NEWSLETTER/BULLETIN

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

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1990
General
Assembly
Ottawa, Canada

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CELEBRATE THE
SOCIETY'S CENTENNIAL !

NEWSLETTER/BULLETIN

The *Newsletter/Bulletin* 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 the National Office at 136 Dupont Street, Toronto, Ontario M5R 1V2.

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Deadline for August issue is May 1.

Night Skies in Cyprus Hills Provincial Park

by Don Friesen
Saskatoon Centre

Cyprus Hills Provincial Park is located in the extreme south-western corner of Saskatchewan. Its elevation ranges from 1000 to 1200 metres above sea level. Large ranches which surround Cyprus Hills have left them virtually undisturbed for thousands of years.

One evening last January I drove from Saskatoon to Maple Creek, a town just beside Cyprus to visit my sister and view the skies. Here I experienced two days of dense fog and low clouds surrounding the hills with very mild temperatures ranging from –7 to 0 degrees Celsius. During the daylight hours I scouted an observation point approximately halfway to the Park entrance and slightly off the highway close to a dried up reservoir. There was little snow around anywhere with the exception being the higher elevations which of course contained the clear night skies. The area was light pollution free, and above the lower layer of clouds. I returned to town and prepared for the evening.

The sun set at about 5:45pm and I could pick out Jupiter in the blue sky. The colour of the planet's cloud belts were better than in dark sky conditions. An hour later the sky was

unbelievably dark – the darkest I have ever seen. There was a light wind from the west and the temperature was – 10 degrees Celsius. I viewed the Orion Nebula (M42) and saw more contrast than ever before. I could easily split the Trapezium into four component stars at 57 x and 20x. The star cluster M35 in Gemini was fantastic with more stars visible than I had ever seen before. The Andromeda Galaxy was easily seen with the unaided eye. Other fine celestial objects which I viewed included the Double Cluster in Perseus, the star clusters in Auriga and what I thought to be the space shuttle Columbia which was extremely bright and moving across the sky towards the south. At about 9pm I packed my equipment and left the Hills to return to Maple Creek.

Skies were clear back in town and from 9pm to 12:30am I viewed again from my sister's backyard. Here, on the edge of town and with 10 metre tall spruce trees blocking the town's light pollution, the skies remained extremely black. The galaxies M81 and M82 in Ursa Major stood out against the black sky and in the same field of view with a 25mm eyepiece on my 13cm rich-field telescope. It was awesome scanning the Milky Way between Orion and Leo and back up and down the rivers of stars. I could not help noticing how black the background sky was and I wished I had a camera with me. Many sights were easily seen without optical aid. A few dim constellations below Orion sparkled brightly. What had seemed to be a doomed stargazing vacation, with fog and bad weather, turned out great as seeing conditions were excellent.

I was not alone in the hills that evening. I met an R.C.M.P. officer while I was observing, told him who I was and that I was a R.A.S.C. member down from Saskatoon checking out the night sky. He was very interested and I showed him a few celestial wonders. It totally blew his mind. After some time he left me to resume my stargazing on Saskatchewan's highest elevated land area, the Cyprus Hills.

Events Calendar

April 21–29
International Astronomy Week

May 12 to 15
Annual Meeting of the Canadian Science Writers' Association, Quebec City, Quebec. For information write to: CSWA c/o Ontario Science Centre, 770 Don Mills Road, Don Mills, Ontario M3C 1T3.

May 20–28
Texas Star Party, Prude Ranch, Fort Davis, Texas. Contact: TRP Registrar, Dept. A, P.O. Box 386, Wylie, Texas 75098 USA.

June 29 to July 3
RASC General Assembly, Ottawa, Ontario. Hosted by the Ottawa Centre RASC. For information see elsewhere in this issue.

June 30
You and the Universe, Carleton University, Ottawa, Ontario. A public symposium sponsored by the Royal Astronomical Society of Canada. See February 1990 *Newsletter/* Bulletin page 13 for details.

July 13 to 18
The Astronomical Society of the Pacific will hold its first east-coast meeting in its 101-year history at Boston University, Boston, Massachusetts. For information write to: ASP., Meeting Information, 390 Ashton Avenue, San Francisco, CA 94112 USA.

July 16–24
Spaceweek '90. Annual event in the United States celebrating the anniversary of the Apollo 11 moon landing. This year's theme is "The Moon, Mars and Beyond: A Journey Into Tomorrow". Write to: Spaceweek National Headquarters, 1110 Nasa Road One, Suite 100, Houston, Texas, 77058 USA.

