA. Le nouveau président est M. Jean-Marc Richard du club de Laval et le vice-président sera Réal Manseau de Drummondville. Jean-Marie Fréchette de Québec est toujours le secrétaire.

SAM: La Société d'astronomie de Montréal a reçu le Dr Pierre Bastien, lors de sa conférence mensuelle de mai dernier. Le Dr Bastien a fait état des progrès dans l'étude des disques de matières entourant certaines étoiles. Si l'observation va de soit en astronomie, les études théoriques n'en sont pas moins importantes. Le Dr Bastien a expliqué, lors de sa conférence, comment une simulation par ordinateur pouvait expliquer le comportement observé, d'un disque de poussières. En particulier de longues heures de calcul par un ordinateur ont démontré la valeur d'un modèle conçu par un étudiant gradué M. Ménard.

On a aussi appris que l'Université de Montréal vient de changer ses ordinateurs, et d'un seul coup la puissance de calcul à la disposition des chercheurs a augmenté d'un facteur 20.

En juin, la S.A.M. a accueilli un astrophysicien de l'Université de Montréal à sa première visite. Le Dr Hugo Martel, dont le domaine de recherche et le sujet de sa conférence, sont les galaxies irrégulières ont été créées par perturbations gravitationnelles lors de croisement entre deux galaxies.

Dans les cas extrêmes, il y a eu collision et le résultat en est les galaxies en forme d'anneaux et d'antennes. Mais une irrégularité, comme celle des deux Nuages de Magellan pourrait s'expliquer par un passage à proximité d'une grosse galaxie. Encore là l'ordinateur vient au secours du théoricien. Grâce à leur nouvelle puissance de calcul, le Dr Martel et ses collègues veulent s'attaquer à un modèle qui mènerait à une simulation des Nuages de Magellan.

CAMP: Le Camp Marcel à Sainte-Béatrix près de Montréal, est un lieu de rencontre annuelle pour les astronomes amateurs du Québec. Ainsi à la fin mai une trentaine d'amateurs se sont réunis pour observer le ciel et partager leurs expériences. Le plus gros instrument sur place était un Newton de 17.5 pouces. D'autre part Gilbert St-Onge de Dorval avait apporté son nouvel équipement CCD accouplé à un Schmidt-Newton de 8 pouces de Celestron. Des images de la comète Austin ont pu être faites et l'une d'entre elles montre un jet d'une quinzaine de secondes d'arc s'échappant de la tête. Nul doute que l'astronomie amateur, elle aussi s'électronise à grand pas.

Overrated Telescopes

by Peter Ceravolo
Ottawa Centre

How many amateur astronomers enjoyed wonderful views of Mars at its last opposition through commercial telescopes? Were the amateur photos and drawings of the planet anything like the images in your telescope? Considering the spotty quality of commercial telescopes today, I would not be surprised if they were not.

A lot of telescopes and optical components advertised in popular astronomy magazines are overrated and the ads that mention optical quality can be very misleading. Numbers can be manipulated to make a mediocre mirror seem excellent. To top things off some manufacturers sometimes don't even deliver what they advertise!

For the last several years I have been testing the quality of commercial optics, either in a completed telescope or sold as components to build one. Often the optical quality did not even approach a company's advertised standards. While I have come across some excellent optics that, for the price, were a bargain, optics of advertised quality seem to be as much the exception as the norm.

The mechanical quality of a telescope can be readily inspected at a dealers store. Optical quality is quite another matter. The customer, at the time of purchase, must rely on the stated quality in the ads and brochures and the reputation of the manufacturer. Unfortunately, the modern amateur astronomer knows very little about optics. Manufacturers have taken advantage of this fact for many years.

In order to shed light on some of the misinformation, lets begin with a few basics. A telescope's optical quality is so tight it cannot be expressed conveniently in units as gross as millimetres. The unit of measure in optics is the wavelength of yellow-green light, about 0.00056mm, or about half a micron. If a telescope mirror is said to be good to 1/10 wave, the surface does not depart from ideal by more than 0.000056mm.

