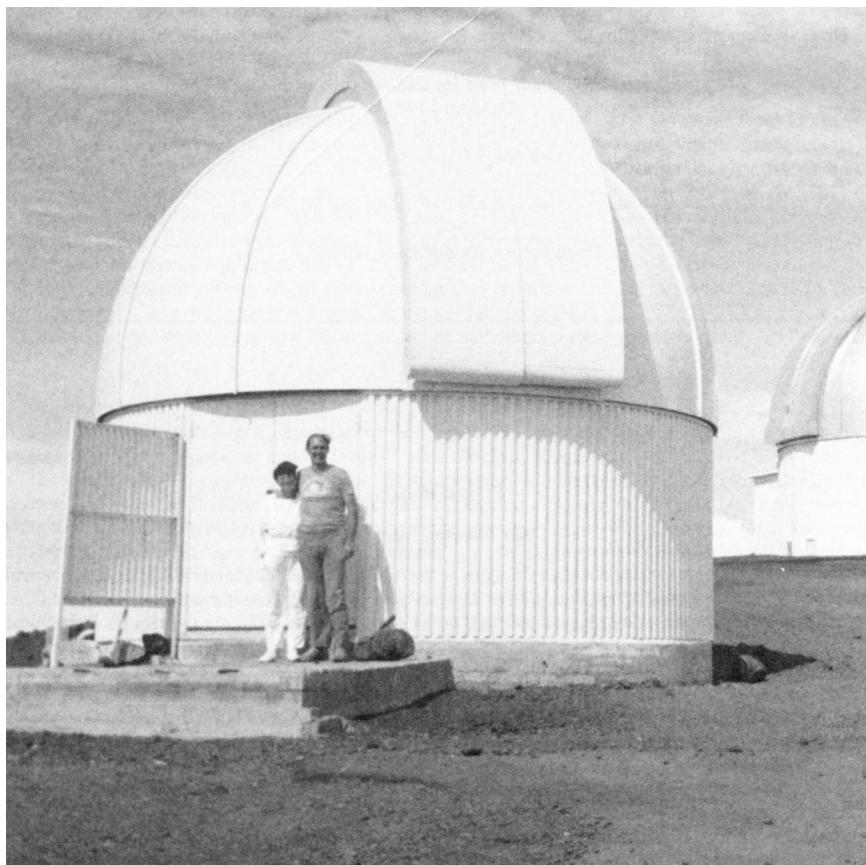

NATIONAL NEWSLETTER

Royal Astronomical Society of Canada

Supplement to the *Journal*

Vol. 82, No. 2 April 1988



Alice and Jack Newton of the Victoria Centre in front of the 0.61 metre telescope dome on top of Mauna Kea, Hawaii.

NATIONAL NEWSLETTER

The *National Newsletter* is a publication of the Royal Astronomical Society of Canada and is distributed together with the Society's *Journal*. Inquiries about the Society should be directed to its National Office at 136 Dupont Street, Toronto, Ontario, Canada M5R 1V2.

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Deadline for August issue is June 1.

Editorial

par Damien Lemay

A titre d'éditeur pour les textes écrits en français, je veux faire écho à l'éditorial de Ian McGregor paru dans le *NNL* de décembre 1987 et février 1988. Tout comme Ian, je déplore le manque de contributions soumises. Peut être que je devrais accepter une partie du blâme; par exemple j'aurais pu écrire plus d'articles moi-même et fournir plus régulièrement des nouvelles de la S.A.M., du Centre de Québec, des membres indépendants (unattached) et de l'A.G.A.A.. Néanmoins, ce serait d'un grand aide pour votre éditeur si des contributions lui étaient fournies régulièrement. En plus d'augmenter le volume de matériel, la diversité s'en trouverait améliorée. Je désire rappeler à tous les membres francophones (s'adresse aussi aux membres indépendants ou unattached) de me soumettre leurs écrits. Rappelez vous que le *NNL* est pour faire connaître les activités et réalisations des astronomes membres de la S.R.A.C., et pour ce faire nous sommes dépendants de vous. Nous souhaitons recevoir entre autres des articles décrivant vos observations, techniques photographiques, promotions auprès du public, conférences, ateliers, construction et/ou modification d'équipement, etc. Si vous ne pouvez fournir des textes dactylographiés, envoyez moi vos brouillons et je me débrouillerai pour les mettre au propre. Jusqu'au 1er juillet 1988 mon adresse sera 6230 Ravine Way, Orleans, Ontario K1C 2V4. Mon mandat à Télécom Canada se termine à cette date, après quoi je retournerai à Rimouski où mon adresse deviendra: 3 Quinzième Rue Ouest, Rimouski, P.Q., G5L 7Y4.

The “Eclipse Comets”

by Christopher E. Spratt
Victoria Centre

At the time of a total solar eclipse comets whose existence was previously unknown have been discovered. Thus, a total solar eclipse should afford an excellent opportunity for discovering a new comet. During the past century there have been 78 total solar eclipses, but only four new comets have been discovered – two during the last 27 eclipses. It must be pointed out, that the number of suspect cometary objects obtained on photographic plates, especially exposed for this purpose, is rather large.

One of these “eclipse” comets belongs to a special class or group called the Kreutz Sungrazing Group named after the astronomer Kreutz who remarked on the similarity of the orbital elements of certain comets with a perihelion distance which brought them perilously close to the sun’s surface.

This paper reviews five definite comets discovered during total solar eclipses. Not all authorities list them in contemporary catalogues, due primarily to a lack of positional observations on which to base a reliable set of orbital elements.

The “Eclipse Comet” of B.C.

This is probably the earliest reported eclipse comet on record. Posidonius who lived from 135 to 51 B.C. supposedly witnessed, during the eclipse of the sun, a comet that was only visible during totality. A translation of Seneca’s *Quaestiones Naturales* (circa 60 AD.) reads “Posidonius reports that once during the eclipse a comet appeared that the nearby sun had concealed”.