July 16–August 6
26th International Astronomical Youth Camp. Crnhi vri, Yugoslavia. For details see this issue.

July 20–22
20th Annual Syracuse Summer Seminar, Darling Hill Observatory, Vesper, New York. For information contact John Rusho, Box 19, RD 7, Fulton, New York 13069 USA.

July 24–28
First European Meeting of the American Association of Variable Star Observers (AAVSO), University of Brussels, Brussels, Belgium. For information and correspondence write to: Dr. John Percy, Erindale Campus, University of Toronto, Mississauga, Ontario, Canada L5L 1C6 or Fax (416) 828-5328.

July 27–28
Stellafane Amateur Telescope Makers' Convention, Springfield, Vermont. A "must" conference for every serious amateur to attend sometime during their career.

August 17–18
Starfest '90. Mount Forest, Ontario. Organized by the North York Astronomical Association and highly recommended.

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 ensure an accurate and up-to-date report on your activities. Deadline for the August issue is May 1.

HAMILTON: There has been much activity in recent months. We have had an increase in our membership which now stands at 80 and our new members are very enthusiastic and active. This is evident in the turnout that Ev Butterworth, the Centre's Observing Director, is having for her monthly observing nights. The speakers to date have been John Gauvreau, Ev Butterworth, Derek Baker and Garry Woodcock.

Solar observing is also alive and well. Just about every clear Sunday there is a group at the observatory doing solar drawings. Bert Rhebergen is the pioneer in this regard and his drawings are regular additions to the *Orbit* newsletter.

Congratulations to Bruce Collier who has received the Gordon Craig Award of the Hamilton Centre for a series of articles he wrote for *Orbit* on observing techniques and to Bert Rhebergen who has received the Fautley Award for his contributions to astronomy in the Centre. Bert has also earned just recently earned the Messier Award.

In other news, Pauline Wright, the Second Vice-President, has recently arranged for the production of Centre T-shirts and they are selling well, Mr. William Forde of Burlington has donated a 27cm f/5 reflector telescope with a considerable history to it to the Centre, and the Centre has purchased a photometer.

John Gauvreau and Derek Baker have designed a new advertising pamphlet to promote the Centre.

REGINA: Centre President, Roger Nelson, has taken over the editorship of *The Regina Astronomer* until a new editor can be appointed. The January issue contains an interesting summary ofthe use ofthe club's observatory from 1955 to 1989. For example, over the past five years, it has been in use on the average for 173 days, has had almost 200 hours of observing done at the site and has had 1100 visiters per year.

LONDON: The January issue of *Astronomy London* was highlighted by lists of "top 10" space program and astronomy stories of the 1980'as picked by Peter Jedicke. Also, acting as a futurist, Peter predicted what he thinks will be the "top 10" astronomy stories of the 1990's.

WINNIPEG: The Centre has organized a series of nine one-evening workshops for members during the winter and spring. Topics include astrophotography, computers in astronomy, and hands-on observing. Also the Centre is collaborating with the Manitoba Planetarium to present a seven-week course in practical astronomy.

CALGARY: Plans for an expedition to Mexico in 1991 for the solar eclipse are well-underway. Don Hladiuk, Centre President, and Bill Peters of the Alberta Science Centre are acting as co-ordinators. The membership have approved the spending of up to $12,000 for the purchase of a 36cm telescope for the Wilson Coulee Observatory. A speakers exchange with the Edmonton Centre is being planned for the spring. The 1990 Alberta Star Party may be held in late September to avoid clashing with the Mount Kobau Star in British Columbia in August.

SASKATOON: Jeff Phillips, editor of *Saskatoon Skies*, is planning a major format change for the newsletter. Richard Huzial has initaiated a new column in the January newsletter titled "Seeing Things" which will be used to promote observing. In the same issue, Allen Walker provides detailed building instructions for a fiber optics finder scope which he has built and used with some success.

OTTAWA: The Centre is planning a Centennial Astronomy Week for April 21 to 29 with a mall display and a star party. *Astronotes* Editor Doug George has changed the familiar newsletter cover which dated back to 1963 to a more modern and attractive design. The new cover appeared with the February issue which also contained a number of interesting articles on amateur observing.

VANCOUVER: Tim Novak and Hugh Dolden have stepped down from the team of editors producing the *Nova* newsletter. Mike Chutter is continuing on the editorial staff and has

been joined by former editor Ken Nelson. The Centre's March meeting was ajoint meeting with the Canadian Aeronautics and Space Institute and the Annual Dinner was also held in March. Plans for Centre activities during Astronomy Week in April were put on hold by a lack of members willing to participate.