If the optics are perfect, all the rays will reach a common focus, providing sharp, high contrast images. If the optics deviate from perfection by a small amount, say 1/16 wave, the average amateur astronomer will not notice. The critical observer may notice a slight loss of contrast on the planets when the seeing is good. If the optics are mediocre or poor, a star image may be somewhere between "soft" and an unfocusable blur at medium to high powers. One 25cm Schmidt-Cassegrain I tested could not resolve the closer components of the Epsilon Lyrae, the famous "Double-Double" star system in Lyra!

I first became aware of the abuses of advertised wavelength tolerances when I read an editorial note by Roger Sinnott (*Sky & Telescope*, February 1976). He described how a mirror advertised to be $\pm 1/16$ wave actually delivers 1/4 wave images! Simply, the 1/16 wave rating implies that no hill (+) or hole (-) on the mirror's surface deviates from the average surface by more than 1/16 wave. However, the total error, from the top of the hill to the bottom of the hole, or in optical jargon, "peak to valley", can be as much as 1/8 wave. In a reflecting system the mirror's errors are doubled on the wavefront, resulting in 1/4 wave images!

Another misleading statement often used today is diffraction limited. It implies that the light rays converging to the focus do not deviate from their ideal paths by more than 1/4 wave. A mirror's surface in this case could be advertised as being accurate to 1/8 wave. An experienced observer can see the loss of definition caused by 1/4 wave error. It most affects the visibility of details on the planets by lowering the contrast (*Sky & Telescope*, October 1983). It has been stated in the literature that a telescope's wavefront should not deviate

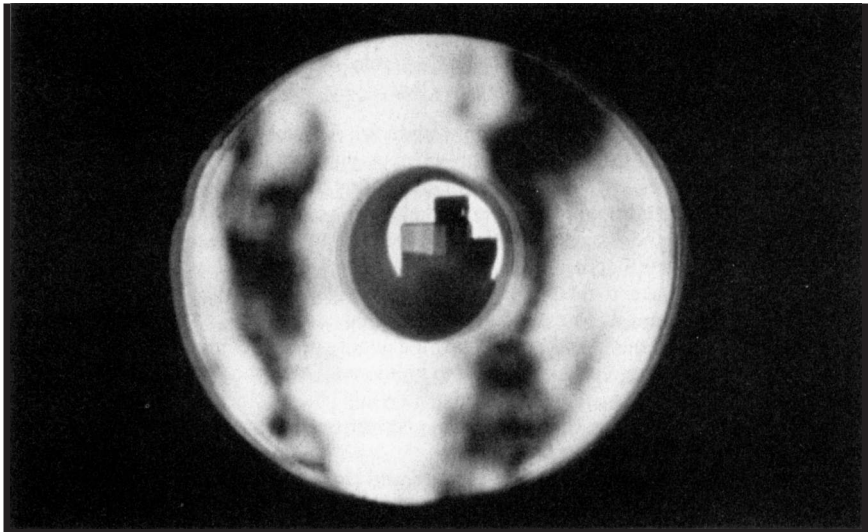


Figure 1: A 20cm f/10 Schmidt-Cassegrain in an auto-collimated Ronchi test. The two dark lines should be straight and smooth. This very “rough” optical system produced star images that were unfocussable blurs.

from optimum by more than $1/10$ wave (or a $1/20$ wave mirror surface given a perfect diagonal) if crisp, high contrast images are to be realized.

One company’s brochure mentions that their telescope’s performance is “limited only by the laws of optics” and their mirrors are null tested. It is true, a perfect optical system’s performance will be limited by the laws of optics. But it is also true that those same laws will limit an imperfect systems performance. This statement says nothing of optical quality. The null figured comment is amusing. It simply states the type of test used in the production of the optics, not how well the mirror was figured. I tested one of this company’s “diffraction limited”, “null figured” and “limited only by the laws of optics” 10-inch f/4.5 deep sky Newtonian primaries and discovered that it produced $1/2$ wave images!

