



NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC

VOLUME 2000 ISSUE 3

MAY/JUNE 2000

Perhaps you can't own it here...	1
Cosmic Pressure Fronts Mapped by Chandra	2
President's Message	3
Fraser River Festival	3
Binocular Mirror Mount	4
Upcoming Events	5
My First Telescope, part II	6

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.

May: Randy Attwood, National President.

June: Dr. Jaymie Matthews of UBC, project scientist for MOST, Canada's first space telescope.

July: Gary Wolanski and his 16" aluminum wonder.

August: Dr. John Hutchings of the DAO, project scientist for FUSE.

Next Issue Deadline

Material for the July Nova should be submitted by Monday, July 4, 2000. Please send submissions to:

Bob Parry
(robpar@ballard.com)

or Gordon Farrell
(gfarrell@home.com)

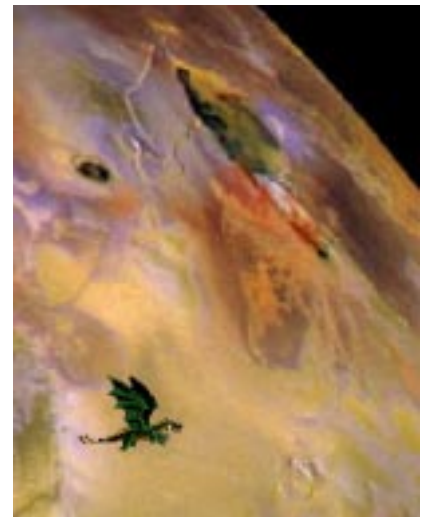
Perhaps you can't own it here... but you can own it up there!

by Angela Squires and the Lunar Embassy

A TV soundbyte had me diving for my computer. Nobody can do that, I cried. Yes, they can and have done, completely legally too! This was my introduction to the remarkable Lunar Embassy websites. <http://www.lunarembassy.com> is the brainchild of the charmingly cheeky and persistent Mr. Dennis Hope, a.k.a. the Head Cheese. I thank him very much for permission to publish copyrighted text from his websites.

In 1980, a very bright, young and handsome Mr. Dennis Hope went to his local US Governmental Office for claim registries, the San Francisco County Seat, and made a claim for the entire lunar surface, as well as the surface of all the other eight planets of our solar system and their moons (except Earth and the sun). Obviously, he was at first taken for a crackpot, until three supervisors, two floors and five hours later, the main supervisor accepted and registered his claim.

Contrary to popular belief, ownership by individuals of extraterrestrial properties is not forbidden. The 1967 UN Outer Space Treaty stipulates that no government can own extraterrestrial property, but it neglected to mention individuals or corporations. In 1984, the UN attempted to plug this loophole, which they were very aware of, by introducing the ill-fated Moon Treaty. That treaty forbids the exploitation of extraterrestrial resources, including ownership, for anyone period. The vast majority of Member States refused to sign it because it did not make sense to prohibit in law all fu-



ture use of the Moon's resources. The loophole still exists today and 'legal beagles' can read the Space Law page themselves. Therefore, one can become the legal owner of an extraterrestrial body, if you are the first to claim it, which Dennis Hope did. He was then obliged to inform others besides the US Government. The United Nations General Assembly and the Russian Government were duly informed in writing of his claim and the legal intent to sell extraterrestrial properties. The US government had several years to contest such a claim. They never did. Neither did the United Nations nor the Russian Government. Do these bodies know something they are not telling us or Dennis? Anyway, he took the next step and copyrighted his work with the US Copyright registry office. So, with his claim and Copyright Registration Certificate from the US Gov-