EDMONTON: George Moores has succeeded Michael Noble as Centre President. In his first president's message to the centre in the *Stardust* newsletter, George announced plans for an Astronomy Star Night at the Edmonton Space Sciences Centre in early April.

TORONTO: The January/February *Scope* newsletter contained an eight-page new members resource pamphlet prepared by Paul Fjeld. Darnley Wright has been busying organizing a regular series of shopping mall displays with three day events at each of two different malls in February and April. John Ginder has been busy organizing Astronomy Week in April and has set up a series of public star parties, a solar observing session, and co-operative programs with the Ontario Science Centre, the McLaughlin Planetarium and the departments of astronomy of the University of Toronto and York University. A promotional package has been written and a major media blitz is planned. On an experimental basis for four months the Centre is renting its own telephone "hot-line" to advise members and the public of its many activities.

VICTORIA: Jack Newton, well-known astrophotographer and current Centre President, was featured in an interview by Centre member Don Moffatt in an article in the March 1990 *Sky & Telescope*. The Centre's new observatory will be named the Robert Evans Observatory in honour of the individual who left an endowment to the Centre which allowed it to build its 20-inch Evans-Van der Byl telescope and the new observatory building. A biography of Mr. Evans appeared in the February *Skynews* newsletter.

HALIFAX: In November, several members went to Antigonish to give some talks to the astronomy club based there. The Centre is also going to try to encourage the formation of a club in Truro. A new invoicing system was set up for membership renewals for this year and by December, membership for 1990 had already reached 130 paid members. Congratulations to Mary Lou Whitehorne who is the new Centre president for 1990.

MONTREAL: Mario Caluori has announced several projects for the Centre in 1990. These include: the Library will be upgraded, new books purchased, and then regular yearly purchases made to maintain it in an up-to-date state; new equipment for the computer; comfortable chairs for the meeting room; and renovation of the observatory dome. To support this annual fees will rise to $40.00 per year for regular members and $25.00 for youth members. Searchlights on top of the giant shopping and business complex at Place Ville Marie are interfering with the operation of the observatory and Paul Biro is negotiating with the owners of the searchlight for it to be switched off at specific times. Louie Bernstein reports that both the Montreal Centre and the Sociétié d'astronomie du Montréal will be celebrating Astronomy Week at the Dow Planetarium. Louie also reports the creation of a serious observer's group in the Centre. It will meet on the first Wednesday of every month.

NIAGARA: Ron Gasbarini succeeded John Dekker as Centre President at the January Annual Meeting. Greg Saxon, editor of *The Niagara Whirlpool*, is including photographs of the Sun he has taken from his Loyalist Drive Solar Observatory in the newsletter.

1990 RASC General Assembly

June 29 to July 3, 1990

A final reminder – the 1990 General Assembly will be held in Ottawa over the July 1 Canada Day long weekend. Information on presenting papers, the informal slide show and display competition can be found in the February 1990 *Newsletter*. For registration material, see your Centre secretary or write to:

1990 RASC General Assembly, 191 Wilshire Avenue, Ottawa, Ontario K2C 0E6.

Schedule of Activities

Friday June 29

- National Council Meeting
- East vs. West Softball Game
- Informal Slide Show
- Indian River Observatory Open House
- Observing at Carleton University Observatory

Saturday June 30

- You and the Universe Symposium
  (for details see February 1990 *Newsletter*)
- Helen Sawyer Hogg Lecture
- RASC Reception with wine and cheese

Sunday July 1

- Paper Sessions
- Group Photo
- BBQ Dinner
- Canada Day Activities
- Indian River Observatory Open House

Monday July 2

- Tour of Ottawa River Solar Observatory
- Annual General Meeting of the RASC
- National Council Meeting
- General Assembly Banquet

Tuesday July 3

- Tour of the Museum of Civilization including an OMNIMAX show in Cineplus Theatre

Transportation Notes

Ottawa has excellent air connections with all major Canadian cities. The Ottawa Centre is planning to provide transportation from the airport to the university. Carleton University is located at about a 10 minute drive from the airport.

Letters to the Editor

2001: The Beginning of a New Decade

It may be a moot point since the following misconception is too entrenched in today's society, and while I do not wish to lessen the significance of any New-Decade babies, decade-in-review news specials, or even various blow-out-ofthe decade consumerisms, but technically we still have a year (1990) left to go in the present decade.