Another company describes their refractor objectives as having surfaces accurate to $1/20$ wave. The company is either throwing a number in the ad because people expect to see such things there or they have not the slightest idea of what they are talking about. Perhaps both! A refractor’s objective consists of two lenses, or four surfaces, and is this regarded as a system. The quality of the individual surfaces is, within reason, irrelevant. Since the surface of one lens can be figured to compensate for the errors in the previous surfaces, how the system of four surfaces performs as a whole is what is important. Describing the quality of the surfaces says nothing of the image quality of the objective!

With some companies only your satisfaction is guaranteed, not the advertised quality. If you are not happy with the product your money will be refunded. I have tested over half a dozen 4-inch diagonals intended for 16-inch f/4.5 Newtonian telescopes. Not one of them came even close to the advertised flatness of $1/10$ wave! One was twenty times worse than advertised! After sending a few of them back for refiguring, with photographic proof (interferograms) of their inferior quality, the company had the gall to return diagonals that were still five times worse than $1/10$ wave!

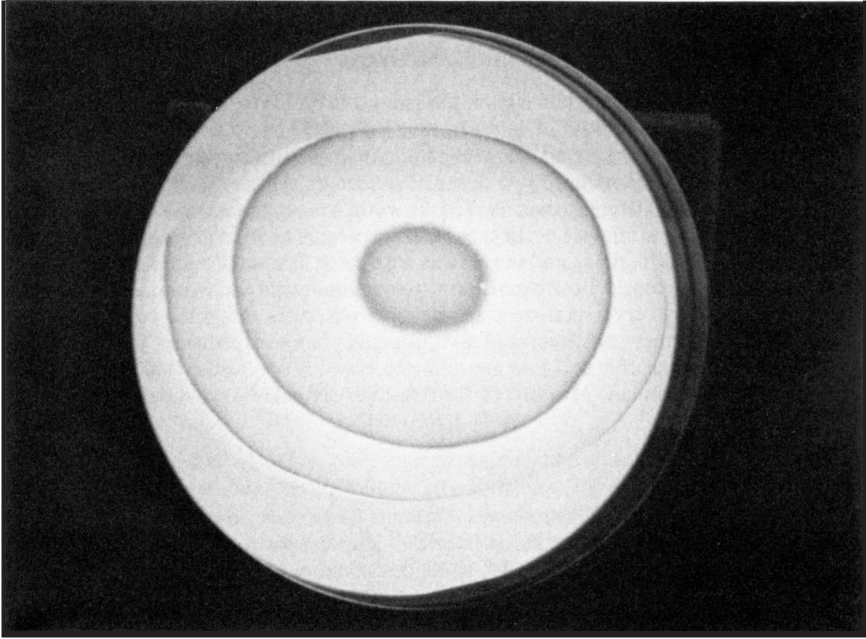


Figure 2: A 4-inch diagonal mirror, intended for a 16-inch f/4.5 deep sky Newtonian, in an interference test. A master flat (of 1/20 wave flatness) was placed in contact with the diagonal and bathed in monochromatic light. The resulting interference fringes (three concentric circles) reveals that the surface is convex by one and a half waves. This flat is fully fifteen times worse than the advertised 1/10 wave.

Having gone on this long about optical quality, I must say that these telescopes and optical components, except for the really bad ones, are a good value for the money. As a professional optician, I know of no "professional optical company" that can offer a 17.5-inch diameter, aluminized and parabolic Pyrex mirror for under \$600US, or the Canadian dollar equivalent. The problem I have with these outfits is that they do not consistently deliver what they advertise. Also, since it is difficult for the consumer to verify the claims (especially the first time buyer, who does not know what to expect), these companies can get away with it, at least, until someone decides to do some investigating and spreads the word. Although they are providing a low cost product, I believe they are doing harm to the hobby of astronomy. The beginner is always attracted to the planets first. Most of today's popular telescopes render even the largest planets as uninspiring blurred disks.

