



# NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC

VOLUME 2001 ISSUE 4

JULY/AUGUST 2001

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## Looking Ahead

Remember, you are always welcome to attend meetings of Council, held on the first Tuesday of every month at 7:30pm in the G.S.O.

**July:** Lee's Amateur Hour

**August:** David Dodge: "What I Did On My Summer Vacation"

**September:** Sun Kwok of the University of Calgary: "Cosmic Butterflies"

**October:** Dr. Alan Hildebrand of the University of Calgary on the meteor that wiped out the dinosaurs

## Next Issue Deadline

Material for the September Nova should be submitted by Monday, Sept. 3, 2001. Please send submissions to:

Gordon Farrell  
(gfarrell@home.com)

or Bob Parry  
(robpar@ballard.com)

## End of the Road for GSO's Big Scope

by Dan Collier

June 14, 2001: Gordon Southam Observatory's Cassegrain telescope was finally dismantled and trucked away this morning. It was the centrepiece of the H.R. Macmillan Space Centre's public astronomy program.

galaxies might also be on the menu. And no one will ever forget observing such exotic things as the pinwheel core of Comet Hale-Bopp, the plunge of Comet SL-9 into Jupiter's atmosphere, and the faint pinprick of light from a



Portable telescopes will be used to carry on the program while AMEC Coast Steel, of Port Coquitlam, BC, is fabricating a new instrument using mirrors and lenses salvaged from the old one. There is no word yet on what will happen to the old telescope, although it is hoped that a new home will be found for it.

In short, the "half-metre" telescope was simply worn out. It gave thousands of people their first telescopic looks at the Sun, the Moon and all nine planets (including the Earth!). Asteroids, nebulas, star clusters and

quasar on the other side of the Universe named 3C273.

This telescope was one of the very first in a public observatory to have a fully-computerized control system. Much of the mechanism had to be rebuilt in the first years, but the system also gained unique software enhancements like "SlideView," "We'll Find It" and *Luna-Tac* to help visitors better understand what they were seeing. And the visitors were impressed. Who knows how many young people were inspired to consider careers in science

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## The Dark Side of Light

by Stephen Pauley MD

Summary of IDA Panel on the Physiological & Pathological Effects of Exposure to Light at Night on Humans held at the Annual Meeting, March 9-10, 2001, by Steve Pauley MD. Participants were Russ Reiter PhD, Prof. of Neuroendocrinology, U of Texas Health Science Center - San Antonio; Dr David Blask MD, PhD, Laboratory of Experimental Neuroendocrinology/Oncology, Bassett Research Institute, Cooperstown, NY; George Brainard PhD, Dept. of Neurology, Jefferson Medical College, Philadelphia; Steve Pauley MD, Otolaryngologist - Retired.

### Dr Stephen Pauley

Dr Pauley reviewed the anatomy of the biological clock in the hypothalamus, and the location of the pineal gland. He reviewed the complex nerve pathways from the eye to the biological clock in the hypothalamus, to the brainstem, to the spinal cord, to a ganglion in the neck, and back up to the pineal gland in the centre of the brain. There the nerves meet cells in the pineal gland (pinealocytes). At that junction, norepinephrine is either secreted or inhibited by light and/or dark, and that in turn regulates the pineal's natural production of the hormone melatonin.

Dr Pauley stressed that over the past 120 years—since Edison's light bulb—we humans have made a big disconnection from nature's age-old protections that the human body has incorporated for rest and repair during sleep and darkness. For aeons, and before the electric light, we relied on darkness to produce melatonin from the pineal gland. Melatonin has antioxidant properties, and that could slow the aging process. It induces sleep, boosts the immune system, and regulates the production of other hormones like estrogen and prolactin. Our normal homeostasis (balanced body physiology) depends on our knowledge of, and our paying attention to, the earth's day-night/light-dark cycles. Night-day cycles set the rhythms of our master

clock—the paired suprachiasmatic nucleus (SCN) in the hypothalamus. Clock-melatonin rhythms have existed in all living things since life began on earth.

We inherently know that tampering with or changing these body processes, as we all do in our stressful, hectic, modern day world where we work at night and get little sleep, makes us more prone to illnesses such as diabetes, cancer, and heart disease. Wishing for eight hours of sleep in darkness is considered a weakness, not a virtue that ought to be worked on.

Exposure to light at night suppresses human melatonin production from the pineal gland that should naturally produce melatonin at night in darkness. Melatonin regulates hormone secretions from the hypothalamus that then regulate the secretions of pituitary hormones that control our endocrine glands like the thyroid, pancreas, ovaries, testes, and adrenals.

Dr Pauley suggests that because of light's ability to inhibit melatonin from the pineal gland, light at night must be considered a drug. Therefore, light manufacturers should be obligated to minimize human exposure to poor night lighting, i.e. lighting that produces glare and light trespass. He said research by clock and pineal physiologists is moving very rapidly, and even specific clock genes are now known. But this knowledge is shared only among a small group of scientists. Pauley suggested that the IDA should become a bridge to bring the lighting and medical communities together to share ideas and knowledge. He said it was time for the lighting industry to take note of the harmful effects of exposure to light at night on humans, and for the industry to make more and better full cut-off fixtures.

### Dr Russ Reiter

Dr Reiter, the dean of melatonin research, has trained over 130 doctorates in circadian and pineal physiology. He has authored or co-authored

over 700 papers in his field, and has received several honours. He is also the author of the book *Melatonin* published by Bantam Books in 1995. The book is an excellent layman's guide that explains all about the beneficial properties of melatonin and why we need it.