Our current century technically started on January 1, 1901 and not 1900 as most people interpret. This, as every astronomer will point out, is due to the fact that in the chronological reckoning (that the entire world uses) there is no year "0"! The only way the accepted notion that the decades and centuries start with years ending in "0" is technically correct is if somewhere along the line we all adopt to numerically drop a year, or shift the starting point back one year (and we had a tough time back in 1582 when we shifted only 10 days in our calendars during the Gregorian reform of the calendar!).

I quote exactly from the *Explanatory Supplement to the Astronomical Ephemeris* and the *American Ephemeris and Nautical Almanac* published jointly by the Nautical Almanac Offices of the United States and the United Kingdom and available in most major libraries.

"The Christian era for chronological reckoning of the years was first used by the Roman abbot Dionysius Exiguus, to designate the years in a table for determining the date of Easter that he prepared as a continuation of a previous table in which the years had been designated according to the era of Diocletian. In extending the table, he adopted 248 Diocletian era = A.D. 532. The year in which he prepared the table was six years before this, or AD. 525, but how he determined the correspondence is unknown. His method for designating the years was adopted by others and through increasing use during the next few centuries it became established in western Europe as a chronological era.

In this system, the Christian era begins with year A.D. 1; the immediately preceding year is designated 1 B.C. There is no year 0 in the chronological reckoning. For astronomical purposes, the year immediately preceding A.D. 1 is designated 0; the other years B .C. are denoted by negative numbers, each numerically one less than the designation in historical reckoning. In the astronomical system the year preceding 0 is -1, and corresponds to 2 B.C. The year 0 was a leap year.

The first century of the Christian era ended with December 31, AD. 100, when the first one hundred years A.D. 1 to AD. 100, inclusive, had been completed. Likewise, the nineteenth century ended with 1900 December 31; the twentieth century began with 1901 January 1, and the first half of the century ended with 1950 December 31."

This means that (correctly) this century will end December 31, 2000, and not December 31, 1999 as most people would assume! January 1, 2001 will be the start of the next new dccade, new century, and new millennium – something well-known author Arthur C. Clarke symbolically considered when he wrote his most famous novel nearly everyone is familiar with.

James T. Himer
President
Calgary Centre RASC
Calgary, Alberta

Alberta Star Party 1989

On behalf of myself and the membership of the Lethbridge Astronomy Society, I would like to thank you for the inclusion of our Alberta Star Party 1989 Report in the December issue of the *Newsletter*. Your genuine interest in all Canadian astronomy groups, both large and small, is to be commended and we thank you, your staff, and the RASC for allowing us to share our experience with your readers.

Rick Ponomar
Lethbridge Astronomy Society
Lethbridge Alberta

Saguaro Astronomy Club Database

The response to the Saguaro Astronomy club database (see *Newsletter* August 1989) was almost overwhelming! Bryce Heartwell in Calgary has offered to distribute the Mac version and an announcement would be appropriate in the *Newsletter*.

The Saguaro Astronomy Club database of over 10,000 deep-sky objects is now available for the Macintosh.

Bryce Heartwell has graciously accepted the task of distributing the Mac version in Canada. The database is "free" as long as you supply the required disks, return postage, and mailer. When uncompressed, the database takes up almost four Megabytes, so a hard disk drive is most useful.

There are two formats available:

1. An SYLK format which can be read by Filemaker II, Microsoft Excel, etc. Please send four (4) 800K formatted disks.
2. In TEXT format, which can be read by the above programs as well as Microsoft Works. Send two (2) 800K formatted disks.

Requests with postage, disks and mailer should be sent to:
Bryce Heartwell, 1140 105 Avenue, Calgary, Alberta T2W 0B1.

Alister Ling
Mississauga, Ontario

"Canada's Stargazers"

The movie *Canada's Stargazers: From Louisbourg to Supernova Shelton* was introduced at the 1988 General Assembly in Victoria and was seen in video form at the 1989 General Assembly in Sydney. It features historical re-creations, a night's activity at Las Campanas Observatory in Chile and the story of Supernova 1987a in Ian Shelton's own words.

Many people have asked about the availability of this film. Steve Dodson of Science North in Sudbury reports that although this was a Science North production, inquiries should be directed to the film's distributor at the following address: McNabb & Connolly, 49 Davisville Drive, Willowdale, Ontario M2P 1J2 (416) 226-3060.