If you suspect your telescope is not performing as it should, first compare it to a similar size instrument (make sure your optics are collimated!) at a club star party, and if your suspicions are well founded talk to your dealer about having the problem fixed.

I can perform more rigorous optical tests for people in central Ontario, or those who care to ship their optics to me. I can be reached at (613) 821-4760, or by mail, P.O. Box 57, Metcalfe, Ontario KOA2P0.

Chasing the 1991 Solar Eclipse

by Ian G. McGregor

Canadians are no slouches when it comes to interest in observing eclipses of the sun and with the great total solar eclipse of July 11, 1991 one of the best for many years to come observers across the country are making preparations to travel to Hawaii or Mexico to see it.

Over the past 20 years perhaps two dozen Canadian expeditions mostly organized by planetariums or RASC Centres have travelled the world from Indonesia to Kenya to Finland chasing that elusive few minutes of darkness when day turns to night and a great alignment occurs between the earth, moon and sun. In this regard, the Toronto Centre RASC has been a leader as its famous blue eclipse banner now wears proudly the names of many observing sites. There are many very experienced solar eclipse observers across the country.

As of press time there are a total of five Canadian-based expeditions for which the interested observer can choose - two are going to Hawaii, two to the Baja peninsula of Mexico and one to mainland Mexico. Of the five, four are land-based and one on-board a ship.

Destination: Hawaii

L'Association des Groupes d'Astronomes Amateurs (A.G.A.A.) organise une expédition de quinze jours pour vous permettre d'observer l'éclipse à partir de Hawaii. Ce voyage, dont le départ est prévu pour le 8 juillet 1991, comprend cinq jours dans les environs du site d'observation de Mauna Kea, ainsi qu'une visite des observatoires et l'observation de l'éclipse. Dix jours de visites de Honolulu sont prévues. L'astronome René Racine, directeur de l'Observatoire du mont Mégantic, servira de guide. Pour des renseignements supplémentaires, veuillez communiquer avec Manon Gauthier au (514) 252-3038 ou écrire à l'adresse suivante : A.G.A.A./4545, Pierre-de-Coubertin/C.P. 1000, Succursale M/Montréal (QC) H1V 3R2.

The H.R. MacMillan Planetarium of Vancouver and the British Columbia Space Sciences Society are sponsoring an eight-day inter-island cruise on board the cruise ship S.S. Independence. Departures will be on July 4 from Vancouver with return on July 13. Tour leaders will be Paul Deans of the H.R. MacMillan Planetarium and Joe Rao of the Hayden Planetarium in New York. Special tours are being arranged to the Canada-France-Hawaii Telescope and other places on land. For information contact Debbie Twinning, P. Lawson Travel (604) 736 1261

Destination: Baja Peninsula, Mexico

The RASC National expedition is planned as a "quickie" expedition which will fly over 200 observers to the Baja starting from Toronto and returning the next day. Michael Watson, well-known veteran of many eclipse expeditions is leading the group with Randy Attwood (Toronto Centre RASC) and Steve Dodson (Science North) as co-leaders. For further information see the *Newsletter* (April 1989) or contact Michael Watson, 441 Davisville Avenue, Toronto, Ontario M4S 1H7 (416) 483-4664.

The Toronto Centre's own expedition is led by Dr. Ralph Chou, President of the Toronto Centre and a veteran of many solar eclipse expeditions over the past 17 years. An eight-day package trip is planned with departure on July 6. Visits to Mt. Palomar and the Jet Propulsion Laboratory in the Los Angeles area will be followed by a flight to Los Cabos in

the Baja. For information contact Ralph Chou (416) 567-8694 or Europa Travel (416) 465-7489.