continued on page 8

Cosmic Pressure Fronts Mapped by Chandra

NASA Press Release

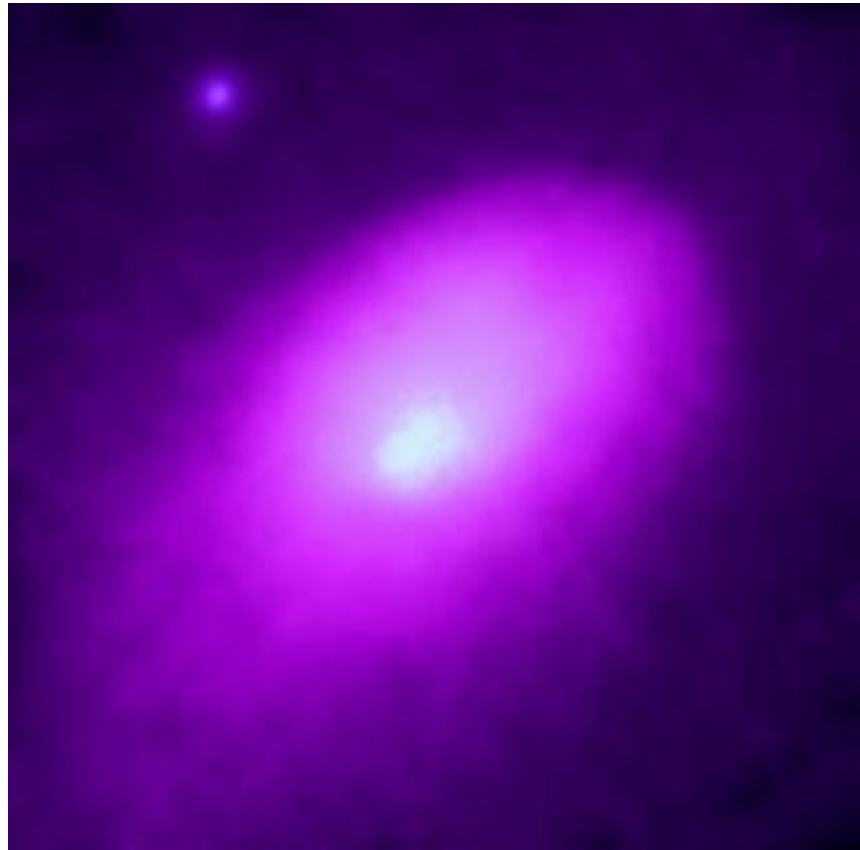
A colossal cosmic “weather system” produced by the collision of two giant clusters of galaxies has been imaged by NASA’s Chandra X-ray Observatory. For the first time, the pressure fronts in the system can be traced in detail, and they show a bright but relatively cool 50 million degree central region embedded in a large elongated cloud of 70 million degree gas, all of which is roiling in a faint “atmosphere” of 100 million degree gas.

“We can compare this to an intergalactic cold front,” said Maxim Markevitch of the Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass., and leader of the international team involved in the analysis of the observations. “A major difference is that in this case, cold means 70 million degrees.”

The gas clouds are in the core of a galaxy cluster known as Abell 2142. The cluster is six million light years across and contains hundreds of galaxies and enough gas to make a thousand more. It is one of the most massive objects in the universe. Galaxy clusters grow to vast sizes as smaller clusters are pulled inward under the influence of gravity. They collide and merge over the course of billions of years, releasing tremendous amounts of energy that heats the cluster gas to 100 million degrees.

The Chandra data provides the first detailed look at the late stages of this merger process. Previously, scientists had used the German-US Roentgen satellite to produce a broad-brush picture of the cluster. The elongated shape of the bright cloud suggested that two clouds were in the process of coalescing into one, but the details remained unclear. Chandra is able to measure variations of temperature, density and pressure with unprecedented resolution.

“Now we can begin to understand the physics of these mergers, which are among the most energetic events in the universe,” said Markevitch. “The pres-



NASA/CXC/ISAO

Chandra X-ray Observatory image of the galaxy cluster Abell 2142.

The image shows a colossal cosmic “weather system” produced by the collision of two giant clusters of galaxies. For the first time, the pressure fronts in the system can be traced in detail, and they show a bright but relatively cool 50 million degree central region (white) embedded in large elongated cloud of 70 million degree gas (magenta), all of which is roiling in a faint “atmosphere” of 100 million degree gas (faint magenta and dark blue).

Abell 2142 is six million light years across and contains hundreds of galaxies and enough gas to make a thousand more. It is one of the most massive objects in the universe. Galaxy clusters grow to vast sizes as smaller clusters are pulled inward under the influence of gravity. They collide and merge over the course of billions of years, releasing tremendous amounts of energy that heats the cluster gas. The smoothness of the elongated cloud in the Chandra image suggests that these sub-clusters collided two or three times in a billion years or more, and have nearly completed their merger.

sure and density maps of the cluster show a sharp boundary that can only exist in the moving environment of a merger.”

With this information, scientists can make a comparison with computer

simulations of cosmic mergers. This comparison, which is in the early stages, shows that this merger has progressed to an advanced stage. Strong shock waves predicted by the theory for the initial collision of clusters are

continued on page 9

President's Message

In lieu of the usual President's Message, Vancouver Centre would like to extend our sincere sympathy to Bob Parry on the recent death of his Father. *

Fraser River Festival

Sunday, June 4th, 10am to 4pm. at Deas Island Park, Ladner. This is the biggest GVRD event in which we participate, with up to 10,000 visitors. Under our agreement with the GVRD for the use of the Aldergrove Lake Park observing site, we participate in at least two events per year. We thank the Aldergrove regulars who do a great job for us on events held in the park. Steve Whitehouse is the coordinator on these, so contact him to get involved at 294-2244 daytime.