Observer's Cage

by David H. Levy

By the time you read this, the mighty Comet Austin will be in the midst of its performance. In early February the comet is brightening steadily and looking very promising as it prepares to greet the earth in April. Discovered during the evening of December 6 by Rodney R.D. Austin of New Zealand, the eleventh magnitude comet was lurking in the far-southern constellation of Tucana.

Current indications are that Comet Austin might be making its first visit to the inner solar system. If this is indeed the case, the comet could behave like Comet Kohoutek did in 1974 – its early promising indications of brightness were not fulfilled as the burn off of materials stopped as the comet approached near the Sun. I remember an editorial in the *Montreal Gazette* that lamented the comet's performance: The "comet of the century," the paper worried, might just slip by without being seen!

Actually, Comet Kohoutek was not a disappointment at all. It was extensively observed by the Skylab astronauts and by many astronomers from ground-based facilities. The long waiting period had resulted in an unusually high degree of preparation and the comet produced a science bonanza. Only two years later, Comet West produced a fabulous morning show. Whether Comet Austin's performance will be closer to that of Kohoutek or that of West, it will still be fun to watch. And as you read this, you will already know the answer!

Comet Austin is one of the many comets to be found in 1989. Comets are assigned letters of the alphabet as they are reported and the list went clear through the alphabet and stopped at 1989hi, a total of 34 comets discovered or recovered during the year. This is the second greatest year as far as numbers of comets are concerned while 1987 was the most prolific with 35 comets observed. Although the year's tally ended with 1987g_1, two sungrazing comets discovered by the Solar Maximum Mission satellite were announced later.

• As you enjoy Comet Austin, other comets will surely be making their way towards us as well. I hope that you let this marvellous visitor inspire you to take a look at some of these other comets too. Each will be different, special, and individual. May each one provide you with many hours of good observing.

Nouvelles du Québec

par Marc A. Gélinas
Rédacteur pour les Centres français

Adélard Rousseau (1910–1990)

Monsieur Adélard Rousseau est décédé à Montréal, le 8 janvier dernier, à la suite d'une longue maladie. Astronome amateur depuis plus de 60 ans, il était renommé pour la fabrication de telescope de grande qualité. Devenu membre du centre de Montréal en 1952, après avoir assisté une conference de Delisle Garneau, il apprendra à fabriquer des telescopes. Participant régulièrement à Stellafane au Vermont, il remporta le prix du meilleur télescope dioptrique en 1970. En 1977, toujours à Stellafane, il partagea avec Henri Coïa le prix du meilleur télescope cassegrain. En 1980 il obtînt une mention en mécanique.

Au cours des ans Adélard Rousseau a construit de ses mains des miroirs, trépieds, têtes équatoriales, engrenages, oculaires etc, qui feront encore longtemps la fierté de leurs

propriétaires. Si vous êtes parmi les heureux possesseurs d'une pièce fabriquée par Adélard Rousseau, sachez que M. Real Manseau, lui méme artisan renommé, en dresse présentement une liste et serait heureux de pouvoir répertorier votre pièce. Si ce n'est pas trop vous demander, faites lui parvenir une description de l'objet par l'entremise du Québec-Astronomique, C.P. 1000 succ.M, 4545 Pierre de Coubertin, Montréal, Qc, H1V 3R2.

A MONTRÉAL:

Les conférences du premier mardi du mois continuent d'être le plus beau fleuron des réunions de La Société d'Astronomie de Montréal. Enjanvierle conférencier invité fut le Dr Claude Carnigan de l'Universit de Montréal et le titre de sa conférence était: "Toute la lumière sur a matière non-lumineuse". Le Dr Carnigan est bien placé pour parler de matière non lumineuse, en effet ses recherches se font surtout dans le domaine de la radio astronomie. En février se fut au tour du Dr. Serge Demers de presenter la conférences de la SAM, et un hôte toujours grandement apprécié. En fevriér le titre de sa conference était: "Nos voisins, les nuages de Magellan".

En parlant des conférences de la SAM, le *Newsletter/Bulletin* de décembre 1989 faisait état de la conference donné par le Dr Daniel Nadeau en octobre 1989, et dont le sujet traitait de l'effet d'une lentille gravitationnelle sur un certain quasar. La revue d'une *Sky & Telescope* de février 1990 rapportait en page 127, les travaux du Dr. Nadeau et de ses collègues sur ce sujet. La conclusion tirée par le Dr Nadeau et ses collègues, qu'une planète énorme (mais une planète tout de même) a été détectée, est très importante. En effet malgré ce qu'on pense souvent dans le public , il n'y a pas de détection de planète hors du système solaire qui soit acceptée a l'unanimité par la communauté astronomique. Ainsi la place d'honneur d'être le, ou les, premier(s) a faire cette découverte reste libre.