Destination: Mazatlan, Mexico

The Alberta Science Centre and the Calgary Centre RASC have designed a tour to the point closest to the absolute maximum duration of totality, about 80 km from Mazatlan, Mexico with totality lasting approximately seven minutes. Departure from Calgary is July 10 with several packages available from 2 to 14 days. Tour leaders are Bill Peters of the Alberta Science Centre and Don Hladiuk of the Calgary Centre RASC. For information contact Let's Talk Travel Ltd. at (403) 266-0677.

Astronomy Week 1990

**by Mary Anne Harrington
Toronto Centre**

And participate they did! Over the course of those eight days many hundred joined in the wide variety of events held throughout the city. Astronomy Week chairman, John Ginder, did an incredible job of organizing a busy week of special lectures, star parties, solar observing, super handouts and much, much more. Many thanks to the management and staff of the McLaughlin Planetarium, the Ontario Science Centre, the University of Toronto and York University for their support and participation in the various Astronomy Week programs which helped to celebrate the centennial of the Royal Astronomical Society of Canada.

From April 19 to 21, Morningside Mall was the site of a very successful mall display which helped to kick off the Astronomy Week activities.

Three special lectures were held over the course of the week featuring: on Saturday, April 21 – Professor Ren Racine (University of Montreal); on Wednesday, April 25 – Bruce Waters (McLaughlin Planetarium); and on Saturday, April 28 – Terry Dickinson (noted amateur astronomer and author).

Professor Racine presented an interesting look at the evolution of the telescope – past, present and future – in a lecture entitled “Telescopes for the Future.” This talk was presented as part of the “Science Expo” at Erindale College and was jointly sponsored by Erindale Campus, University of Toronto, the Snider Lecture Committee and Division of Sciences. Bruce Waters’ talk was held at the Ontario Science Centre and was entitled “What’s Up and How to Observe It.” The lecture covered basic observing techniques and a common sense approach to selecting the proper equipment. Terry Dickinson spoke to a large crowd at the Ontario Science Centre, presenting an interesting and informative look at “An Introduction to Amateur Astronomy and the latest on Comet Austin.”

Earth Day celebrations and Astronomy Week activities complimented each other on Sunday, April 22 when thousands of Torontonians headed for the Earth Day march at Queen’s Park stopped to have a look at the Sun through our telescopes which were set-up in front of the McLaughlin Planetarium. (Perfect timing!) Also, a series of talks were held evenings, from Tuesday to Friday, in the Star Theatre of the McLaughlin Planetarium aimed at helping people learn their way around the night sky.

This was also a busy week for star parties and, believe it or not, the weather actually permitted all of the parties to proceed. The first followed Professor Racine’s lecture Saturday evening at Erindale College with some sixty people in attendance. Monday

evening, telescopes were set up at Morningside Park, Scarborough. Over 100 visitors showed up including an unexpected appearance by a fireball! The weather was pretty dicey Tuesday evening at James Gardens, Etobicoke, but Jupiter was visible so some two dozen visitors were not disappointed. Members set up telescopes Wednesday evening at the Ontario Science Centre following Bruce Waters talk. Forty guests enjoyed some pretty good seeing this evening despite a very humid day. A major blackout, which was caused when a power transformer mysteriously blew up, affected the city of Toronto and helped greatly with the seeing. (*Author's Note:* Contrary to what you might have heard, I would like to assure you that Astronomy Week organizers had nothing to do with this blackout. The fact that it occurred in the middle of Astronomy Week, on a clear night, at New Moon was just a coincidence! Honest!)

A young Moon and the planet Jupiter greeted some seventy-five visitors to Bayview Village Park, North York, on Thursday evening. The clearest skies of the week occurred Friday evening when telescopes were set up in Centennial Park, Etobicoke, and some sixty visitors enjoyed the view.

All activities climaxed on Astronomy Day, Saturday, April 28 with a major program set for the Ontario Science Centre. While many enjoyed solar observing – in both white light and hydrogen-alpha – others watched mirror grinding demonstrations, exploding balloons, videos of the launch and deployment of the Hubble Space Telescope and some special episodes of Astronomy Toronto. Hundreds “put their feet up” in the afternoon and listened to the excellent lecture by Terry Dickinson in the main auditorium.