It is possible that Posidonius observed the comet personally, but it has proved quite difficult to pinpoint to which eclipse he was referring. There were three solar eclipses visible in the Mediterranean area around this time: a partial one in 94 B.C.; a total eclipse in 115 B.C.; and another total eclipse in 103 B.C. Unfortunately, there are no other contemporary reports of this comet being observed by any other persons. I believe the solar eclipse to be the partial one of 94 B.C.

Contemporary catalogues do not list this comet or any others for the years indicated.

The Eclipse Comet of May 17th, 1882 “Tewfik’s Comet”

One of the most famous eclipse comets of them all. This comet was observed during the total solar eclipse from Egypt, hence the name “Tewfik” after the then, Khedive.

The comet was “discovered” by Dr. A. Schuster, who was developing plates taken during the eclipse. This was the first scientific discovery of a comet on a photographic plate, but unfortunately there were no follow up observations and the comet was not seen again. The real honour of discovering a comet by photographic means, belongs to Barnard, with the discovery of P/Barnard (1892 V), which is now considered lost.

This eclipse comet is a possible member of the Kreutz group of Sungrazers. Investigations of the orbit found the position, as measured by Trepeid in 1882, to lie within 0.07 degrees of the path of Comet 1843 I -itself a confirmed member of the Kreutz Sungrazers Group. The perihelion date as computed by Kreutz in 1888 was found to be May 17.5, 1882. The description of a strongly curved tail would indicate a comet rapidly approaching perihelion.

Others have studied the orbit of this comet: Abney and Schuster’s 1884 calculations differ by 0.17 degrees from Trepeid’s position but still lie within 0.01 degrees of the calculated orbit of Comet 1843 I.

Brian Marsden of the Smithsonian Astrophysical Observatory did list this comet in his latest comet catalogue, although others do.

The Eclipse Comet of April 16th, 1893

This comet was also discovered photographically on plates taken by the Lick Observatory Eclipse Expedition to Chile. Faint images were also found, but later, on plates taken by the British Expedition to Africa.

As the “Eclipse Comet of 1882” was not seen again, so too was this comet. In fact, it was not even

noticed during the eclipse by any of the observers, indicating an intrinsically faint object even at perihelion. The first official announcement was made in August of 1883 by Schaeberle, in an address to the Astronomical Congress held in Chicago. The confirmation plates, from the British Eclipse Expedition, although not available at the time, were used to obtain further precise astrometric measurements. A full report was given by Schaeberle in 1895. The orbit wasn't calculated so this comet is not included in any of the modern comet catalogues. Kreutz in 1901 postulated that this comet did not belong to the Sungrazer's Group.

The Eclipse Comet of November 1st, 1948

This comet was discovered visually, by several observers on various eclipse expeditions, from different sites along the eclipse path in Africa.

The first person to report the comet after the eclipse was Captain Frank McGann of Pan American-Grace Airways who spotted the comet, November 4th, while flying over Kingston Jamaica. Pope, who was a member of the Greenwich Eclipse Expedition saw the comet on the 6th of November.

Perihelion was on October 24th with the distance from the sun calculated to be 0.14 AU. When first seen, the comet was described as bright with a long tail stretching, towards the horizon. The comet was calculated to lie within 105 arc-minutes of the sun's centre.

Observers at Palomar Observatory obtained the first post-eclipse photographs of the comet on November 10th. The comet showed a slightly curving tail and was rated at magnitude 2.0 (visual). The comet faded rapidly and was down to magnitude 9 by the end of January. The last report was from Pretoria on the 2nd of April 1949. The comet had faded to magnitude 16 (visual).

Many observers, especially airline pilots, claimed to have seen the comet, prior to the first documented post-eclipse sighting by McGann and Pope. None, however, were given the honour of having the comet designated after them. The official International Astronomical Union designation is: Comet 1948 XI or the "Eclipse Comet".

The Eclipse Comet of July 20th, 1963

On plates especially exposed to search for comets during a solar eclipse, seven showed the images of a faint comet lying five degrees to the north-west of the sun. Again, there were no follow-up observations of this comet. A reproduction of one of the plates is given in a brief 1963 article by Zahner. This comet is not listed in any catalogue.

Many observers, including H.C. Courten, have taken plates during the eclipses of 1966, 1968 and 1970, that show the possible existence of unidentified celestial objects near the sun. Few follow-up observations, however, have been undertaken. These negative searches, however, should not discourage the serious search for comets during a total solar eclipse. In the past few years 6 new comets have been seen to "plunge" or "disintegrate" when in the sun's vicinity. All these new comets were found by the artificial satellite SOL WIND. If a solar eclipse had occurred during the time of perihelion passage of any of these objects the search for an eclipse comet would have been very successful. Marsden indicates that any new member of the Kreutz Sungrazing Group of comets which approaches and leaves the vicinity of the sun, between the period mid-May and mid-August, would almost certainly go undetected, unless observed during the circumstances of a total solar eclipse.

A.G.A.A. Congrès 1988

Le Centre de Québec sera l'hôte de l'A.G.A.A. pour le congrès 1988, les 17–18–19 juin. Cet événement, qui ressemble beaucoup à l'Assemblée Générale de la S.R.A.C., aura lieu au Motel Quality Inn près de l'échangeur nord du Pont Pierre Laporte à Québec. Pour plus de détails les intéressés sont priés de communiquer avec:

Jean-Marie Fréchette
1054, rue d'Aubigny,
Charlebourg (P.Q.), G1H 1N1

L'Astronomie En Couleur

par Marc A. Gélinas
Société d'Astronomie de Montréal

L'observation astronomique des planètes fait moins l'objet d'études sérieuses par les amateurs de nos jours que dans les années 60. Cet état de fait constaté par M. Terence Dickinson dans un article paru dans l'*Observer's Handbook 1986* lui a permis d'émettre une très intelligente théorie à ce sujet. Selon monsieur Dickinson la baisse d'intérêt dans l'observation planétaire provient de ce que les télescopes utilisés par la majorité des amateurs des années 80 ne sont pas capables de donner une image vraiment bien contrastée d'une planète. Les Schmidts-Cassegrains et les Newtons à courte focale populaires de nos jours ne peuvent pas rendre une aussi belle image que les lunettes ou les longs Newtons des années antérieures. En conséquence les amateurs ne sont plus impressionnés par les images qu'ils voient et donc après un rapide coup d'oeil ils délaissent les planètes pour autre chose.

