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The Royal Astronomical Society of Canada

BULLETIN

La Société Royale d'Astronomie du Canada

Important survey enclosed!

Preamble to the Membership Survey

Glenn Hawley
Membership Survey Committee Chair

The survey that you are being asked to fill out is of great importance to the future of your society. Its results will guide the National Council and the Long Range Planning Committee in making decisions, not only on a number of controversial issues, but also on aspects of the day to day operation of the R.A.S.C.

We would like you to answer as many questions as possible, but if you feel you must leave out some of them, we will be happy to accept your responses to the rest. We hope to receive all replies by June 22nd, but will continue to accept late ones. Remember, however, that if you don't send in anything at all, then you cannot justifiably complain later when the council acts on the basis of everyone else's ideas.

Your name is NOT to appear on the survey, and all individual data will be held in strictest confidence, although the combined statistical results will be discussed within the R.A.S.C., and some may be published in the **BULLETIN** and/or the *Journal*. Your responses, and any comments you may add, are strictly anonymous. Your honest appraisal of the more controversial items is particularly important to the society. Feel free to use a separate sheet to add further comments if you run out of room. ✪

My Third Editorial

As you have undoubtedly noticed several changes to the first two issues of 1992, I had thought that I might comment on them, as well as a few other things that were on my mind. These changes involve the banner and the masthead. Regarding the banner, I have moved the text regarding the *Journal* to the masthead and made the names of the society a bit more prominent by putting them on either side of the **"BULLETIN"**. The major change, however, has been to the graphic image.

When I first came up with the new format for the **BULLETIN**, I wasn't exactly sure what to put on the front cover. Eventually, I decided that a skyline with an astronomical object in the sky would be rather appropriate. However, as the deadline for getting the first issue to the press neared, I realized that there were still too many things to do and too little time left to do them in. As a result, one of my co-workers (and fellow R.A.S.C. member) Doug Pitcairn, volunteered to do the graphic. "What do you want?", he asked. "I don't know, just a city skyline with a meteor trailing across the sky." I replied.

About ten minutes later, there were chuckling sounds coming from Doug's desk. Upon investigation, I found that the source of his amusement was that, as he really only knew of one skyline, that of Halifax, that was what he was drawing! So, as an "inside joke", the first volume of the new **BULLETIN** sported a Halifax skyline, complete from the Citadel Hill and Old Town Clock on the left, to the clock tower of the Sheraton Hotel on the far right. Oddly enough, no one (including a lot of Halifax members) seemed to notice! About halfway through the year, I decided that it might be interesting to change the graphic annually and depict the city that would be hosting that year's G.A. Thus, I wrote off to the Calgary Centre asking them to send me several postcards of their city and, no, I would not tell them why I wanted them but I was sure that they would be pleased if they knew. Thus, thanks again to Doug, the Saddledome and Husky Tower will be gracing this year's issues.

The other major change was to the masthead. I found that the "updated" crest that was used in this year's handbook was sufficiently high quality that it would reproduce clearly. However, due to the crest's size, as well as the transfer of the "Supplement to *Journal*" notice, the masthead had become so long that it made it rather awkward to get a pleasing layout for the second page. My solution was to make it horizontal as can be seen in this issue.

You will also note that the long-awaited membership survey is enclosed. PLEASE DO NOT SEND IN PHOTOCOPIES. However, feel free to make a copy for personal use if you wish.

It seemed to me that since one of the main goals of the membership survey is to get peo-

(continued on page 5)

BULLETIN

is a publication of the Royal Astronomical Society of Canada and is distributed together with the society's Journal. It contains articles on current activities of the R.A.S.C. and its centres across Canada, as well as articles from members and non-members which are of general interest to members of the Society. Manuscripts (in English or French) should be submitted to the Editor at the address below. Inquiries about the Society should be directed to its National Office at 136 Dupont Street, Toronto, Ontario, Canada M5R 1V2.

Supplement to the *Journal*
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Letters to the Editor

Correction

In the February issue, the "Across the R.A.S.C." item from Victoria should actually have been from Vancouver. My apologies for any confusion that resulted.

The Editor

Mirrors Wanted

I am your regular member for last thirty years. With great hopes I am writing this letter to you. I am seriously working on the "Wilson Effect" with my 2" refractor (with proper filter) through solar observations since last twenty years and I am on the verge of solving its mystery. It will be a great achievement.

I am badly in need of an 8" f/6 reflector to achieve discovery. I will be highly obliged if you will kindly donate me the following parts. I shall get the assembly done here. 1) 8" (200 mm) f/6 mirror and optical flat of one eight wave accuracy. 2) Two suitable eyepieces.

Awaiting for your favourable action and reply, with kind regards.

Sudhakar Bhalerao
"SUDHANSHU", Dr. Bhabha Nagar
New Bombay Agra Road
Nashik - 422 001 India

What Goes Around Comes Around?

I am afraid Mr. Yurchesyn's article on "Auroræ and the Power System" was not fully vetted before publication. On the other hand, maybe Mr. Yurchesyn, in common with other Easterners, really believes that the Sun rises in the west - the new Canada emerging!

In Figure 1 of the article, the label "direction of rotation" shows a clockwise rotation of the Earth looking down at the North Pole! If rotation of the field lines is meant, surely these also rotate *with* the Earth itself. Of course, the diagram would make sense if the North *Celestial* Pole were meant. Then we would be looking from the south upwards and astronomers would be vindicated.