Dr Reiter refers to melatonin as "*the hormonal expression of darkness.*" He said melatonin is present even in algae, and has existed in both plants and animals for over 3 billion years. Light-dark cycles influenced by clock genes cause melatonin levels to rise at night in darkness and fall during daylight. This melatonin rhythm is seen in all organisms so far studied—even in nocturnal animals. It's a basic protective process that has evolved from the beginning of time. His experiments on humans and animals consistently show inhibition of nighttime melatonin secretions by exposure to light at levels as low as 10-foot candles.

Dr Reiter discussed the anti-oxidant effects of melatonin—how the hormone gets rid of free radicals produced by mitochondria within the cytoplasm of cells during cell respiration. 2-4% of the oxygen used in energy cycles within the mitochondria escapes in the form of damaging free radicals that kill normal cells and contribute to the ageing process. Free radicals also help initiate cancer growths. We depend on the natural nighttime pineal melatonin production to clear these free radicals from our blood. Exposure to light at night interferes with that process by stopping melatonin production.

Melatonin is by far the most potent of the anti oxidants, much more so than vitamins C, E and A. The reason: melatonin is soluble in both fat and water, and can therefore enter some cells that vitamins cannot. For example, Vitamin E is soluble in the lipid part of the cell only, and Vitamin C in the aqueous part. Melatonin is soluble in both.

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## **President's Message**

Wow, what a weekend. I have just returned home from the 2001 General Assembly in London Ontario. While I was there, I was able to spend a fair bit of time with a man I have had the good fortune of observing with in the past. Mr. David Levy shows more love for the stars above than anyone I have ever met. His joy at just looking at the sky is passed on to all around him and spending a night chasing Mars through smog and haze was one of the highlights of my trip.

I had the opportunity to meet many RASC members from across the country and was able to pick up quite a few ideas and connections. The enthusiasm that was led by Dr. Levy is also prevalent throughout the other RASC Centres and we all had a great time schmoozing in the hospitality suite. I have made good contacts with members from Calgary, Regina, Toronto and of course London on this trip. The exchange of ideas between Centres is something I wish to pursue further as I see great benefit for our club.

It wasn't all fun and parties though. Bob and I sat through a very long council meeting on Friday; starting at 10:00 and finally stopping at 6:30 but we still weren't done. One of the main topics was the introduction of a new Beginner's Observing Program that will be introduced in October. Originally this program was to be for RASC members only, but with such a great chance to use this in schools as a learning tool many of us felt it should be available for everyone. Rajiv Gupta made an amendment to the motion and the program will be for anyone who wants to use it. There are 110 naked eye and binocular objects on the list ranging from constellations to planets to double stars. In order to receive a certificate a person has to complete 55 observations and record them in a logbook. The list and logbook are available at the National RASC website. The administration of the certificate is to be by the local Centres but if the load gets too much, the Observing

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## **2000 Vancouver Centre Officers**

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### **Trustee, CARO**

Tony Overton Deceased

## **Web Site**

<http://hrmacmillanspacecentre.com/fr11.htm> and follow the link to Astronomy Clubs  
or <http://www.rasc.ca/vancouver>.

**RASC**  
**1100 Chestnut Street**  
**Vancouver, B.C.**  
**V6J 3J9**  
**604-738-2855**

## **About RASC**

The Vancouver Centre, RASC meets at 7:30 PM, in the auditorium of the H.R. MacMillan Space Centre at 1100 Chestnut St., Vancouver, on the second Tuesday of every month. Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently \$49.00 per year (\$25.00 for persons under 21 years of age) and can be obtained by writing to the Treasurer at the address below. Annual membership includes the invaluable Observer's Handbook, six issues of the RASC Journal, and, of course, access to all of the club events and projects.

For more information regarding the Centre and its activities, please contact our P.R. Director.

NOVA, the newsletter of the Vancouver Centre, RASC, is published on odd numbered months. Opinions expressed herein are not necessarily those of the Vancouver Centre.

Material on any aspect of astronomy should be e-mailed to the editor, mailed to the address below, or uploaded to SpaceBase™ at 604-473-9358, 59.

## **Advertising**

Nova encourages free use of its classified ads for members with items for sale or swap. Notify the Editor if you wish your ad to run in more than one issue.

## **Commerical Rates**

1/2 Page: \$25.00 per issue  
Full Page: \$40.00 per issue  
Rates are for camera-ready, or electronic files. Payment, by cheque, must accompany ad material. Make cheque payable to: RASC Vancouver Centre.

## Bad News - Stolen 25" Obsession + Eyepieces/Equipment

from Randy Rogers  
<rrogers2@dart.org>

To all amateur astronomers and lovers of astronomy:

During the week of March 17-25 my storage unit was burglarized and my 25" f/5 Obsession telescope and large wooden eyepiece box was stolen. I believe the thief to be in the astronomical community, as only one who has knowledge of the scope's whereabouts and what it was would steal it. The thief left a 31" Sony Trinitron sitting right next to the scope there and closed the storage up. A thief wouldn't know what truss poles were for, or a light shroud bag, or even what they were looking at (a disassembled Obsession).

The scope is new (manufactured 5/00) and has the name "Mike Benz" inscribed on the brass nameplate with serial #605 (I believe). It has a f/5 Galaxy mirror (serial # as yet unknown, but I have the interferogram in storage somewhere and have requested the # from John Hudek of Galaxy). It has hi-resolution digital setting circles, the

truss poles are wired for 12V and the encoder cables run through one of the poles. The secondary has an AstroSystems dew heater with the battery velcroed to the spider (Novak). It also has a Feathertouch (black) focuser and light shroud.