Observing events planned in the evening at York University and at the University of Toronto were severely affected by cloudy skies although the Moon and Jupiter did make infrequent appearances amid the clouds. However, the staff at both York and the University of Toronto took full advantage of the clouds and presented visitors with very informative tours of their facilities and unique equipment.

Thus Astronomy Week ended having successfully brought our love of the night sky to the people of Metropolitan Toronto in a most ambitious manner. Special thanks to Terry Dickinson for his continued support of the Toronto Centre and the publicity he gave our Astronomy Week events in his column *The Universe* in the Sunday Star. And last but certainly not least, many thanks to the members of the Toronto Centre for your participation and tireless efforts to make Astronomy Week 1990 an incredible success.

Across the R.A.S.C.

Across the R.A.S.C. is a regular feature of the *Newsletter*. Specific contributions are requested from Centres to provide accurate news on current and future activities. If there is not a report from your Centre, ask your council if one was submitted. Deadline for the December issue is October 1 and for the February 1 is December 1.

SASKATOON: Jeff Phillips, editor of *Saskatoon Skies*, reports that centre activities for Astronomy Week in April were hindered by poor weather. A public star party in a local park was clouded out one night and snowed out on a second night. Mike Wesolowski appeared on a local television station and a small display was set up in a museum for the local Earth Day celebrations. Also in April, Ottawa Centre vice-president Sandy Ferguson visited the Centre.

TORONTO: Several members including Centre president Ralph Chou were off to Sweden and Finland in mid-July for an eight day eclipse expedition to see the July 22 total solar

eclipse. Darnley Wright has been busy organizing mall displays. Three 3-day events have been organized between February and June and provided lots of work for the more than fifteen regular volunteers who present them. The Centre's Annual "Rained Out" Picnic and Open House at the David Dunlap Observatory in Richmond Hill is scheduled for September 15.

SARNIA: Derek Hitchens reports in the pages of *Urania* that his Alvinston Observatory with a Meade 16-inch reflector should be complete this summer. The building has an old silo dome and one of his big problems was to devise a system to make the dome rotate.

HALIFAX: Doug Pitcairn reports the club enjoyed an active spring season. Weather permitted a half dozen good observing sessions which is considered a bumper crop for the season. Congratulations to Joe Yurchesyn who has received the Society's Messier Certificate for observing 110 objects and Phyllis Kennedy received the Centre's first Mini-Messier Certificate for observing the required 20 objects with a 60mm refractor. The Annual Banquet was held in May with Brian Segal as guest speaker. Attendance at regular meetings has been steady at about 50 members while 174 names are on the membership list. There are a growing number of satellite groups or separate clubs around the region. These local astronomy clubs provide a meeting place in smaller communities and we have enjoyed some success in fostering their growth. There are now clubs in Hebron, Port Mouton, Truro, Antigonish and Sydney, Nova Scotia, as well as Summerside and Charlottetown, PEI, and Saint John, New Brunswick. Several members run astronomy continuing education courses at various locations around the province. This is an excellent way to increase membership, spread accurate information and earn some extra eyepiece money at the same time! For Astronomy Week in April we ran two activities. On April 26, three consecutive planetarium shows were presented while outside, telescopes were set up for public viewing. About two dozen people attended each show. Then, on April 28, members presented a planetarium show and talks as well as a tour of the Burke Gaffney Observatory.

VICTORIA: The May issue of *Skynews* contains a report by Sheldon Cohen of his visit last summer to the Star Hill Inn in New Mexico. Described as "an astronomer's retreat", the Inn features a warm-up hut with library and weather radio, rental telescopes including a 24-inch telescope in its own roll-off roof building and cabins for rental to guests. One room is equipped as a photographic darkroom.

VANCOUVER: The May-June issue of *Nova* featured a finder chart for Comet Austin. Although the comet has been a disappointment for observers, it has been an interesting challenge for new observers. The official opening of the Gordon Southam Observatory's new 20-inch telescope was held in June.