Secondly, it is stated, very simply, that "...the positive and negative particles of the solar wind are separated, etc.". This is really a crucial part of the whole business, yet Mr. Yurchesyn makes no attempt to explain *why* this happens. It would help if this were to be clarified in a future article.

Roger G. Napier
Thetis Island, British Columbia V0R 2Y0

[Editor's Note: Before submitting the final diagram, he flipped the label and arrow from the left side of the figure to the right side and did not realize that this would reverse the Earth's rotational direction!.

Mr. Yurchesyn recently gave a talk to the Halifax Centre on this subject. During his presentation he ***did*** *explain how the negative and positive charges were separated. In the words of one of my physics professors, "It is non-trivial".]*

An Ounce of Prevention...

I read with interest Joe Yurchesyn's article "Aurorae and the Power System" in December's Bulletin. I thought other readers may be interested to hear that the 1989 blackout had been predicted quite a few years ago by a University of Alberta physicist. His advice to Hydro Quebec to protect against very strong power surges was dismissed. Hydro was well aware of the effects of aurorae. Apparently the system was designed to handle the peaks in the solar cycle, but not of the strength of the 1957 cycle. Hydro ignored the physicist's assertion that bursts of that intensity would happen again.

Alister Ling
13327 116 Avenue, Edmonton, Alberta T5M 3E4

Life, the Universe and Everything?

I wish to recommend to everyone the book "The Universe of Motion", by Dewey B. Larson, 1984, North Pacific Publishers, (P.O. Box 13255,

(continued on page 8)

Event Horizon

June 20-25
104th Annual Meeting of the Astronomical Society of the Pacific
University of Wisconsin, Madison, Wisconsin
Includes a two day astronomical exposition and fair "The Universe on Display" from June 20th-21st

July 2-5
1992 General Assembly
Calgary, Alberta
Contact: Calgary Centre, R.A.S.C., c/o Centennial Planetarium, P.O. Box 2100, Calgary, Alberta T2P 2M5

July 24-26
22nd Annual "Summer Seminar"
Darling Hill Observatory, Vesper, New York
Guest Speaker: Dr. Philip Nicholson - "The Discovery of Planetary Systems Around Pulsars"
Contact: Sue Regalis, 601 Bear Street, Syracuse, New York 13208-1101

August 28-29
Starfest '92
The River Place Campground, Mount Forest, Ontario
Contact: Andreas Gada, 26 Chryessa Avenue, Toronto, Ontario M6N 4T5

September 18-21
MEPCO '92
Meeting of European (and International) Planetary and Cometary Observers '92
Violau, Bavaria, Germany
Contact: Wolfgang Meyer, Martinstr. 1, D-(W)1000 Berlin 41 , Germany ✪

I am here to support the assertion that light of every kind is itself an electrical phenomenon – the light of the sun, the light of a candle, the light of a glowworm.

Heinrich Rudolf Hertz
German Physicist (1857-1894)

Items of Interest

StarBriefs

A new dictionary containing 45,000 astronomical acronyms and abbreviations has been published. The list also covers items from a wide variety of other disciplines (e.g. computer sciences, geophysics, optics, remote sensing) that are frequently used by astronomers. The travelling astronomer has not been forgotten either as the list includes codes for airlines, airports, currencies, etc.

The price is US $50 (include an additional 15% for airmail) and can be ordered from: Dr. A Heck, Observatoire Astronomique, 11 rue de l'Université, F-67000 Strasbourg, France.

Women in Astronomy

This year's first issue of *Mercury* magazine (published by the Astronomical Society of the Pacific) is devoted to the topic of women in astronomy. The issue includes an historical background on women in astronomy from the 1700's to today (with a wonderful collection of archival photographs), reminiscences by astronomers Dorrit Hoffleit and Ann Boesgaard, an interview with Vera Rubin, who pioneered our modern understanding of dark matter in the cosmos. There are also discussions of professional and family issues for women scientists by astronomers from around the U.S., a report on women in astronomy in other countries, practical advice for young women considering an astronomical career and a bibliography.

Copies are $US 5.00, which includes handling and postage, (US $7.00 outside of the U.S.) and may be obtained from: Mercury Issue Orders, A.S.P., 390 Ashton Avenue, San Francisco, California 94112.

Attention Astronomy Educators

The Association of Astronomy Educators is launching a major drive to sign up new members. Founded in 1977, it is dedicated to improving astronomy education at all levels. The A.A.E. encourages the development and exchange of information about effective curricula, materials and facilities as a means of enhancing the teaching of astronomy. The A.A.E is affiliated with the National Science Teachers Association and hold its annual meeting in conjunction with the N.S.T.A.'s spring meeting.

Membership is US $12.00 ($13.50 in Canada and $14.50 for elsewhere) and includes a newsletter and periodic special publications. Memberships should be sent to: Chaz Hafey, A.A.E. Membership, Science Museum of Virginia, 2500 West Broad Street, Richmond, Virginia 23220, U.S.A. ✪

Albéric Boivin 1919-1991

Un de nos membres de longue date au Centre de Québec, le Dr. Albéric Boivin, est décédé le 8 août 1991 apres quelques moins de maladie. Professeur et chercheur émérite de la Faculté des Sciences et de Génie au département de physique de l'Université Laval, la disparation de ce pionnier met fin à l'une des carrères scientifiques les plus briliantes et fécondes qu' ait connu le Canada français. Il s'est entre autres signalé comme directeur-fondateur de Laboratoire d'optique et d'hyperfréquences, qui est aujourd'hui devanu le Centre d'Optique, Photonique et Laser (C.O.P.L.).