The eyepiece box is one of Steve Carroll's Astrocaddy's and has the following eyepieces: 35mm Panoptic, 30mm Takahashi LE, 27mm Panoptic, 24mm UOrtho, 20mm Nagler, 18mm Takahashi LE, 16mm Nagler 2, 14mm Pentax XL, 10.5mm Pentax XL, 9mm Nagler, 7mm Nagler, 4.7mm Meade UWA, TV 2" Big Barlow, 48mm 0-III (Lumicon) filter and 1.25" Orion or Meade light pollution filter. There was also a red adjustable and green adjustable intensity flashlight with string to hang around your neck.

The telescope was NOT insured and I'm at a loss as to how I ever could recover such a loss. These are bad times when fellow amateurs would rip another astronomer off like this, so everybody start taking extra precautions of who you allow to see your equipment.

I would give a \$1000 reward for



the return of the equipment and like others have said before me, if the scope/accessories are returned, I promise not to press charges.

Thank you for all your help in recovering and watching for all my equipment at star parties.

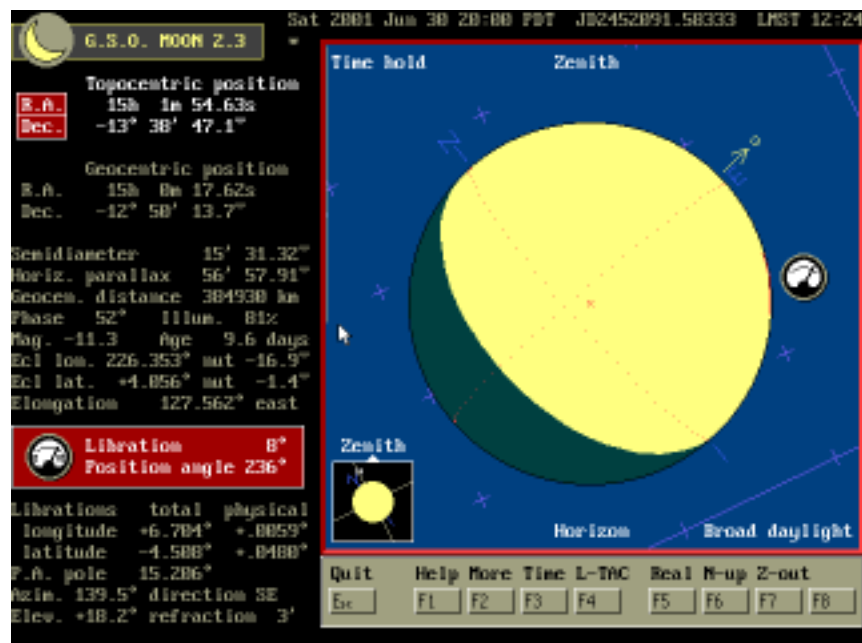
Randy Rogers <rrogers2@dartorg>  
Dallas, TX  
(214) 458-7961 \*



Tycho and Clavius

2001 June 30 approx 0300 UTC.  
17.5" f/4.5 Dobsonian, 32mm TeleVue WF eyepiece.

OM-1 with 28mm lens at f/3.5, 1/30 sec on Fujicolor ISO 100 negative film. Afocal and unguided (camera held up



to eyepiece).  
The above screen capture from GSO MOON 2.3 shows the circumstances of

the moon at the time the phot was taken.

Photo and software by Dan Collier. \*

## Lunar Occultation of Venus - July 17

by Angela Squires

Here is the predicted time of when the moon will pass in front of Venus. Location Data from the Canadian Government (Do we believe them?).

Predicted Delta T value = 64.16 sec

Occultation Predictions of Venus

Magnitude: -4.1

Date: 2001 July 17 (Tuesday)

Moon: % illumination 13-, solar elongation 42

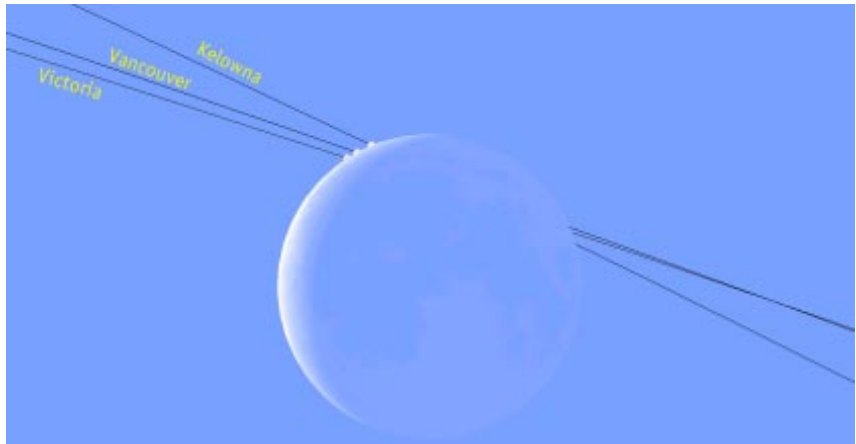


Image generated with Starry Night Backyard

Disappearance:

Location	U.T. h m s	Sun Alt	Moon Alt	CA o	PA o
Vancouver	17 27 28	46	61	-41N	31
Victoria	17 24 52	46	62	-45N	35
Kelowna	17 33 39	49	60	-42N	32

Reappearance:

Location	U.T. h m s	Sun Alt	Moon Alt	CA o	PA o
Vancouver	18 30 12	54	57	53N	297
Victoria	18 31 29	55	58	57N	293
Kelowna	18 35 30	56	55	52N	298

N.B. Deduct 7 hours for PDT \*

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and technology after a visit to the Observatory?

A select group of volunteers was trained—with the assistance of the Vancouver Centre of the Royal Astronomical Society of Canada—to handle the telescope. It has never been necessary to go out and recruit volunteers. They simply show up. The lure of the night sky and the joy of sharing its wonders with the public are enough to keep the observatory staffed between Vancouver's rare cloudy nights.