Il y a cependant un moyen à la disposition de l'amateur pour contourner ce problème sans changer de télescope. Ce moyen est l'utilisation de filtres colorés. On appelle colorimétrie la technique consistant à utiliser pour l'observation des filtres de transmission connus, tel les Wrattens. Le grand principe des filtres est qu'un filtre donné laisse passer la lumière dont la longueur d'onde correspond à sa propre couleur tout en bloquant les autres longueurs d'ondes.

La planète Mars par exemple n'est pas plus intéressante qu'il faut à être observée avec un Schmidt-Cassegrain classique. Par contre dès qu'un filtre rouge comme le W25 est utilisé l'oeil perçoit plein de nouveaux détails. Qui mieux est, si on change de filtre, l'image se modifie et de nouveaux éléments apparaissent à l'observateur. Une série d'observations comparative faites grâce à différents filtres prend une grande valeur.

Alors si vous êtes un amateur et qui vous voulez continuer à utiliser votre bon vieux Schmidt-Cassegrain ou Newton f/4.5 mais que vous voulez quand même tirer le meilleur parti de l'observation planétaire alors pas d'hésitation procurez vous des filtres. En fait selon l'ALPO les Schmidts-Cassegrains et les Newtons sont des instruments idéaux pour faire de la colorimétrie. Par exemple un filtre bleu W47, un vert W58, un jaune W15 et un rouge W25 couvriront tous les besoins en colorimétrie planétaire qui vous aurez normalement. Si vous ne voulez pas permettre que deux filtres alors allez dans les couleurs intermédiaires comme l'orange W21 et le bleu clair W82. Ces deux derniers étant moins denses ils seront aussi plus facilement utilisables en photographie. Enfin si un seul filtre est à votre portée, prenez un jaune-vert comme le W11 qui transmet la lumière dans la longueur d'onde où l'oeil est le plus sensible (570 microns).

Lorsque vous aurez goûté à l'astronomie en couleur vous verrez que ce n'est pas un rêve mais bien une agréable réalité.

Noted Astronomer to Visit Syracuse

by Frank Rioux
Syracuse Astronomical Society

One of North America's most famous astronomers will visit Syracuse on July 16th 1988. David Levy will be the guest speaker of the Syracuse Astronomical Society's annual summer seminar.

Often referred to as the "amateur astronomer's astronomer", Mr. Levy has achieved much in the 20 years that he has been an amateur. He was a comet hunter from the beginning and is credited with the discovery of three new comets. Comet Levy-Rudenko 1984t on November 13, 1984, Comet Levy 1987a on January 5, 1987, and Comet Levy 1987y on October 10, 1987.

He is very involved with astronomical educational programs for the young across North America and has authored two books, *The Joy of Gazing, A Beginners Guide to Observational Astronomy* and *The Universe For Children: How Astronomy Minded Adults Can Help Children To Love The Sky*.

Mr. Levy is a very active author who writes eight different columns for such distinguished astronomy publications as the *National Newsletter* of the Royal Astronomical Society of Canada, *Sky and Telescope*, *Strolling Astronomer*, and *Deep Sky*. He is currently writing the biographies of Clyde Tombaugh and Bart Bok.

In 1981, Mr. Levy became the recipient of the Royal Astronomical Society of Canada's Chant Medal, its highest award for an individuals work in astronomy.

He presently lives in Tucson, where he enjoys his collection of over 70 telescopes in the clear, dry skies of Arizona. He has been on the staff of the Grace H. Flandrau Planetarium on the Arizona State Campus and just recently was employed to work with a professional astronomer on basic research involving Comet Halley.

This will be the eighteenth annual seminar for the Syracuse based NFCAA Society. Its seven acre facility hosts both 16- and 14-inch reflector telescopes, with plenty of power and grounds available for those people who choose to bring their own instruments. The three day event starts on Friday, July 15 and ends at noon on Sunday. Anyone wishing to attend may write to the Syracuse Astronomical Society, 1115 East Colvin Street, Syracuse, New York, 13210 or call (315) 455-1003 to speak to the seminar chairman Frank Rioux

A Trip to the U.S.S.R.

The Société d'astronomie de Montréal has organized a trip to the Soviet Union in conjunction with the Quebec/U.S.S.R. Travel Agency, the U.S.S.R. Academy of Science, and carriers Aeroflot and Intourist. The trip will last two weeks from September 23 to October 7, 1988.

Participants will have the opportunity to visit several soviet research centres. Details of the trip are not yet confirmed but an outline points out some interesting highlights.

In Moscow, the participants will be greeted at the Academy of Science. Their journey will then continue with a visit to the Moscow Planetarium, the Exhibition of Achievements of the National Economy (VDNKh), and in particular, its space pavillion; the home of Sergei Korolev and the Moscow Observatory. In the Moscow suburbs, the participants will visit the Yuri Gagarin Space Training Centre and the Control Centre for space missions at Kaliningrad.

The next stop will be a visit to the Zelentchouk Observatory in the northern Caucaus where the largest telescope in the world can be seen. Its mirror is six metres in diameter, weighs 42 tons, and required 15,000 carats of diamonds for grinding and polishing.

The cost of the trip will be a little over \$2500 (Canadian) and includes return flight, all transfers, first class hotels, three meals a day and interpreter services.

For more information contact:

For technical aspects: Voyages Quebec/URSS, 173 Ontario Street East, Montreal, Qc. H2X 1H5. Telephone (514) 845-5778 or (514) 845-4945.

For aspects relating to content: Société d'astronomie de Montréal, c/o Jean-Pierre Urbain, P.O. Box 206, Station St. Michel, Montreal, P.Q. H2A 3L9. Telephone (514) 272-5210.