Au cours de sa carrière il a dirigé une quinzaine de thèses de doctorat et un nombre égal de mémoires de maîtrise. Il a aussi été à l'origine de la création d'un Groupe d'Astrophysique au sein du département de Physique. Enfin, au début des années quarantes, Monsiuer Boivin a été l'un des pères fondateurs du Cercle Astronomique de Québec, qui devint par la suite Le Centre de Québec de la S.R.A.C., dont il est demeuré membre jusqu'a la fin de sa vie. ✪

R.A.S.C. Promotional Items

The following items are currently in stock:

R.A.S.C. Golf Shirts: White with navy emblem, adult sizes: S,M,L,XL; light blue with navy emblem, adult size: XL.
R.A.S.C. Keychains: Clear acrylic with metal ring, white insert with navy emblem imprinted on both sides.
R.A.S.C. Coat Crests: Stitched multicoloured on dark blue felt.

Item	Price	Shipping
Golf shirts	$20	$3.75 per shirt
Keychains	$4	$1 per item or batch
Coat crests	$15	$1 per item or batch

These figures include all taxes. Items are available by sending a Canadian cheque or money order, payable to *Royal Astronomical Society of Canada* to:

R.A.S.C. Promotional Items
136 Dupont Street
Toronto, Ontario
M5R 1V2

Surprise

Fr. Lucian J. Kemble

Once more I stand
in the awful wonder
beneath the sky dome's silent splendour
as strains of Haydn's "Surprise"
echo in more earthly tones
the subtle Music of the Spheres above.

All heaven's beasts and gods stand poised,
attention seemingly fixed
on the Orient drama.
Perseus, climbing to Cassiope's throne
looks down;
the Ram looks o'er his shoulder
and Cetus lifts high his tail,
swimming to the West.

The center stage holds
mighty Orion, with lower foot
firmly hooked on the horizon.
Seeming to repose on elbow propped,
he casts a fearful eye above,
his shield poised, defence against
a double foe:
Taurus' reddened eye and
fearsome Ares in all his glowing wrath.

My great mirror stands idle;
binoculars are put aside,
and framed lenses,
so precious in my aging myopic mundane use.

And, as I vibrate to sight and sound,
it seems
the flick'ring points of light
have become, by myopic view,
bloated, glowing orbs,
whose pulsing, near-horizon light
beats time with "Surprise's",
color-shimmer magnified.

O'er it all, sparkling clear,
the Pleiade sisters
sail serenely on
above their champions:
their eternal Bull allied, for now,
with warrior Mars.

And I am surprised by the "Surprise",
in my ears,
a starry surprise for my eyes.

Truly bereft of man-invented things,
I can now marvel:
Myopic blur brings new and wondrous sights,
body and soul refreshed
in awful wonder. ✪

Suspected Brightening of the Venus North Polar Cloud

Richard Baum
Director, Mercury & Venus section, B.A.A.

Monsieur Richard Baum est le directeur de la section Mercure et Vénus à la British Astronomical Association. Il vient de faire parvenir au Bulletin un rapport qui indique que les nuages au pole nord de Vénus ont connu une rélectivité accrue à la fin de 1991. Nous vous présentons ici son rapport, les amateurs intéressés collaborer avec lui sont invités à contacter Mr Baum.à 25 Whitchurch Road, Chester CH3 5QA, England – Marc A. Gélinas

Members of the Mercury and Venus Section of the British Astronomical Association may have monitored a short term variation in the intensity of the Venus polar brightening during the current morning elongation. This possibility came to light during a tentative analysis of 213 heterogeneous data sets from stations in Belgium, Canada, England and Germany.

Preliminary results showing the distribution between the north and south cloud caps are given in the table at the bottom of the page. The value of "k" for the intervals specified ranges from 0.15 to 0.75.

The director observed in integrated light on fourteen days during the second period i.e., Nov. 13th to Dec. 31st, 1991. He used the same telescope (11.5 cm refractor), at the same power (186x), from the same station, and made thirty-five drawings of the planet. This series, which provides a more uniform reference, confirms the progressive pattern indicated by the heterogeneous material; an upsurge at the north cap, and an apparent fade-out in the south.

Indirect verification of such a possibility is forthcoming from E. T. H. Teague, of Chester, England. On December 8th he found the north cusp prominent and well defined, contrasting sharply with the diffuse, indeterminate profile of its southern counterpart. Although Mr. Teague

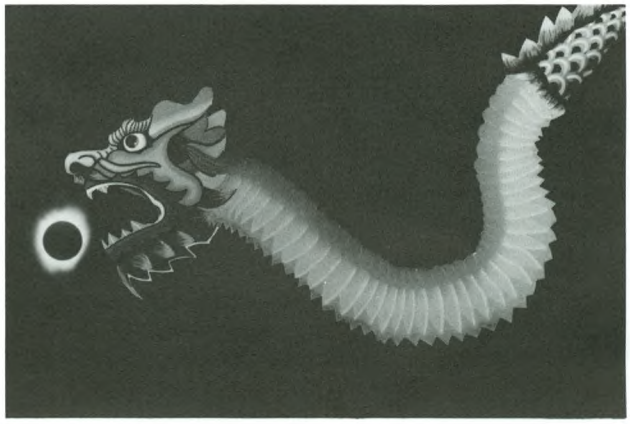
(continued on page 8)

Historical & Modern Total Solar Eclipses

J.E. Kennedy
Saskatoon Centre

On July 11th, 1991 a total solar eclipse of exceptional duration occurred as the Moon's shadow swept across Hawaii, the Pacific Ocean, Baja California, Mexico and parts of Central and South America. This well publicized astronomical event attracted hordes of observers to viewing sites along the path of totality. Reports indicate that a few observers were disappointed as a result of cloud cover, but that most enjoyed a spectacular sight.