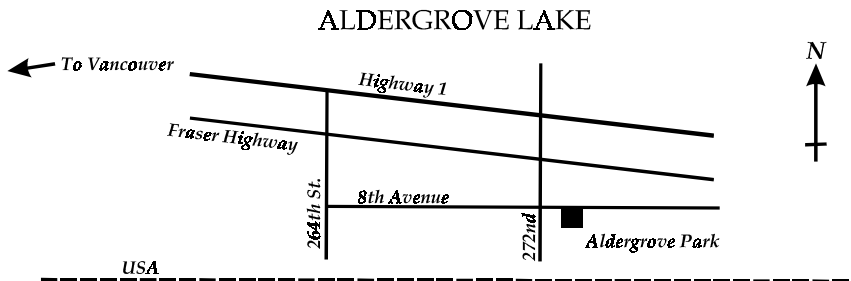
For all its teething problems and peccadilloes, the half-metre telescope made observing the night sky lots of fun. The author and his companions scored many personal observing "firsts" with it, and of course these firsts were automatically shared with the public. The replacement telescope



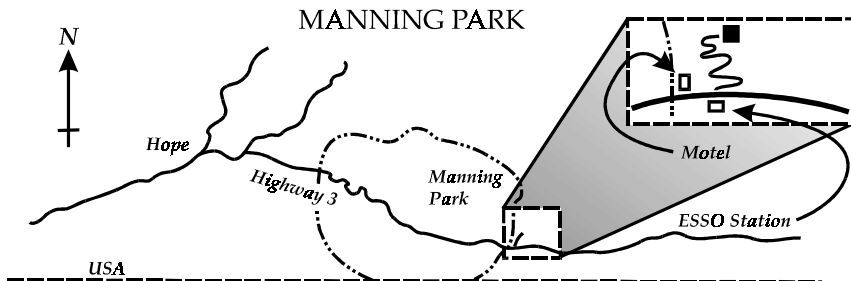
will be more reliable and capable, and will have a more up-to-date control

system, but the operators will miss the old half-metre just the same. \*

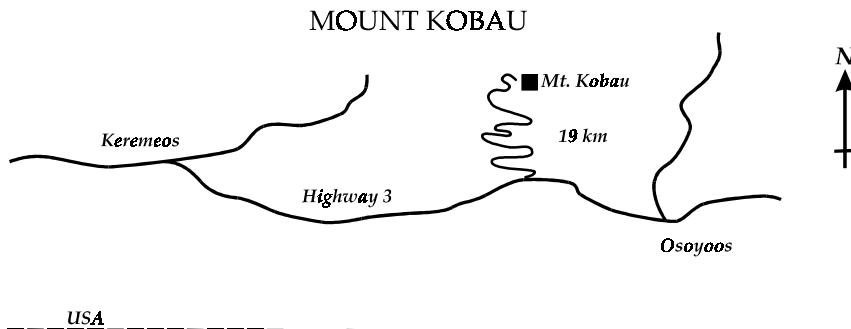
## Observing Sites



Dale McNabb Observatory in Aldergrove Lake Park (RASC Vancouver Centre's regular viewing site)  
 Contact Mike Penndelton (604-888-1505) or Howard Morgan (604-856-9186)



Site of the annual star party organized by the RASC Vancouver Centre



Site of the annual Mt. Kobau Star Party organized by the Mount Kobau Astronomical Society

## NOVA Going Electric

by Gordon Farrell

You may have noticed that the print quality of this issue of Nova has improved over previous issues. Instead of giving the printer pages from my clunky, old printer, I am now giving them the Nova in electronic form, from which they can print a high-quality version directly. The result is a far superior printed version of the Nova, but this is not the only change you'll be seeing in the months ahead.

Starting with the September issue, Nova will be undergoing a drastic change in the way it is distributed. If you come to the meetings to pick up your Nova, nothing will change. However, for the majority of members who receive their Nova in the mail, changes are afoot. If your membership info in-

cludes and e-mail address, we will be sending you a link to the RASC Vancouver Centre website where you can find an electronic version of Nova in Adobe Acrobat format. The e-mail will include a link and the password for accessing the Nova area of the website, and you will be able to download and print your own copy of the Nova from there. As a bonus, if you have a colour printer, you'll be able to print the Nova in full colour instead of the black-and-white version you've been receiving up to now. If you don't have an e-mail address, you'll continue to receive a printed version in the mail as usual.

Another change will be coming in the new year. Nova will be changing its format. Instead of the present 8 ½ by 11 vertical format, Nova will use a

horizontal, 8 ½ by 14 half-page format. This is the format used by many other centres, and will make the Nova much easier to mail out (when folded in half again, it will fit easily into a standard envelope; the current format doesn't). The Nova will still contain as much information as it does now, just in a leaner, meaner format. We all hope you'll like it. For those receiving the electronic version, the Nova will be scaled to fit on a standard, vertical 8 ½ by 11 sheet.

If you have any questions or concerns about these changes, feel free to contact me or a member of the executive in the GAO after the meeting of via e-mail. \*

## FOR SALE

INTES Equatorial Clock Drive

- RUSSIAN MADE in 1992
- will bolt onto on any tripod or flat surface with a 1/2" diameter bolt
- 12 VOLT DC; 80 Ma CURRENT DRAIN
- 4 INCH WORM GEAR; STAINLESS STEEL, HARDENED WORM
- DRIVE-RATE IS VERY ACCURATE
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- STANDARD SIDEREAL SPEED..or..USER-SET via HAND CONTROLLER—INSTANTLY SWITCHABLE
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2" diameter

In perfect condition, virtually unused.