Voyage En Union Soviétique

Un voyage en Union soviétique est organisé sous l'égide de la Société d'astronomie de Montréal conjointement avec l'Agence de voyages Québec/URSS, l'Académie des sciences de l'URSS, le transporteur Aéroflot et Intourist. Le voyage d'une durée de deux semaines, est prévu du 23 septembre au 7 octobre 1988.

Les participants seront amenés à visiter plusieurs centres de recherches soviétiques. Bien que tous les détails du voyage ne soient pas encore officialisés, nous pouvons cependant en esquisser les grandes lignes, et en signaler quelques points d'intérêts.

Moscou, les voyageurs seront reçus à l'Académie des sciences, visiteront le Planétarium, le parc de l'Exposition des réalisations de l'économie nationale de l'URSS (VDNKh et en particulier le pavillon du "Cosmos", la maison de Sergei Korolev et l'Observatoire astronomique de Moscou.

Dans la banlieue moscovite, ils visiteront le Centre d'entraînement Youri Gagarine et le Centre de contrôle des vols cosmiques de Kaliningrad.

Par la suite les participants se déplaceront vers le Caucase du Nord pour visiter l'Observatoire de Zélenchouk, renfermant le plus grand télescope du monde. Son miroir fait 6 m de diamètre, il pèse 42t et a nécessité 15 000 carats de diamant pour moudre et polir sa surface.

Le prix du voyage sera d'un peu plus de 2500 dollars canadiens. Celui-ci comprendra le transport aérien aller/retour, tous les transferts, l'hôtel(s) de première classe, trois repas par jour, service d'interprète etc.

Pour en savoir davantage, vous pouvez vous adresser à:

Pour les questions "techniques": Voyages Québec/URSS, 173 est, rue Ontario, Montréal, P.Q., H2X 1H5. Téléphone (514) 845-5778 ou (514) 845-4945.

Pour les contenus: Société d'astronomie de Montréal, A/S Jean Pierre Urbain, Casier 206, Station St. Michel, Montréal, P.Q. H2A 3L9. Téléphone (514) 272-5210.

The Scientific Instrument Society

by **Randall Brooks**
Halifax Centre

The Scientific Instrument Society was formed in 1983 to bring together people with interests in scientific instruments, ranging from very old to modern instruments, from astronomical, physical and chemical instruments to scientific toys. Based in London, England the Society has grown to a membership of nearly 400 and includes collectors, dealers, historians of science and technology and museum staff from around the world.

The activities of the society include lectures, occasional one day or weekend conferences, visits to museums and sponsoring an antique scientific fair. Recently, the Society met at the Time Museum in Rockford Illinois, and has organized a special trip to the Lomonosov Museum in Leningrad. The Society's Bulletin appears quarterly and includes articles on instruments of all kinds and from a wide range of countries. Particularly useful is the list of "Instrumental Events" which lists upcoming lectures, conferences and exhibitions dealing with scientific instruments. The Letters page carries lively discussions and a mystery object in each issue tests your knowledge and deductive powers. Another regular feature keeps track of interesting items on the international antique scientific market and prices fetched at the large auction houses. The Bulletin is edited by a Canadian, Dr. Jon Darius, who is Curator of Astronomy at the Science Museum, in London.

If you are interested in the history of scientific technology and if old instruments fascinate you, whether it be just the polish of a lovely old brass telescope or a desire to know how the design of a chronometer evolved – then you will be interested in the Scientific Instrument Society. Membership is for the calendar year and is 25 pounds or \$40.00US with a joining fee of £10 or \$15.00US. Student rate is £15 with no joining fee. Further information and membership forms may be obtained from: Randall C. Brooks, Dept. of Astronomy, Saint Mary's University, Halifax, Nova Scotia. B3H 3O3

Memories Of Mauna Kea

by Jack B. Newton
Victoria Centre

During February those of us who live in Victoria tend to sit around and brag about our mild winters and describe the daffodils and tulips blooming outside while the rest of Canada can be found up to its backside in snow drifts and shivering through sub-zero temperatures. We seldom mention the stuff we get instead of snow, which is rain, rain, and more rain! It's not too tough to shovel, but it sure makes a mess out of observing. Therefore, when vacation time rolled around in October this past year, I was really enthusiastic about the idea of trading in my wet gear on a ticket to the "Big Island" of Hawaii.

I had heard a lot about the tremendous seeing at the world-famous 4,200 metre high observing site on Mauna Kea. I knew that it would have been virtually impossible to have obtained time on the Canada/France/Hawaii Telescope (C.F.H.T.), so I approached the University of Hawaii to see if I could secure time on their .61 metre (24 inch) f15.1 telescope. They asked me to submit an observing proposal outlining the various projects I wished to undertake during my run. My proposal included a film test of Konica's new 3200 speed film, using my new 5.5cm cold camera. Roger Woloshyn, a producer from the Winnipeg Planetarium, wished to accompany me and gather information for a show he was creating which would feature Canadian astronomers at work. And finally, I also hoped to obtain photos for the my new book *Guide to Amateur Astronomy*.

In early September, Dr. David Morrison phoned from Honolulu to advise me that I had been accepted for a 2-night run on the University of Hawaii's .61 metre telescope. I immediately set about fine-tuning my observing program and building the equipment I would require to attach my cold camera and guiding head to the back plate of the telescope. I called Dr. David Crampton at the Dominion Astrophysical Observatory in Victoria to find out first-hand what conditions I might expect to find on Mauna Kea. His first suggestion was that I wear the warmest clothes I owned and then climb into a snowmobile suit just to be sure, as the night-time temperature was always below freezing. He then warned me never to leave home without a copy of the R.A.S.C.'s *Observers Handbook*, as it is apparently just the right size and flexibility to wedge under the observatory dome to prevent it from turning in the gale force winds which blow almost continuously on Mauna Kea! I laughed, and then reminded myself that I, too, have found a few novel uses for the bible of amateur astronomy, such as propping up one leg of my tripod to realize that exact polar alignment or to counter-balance an extra heavy eyepiece. It has also proven invaluable as a dew cap, and on desperate occasions, been used to obliterate some bothersome insect. But to stop a dome from rotating? ... "our" editor would be impressed! Dr. Crampton went on to suggest that if there were still equipment heaters in the dome, the best use for them was as a warm spot in which to park one's rear quarters to prevent death by freezing during the night. Lastly, I should buy a huge jar of Vaseline and spend quiet times shoving gobs of the stuff up my nose to prevent nosebleeds at the high altitude. I was not sure if he misunderstood my question and thought I was asking advice on going to Sudbury in February, not Hawaii in October!