As totality approached, in the excitement of the moment, did you forget to remove the lens cap? Did you forget to record accurately the time of second contact? Did you forget to plot the positions of the prominences at the edge of the solar disc? If you remembered each of these essential operations, you did much better than Hi and Ho, two Chinese astronomers of ancient times.



A Chinese dragon about to swallow the Sun. Image created by the photographic staff at the University of Saskatchewan.

In earlier ages, the causes of eclipses were not fully understood. What reasons existed for darkness to descend over the landscape in the daytime, bringing about unusual effects on birds and animals, to say nothing of the confusion into which the populace was thrown? To alleviate such situations, the emperor employed two astronomers whose duty it was to alert him when a total solar eclipse was about to occur and to frighten away whatever was consuming the Sun. The monster may well have been a dragon. (If not, ignore the illustration.) At one specific eclipse, Hi and Ho forgot to perform certain essential tasks (as you may have done) failing to carry out their assigned duty to the emperor.

A noted eclipse scientist of the first half of the 20th century, S.A. Mitchell, credits Oppolzer with fixing the date of the historic eclipse in 2137 B.C. In his book "Eclipses of the Sun", Mitchell points out that the two Chinese astronomers were in no condition on the morning of the eclipse to do everything in their power to deliver the Sun from the monster that was devouring it as they were both intoxicated at the time! For being drunk on this special occasion, the punishment meted out to Hi and Ho was severe.

Is there any evidence to support this story? Should it be regarded as a tale designed to add excitement to the science of astronomy? An account of this event may be found in the "Histoire Général de la Chine" published in 1777:

ils [Hi & Ho] ne donnèrent point avis à l'empereur d'une éclipse de soleil qui arriva à l'automne de cette année; la débauche où ils étoient plongés & l'amour du plaisir leur faisoient négliger tout autre soin.

The emperor, displeased with their conduct, ordered his general to punish the astronomers. After assembling his army, the general spoke to his officers:

Nous voyons aujourd'hui Hi & Ho, plongés dans le vin & dans la débauche, renverser les règles de la virtu, & négliger entièrement leur devoir. Le jour de la lune, à l'équinox d'automne, sur les sept heures du matin, il y a eu une éclipse de soleil hors la constellation Fang; Hi & Ho, ont fait semblant d'en ignorer: les petits mandarins en sont troublés, & les peuples, faute d'en avoir été avertis auparavant, en sort épouvantes... je vous assemble pour que vous m'aidiez à faire revivre la vigueur de nos loix...

Hi and Ho had their heads chopped off. Have astronomers learned anything from the events that took place on the day of this historic eclipse? A succinct summary is provided by Mitchell: "there is no record from that day to this that an

(continued on page 8)

Period (1991)	Number of days	Number of drawings	Percentage of drawings which give prominence to:			Percentage of days caps absent or merely suspected
			Both caps	North only	South only	
Sept. 15-Nov. 11	41	150	50	4	5	41
Nov. 13-Dec. 31	18	63	25	67	2	6

The Small Moon Illusion

Alister Ling

Most of us are familiar with the visual illusion of a huge Moon rising above the horizon, but appearing quite small when viewed high in the sky. This is not due to any atmospheric effect but is purely the result of our perception: the illusion can be broken by looking at the horizon Moon through a paper towel tube. But some recent ideas say we've got it all backwards. Our visual system creates a reduced image when the Moon is high up and delivers the correct size when it is near the horizon. You may want to have some fun experimenting with the concept that follows.

G. Lockhead and M. Wolbarsht dismiss almost all the theories advanced so far to explain the illusion. They tie in the eye's attempt at focusing, or accommodation, with a concept they call the "toy illusion." Apparently, it is inescapable that when flying in an aircraft at a sufficient altitude, one has the impression that objects on the ground look like toys. In other words, our visual system is tricked into regarding objects as quite small replicas seen close up. The authors have documented that people with a fear of heights have no such fear at great altitude. What is missing are cues to the distance to the terrain below. WHY our brain processes information this way is another question in a long line of mysteries.

On the ground, when one looks at the horizon Moon, there are trees or hills, "visual textures", that tell us just how far away the Moon is and for our eyes to focus at optical infinity (more than ten metres). However, from a plane, this texture is missing. The horizon Sun or Moon actually looks small from an airplane! And it can't be HOW we look out of windows, because the horizon Moon looks big when we are sitting in a plane that is on the ground. The authors even cite the case that when astronaut John Young circled the Moon, the Earth never looked big as it rose over the Moon's horizon, but it did appear big when the astronauts were standing down on the surface.

The cause of this toy illusion is proposed to be the eye's accommodation, or focus, at the wrong distance. In the absence of any cues, the eye accommodates to a distance at about arm's length, in a position that is called empty field myopia. When we look at the Moon without the help of intervening objects, our focus then moves from this point towards infinity but doesn't quite get there. Our brain then processes this closer position to make the Moon look smaller, just like making cars and houses appear like toys when we're in a plane.