A QUÉBEC:

Du coté du Centre de Québec les activités vont aussi bon train. Jean-Marie Fréchette nous rapporte une conference donnée par Johnny Gauvin qui fut un franc succès. Monsieur Gauvin, de l'Université Laval, a traité du: "Commencement de l'univers". Un sujet qui fascine toujours autant les astronomes et les philosophes que le grand public.

A Québec ont voit se développer depuis deja plusieurs mois, un groupe d'observateurs féroces du ciel. Sous l'impulsion de messieurs Martel et Vallière un petit groupe s'est formé et tient des réunions en commun. Avec entre autres, la venu de la comète Austin ($1989c_1$), ce groupe devrait avoir des rapports d'observations intéressants à publier au cours des prochains mois, restons sur le qui vive...!

LE PLANÉTARIUM DOW DE MONTRÉAL:

Le Planétarium organise une journée grand public sur le thème du Soleil. Le samedi 31 mars le Planetarium a invité les clubs d'amateurs de la région de Montréal a venir exposer travaux et instruments en rapport avec le Soleil. Cette journée se déroulera alors que le spectacle intitulé: "Les colères du Soleil" est à l'affiche. Le thème est bien choisi, depuis plus d'un an le Soleil est très actif, les taches solaires nombreuses ont eu plusieurs éruptions. Plusieurs spectacles d'aurores boréales sont apparus dans le ciel de Montréal. Out le monde souvient encore de la panne du 13 mars 1989 qui a privée la province d'lectricité. Une tempête magnétique intense avait alors induit une surcharge sur les lignes à haute tension d'Hydro-Québec. Brûlant, relais après relais sur le réseau, la surcharge avait générée une panne à travers la province. Cette nuit là par contre, le ciel était illuminé par les plus belles aurores borales de la décennie.

L'ANNUAIRE ASTRONOMIQUE 1990:

L'Annuaire Astronomique de 1990 a été scruté de près depuis sa publication, ceci dans le but de corriger les "bugs" pouvant affecter l'edition 1991 . Un addenda a été publier déjà dans "L'Astro-notes" de février dernier, cependant un addenda à cette addenda est maintenant nécessaire.

Oublier la correction de 2,2 jours au jours juliens, qui y est mentionée, il n'y a pas d'erreur dans l'Annuaire. Par ailleurs, aux sections de Mercure, Venus et mars, la phase "d" des tableaux est en fait l'angle de phase. C'est l'angle que font le Soleil et la Terre vus de la planète. L'amateur préfère connaître la phase d'illumination plutôt que l'angle de phase. Pour convertir l'angle de phase en pourcentage d'illumination, on doit utiliser la formule suivante

$$K = 100 \times [1 + \cos(d)] / 2$$

«K» est Ia proportion d'illumination du disque et «d» l'angle de phase de la table. Quant aux autres corrections, les proprietaires d'Annuaires n'ayant pas eu copie de l'addenda et qui en désirent une, sont priés de communiquer avec le secrétariat de la SAM. De plus tous les commentaires et relevés d'erreurs sont les bienvenus.

LA RECHERCHE ASTRONOMIQUE:

La Recherche Astronomique, c 'est le nom d'une nouvelle publication de style bulletin de liaison, qui est publi par un groupe d'astronomes amateurs du Québec. Cette mini-revue veut publier quatre fois l'an, des rapports de travaux effectués par des astronomes amateurs canadiends. C'est donc quelque chose qui s'adresse à un public averti d'astronomes amateurs. Pour en connaitre plus, on pourra écrire a Guy Constantineau, 74 Dufferin, Laval, Qc, H7L 2K2.

Bon ciel à tous.

International Astronomy Youth Camp

July 16-August 6, 1990
Cmi vrh, Yugoslavia

The IAYC, an international youth camp with participants from 12 different countries, has been operating for 21 years. For three weeks you can work in one of nine working groups on astronomical projects. Each working group will be led by experienced amateur astronomers from the IAYC team.

For the 1990 Camp the following themes are offered: Astrophysics, Deep Sky Observation, Evolution, Meteors, Practical Astronomy, Solar System, Spectroscopy, the Sun and Variables. Apart from the astronomical program there are a wide number of non-astronomical activities planned.