All plans completed, my wife Alice and I engaged ourselves in packing up three or four suitcases full of the essentials for amateur astronomy. Naturally, non-essentials (such as Alice's wardrobe, toiletries, etc.) had to be aborted because of lack of room and left behind for some future excursion. (Alice was later to realize her revenge by wearing all the gold numbers off my charge cards).

At last the big day had arrived! As our flight approached the Big Island, I could see Mauna Lau (another volcano which is only about a hundred metres lower in elevation than Mauna Kea) peeking out through the clouds. The island itself looks more like a volcanic desert than it does a lush, green paradise. Dark brownish-black lava flows from eruptions stretch for hundreds of kilometres. It is only upon closer investigation and a drive around the island that you can see that Hawaii is made up of a vast number of different terrains, from beautiful rain forests to dry pasture land.

Upon our arrival at the airport in Kaulia Kona, we set about collecting the rental car which we had booked for our stay on the island, and especially to get us from Kona to Hale Pohaku, the overnight facility at Mauna Kea's 2,700 metre elevation. The first document the rental firm made me sign was a declaration stating that under know circumstances would I drive the car on the road leading to Mauna

Kea! So . . . I made Alice drive Roger and myself up to the mid-point station and scrub off the tell-tale red dust prior to returning the car.

Roger and I checked in at Hale Pohaku at noon, while Alice headed back down the mountain in the dusty little car to the beach in Kona. While I checked out the lounge facilities and cafeteria at Hale Pohaku, she ran rampant through the town's T-shirt shops. I expect to receive shorts decorated with puka shells for Christmas this year (and probably next!).

Hale Pohaku is a bright, modern and comfortable facility. It has a large common area, with a self serve cafeteria. There are a couple of pooltables, as well as a T.V., VCR, and satellite dish. There are offices and a library upstairs. The dormitories are located in a separate 2-storey unit joined to the main building by boardwalks. Each room in the dorm contains a bed, a desk with reading light, and washroom. Black-out curtains permit sleep during daylight hours. During my stay on Mauna Kea, I arranged for use of a 4-wheel drive vehicle. Normally, these trucks are available on a shared basis, but for some reason, I was given exclusive use of a little white one all to myself. Later the first evening, as I was about to head back down from the summit, a technician handed me a frost scraper and suggested I get an early start on the inside of the windshield, since the heater in the truck had never worked, and he presumed that I would like to off the summit in one piece! Since I am a typical amateur astronomer, carrying around in my pockets a little bit of everything, I scrounged some aluminum foil from around a macadamia nut cookie and wrapped it around the heater fuse. Somehow, I could not quite bring myself to share the news of my successful repair to anyone until my observing run was over.

My first day at the summit was spent wrestling with equipment. I arrived late in the day and the technicians required several hours to remove the photometer from off the 24-inch scope so that I could attach my guiding head. This meant that I would not be able to install my equipment until morning. Roger busied himself with taking panoramas for the planetarium show and had a bit of a look around. The summit is not unlike a moonscape, with a great deal of choking dust and large rocks strewn around. It has a reddish-green cast, but is completely devoid of vegetation. It was not possible to get a direct downward view from the summit, as you are above the clouds, and prevented from seeing down even to the camp at Hale Pohaku.

I expected to be more negatively affected by the altitude, but only experienced a heavy feeling in my head and shortness of breath. Roger, on the other hand, was positively ill. He moved about like a 100 year old man, slumping against walls for support every few feet and feeling very woozy. His problems started at the lower altitude, and he never felt 100% again until his feet were planted at sea level. Stories abound about the effects that altitude has had on visitors to Mauna Kea, and it is customary for astronomers to acclimatize for 24 hours at Hale Pohaku before attempting any observing. That first night for me was partially clear, and the Milky Way was embedded in an ink black sky. (The site was not unlike that from Cuzo, in Peru, when I travelled there to see Comet Halley in 1986). I could not wait to see the results I would get with the new super-fast 3200 film in 120 format. This would give me a 5.5 cm negative in the large cold camera. I retired for the night wishing that I were on the summit photographing.

The next day was cloudy, and Roger and I occupied our time photographing the various observatories and telescopes on the mountain. I mounted my guiding head on the telescope and one of the technicians from the University of Hawaii balanced the scope for me. I spent about half an hour opening the dome, working the override switches and setting the sidereal time. I was surprised how comfortable I felt with the equipment in such a short time. That night, the clouds persisted and the winds gusted to 180 kilometres per hour! We were not permitted to stay at the summit, and returned to Hale Pohaku. Roger and I must have played 200 games of pool waiting for the weather to break. Unfortunately, it did not.

The next night was even worse. A blizzard moved in and dumped 16 cm of snow. That night, we did not bother waiting for the weather to clear, we knew it was hopeless. I spent a lot of time snivelling and telling people I was coming down with a cold.

The next morning, I went to the summit to retrieve my equipment and passed three trucks stuck in snow drifts on the last switch back to the summit. Obviously, the summit had been no place to be that night. By the time I detached my guiding head and camera, a snow plow had reached the summit and made the road passable.

Alice was looking tanned, rested and broke when she came to collect us at lunch time. We stopped at the C.F.H.T. headquarters in Waimae. Derrick Salmond was kind enough to provide me with blue prints for the prime focus cage, and we discussed building a 4 X 5 cold camera to fit the C.F.H.T.

Lots of things can be planned for on a trip such as this. Unfortunately, others can not. I was ready for almost any eventuality except being washed out by two days of bad weather. I did feel it more than worthwhile, though. I enjoyed the chance to meet the personnel and enjoy the facilities offered on Mauna Kea. And I plan to visit again, the sooner the better.