Wait a moment! Why then, if we are focused too closely, is the Moon not blurred? After all, the Moon is not a featureless disk, and to see the detail our eyes have to be in focus. This is the weakest link in the authors' argument, and one mentioned only in their June 1985 *Applied Optics* article (interestingly, this rather crucial point is not made in their August 1991 article). Well, they have a "probable" (their word) answer. The image is not blurred despite the incorrect focus because of the innate depth of field of the eye, which is increased by the narrowing of the pupil that accompanies closer focus. It's just like stopping down your camera's lens to get objects near and far looking sharp when the focus lies in between.

This is where you can experiment with your own vision. I've noticed an interesting effect when observing the Moon through a telescope: if I'm racked out a little too far, then my eye can accommodate and bring the image into focus. As I rack inwards to reach infinity and my eye is constantly adjusting, I note that the Moon's image grows bigger! If I start on the other side of infinity, the Moon's image is bigger but then it's out of focus. I find that to avoid the eye fatigue that comes when I'm focused too closely for a long time, I rack in and out to make sure that I'm at the point where the image is at its biggest and sharpest.

Another experiment would be trying to subjectively judge your eye's accommodation by placing an object between your eye and the Moon when it is high in the sky. Perhaps this way you can find the distance at which your eye doesn't change its focus to jump from the Moon to the nearby object (presumably between one and three metres away). This won't be easy because you have to "feel" your eye muscles changing the tension on the eye's lens.

I think this notion of a toy Moon is worth exploring, especially if you have an upcoming plane trip. I'd be curious to find out how you make out, likewise the authors of this concept would be interested in your comments. If you would like a copy of the *Applied Optics* articles, just let me know. ✪

Three hundred trout are needed to support one man for a year. The trout, in turn, must consume 90,000 frogs, that must consume 27,000,000 grasshoppers that live off of 1,000 tons of grass.

G. Tyler Miller, Jr., American Chemist (1971)

Canadian Astronomer in Disgrace

Walter MacDonald
reprinted from *Ridiculous*, newsletter of the Kingstone Centre

A severe blow was dealt to the Canadian astronomical community in January when Kingstone Centre Honorary Prezident David Levi tested positive for parabolic steroids. Levi, who has discovered twelve comets, has been banned from comet hunting for two years and will be stripped of his discoveries. Parabolic steroids artificially enhance the ability of the user to find solar system objects, especially those in parabolic orbits.

Levi's comet hunting career began in the late 1960's but he didn't meet with success until 1984. Since then he has discovered comets at an astonishing rate. Over the last few years Levi has been the target of allegations of steroid use by other comet hunters. Says William Liller, "Here's a guy who can't find a comet for twenty years and then finds twelve in seven years. That should have been a dead giveaway."

Steroid use is believed to be rampant at many astronomical institutions. An I.A.U. commission into steroid use in astronomy has been set up. It will conduct hearings around the world and report back to the I.A.U. in September.

In his own defence, Levi says "I'm not the only one! Look at [Robert] Evans – he lives on steroids!" ✪

My Third Editorial

(continued from page 1)

ple's opinions on the *Journal*, it was only reasonable to include articles on that topic for the benefit of members who are probably not aware of the ongoing debate.

I have also made some major changes to this year's annual report. In order to make sufficient room for the minutes of last year's annual meeting, I changed the font to match that used in the **BULLETIN**. I also freed up a bit more space by turning the centre names back to horizontal. (This makes them easier to read and avoids the problem of centre names that were longer than the reports!) In addition, the centre reports are now in alphabetical order.

I have a **new** mailing address effective April 30th. Please note that my FAX number, work phone and E-mail address are unchanged. I will include my new **home** phone number once I know it. Lastly, I hope that you enjoy the April Fool's article even though it is somewhat late! ✪

The Journal — Who Needs It?

David Chapman
Halifax Centre

I had half-finished an opinion piece on the *Journal of the R.A.S.C.* when the February 1992 issue of the **BULLETIN** arrived, containing Douglas Hube's thoughtful article on the same topic. This article raised many of the points that I wished to raise myself, making my own piece that much easier to write! At first I thought, "Why bother?" Then I realized why I should bother: not being on the national executive – and having not been on my centre's executive for some time – I have not had the dubious pleasure of being subjected to the apparently endless debates about the *Journal*. Therefore, from a position of blissful ignorance of the issues at stake, I would like to take this opportunity to state what the *Journal* means to me: an ordinary member of the R.A.S.C.

First, let me present my credentials. I have been an amateur astronomer for about thirty years. Some of that time I have been a member of the R.A.S.C., first as a student member in Ottawa, and then, since about 1983, a regular member in Halifax. Somewhere along the line I became a "lifer". Although I am a professional scientist and have published many research papers in journals, I am not a professional astronomer. However, I have had the pleasure of having a paper published in the *Journal*: it was the Simon Newcomb Essay of 1986 and it was published in the December issue of that year. Oh yes... I nearly forgot... I read every issue of the *Journal*.

Now, when I say that I read the *Journal*, I don't mean every single word, cover to cover. I read what catches my fancy. In practice, this means about one or two complete articles, the book reviews, the notes, and a quick skim over the rest to see what's interesting. I enjoy the historical and biographical articles, but I particularly enjoy reading the articles submitted by the serious amateurs in the R.A.S.C. who have done some very good work. The most recent example that comes to mind is the article on the hazards of meteorite falls by Christopher Spratt. (Need I remind my fellow members that an amateur is a lover, not a second-rate practitioner?)