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email [dogstar@interchange.ubc.ca](mailto:dogstar@interchange.ubc.ca) \*

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For sale - Sky & Telescope magazines -  
full set from 1974 to date - no reason-  
able offer refused.

Rod @ 250 395 5380 - or email @  
[rodnewton@bcinternet.net](mailto:rodnewton@bcinternet.net) \*

## ASTROCOMPUTING

**SpaceBase™** (604-473-9358).  
Affiliated since 1992 with RASC  
Vancouver, our link to RASC  
Net, RASC Members only chat  
area. Future data distribution  
hub for CARO Project. Features  
include latest HST images, cur-  
rent world space news and as-  
tronomy programs. Provides a  
file uploading facility for submit-  
ting articles and imagery to  
Nova.

## LIBRARY

The centre has a large library of  
books, magazines and old No-  
va's for your enjoyment at the  
GSO. Please take advantage of  
this club service and visit often  
to check out the new purchases.  
Suggestions for future library ac-  
quisitions are appreciated.

### RASCVC on the Internet

[http://members.home.net/  
rascvc/index.html](http://members.home.net/rascvc/index.html)

## H.R. MACMILLAN SPACE CENTRE

The Pacific Space Centre Soci-  
ety is a non-profit organization  
which operates the H.R.  
MacMillan Space Centre and  
Gordon M. Southam Observa-  
tory. Annual Membership (\$30  
Individual, \$65 Family) includes  
a newsletter, Discounts on  
Space Camps, special programs  
and lectures, Vancouver Mu-  
seum Discounts, and free admis-  
sion to the Space Centre. Ad-  
mission to the Space Centre in-  
cludes: Astronomy shows, Mo-  
tion Simulator rides, multimedia  
shows in GroundStation  
Canada, and access to the Cos-  
mic Courtyard Exhibit Gallery.  
For Membership information,  
call Mahi Jordao at 604-738-  
7827, local 237 for information.  
You can also reach them on the  
Internet at [http://  
www.hmacmillanspacecentre.com/](http://www.hmacmillanspacecentre.com/)

## MEMBERSHIP HAS ITS PRIVILEGES!

New members, did you know?  
The Vancouver Centre has 6 tel-  
scopes available for loan free  
of charge! We have telescopes  
ranging from 3" to 10" diameter.  
For more information call Phil  
Morris, Director of Telescopes at  
604-734-8708, or see him in the  
lobby of the GSO after the mem-  
bers meeting. The loaner period  
is for one month only. All tel-  
scopes are to be picked up and  
returned after the members  
meeting. No telescope will be  
allowed to circulate outside of  
these meetings!

Your greatest opportunity as a  
member of the R.A.S.C. is to  
take advantage of the company  
of other enthusiasts to increase  
your knowledge, enjoyment and  
skill in astronomy.

The best thing you can do to gain  
the most from your membership  
is to get active! Take in the club  
meetings; engage other mem-  
bers with questions; come out to  
observing sessions (also known  
as "star parties"), and, by all  
means, volunteer to take part in  
our many public events.

Observing takes place at the  
Dale McNabb Observatory in the  
Aldergrove Lake Park, located in  
Langley, on 8th Avenue, just east  
of 272nd Street. We are there  
most clear nights. Contact Mike  
Penndelton at 604-888-1505 or  
Howard Morgan at 604-856-  
9186.

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Melatonin has many beneficial effects. Dr Reiter mentioned that melatonin neutralizes a free radical found in Alzheimer's patients. Melatonin also boosts the immune system, lowers cholesterol, protects the body's cardiovascular system, helps counter the side effects of chemo and radiation therapy, stabilizes the body's biological rhythms, and restores the nightly cycle of rest and repair.

We need daily exposure to natural sunlight to reset our biological clocks that tend, if left in the dark, to run our body rhythms on a 24.3-hour cycle (our biological clocks run just a little slow compared to the normal 24 hour day-night cycle). Similarly, we need to sleep in total darkness to allow the pineal to naturally produce melatonin. Dr Reiter stressed this is especially true for our children's well being. Many sleep disorders can be corrected by paying attention to these easy to follow suggestions. As we age, melatonin levels become lower. By taking 0.5 to 5 mg of melatonin at night, we can help improve our health as we sleep. For the elderly the optimal dose may be as low as 0.2 mg. There are virtually no side effects from taking melatonin.

#### **Dr David Blask**

Dr Blask's work centres around the effects of light exposure and melatonin levels on the growth of human breast cancer cells implanted in rats.

He began with an overview of the beneficial effects of melatonin calling the hormone an aid in regulating our "homeokineses" rather than our "homeostasis" as Dr Pauley had said. Homeokineses infers that melatonin regulates the ongoing, constant rhythms of the body rather than regulating a static situation implied by the word homeostasis. Dr Blask, also a jazz drummer, made the analogy of the biological clock in the suprachiasmatic nucleus of the hypothalamus as the drum, which synchronizes our body rhythms to their optimal performance.

Dr Blask pointed out that there are now 5 studies showing that completely

blind women with no light perception have a 40% less incidence of breast cancer. He suggested that maybe the blind women's overall lower rates of cancer are the norm—like humans used to be before electric lights and fatty diets—and it is those of us in modern times who are abnormal. In the industrialized world, we are exposed to light at night and eat fatty foods, and we are the ones with the overall higher rates of cancer.

Dr Blask mentioned a newly published study from Denmark showing that shift workers have a 50% to 70% higher rate of breast cancer. The longer the time spent as a shift worker, the higher the rate of breast cancer (*Increased Breast Cancer Risk among Women Who Work Predominately at Night*; Johnni Hansen; *Epidemiology*; Jan. 01; Vol. 12 No 1).