Observer's Cage

by David H. Levy

Happiness is a mailbox filled with astronomical periodicals, and of all these publications, the local centre and club newsletters may be the most important. Containing individual observations and personal news from each member, these "rags" provide the most intimate contact between the observer and the astronomical field.

Many centres have been kind enough to send me their newsletters in recent years, and by reading them, I feel a part of their activities. The newsletters offer an informal, honest dialogue through which a reader can get a real impression of local astronomical life.

Newsletters bring us the thoughts and feelings of their editors and contributors. Under the hand of Rolf Meier, *Astronotes* (Ottawa) clearly reflected the efficiency and pith of its comet discoverer-editor. As the new editor of *Stardust* (Edmonton), Alister Ling has already brought to its pages lively reports of centre activities mixed with the occasional humourous poke at the direction astronomy is taking. The January issue mimics an advertisement for a device that finds objects by computer, including this response of a satisfied observer: "My 8" SCT pinpointed all the NGC members of the Coma Berenices cluster of galaxies... Although I didn't see them with this aperture, they were still considered found."

I especially enjoy Leo Enright's *Regulus*. Published for the Kingston Centre, this is a newsletter in the truest sense of the word, including letters from out-of-town members, simple one line reports of observations and personal stories, and the most detailed summaries of meetings I have ever seen. Leo is the only person I know who can make the report of a business meeting read like a good novel. Of all the items in *Regulus*, what I enjoy most is his "Compendium of Esoteric Facts", from which this gem of an example, from the September-October, 1983 issue, follows:

"Did you know that there is one satellite in our solar system that revolves around its planet at a speed fast enough to take you from Halifax to Victoria in just two-and-a quarter minutes? It's true and the satellite is a small Jovian moon called 1979J3, the fastest-moving moon in the entire solar system. It was discovered on Voyager spacecraft photographs in 1979, as the name suggests, and it circles the giant planet Jupiter in only 7 hours 4 minutes. The velocity of this object which is only about 40 kilometres in diameter has been calculated at about 114,000 kilometres per hour. Now that's speed!"

From both Canada and the United States, the newsletters vary remarkably in quality. The best seem to obey certain guidelines. They don't reprint articles that their members probably would see in the national magazines and journals, but often they do reprint good articles that are hard to find. A good newsletter gives space to one member's discovery of a comet as loyally as it will announce another member's completion of the Messier Catalogue, a new observers first identification of a cluster, or another member's assistance on a centre picnic. It offers a variety of editorials from issue to issue, some with humour, others quite serious, as it addresses the evolution of a centre's life. Most important, such a newsletter finds its way into its member's archives, to be read over again in future years as cherished memories are brought to life.

You cannot get all this in a national magazine. The local newsletters, properly and sensitively edited, can be precious resources.

Across the R.A.S.C.

Editor: Many years ago this column was started to provide news about the activities and personalities in the R.A.S.C. which help to make our society the success that it is. For several years much effort was expended to get the Various centres to send reports, not just newsletters, to this column. Unfortunately, the response was poor at best. Today, only one centre out of 20 sends regular reports to the *Newsletter*. As a result, the column which follows is the result of many hours of plowing through centre newsletters to find material which your editor thinks might be of interest across the country. If your centre is not mentioned or the report on your centre seems skimpy, it could be because no first-hand report was received from your centre.

LONDON: The annual banquet was held at the German-Canadian Club on March 19. The centre is renting a new observing site east of London for \$100. per year. New president Joe O'Neil has announced plans for camping trips in June and July. Dale Armstrong and Mark Sinkins have been nominated for RASC Membership Certificates and James Lucyk is the 1987 recipient of the centre's Merit Award. Congratulations!

CALGARY: *Starseeker* reports the centre's annual banquet was a great success with 118 people present. The following members received awards: John Mirtle (Astrophoto Award); Glenn Hawley (*Starseeker* Award); and Brian St. Goddard (President's Award). Leone Martin, Simon Hum, Caroline Wallace, Robert Loblaw, and Ted Pigeon received awards for significant contributions during the past year.

VICTORIA: Doug Welch and Alice Newton are the new co-editors of *Skynews*. They have succeeded Muriel Enock who was editor for over 90 issues. The first of a series of "Observer Group" meetings was held in January and was a rewarding and fun evening.

HAMILTON: President Toni Quinn has organized speakers for the monthly meetings until next December. Now that is advance planning! Brian Can was featured in a story in the *Hamilton Spectator* newspaper during the winter. John Gauvreau has been teaching astronomy to many children at the centre's observatory.

OTTAWA: The December meeting celebrated the 25th anniversary of *Astronotes*. The new Observers Group executive has been elected with Sandy Ferguson as chairman. Two Messier Marathons were planned for March and April and joint programs with the Kingston and Montreal Centres are being planned for later this year. In a lesson for meteor photographers, Doug George reports that he has finally succeeded in photographing a meteor after wasting five rolls of film on previous unsuccessful attempts. The February *Astronotes* features a write-up by George of his occultation timing device which he displayed at the Toronto General Assembly.

VANCOUVER: Greg Soderling has succeeded Karl Miller as president and Ken Hewitt-White is the new *Nova* editor. Ken has also become the new director of the H.R. MacMillan Planetarium. The centre has scheduled a number of interesting special programs right into next autumn including a trip to Bremerton, Washington in June and two observing trips in July and September. The Annual Dinner was held in March. *Nova* reports that the Mount Kobau Astronomical Society has become incorporated and will be much more active in promoting the use of Mount Kobau in addition to the annual Star Party. Also January 1, 1988 marked the official formation of the British Columbia Space Sciences Society which took formal control of the H.R. MacMillan Planetarium.

TORONTO: The centre has been very active in recent months. As planning develops for the new centre observatory, many contacts are being made in the community for support, particularly through public observing programs. An enthusiastic group are looking forward to travelling to the Philippines for the March total solar eclipse. Co-leaders of the expedition are president Ralph Chou and past president Randy Attwood. The telescope making classes run by Jack Winzer are being booked up completely months in advance. Cooperative programs with the Marine Museum, the Story Teller School of Toronto, the Royal Ontario Museum, and the Royal Canadian Institute are planned for March and April.