I do not read professional astronomy journals. I have a hard enough time keeping up with the journals in my own speciality (which is acoustics). Although the R.A.S.C. *Journal* is hardly unprofessional, it does accept manuscripts for publication that probably would not be accepted by the mainstream astronomy journals. It is this characteristic that makes the *Journal* unique in my view. Where else would our members publish their work?

Someone in the know told me that the R.A.S.C. membership is split three ways on the issue: one-third likes the *Journal* as it is, one-third would like to see it kept with radical changes, and one-third would like to see it scrapped. *[Editor's Note: One of the purposes of the membership survey is to determine these figures more accurately.]* If this is true, then we have a problem, as this means that two-thirds of our membership, a sizable group, want to see a change. But it also means that two-thirds of the membership want to keep the *Journal* in some form. I suspect that the one-third that supports the status quo could be influenced to accept some change in the *Journal*, whereas the one-third who wish to scrap the *Journal* entirely would not be swayed so easily. It would seem that the R.A.S.C. should consider making changes to the *Journal* so that a majority will agree to keep it going.

The only constructive suggestion I have come up with, and I would be surprised if this hadn't been aired already, is to reduce the frequency of publication to four times a year. The R.A.S.C. *Quarterly* – it has a nice ring to it. Many respectable journals publish as few as four times a year.

By nature, traditions take a long time to establish. If we axe the *Journal* in favour of some new forum, we may regret it later. What's next? Drop "Royal" from the society's name? ✪

The Journal Controversy

Doug George
Ottawa Centre

The R.A.S.C. *Journal* has endured a bit of controversy lately. Some have expressed the opinion that the *Journal* is not meeting the needs of the society. The *Journal* has enjoyed a respectable place in the history of astronomy in Canada, being the only Canadian peer-reviewed astronomical journal. But this comes with, quite literally, a price: the *Journal* is expensive.

In 1990, costs for the *Journal* and **BULLETIN** amounted to $95,993 – about 43% of the society's total expenditures. In contrast, it directly contributed only $37,320 in revenue, for a total cost of $58,673. The Observer's Handbook, on the other hand, showed a net profit of $53,265. Clearly, publishing the *Journal* is a significant burden on the society. Some have tried to justify the costs of the *Journal* by noting that the costs are largely offset by the Observer's Handbook. This type of argument only serves to confuse the issue. It does not make sense to arbitrarily allocate income from one source (the Handbook) to expenses from another source (the *Journal*). These are separate entities and should logically be treated as such. Let us just look at the individual costs and benefits of each of the society's expenditures, as would be appropriate for any business. Otherwise, these kinds of arguments can be twisted around to any point of view.

Instead of throwing around more red herrings, let us look directly at the costs and benefits of different decisions. As I see it, there are three possible courses of action: retain the status quo, eliminate the *Journal*, or re-define it somehow.

Here are the popular arguments for keeping the *Journal* as it is: it is our contribution to professional astronomers, it raises the prestige of the society, it is a long-standing tradition that we should not throw away. On the first point, I believe our most important contribution to professional astronomy is in the area of public education and promotion of astronomy. Since many Canadian astronomers do not bother to publish in the *Journal*, I doubt that its contribution is widely appreciated. The second point is just snob appeal – it doesn't matter to most of our members. The third argument is perhaps the strongest. It would be unfortunate to end a long-standing tradition.

What would the impact on our society be if we eliminated the *Journal*? Ian Halliday has asked, "How long would the Handbook survive if the *Journal* disappears?" My firm belief: indefinitely. The Handbook is well respected on its own merits; I doubt the contributors are influenced in any fashion by the existence of the *Journal*. No one has ever suggested dropping the Handbook – it is the greatest benefit of being an R.A.S.C. member. Without the *Journal*, we would have more money to pursue different projects. Membership fees would not have to be raised to avoid a deficit. But what would we do with the extra money? Are there projects that are national in scope that are really of benefit to all our members?

This brings us to the third option: re-define the *Journal*. Why is it that amateurs rarely contribute to the *Journal*? There are several reasons; the most important being that it is not accessible. The *Journal* is a peer- reviewed scientific publication and most amateurs do not feel that they can contribute. They are probably correct. I certainly wouldn't expect to see an article on

visual observing techniques in today's *Journal*.

Take a look at the **BULLETIN**. It has an important role to play in the society – it helps bind the far-flung centres together. However a national publication could do much more. With the demise of *Deep Sky* and *Telescope Making*, there are far fewer avenues for amateur communication. We still have *Sky & Telescope* and *Astronomy*, of course, but they are not very accessible either, and they are not Canadian. We need a forum for Canadian amateurs to present their work for the enjoyment and inspiration of others. A good model to consider would be the A.G.A.A.'s *Astronomie Québec*. Perhaps we should seriously consider re-defining our national publications. In the 1990's, the R.A.S.C. is dominated by amateur astronomers, and the *Journal* no longer reflects the needs of our members. Why not change the focus? Why not change the format? We have many talented amateur members who have something to contribute, who do not have a real national forum to present their ideas and projects. We have people with ideas and experience in public astronomy education. The *Journal* would no longer be late because of chronic lack of submissions, and amateurs would no longer complain about the costs.