He stressed that breast cancer in humans is a growing, uncontrolled problem especially in the industrialized world where people are exposed to far more light at night and where people eat diets rich in polyunsaturated fats.

Dr Blask reviewed his research on rats and breast cancer growth. He surgically implanted a known strain of human breast cancer cells (known as MCF-7) into the groin of rats. After a few days, rat blood vessels grow into the cancer cells and provide a nourishing medium for cancer cell growth and from which blood samples may be taken. Even though rats are nocturnal, they still have a nocturnal spike of melatonin when in darkness—a universal trait of all organisms as mentioned above.

Dr Blask found that the human breast cancer cells grew rapidly when the rats were exposed to light at night at luminosities as low as 0.02-foot candles—the light was placed 3 ft away from the cages. An expected drop in melatonin levels was also seen. Rats kept in darkness had far less growth of the breast cancer cells and an expected higher level of melatonin. He also found a correlation between the tumor uptakes and metabolism of an omega 6 fatty acid called Linoleic Acid (LA) and increased cancer cell growth.

The growing cancer cells in the light exposed rats were found to take up higher levels of LA as measured by an increased level of a metabolite of LA called 13 HODE. This relationship is reversed in darkness. These responses were greatest with a breast cancer cell type called "estrogen receptor positive."

#### **Summary of Dr Blask's research**

"Light of appropriate intensity, duration, timing and wavelength, present during darkness, stimulates human breast cancer progression via melatonin suppression and a resultant disinhibition of tumour Linoleic Acid uptake and metabolism." \*

The results need follow up to determine ... "if light during darkness is a potentially serious health risk for breast cancer progression and perhaps lead to preventative measures for lowering the incidence of breast cancer by combining modifications of indoor (and outdoor/sp) artificial lighting and shift-work schedules with alterations in dietary fat intake and melatonin supplementation." Both light at night and fatty diets exist more in the industrialized world, and that may be why those societies have higher rates of breast cancer.

[\* Grant proposal: "*Light During Darkness and Breast Cancer Progression*;" To Dept. of HHS, Public Health Service; Dr David Blask; Mary Imogene Bassett Hospital, Cooperstown, NY; Oct., 2000]

#### **Dr George Brainard**

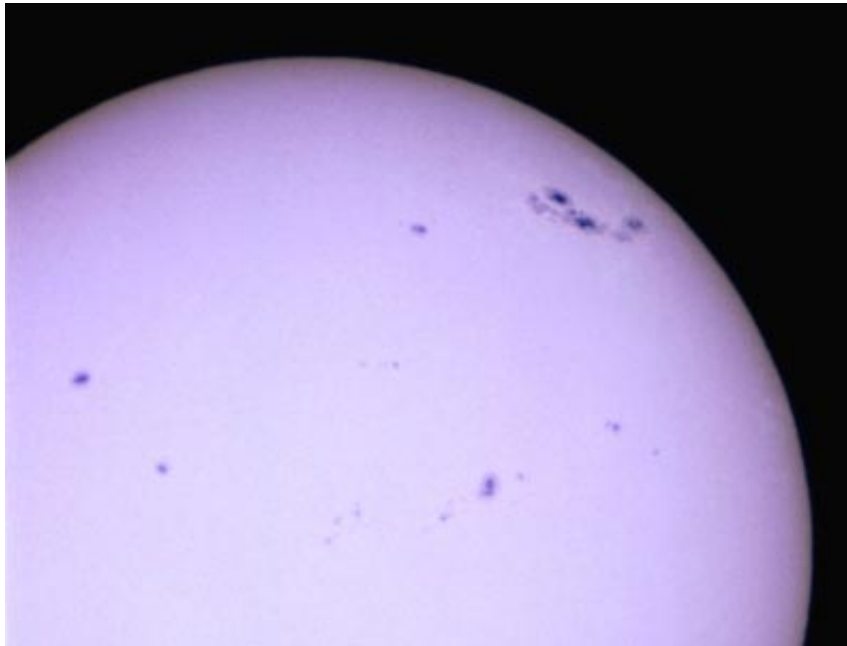
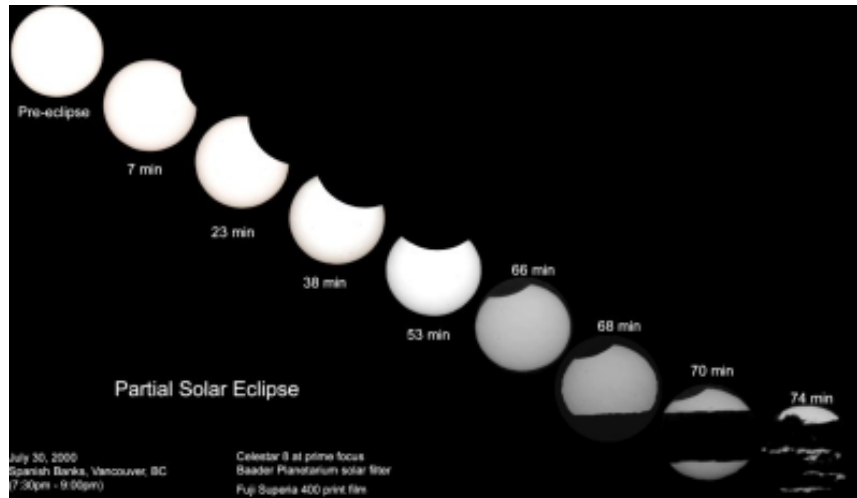
Dr Brainard spoke the following day due to time conflicts. His early work was with Syrian hamsters, a seasonally reproductive mammal. He found that the gonads of male hamsters increased and decreased in size depending on the breeding season or time of year. He could change the size of the hamsters' gonads and melatonin production by changing their exposures to light and dark cycles. This work shows the importance of light-dark cycles, circadian rhythms, and melatonin output levels in the regula-

continued on page 9



## Members' Gallery

**Bill Ronald**  
Partial Solar Eclipse  
30 July, 2000  
Spanish Banks, Vancouver



**Gordon Farrell**  
Sunspots, including AR9393  
(upper right)

Fuji Superia 200 print film  
80mm f/5 with 3x barlow (effective  
focal ratio: f/32)  
1/125 sec.  
4:00pm, 1 April, 2001

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tion of a seasonally breeding mammal.