KITCHENER-WATERLOO: *Pulsar* editor Paul Bigelow reports he has received several interesting letters from across the country in response to his article "Binocular Testing" which was reprinted in the October *National Newsletter*. Ray Koenig and Jeff Brunton were speakers at recent meetings on topics as diverse as "Why is the sky dark at night?" and "Building a Newtonian telescope".

HALIFAX: Darrin Parker is the new centre president. Doug Pitcairn has received approval for a regular astronomy column in the Saturday edition of the *Halifax Herald* newspaper. The centre has purchased a 17-inch Odyssey telescope and Doug Pitcairn has ordered a second one which should arrive for the Nova East Star Party this summer. Sales of the *Observers Handbook for 1987* totalled 186 copies! This is a target for other centres to aim at. Glenn Roberts of the Athena Astronomy Club in Summerside P.E.I. is contributing a cartoon series called "R.A.S.C. Star Truck" to *Nova Notes*.

NIAGARA: This year marks the 30th anniversary of the creation of the Greater Niagara Astronomical Group which in 1960 became the Niagara Centre. In January, Hugh MacLean, Marie Poirier, and John Dekker reported on four sites the centre is examining as a site for their new observatory. During 1988, these sites will be tested by members as to their suitability. The traditional Spring Banquet this year has been cancelled as the Skylon Tower is no longer available. Bob Winder reports good progress on the construction of his 26 inch telescope

WINDSOR: Randy Groundwater has succeeded Lorison Durocher as centre president. It is Randy's third term as president.

MONTREAL: The February 1988 issue of *Skyward* completed 40 years of publication of the newsletter. The issue features an interesting article about the early activities of the centre in the 1940's written by Isabel Williamson who started *Skyward*.

KINGSTON: Congratulations to Hein Van Aspern who has won the centre's major award, the Dr. A. Vibert Douglas Award. At the annual general meeting, Sue Sorenson stepped down as secretary after six years in office and was succeeded by Eldon Adams. Leo Enright is starting his 11th year as editor of the very informative and readable newsletter *Regulus*.

SASKATOON: An electrical power failure in the city this winter allowed Jeff Phillips and a friend to view the evening skies in much darker conditions than are usually present. The centre is celebrating International Astronomy Day on April 23 with a display at a shopping mall.

EDMONTON: The centre has purchased a new Coulter 17.5 inch mirror. Early winter sky conditions were poor and the monthly sky parties were mostly unsuccessful.

Across the R.A.S.C. is a regular feature of the *Newsletter*. Centre editors or secretaries should send newsletters and reports of their activities to the Newsletter editor. Deadline for the August issue is June 1.

The 1988 Joint Meeting of the Royal Astronomical Society of Canada (General Assembly) Astronomical Society of the Pacific (Annual Meeting) and the Western Amateur Astronomers (Summer Meeting)

June 25–July 3, 1988
University of Victoria, British Columbia

Three Meetings in One

*An international scientific symposium, *The Extragalactic Distance Scale* with a distinguished roster of invited speakers, plus contributed papers on all aspects of this active and controversial area of astronomy. (June 29–July 1)

*A joint meeting of the RASC, ASP, and WAA, with papers on astronomical research, education, history, and the contributions of amateurs, as well as non-technical lectures by noted astronomers. (June 29–July 3)

**The Universe in the Classroom & Space Update 88*: A Workshop on Teaching Astronomy in Grades 3–12, a hands-on program of astronomy information, classroom activities, and teaching resources (June 25 and 26)

Also: displays, commercial exhibits, tours, banquets, star parties, and social events.

Day by Day Outline

Sat. June 25	Teachers' Workshop, day 1 Evening Star Party for teachers
Sun. June 26	Teachers' Workshop, day 2
Mon June 27	Free day [meetings of committees]
Tue. June 28	Tours of Dominion Astrophysical Observatory; Butchart Gardens, and the Institute of Ocean Sciences & Pacific Geoscience Centre Registration for the scientific symposium Evening reception for symposium participants
Wed. June 29	Scientific Symposium, day 1 Afternoon registration for RASC/ASP/WAA meeting Evening tour of Dominion Astrophysical Observatory
Thurs. June 30	Scientific Symposium, day 2 RASC/ASP/WAA Meeting day 1 History of Astronomy session (early afternoon) RASC outgoing Council meeting (afternoon)
	*The RASC/CAS Hogg Public Lecture by Dr. Hubert Reeves, astrophysicist-philosopher and popular writer, <i>The Early Moments of the Universe</i> . Followed by RASC reception/Murphy-slide show (late evening)
Fri. July 1	Scientific Symposium day 3 RASC/ASP/WAA Meeting day 2 Joint Awards Banquet and door prizes (evening)

- Sat. July 2 RASC/ASP/WAA Meeting, day 3, including RASC Annual Meeting and incoming Council meeting
Evening Salmon Barbecue
- Sun, July 3 Tours (Same as Tuesday)

Exhibits and Poster Papers

Displays will be set up in the assembly area of amateur astronomy projects by participating centres; and of contributed professional and amateur poster papers. Throughout the meeting there will also be a special area set aside for commercial exhibits of astronomical equipment, books and magazines, software, and other educational materials. Companies or organizations wishing to exhibit should contact, in Canada: Jack Newton, RR 1, 801 Stanehill Place, Victoria BC, V8X 3W9. Telephone: (604) 478-8065.

Paper Abstracts

Abstracts of all papers, both professional and amateur, proposed for presentation at the meeting should be sent to: Dr. Chris Prichet, Department of Physics and Astronomy, University of Victoria, Box 1700, Victoria BC, Canada. V8W 2Y2, to be received by May 2.

Astrophotography and Centre Display Competition

Please submit your best astrophotography or observing project for judging. Prizes will be awarded.

Accommodation

Reasonably priced accommodation on the University of Victoria campus has been reserved for meeting participants. Meal plans and recreational activities will also be available. Two hotels in downtown Victoria are offering discounts to meeting participants. Details can be found in the registration booklet.