MONTREAL: In April the Centre received an unexpected visitor at one of its meetings when Dr. Sergei Marchenko, an astronomer at the Kiev Observatory in the Soviet Union, accompanied Centre vice-president Tony Moffat to the meeting. Solar Saturday was held on March 31 at the Dow Planetarium and despite clouds over 800 people participated in the event in a period of less than six hours. Louie Bernstein reports in *Skyward* that the annual Mont Megantic Observatory trip was scheduled for late June. Editor Peter Paul Biro commented in a recent *Skyward* that the addition of an optical scanner and regular departments has noticeably improved the appearance of the newsletter.

NIAGARA: Work continued during the spring to get the Centre's 17.5-inch telescope in working order and matched up with a mount and a trailer to increase its mobility. Target date for completion is July 1. Bob Winder is stepping down as Observers Group chairman after a three year term. He expects his 26-inch "Son of Lurch" telescope to be completed within the next year.

EDMONTON: Bob Drew reports in the June *Stardust* on his experience of chasing down the Messier objects with the centre's 17-inch telescope! Despite the large size of the instrument compared to the telescopes used by most Messier hunters there are some special challenges facing big telescope hunters. In this most northerly of RASC centres dark skies disappear for weeks around the June solstice and observers must wait for the late summer. The Centre's own Second Annual Astronomy Workshop (see elsewhere in this issue) is well into the planning stages.

REGINA: Roger Nelson has unfortunately had to resign as Centre President as he is now working for a company in Calgary. During his over three years as president he succeeded in tripling the club's membership and constructing the Kalium Observatory and brought the Regina Astronomical Society back in as a Centre of the RASC. Roger also served as newsletter editor and his wife Grace as Education Chairman so their contributions will be missed.

CALGARY: The Centre has been raising money to purchase a Celestron 14-inch telescope. The target goal is \$12,000. The new telescope was received in the spring and mounted in the dome at the Wilson Coulee Observatory in May. An official unveiling of the new telescope will take place in September. The observatory has been an active site for public education activities during the school year with a record number of tours in 1989-1990.

Events Calendar

September 13 to 16

Alberta Star Party 1990, Kinbrook Island Provincial Park, Alberta. Hosted by the Calgary Centre RASC. For information contact R. Lewis, 7 12-34th Street NW., Calgary, Alberta T2N 2X9 or phone (403) 283-0570 (Residence).

October 19 to 21

Astronomy Workshop '90, Pigeon Lake, Alberta. Hosted by the Edmonton Centre RASC. For information see elsewhere in this issue or contact George Moores (403) 436-2855 (evenings).

October 27 to 29

Space 1990 Conference, Toronto, Ontario. Jointly hosted by the Canadian Space Society, the Planetary Society, the Students for the Exploration and Development of Space (SEDS), and the Toronto Centre RASC. For further information contact the Toronto Centre's Information Line (416) 777-4300.

November 1 to 3

Science Teachers' Association of Ontario 100th Anniversary Conference, Toronto, Ontario. For information contact Peter Williams, Program Chairman, West Central Education Office, 77 Grace Street, Toronto, Ontario M6J 2S4.

Letters to the Editor

Request for Links

While reading the Directory for the *International Exchange of Scientific Publications* supplied by the Czechoslovak Academy of Science I came upon a listing for the Royal Astronomical Society of Canada.

It is my opinion that the Huddersfield Astronomical and Philosophical Society would greatly benefit from contacts with astronomers in other countries. To achieve this goal I would like to establish regular "pen pal" links with astronomical societies throughout the world.

Antony R. Burrows
 Librarian
 Huddersfield Astronomical
 & Philosophical Society
 4 Norwood Drive,
 Batley, West Yorkshire
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Our Executive Secretary has sent Mr. Burrows a list of our centre secretaries. Individual members interested in communicating directly should write to him.

Address of British Sundial Society In the Newsletter (April 1990) mention is made of the formation of the British Sundial Society. Do you have an address for this society?