Let's think about this seriously. We have a real opportunity to renew and strengthen the ties that hold our society together. ✪

A Pulsar's Perplexing Periodic Pulses

Zdenko A. Saroch
Sarnia Centre

A recent issue of *Astronomy* (December 1991) presented a very interesting article, "First Planet Beyond the Solar System". After reading it for a second time I reached for my calculator and tried to add a few things up, but they did not.

From the curve of frequency changes of the pulsar 1829-10, it appears that the interval between pulses changes by ±0.01 sec with a period of 184.4 days. That would indicate that the velocity of the object, when moving directly to or from us, is about 3 000 km/s, which is the orbital velocity. (v = 0.01c, where c is the speed of light)

Moving at that speed for 184.4 days the body will travel a distance of 4.78×10^{10} km which is 319.7 A.U. From that we can calculate the radius of the orbit very simply:

$$r = \frac{319.7}{2\pi} = 50.9 \text{ A.U.}$$

For comparison, Pluto orbits the Sun at a mean distance of 39.4 A.U. in 248 years. Pulsar 1829-10, at a farther distance than Pluto, makes one revolution about 500 time faster. From Kepler's Law which states that

$$M = \frac{a^3}{T^2}$$

(where M is the mass expressed in solar masses, a is the semi-major axis in A.U.'s and T is the orbital period in years) one must come to the conclusion that in the case of the pulsar in question we are looking at an extremely massive object which is

$$M = \frac{(50.9)^3}{(0.505)^2} 5.17 \times 10^5 \text{ solar masses}$$

half of a million times the mass of our Sun!

If, on the other hand, we accept a value of 1.4 solar masses, as suggested in the article, we shall arrive at a value for the semi-major axis of only 0.71 A.U. leading to an orbital velocity of about 42 km/s, far from the 3000 km/s implied in the article.

Most of the conclusions in the article are based on the curve of frequency fluctuations which is the result of many careful and reliable observations. However it is hard (for me) to interpret the changes in the period of the pulsar (±0.01 sec) as a result of orbital motion.

In any case, pulsar 1829-10 must be a fascinating object!

[Editor's Note: Readers will probably recognize that this is the pulsar that was first announced as having a planet. It was found later that an error in the data reduction introduced an effect due to the eccentricity of the Earth's orbit into the data that made it appear to have a companion. However, this article arrived BEFORE the astronomers announced that they had made an error. In fact, the orbital period mentioned of 184 days is almost exactly half of a solar year as a result of it being caused by the Earth and not an extrasolar planet.] ✪

The following are the categories for the display competitions at the 1992 G.A.

1. Astrophotography:
   a) Tripod/piggy-Back
   b) Prime focus/Schmidt camera
   c) Eyepiece projection
2. Best centre display
3. Best solar system observing project (including radio)
4. Best deep sky observing project (including radio)
5. Best non-observation display (e.g. public eduction, light pollution)
6. Best astronomical hardware
7. Best youth display (under 18 years)
8. Best Murphy astrophoto
9. Best astronomical song

Across the R.A.S.C.

Victoria

It was members' meeting at the opening meeting of our new season in September. Centre President, Jack Newton, showed a video and slides of his trip to Baja to see the solar eclipse. In October we were privileged to have Dr. N. Visvanathan, who delayed his return to Australia, as our speaker. Dr. Visvanathan's talk was a summary of a paper he had published earlier that month on evidence of a "great attractor" in the local group of galaxies. His data suggested that there was little evidence for such a thing.

At our annual banquet in November, a delicious buffet was followed by an informative talk on the marvels of the Keck telescope from Dr. Bev Oke. Dr. Oke has recently retired to Victoria from CalTech. The speaker at our December meeting was Rick Murowinski, a physics engineer at the Dominion Astrophysical Observatory. He spoke to us on "Solid State Detectors for Astronomy" (i.e. CCD's). Rick's enthusiasm for his subject was reflected by the generation of a large number of questions and an involved audience.

Edmonton

The Edmonton Centre held its annual General Meeting on January 13th, 1992. The evening was highlighted by the visit of the R.A.S.C.'s National President, Damien Lemay, who was the featured speaker at the meeting. His topic was "Amateur Astronomy, a Hobby and a Science". In addition, the executive for 1992 was elected and the awards for 1991 were handed out. The award winners were:

Telescope Maker of the Year: Randy Pakan who master-crafted a 16 inch Dobsonian on a Poncet mount using hand tools.

Astrophotographer of the Year: Alister Ling for his outstanding cloud/atmospheric photography.

Presidential Award: Sylvia Smith for her hard work and dedication in promoting astronomy to the public.

Observers Group Award: Tony Gardner for his enthusiastic dedication to observing, even in the coldest weather.

Windsor

At the Hidden Hollow Convention last fall at Mansfield, Ohio, Tim Bennett, the centre's Vice-President, received the Astronomical League Great Lakes Region Award for Telescope Design in the Newtonian/Cassegrain class. He also received, along with J.D. Watkins, the Award

(continued on page 8)

Across the R.A.S.C.

(continued from page 7)

for Telescope Design in the special class for their observatory trailers.

We had the good opportunity to have a speaker exchange with the Toronto Centre last October and November. Steve Spinney, President of that centre, spoke on its education activities and Guy Nason gave a video presentation on videotaping occultations. C. Joady Ulrich returned the exchange to the Toronto Centre and gave his presentation on "Astronomy on Canvas". Frank Shepley, our national council representative and *Aurora* editor, went to San Diego to observe the annular solar eclipse of January 4th, 1992.