Dr Brainard's recent work was on humans—over 600 healthy young volunteers. The purpose was to determine which specific wavelength of light was most potent in lowering melatonin levels in humans.

The studies took place at 2 AM when volunteers' melatonin levels were at their peak. Their pupils were dilated with drops, and their chins placed on an eye exam head holder. They were told to stare into a dome, which produced different wavelengths of monochromatic (one colour only)

light. Cameras recorded whether the eyes were fully opened and pupils dilated. Blood samples for melatonin were drawn at the beginning and end of the ninety-minute exposure.

The results revealed that short wavelength light in the blue portion of the visible spectrum was most potent for lowering melatonin. The results suggest that the regulation of pineal melatonin production in humans is not mediated by the classical visual rod and cone photoreceptor. The results indicate that the retina of the human eye has a novel photoreceptor that is primarily responsible for regulating

production of melatonin from the pineal gland. Luminance levels as low as 0.5 to 1.7 foot candles of the blue-green light at 509 nm, and 10 foot candles of broadband white light can lower melatonin levels under tightly controlled exposure conditions.

At the general membership meeting, Dr David Crawford appointed Dr Pauley as chairman of the IDA's Photobiology-Pathology working group. A web page will be established on the IDA web site with references to research articles related to light and its effects on plants and animals. \*

## Saskatchewan Summer Star Party 2001

August 17-19 at the Cypress Hill Inter-provincial Park, Saskatchewan, Canada, 32 km S of Maple Creek, Saskatchewan (for Americans, that is just north of the Montana border). This year's Father Lucian Kemble Memorial Lecture will feature Alan Dyer, a well-known amateur astronomer and associate editor of *SkyNews* magazine. For inquiries and registration information, contact SSSP Registrar Ellen Dickson at dickson@sk.sympatico.ca, tel: (306) 249-1091.

Visit our website at <http://prana.usask.ca/~rasc/sssp01.html> or write to: SSSP 2001, 11-103 Powe St., Saskatoon, SK S7N 1W5.

SSSP provides a delightful weekend for families, but can also meet the

needs of the most expert observer with superbly dark skies and excellent chances of dry, clear weather. We offer astronomical activities for all ages and levels in a unique mile-high nature park setting with a wide range of recreational options. Presentations are held in comfortable, air-conditioned convention facilities. Besides the talks and the night viewing and the Saturday Night Banquet, activities include: a wiener roast on Thursday night, tennis courts, golf course (miniature for sure), outdoor swimming pool, hiking trails, ball diamonds, picnic grounds, and trail rides. On top of that there are programs at the interpretive centre, and Loch Leven (when dragged) offers various water recreational activi-

ties. The park offers certified weekend courses (swimming) for children as well as other programs.

Campsites are freely available, and reasonably-priced hotel, cabin, and condo units are available by pre-booking with the park. (Make sure you tell them you are with the Star Party when booking accommodations!) For accommodation information, call the Resort at (306) 662-4477 or the Park at (306) 662-5484. ★

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continued from page 3

Certificate Committee will take it on.

Another onerous chore that we had to deal with occurred on Sunday morning in the General Assembly itself. Last March, Rajiv Gupta made a member's motion to increase membership dues by \$4.00. We have had Rajiv out to a council meeting and he has attended two member's meetings in order to clarify why he felt this increase was required. At the G.A., there was further discussion before the vote was made. While there were quite a few Centres who felt the same way as we did, there were just as many who felt the increase was needed. In particular I made the comment that Vancouver Centre did not support a \$4.00 increase but could support an increase of \$2.00 this year and a further \$2.00 next year if we did have another deficit for the 2001 fiscal year. After much discussion the assembly voted for themselves and then the proxy holders voted for the proxies. The motion carried 175 to 127. We thus have a fee increase of \$4.00 per year. Vancouver Centre Council has decided not to pass the full amount of this increase on to our members at this time but we will pass on the \$2.00 increase we feel is sufficient. By doing this we are eating into our surcharge that we have to offset the costs of our speakers and NOVA. In

February, when we set next year's budget, we will examine the need for the second portion of the increase and determine if we will pass it on for September 2002. The labour saving changes that we are making to NOVA will also have a cost savings and hopefully this will be enough that we do not have to pass the second part of the fee increase on to our membership. The Vancouver Centre dues are to be \$51.00 for regular members, \$26.00 for youth members and \$1020 for Life members effective September 2001.

The last item that we were concerned with at the General Assembly was the awarding of the 2003 General Assembly. Next year's assembly will be held in Montreal on the Victoria Day long weekend. I made a slide presentation and a motion that Vancouver Centre host the 2003 General Assembly which marks the 100<sup>th</sup> anniversary of the receipt of the Royal Charter. As you know, we have been looking at holding this event over the July long weekend at the UBC Conference Centre (Gage Towers). The motion to hold the 2003 GA in Vancouver passed unanimously so now we all have a great deal of work to do. The opportunity to host a General Assembly that will be remembered for years to come is upon us. If you would like to help out, please see myself or Angela

Squires; we are open to all ideas that fit within the constraints of the meetings.