Richard Langley
 Department of Survey Engineering
 University of New Brunswick

The mailing address was inadvertently left off the article. Contact David Young (Treasurer), Brook Cottage, 112 Whitehall Road, Chingford, London E4 6DW.

Maple Grove Astronomy Club

The Maple Grove Astronomy Club had an active year highlighted by several trips for observing sessions and lectures. Last autumn the club visited the newly-formed Argyle Astronomy Club and heard an interesting talk by Doug Wilson on the formation of the universe. Other speakers during the year were Joe Hodder ("UFO Detection by D.E.W. Line Operators") and Harry Taylor ("Effects of Depletion of the Ozone Layer"). Observing sessions were also held at Maple Grove Education Centre, in Hebron, Nova Scotia and at the home of Bob MacConnell.

In the spring, the club visited the observatory at St. Mary's University and the Halifax Planetarium at Dalhousie University as guests of the Halifax Centre RASC and the Astronomy Department of St. Marys'. The club especially appreciated the efforts of drivers and chaperones, Roy Fells and Louise Nelson.

Bob MacConnell
 Maple Grove Astronomy Club
 Maple Grove Education Centre
 Hebron, Nova Scotia B0W 1X0

Observer's Cage

by David H. Levy

With this issue I end my column *Observer's Cage*, a series of commentaries in the Newsletter of the Royal Astronomical Society of Canada. Simply put, I have just run out of things to say! *Observer's Cage* has been fun to write, each article commenting on a different astronomical or astro-social issue. Although I enjoyed writing the column, lately I have found that the load of writing I have to do is beginning to cut into my observing time, which for me would be a catastrophic problem. By cutting down on my writing I would have more time to observe.

Recently, my observing has taken a new direction. After years of purely visual work I am finding out how much fun astrophotography can be, particularly with a Schmidt camera. When each new roll of film emerges from the developing chemicals, a host of familiar stars appear that offers a real excitement. Although the thrill is different from seeing stars visually, it is just as intense.

For a beginner, astrophotography can be as simple as mounting a camera on a tripod and shooting star trails. With some initial success, the observer may want to go into something more ambitious. Mounting the camera on a motor-driven telescope and guiding the exposure with the telescope could produce spectacular results. Finally, a camera actually looking into a telescope could produce stunning pictures.

With each advance in technique, astrophotography becomes more exacting and less tolerant of error. With its wide field and extremely fast optics, a Schmidt camera is extremely sensitive to focus, and the observer has to take a lot of pictures to gain the experience to produce good results consistently.

Thus, the final advice from *Observer's Cage* is to enjoy the sky but don't just look at it. Capture it on film. Make enough mistakes so that you know how to produce good pictures. In this way the sky will double its ability to provide you with an enjoyable observing life. With this, I leave the observer's cage to you.

Editor: David Levy has discovered six comets in recent years and this late summer, his most recent discovery may be providing an exciting spectacle for observers. With this column David has completed a series of interesting, informative, and most importantly, personal insights into astronomy dating back to 1987. Thank you David for your contributions and for sharing your thoughts with us.

Directory of Astronomical Associations and Societies

The eighth edition of the *International Directory of Astronomical Associations and Societies* (IDAAS 1990) is now available. Totalling more than 700 pages, the Directory gathers together more than 3200 entries from about 90 countries and lists the following: associations, societies, groups, clubs of professional and/or amateur astronomers; parent associations and societies; public observatories; planetariums; and related entries of general interest (eg data centres, dealers, distributors, journals, publishers and software producers).

IDAAS 1990 is distributed at the cost of production of 190 French Francs or \$38.00 US. Add 10 for air mail delivery. Prepayment is requested. Cheque or international money order should be made out to M.I'Agent Comptable – Université de Strasbourg I – Compte de l'Observatoire. Orders should be sent to: Dr. A. Heck, Observatoire Astronomique, 11, rue de l'Université, F-67000 Strasbourg, France.