Vancouver

The September meeting was presented by the B.C. Space Sciences Society. Dr. William Hartmann of the Planetary Science Institute spoke on "Stepping Stones: Man's First Ventures into Space".

October had us on the cutting edge with Dr. Keith Raney of the Magellan Science Team. His talk, "The Magellan Mission to Venus" included just-released views of Venus and new insights into the mapping techniques and software problems that had to be overcome in order to complete a project of this magnitude.

November was very special – our **sixtieth** anniversary! It was a full night. We started with what makes our centre go – the members. They shared their photos, slides and we even had a song on the "eclipse of the century". We then took a stroll down memory lane as each past president shared the ins and outs of the history of our centre. Our longest serving member, Paul Sykes, reminded us of how far we had come. It used to be up to him to "blow out" the city light that was interfering with their observing sessions. (Being the only member who had perfected the technique, it naturally fell to him.) Later, wine and cake were served in honour of the special event.

December was our annual General Meeting, and as usual, we had a good turnout. Questions abounded and comments flew, which only proved the interest that the members have in their centre's affairs. After the election by acclamation (once again), we settled into a presentation on the latest technology out of the Dominion Astrophysical Observatory in Victoria, high resolution cameras (HR Cams).

January was also a packed house as well over 140 members were in attendance. It was a perfect time for all to climb on stage and have our picture taken. (That the stage didn't collapse is still a mystery.) Once again presentations were made by members, this time on the annular eclipse and our new observatory. We ended the night with a fascinating discussion by Dr. Berregrin on timekeeping from ancient times to the Renaissance.

1991 saw the installation of our 14 inch reflector in our new observatory. Although the weather did not cooperate, we were able to complete the project within five sessions. We started the first phase in two groups. One group built the house in sections, ready for transport, while the other shovelled crusher fines and laid the tracks for the building to roll on. We then met and put the two together. Surprisingly, they fit! Over the next two weeks, we worked on the cedar siding and shingles. The final operation was the telescope installation. Everything went as planned, more or less. We finally have our 14" installed in what we hope will serve as a dark spot for many years to come. (If not, we can always move it. That's the beauty of wheels!) ✪

Letters to the Editor

(continued from page 2)

Portland, Oregon 97213), 456 pages, $19.00.

It contains the astrophysical portions of a general unified theory of the physical universe developed by that author, an unrecognized genius, more than thirty years ago.

It contains final solutions to most all astrophysical mysteries, including the formation of galaxies, binary and multiple star systems, and solar systems, the true origin of the "3-degree" background radiation, cosmic rays, and gamma-ray bursts, and the true nature of quasars, pulsars, white dwarfs, exploding galaxies, etc.

It contains what astronomers and astrophysicists are all looking for, if they are ready to seriously consider it with open minds!

The following is an example of his theory's success: In his first book in 1959, "The Structure of the Physical Universe", Larson predicted the existence of exploding galaxies, several years before astronomers started finding them. They are a necessary consequence of Larson's comprehensive theory. Also, when quasars were discovered, he had an immediate related explanation for them also.

Robert E. McElwaine, physicist

On the Money

Douglas Hube's article "The *Journal* and the Financial State of the Society" in the February **BULLETIN** was right on the money. The stature and recognition earned by the *Journal* is cheap at four times the current $25,000 operating deficit. Tell the accountants to direct their inquisition elsewhere.

Richard Small
"non-professional astronomer"
633 Bay Street, Toronto, Ontario M5G 2G4 ✪

Historical & Modern Total Solar Eclipses

(continued from page 4)

astronomer has ever dared to follow in the steps of the unfortunates, Hsi* and Ho, and been drunk at the time of an eclipse."

Has a post-eclipse analysis been made of the state of astronomers who travelled great distances to view a total solar eclipse and failed to achieve their objective? Such a study might provide exciting, and in some instances, possibly revealing data! **

References

"Eclipses of the Sun" by S.A. Mitchell (New York, Columbia University Press, 1923)

"Histoire Général del la Chine" translated by Moyriac de Mailla (Taipei, Ch'Eng-Wen Publishing Co., 1969, reprint of the 1777 edition.

* Hsi is the spelling used in Mitchell's text.

** Editor's note: The author has assured me his eclipse chasing days are finished, removing him from inclusion in any such analysis! ✪

Suspected Brightening of the Venus North Polar Cloud

(continued from page 4)

did not observe a bright north cap, he did notice terminator shading was practically imperceptible at north cusp, though quite noticeable in the south. This gave the terminator a rather asymmetric look, possibly explained by irradiation from the brighter north cap. Instances of more rapid change apparently occurred on November 4th and 20th, and again on December 7th, when A. W. Heath of Long Eaton, England, gave precedence to the south cap.

Conspicuous on plates taken in UV by F. E. Ross in 1927 the bright caps were discovered by Gruithuisen in 1813, and extensively studied by Charles Boyer during the 1960's and 1970's. Now of course, they are known to correspond to the bright polar cloud swirls images by Pioneer Venus. ✪

Looking back... over the long and labyrinthine path which finally led to the discovery [of the quantum theory], I am vividly reminded of Goethe's saying that men will always be making mistakes as long as they are striving after something.

Albert Einstein
German/American Physicist (1879-1955)