Upcoming events that we would like our members to be aware of include an Outreach Program at Manning Park on July 14<sup>th</sup> (See Angela for details), the Manning Park Star Party #1 July 20<sup>th</sup> – 21<sup>st</sup> (see the reference to the letter from the Eastgate residents elsewhere in this issue) and a GVRD star party and talk August 12<sup>th</sup> at Aldergrove Lake Park (see me for details). It would be great to get as many members out to these events as possible, so why don't you give us a shout?

The final thoughts I will leave you with this month return to David Levy. The joy and wonder that David sees in everything are too much for one person to contain. David is compelled to share what he sees with all who will listen and they in turn become transfixed. Several times over the weekend David mentioned a new asterism that he had chanced upon while cruising through Casseopeia a few weeks ago. Made up of mostly 13<sup>th</sup> and 14<sup>th</sup> magnitude stars 'Nannette's River' starts near Beta Casseopeia and meanders for quite a distance. Take your scope out and have a peek.

"My God!—it's full of stars!" – Arthur C. Clarke; 2001: A Space Odyssey. ★

## Upcoming Events

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### Outreach Astronomy at Manning Park Saturday, July 14, 2001, 8-11pm

This is a very popular event with the campers. In previous years, 300 attended our talk at the Lightning Lakes Amphitheatre with over 100 observing at the Lookout. We need volunteers with telescopes at the Lookout from 9pm onwards. The Moon is at last quarter and doesn't rise until 1am. Mars at magnitude -2.0 stands 20 degrees high as darkness falls and sets after midnight. The Lookout has a panoramic horizon except to the north and provided it isn't windy is a great observing location. We are welcome to camp in the Volunteer Campground Friday and Saturday nights, close to Lightning Lakes. Fireplaces, tables and water are provided with pit toilets. Manning Park Resort is close if you prefer a real bed! The Lookout is a 15-minute drive from the camp. Please confirm if you are attending at 734-9726.

### Manning Star Party #1 July 20-21

See the map on page 6 of this issue for directions.

The site at Eastgate has no facilities, but water, washrooms, groceries and booze are available at the gas station. You will need camping equipment, warm clothes and mosquito repellent. Preferably leave pets at home and bring a tarp for your telescope, as

it can be dusty during the day. There are good spots for tents and we ask that those camping in their vehicles leave tent spots free. We do not allow fire-light or white light so remember your red flashlight. Please pack all garbage out and leave the site clean. Eastgate residents enjoy our presence and some come up to view. If you are leaving at night to return to the lodge or campground, please park facing the right way or down on the blacktop so you do not disturb observers. While it is hot during the day, it can get cold at night as we are at 4000 feet. The nearest campground is Mule Deer, about \$10 a night but no reservations or showers. Lightning Lakes campground is \$14 or more a night with showers and reservations (1-800-689-9025, 689-9025 in Greater Vancouver, <http://www.manningparkresort.com/frames/bcpark3.htm>). Manning Park Resort has reasonable accommodation including cabins if you are bringing your family, a restaurant (entrees about \$10) and café (Reservations: 1-800-330-3321, <http://www.manningparkresort.com/lodge01.htm>). Their store has some groceries, minimal meat, ice and good quality merchandise. There is much to do during the day including a large day-use area at Lightning Lakes with canoes for rent and horseback riding on the way. The Alpine meadows are spectacular and flowers will be in bloom. It's a good road up and is about 25 minutes drive to the top from the

lodge. See you there! Info: 734-9726.

**Please note** that the residents of Eastgate have expressed their concern regarding campfires. Presently, there is no ban on fires provided the fire has a hand guard around it and there is water available in case of problems. We ask that you please heed these restrictions, or whatever other restrictions may be in place at the time. For up-to-date restrictions, call the Merrit Forest District at 1-800-665-1511.

For weather reports, see [http://www.theweathernetwork.com/features/parks/manning\\_pp.htm](http://www.theweathernetwork.com/features/parks/manning_pp.htm)

### GVRD Star Party at Aldergrove Lake Sunday, August 12

Contact Craig Breckenridge for details.

### Mount Kobau Star Party August 18-26

Guest speakers: Alan Dyer, author, astrophotographer; Gary Seronik, *Sky & Telescope* Associate Editor, amateur telescope maker. Note: Overnight campers using the site outside of the official star party dates must display a Ministry of Forests Camping Pass. The cost is \$8 per night, or \$27 for a season's pass. Passes are obtainable in most major B.C. communities.

### Manning Star Party #2 September 14-15

See map on page 6 of this issue for directions. ★

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## How to Tell if Your Scope is Too Big

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- You accidentally drop your mirror and all residents within a mile radius of you report a magnitude 6 earthquake.
- You hire the fire department's longest ladder truck to help you reach the eyepiece.
- It takes all of your lotto 6/49 winnings to pay Barry Arnold for the grinding and polishing of your mirror.
- You need a police escort and a huge semi trailer with a "wide load" sign on the rear to

transport your scope to the observing site.

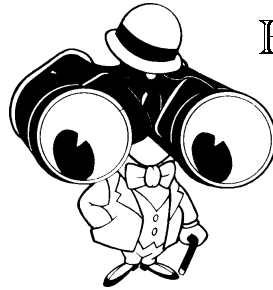
- The counterweight of your scope consists of the driving wheels of an old steam locomotive.
- You can't transport your scope over the high level bridge due to size restrictions.
- You accidentally point your scope at the sun and set the adjacent forest on fire.
- You hire a team of Sumo wrestlers to help you lift your mirror into the cell.

- Your secondary mirror is larger than Bob Drew's primary.
- Your old scope becomes the finder scope for your new one. (from the Edmonton Centre's newsletter, *Stardust*) ★

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1 1/4" colour filters	each \$ 13.00