For further information

For complete registration/accommodation information, please write to: Mary Ransberry, Conference Services, University of Victoria, Box 1700, Victoria, BC. Canada V8W 2Y2.

The Travelling Telescope

**by John R. Percy
Department of Astronomy
University of Toronto**

The "Travelling Telescope" is a project of the International Astronomical Union (IAU), designed to provide young scientist in the developing countries with training and experience in practical astronomy. It consists of a small telescope (Celestron-8 with an Optec SSP-3 solid-state photometer (Optec SSP-3), spectrograph and 35mm camera, together with the necessary instructions for using the equipment to carry out simple research projects.

Initially, the travelling telescope will be used in two existing programs of the IAU: the International Schools for Young Astronomers (a series of three-week residential course held in different parts of the world, and the Visiting Lecturers Program (which sends a series of lecturers into a target country for a few weeks or months, in order to develop astronomy there. The availability of portable observational facilities would enhance both of these programs.

The Canadian Commission for UNESCO has generously provided a grant to the University of Toronto to purchase and assemble the travelling telescope, for use by the IAU. Dieter Bruckner and I are in charge of the project and we need to deal with the problems of operating the equipment in a remote and often primitive site; of using a small computer for data logging and reduction at such a site; designing a suitable spectrograph; selecting suitable and meaningful research projects; writing the necessary instructions; and packing and shipping the equipment.

We hope that the project will eventually lead to the establishment of small observatories in the developing countries, and will enable them to become full partners in the science of astronomy.

Reprinted from Toronto Centre's *'Scope*

Events Calendar

- April 23 *International Astronomy Day*
- April 30–May 3 *Canadian Science Writers' Association Conference* Simon Fraser University, Vancouver, British Columbia.
- May 9–15 *Texas Star Party* Fort Davis, Texas.
- May 27–30 *Riverside Telescope Makers Convention* Big Bear, California.
- June 17–19 *XIVième Congrès de l'A.G.A.A.* L'Association des Groupes d'Astronomes Amateurs (A.G.A.A.) Quebec City, Quebec. S'adresser à: Jean-Mariè Frechette, 1054, rue d'Aubigny, Charlebourg, P.Q. G1H 1N1. (See page 20).
- June 25–July 3 *Joint Meeting of the Royal Astronomical Society of Canada, the Astronomical Society of the Pacific and the Western Amateur Astronomers* University of Victoria, Victoria, British Columbia. (See pages 29–30).
- June 29–July 4 *International Planetarium Society Conference* Richmond, Virginia.
- July 15 *18th Annual Syracuse Summer Seminar* Syracuse, New York. (See page 21).
- August 5–6 *Starfest '88* Mount Forest, Ontario. Contact: Andreas Gada, 16 Beaufield Avenue, Toronto, Ontario M4G 3R3.
- August 11–15 *Mount Kobau Star Party* Mount Kobau, British Columbia. Contact: Peter Kuzel, 4100 25th Avenue, Vernon, British Columbia V1T 1P4.
- August 12–15 *Nova East Star Party* Fundy National Park, Nova Scotia. Contact: Halifax Centre R.A.S.C., 1747 Summer Street, Halifax, Nova Scotia B3H 3A6.
- August 17 *Stellafane* Springfield, Vermont.
- August 19–21 *Alberta Star Party* Dinosaur Provincial Park, Alberta. Contact: George Moores, 2415-107th Street, Edmonton, Alberta T6J 5N4.

Red Stars

by Mel Rankin
Edmonton Centre

It all seems so long ago. The city had not yet floodlit my backyard with an unwarranted street light. My son was in junior high and was the observers in the family. We had recently acquired a Celestron 8-inch telescope and mothballed a seldom-used 3-inch refractor.

One night when he was observing he called out: "Come and look at this, Dad." I looked into the eyepiece and could hardly believe what I saw. It was a bright and magnificent crimson star. Now I knew stars had colours, some of which could be reddish. But this one was far beyond anything I had ever dreamed possible. A veritable jewel, a garnet, that filled me with wonder. It was a sight that I have never forgotten and ranks with those memorable impressions as the delicate blue-green of Uranus, the beauty of Saturn floating in the distant darkness, or the sight of mighty Jupiter so clear it could be drawn with a fine-nibbed pen. What I had seen was a particularly bright carbon star. Unfortunately, I did not note its location.

The spectral class of many carbon stars is "N". They are cool giants, well down the spectral classification list. Such a star is generally variable in its light output. As a giant star, it would be enormous, perhaps filling a sphere with a radius the distance of Mars from the sun. Contrary to what one might think, such stars are not red because they are cool. At temperatures of about 2,500 degrees Kelvin, they are a long way from the temperature of a red-hot poker. They are red because the shorter visible frequencies of light are filtered out by the star's atmosphere which is rich in carbon compounds. The starlight comes to us through a gaseous red filter.

The May 1982 issue of *Sky & Telescope* magazine contained a list of some well-known red stars as well as the reddest stars in *Sky Catalogue 2000.0*. I have observed a number of these but so far none of them has rivalled the first one. I plan to observe all of them and urge other RASC members to add variety to their observing programs. There is a lot more "up there" than Messier objects and of course, other carbon stars can be found in *Burnham's Celestial Handbook*.

	Well-Known Red Stars		
	R.A.	Dec.	
RLeporis	5h	-26	Hind's "Crimson Star"
Alpha Orionis	6h	+7	Betelgeuse
Y Canum Venaticorum	13h	+45	Secchi's "La Superba"
Alpha Scorpii	16h	-26	Antares
Mu Cephei	22h	+59	Herschel's "Garnet Star"
TX Piscium	24h	+3	19 Piscium

Reddest Stars in Sky Catalogue 2000.0			
U Camelopardalis	4h	+63	"Extraordinarily red"
W Orionis	5h	+1	
XCanceri	9h	+17	
RY Draconis	13h	+66	
T Lyris	19h	+37	"Intense"
V Aquilae	19h	-6	"Intense fire red"
RS Cygni	20h	+39	

Reprinted from Edmonton's *Stardust*