The location for the 1990 Camp is Cmi vrh, a small village in the north of Yugoslavia, 50 km west of Ljubljana. The accomodation will be in a hotel and a nearby empty school will be used by the working groups.

Everyone from 16 to 24 years who is able to communicate in english can participate. The fee including accomodation, full board and program is DM 670,-.

For further information write to: IWA e.V. c/o Uwe Reimann, Ferdinand-Beit-Str. 7, D-2000 Hamburg 1, Federal Republic of Germany.

Sundial Society in Formation

by J.E. Kennedy
Saskatoon Centre

The December 1989 *Newsletter* of the Royal Astronomical Society, London, carries an announcement of the formation of the British Sundial Society, with the inaugural meeting scheduled for March 1990.
The objectives of the Society are:

(a) to promote the science of gnomonics and the knowledge of all types of sundial;
(b) to catalogue the dials which still exist in the British Isles and research their history;
(c) to advise on the preservation and restoration of old sundials and the construction of new ones; and
(d) to publish and circulate to members periodically a Bulletin or Journal containing original articles , reports from other societies , news and other items of interest to members.

The sundial is "a device for keeping time by the shadow a marker (gnomon) casts in sunlight" (Abell 1982). In *The Beginning of the Long Dash: a history of timekeeping in Canada*, Malcolm Thomson stated that the sundial was the "most common of astronomical instruments." These early clocks may still be found at many locations across Canada and research into their history should be rewarding. In the 20th century, the sundial has become a decorative appendage to a building or an interesting curio mounted on a pedestal in the garden but seldom used for checking the accuracy of the time shown by your digital watch or electric clock. Time is measured with high precision at atomic clocks and disseminated to us daily by radio signals.

During the 19th century, as settlement spread across the plains of western Canada, there were no clocks in many of the new localities. Time was measured by a sundial and disseminated by the electric telegraph. As reported in *Historic Battleford through the years 1875–1955*, the following development filled an essential need:

"Clocks were non existent in Battleford in 1879, but a Civil Engineer named Wilkins provided the combined post office and telegraph office with an excellent substitute.

He made a sun dial with four arms so graduated that each three a shadow on the other, thus indicating the time at intervals of five minutes.

Not only was the ingenious device of use to Battleford, but the operator at the telegraph office was able to give the time to various points along the telegraph line."

The objectives of the British Sundial Society are highly commendable. Historians of astronomy in Canada would welcome a renewed interest in and research on these early instruments for the measurement of time, forming as they do an important part of our heritage.

Exploration of the Universe by George O. Abell, Saunders College Publishing, New York, N.Y., 4th edition 1982.
The Beginning of the Long Dash: a history of timekeeping in Canada by Malcolm M. Thomson, University of Toronto Press, 1978.
Historic Battleford Through the Years 1875 –1955 by C. Wetton.

Preparing for the Future

by Dr. Lloyd A. Higgs
National President RASC

The Royal Astronomical Society of Canada, one of the older astronomical societies in the world, is celebrating its centennial this year. We are a strong, dynamic organization, with a proud tradition of promoting public interest in the science of astronomy, and I am sure that our Society will continue in this role for years to come. To mark our centennial, and to provide a solid foundation for new endeavours in this direction, we founded last year a "Centennial Fund". The monies in this fund will be used to finance exciting new projects that the Society hopes to undertake in the area of public information, at both the national and Centre level. One such project that the Society is seriously considering is a scaled-down version of the *Observer's Handbook*, directed towards youth groups.

The Society also maintains an Endowment Fund, the income from which is used to foster the long-term growth of the Society, including the twenty-two Centres. These monies are used from time to time to upgrade equipment in the national office, for assistance to Centres in the form of loans or through special project grants, and to support the growth of membership, for example.

Last year we started a fund-raising campaign to supplement the Endowment Fund, to create the Centennial Fund, and to encourage financial donations to designated Centres, in order that our Society can move into its second century with confidence. The response was gratifying as the following list of 1989 donors indicates. We intend to continue this campaign for at least another year, and I would encourage you all to consider supporting our Society with a donation in 1990.

Donors in 1989 (prior to October 1)

Centennial Fund (total donations = $2207)

J.A. Anderer •
R. Auclair
M.S. Burland
A.E. Covington
M. Dyson
M.H. Francis
J.A. Galt
M.W. Grey
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Endowment Fund (total donations = $1235)

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K. Miller
P. Millman
A. Nesbitt
H. Van Asperen
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Donations to Designated Centres (through National Office, total = $340.00)

G.W. Anderson
R.V. Anderson
J. DeKonick
R. Graham
S.A. Lark
G.R. Lindsey
L. Planta
L .A. Pragnell
R. Sampson
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RadioAstron: The World's Largest Radio Telescope

The National Research Council's Dominion Radio Astrophysical Observatory (DRAO) in Penticton, British Columbia has begun work on the design and construction of highly specialized computer equipment for the revolutionary new radio telescope, RadioAstron, being developed by the USSR. The Soviet Academy of Sciences plans to launch a 10-m radio antenna into space which, when linked with other large ground-based radio antennas, will create the world's largest radio telescope. The antenna will be ready for launch within the next six years.

Under an agreement to be signed between the Government of Canada and the Academy of Sciences of the USSR, DRAO will provide the USSR with the digital correlators needed to compare and combine the signals from the orbiting space antenna with those from ground-based antennas. The signals from each individual antenna will be recorded on magnetic tape, using special recorders developed by the Institute for Space and Terrestrial Science (ISTS) at York University in Toronto.

As part of the agreement, negotiated by the Canadian Space Agency, one of the two signal processing centres needed to analyze the data from RadioAstron will be located in Canada, giving Canadian scientists access to the data collected by this new radio telescope.

Scientists believe that the radio images produced by a telescope of this design will reveal previously undetected details of quasars, pulsars, and many other enigmatic celestial objects.

The technique of producing radio images of astronomical objects by combining the signals from two or more radio antennas at widely separated locations – known as Very Long Baseline Interferometry (VLBI) – was pioneered in Canada when signals from the 46-m radio telescope at the Algonquin Radio Observatory in Ontario were combined with those from the 26-m telescope at DRAO in Penticton.

The technique produces high-resolution images of objects which naturally emit radio waves. It is the maximum spacing between the radio antennas that determines the detail of the images. The further apart the antennas are, the finer the detail that can be seen.

The Institute of Space Research of the Soviet Academy of Sciences will take a pioneering step in radio astronomy by launching the 10-m radio antenna into space, and combining the signals it receives with those from ground-based antennas. The maximum distance between antennas will be 6 to 7 times greater than any attainable on Earth, creating the world's highest resolution radio telescope.

The signals from each antenna will be recorded on magnetic tape using the ISTS recorders, and the tapes will then be flown to one of the two signal processing centres. Using the DRAO correlators, the signals will be compared and combined to produce high resolution radio images.

According to NRC's Dr. Peter Dewdney, developing the computer technology to process the signals from the various antennas poses several technical challenges . "Not only is this the longest baseline ever attempted" explains Dewdney, "but the orbiting antenna will be moving quite quickly relative to Earth. Our equipment must constantly compensate for the speed and changing distances."

The fact that Canada will have one of the signal processing centres is important to Canadian astronomy because, says Dewdney, "That's where the science will really be happening."

The National Research Council, Canada's leading science and technology agency, develops knowledge through its own basic and directed research programs. NRC also provides a wide range of services, facilities, technology transfer programs and collaborative research opportunities to help Canadian industry maintain its high standards of excellence and international competiveness.

Press Release from National Research Council Canada

Looking for a Penpal

by Alister Ling

Are you interested in communicating with amateur astronomers from around the world? The problem is that one never knows how far-reaching a notice in a popular astronomy magazine goes. What if you want to correspond with someone who enjoys the same thrill you have in your chosen observational field and is not just interested in science fiction and space exploration.

Christian Legrand, a French amateur, has chosen to solve this problem with the aid of a penpal database on a computer which he will use to find the right person for you. In a similar vein to a match-making service he has a quick questionnaire which asks about the vital statistics, astronomy equipment and interests of the inquirer.

There are over 34 categories to choose from in order to find a best match, ranging from general astronomy, through observation of lunar, planetary, and deep sky fields, their sub-categories (such as variable stars or nova) and the photography of celestial objects. There are even slots for telescope making, club organization, astronomy history, and artificial satellites.

Finally, you can specify within limits who you would like to correspond with: country of origin, spoken language, age category, sex, marital status and what you would like to write about. If after two months a suitable candidate has not been found, your fee of 40 French francs (about $7.50 CDN) will be returned. At first, this fee may seem a bit high but if you consider that you can be assured of reaching into the European continent, it is well worth it.

Long distance relationships can endure over many years, bring people together, and create contacts for international visits. Share your interest and fascination of astronomy with a new friend. To get started, write to Christian Legrand, 260 Route de la Bellevue, 76160 Preaux, France.