FRF has up to 50 exhibitor booths, food concessions, Burvilla House, boat trips and other fun stuff. Interactive displays and activities are encouraged for all ages so bring your family. We need volunteers with 'scopes, especially sun filter equipped, but there's lots of terrestrial activity to focus on, too! Others are needed to help supervise activity tables, keep an eye on our displays, give information and help spread the load. With more people, it gives us all a chance to enjoy the day and check out other exhibits. Please let Angela know if you can help, even for part of the day. Volunteers should arrive before 10am if parking on-site and drive out after 4pm. Off-site parking is available nearby with shuttle buses all day. *

Errata

In the March/April 2000 issue, the byline for the article *A View of the Future* was missing. This article was written by Marc Verschueren.

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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.

About RASC

The Vancouver Centre, RASC meets at 7:30 PM, in the auditorium of the H.R. MacMillan Planetarium and Vancouver Museum complex 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 \$45.00 per year (\$22.50 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 us at the address or phone below.

NOVA, the newsletter of the Vancouver Centre, Royal Astronomical Society of Canada, 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 downloaded via SpaceBase™ at 473-9357, 58, 59.

Web Site

<http://pacific-space-center.bc.ca/rasc.html>
or <http://www.rasc.ca> and follow the link to **Vancouver**.

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Binocular Mirror Mount

by Al Canarelli

Using binoculars to scan the night sky has always held a special attraction for me. The wide field images and the natural effect of viewing with both eyes is a freedom that is not generally found using telescopes. My first attempt at using binoculars to view celestial objects started years ago with an inexpensive pair of 7x30's, which my father used at football games. That cheap pair of binoculars and my budding interest in astronomy allowed me to open a door and step into a whole new world. I quickly learned the night sky and, a few years later, purchased my first telescope. This was the beginning of a passion that started more than 40 years ago.

I have owned many binoculars since that first pair but as my binoculars grew in size, weight and magnification, I sadly found that comfort and ease of viewing issues diminished my enthusiasm for using them. I recognized very early that I needed more than just a solid tripod if I was going to continue enjoying binoculars.

While tripods helped to make the binocular viewing experience more tolerable, they were far from the complete answer. I soon purchased a popular and relatively expensive counter-weighted binocular mount, which I believed would be the panacea I was seeking. As I recall, that mount was considerably more expensive than the binocular I used with it. This mount was billed as the best available—if this didn't do the trick, I thought, nothing would. I found the mount to be very steady, easily pointing the binocular to any position in the sky. I also found that the viewing experience was a bit more comfortable but it still fell far short of the panacea I expected. Viewing, even with this mount, required me to contort my body into some very athletic and painful positions, particularly when viewing directly overhead. Any extended period of binocular viewing required the traditional two days of rest and recuperation from back and neck pains.

About 3 years ago, I stumbled on a unique binocular mount concept which promised exactly what I needed. I believe I first saw a write up of this type of mount in *Sky and Telescope* and later found an enterprising amateur astronomer who makes and sells them. The mirror mount attacks the traditional comfort issues of viewing with binoculars in an entirely different manner. Instead of employing heavy, bulky and expensive mechanical contraptions to solve the comfort problems, the mirror mount (as the name implies) uses mirrors as a very simple but elegant solution.

The mount is constructed of ¼" aluminum flat stock with an upright post to which the binocular is fastened. Only one screw is used and a tripod adapter is not required. The actual position of the post on the mount is determined by the size of the binocular that is intended for use with the mount. The binocular objective lenses are trained on that portion of the mount which hold two first-surface mirrors at an angle of about 45 degrees relative to the objectives. One of the mirrors is adjustable for collimation. The mount does exactly the same for the binocular that the diagonal does for the telescope. The only difference is that the direction of the light path is changed at the aperture end rather than at the eyepiece end. The results are outstanding!

Performance

The very first time I used the mount, I immediately identified two important benefits. The mount weighs only 3 pounds and sets up in minutes. It quickly attaches to any tripod using a ¼ x 20 mounting screw. There's no need to carry a heavy, awkward and cumbersome parallelogram arm—and no need for counter weights! The only requirement is a reasonably solid photography-type tripod with a pan head.

Prior to viewing, it is necessary to collimate the mount mirrors for optimal performance. This is easily accom-



Amateur astronomer Ian Teixeira has developed his own binocular mount, similar to the one reviewed. Ian's design is pictured above. For more information, contact Ian at teixeira@golden.net

plished using built-in collimation knobs, which minutely adjust the plane of one of the mirrors. In practice, you simply point the binocular towards a streetlight or bright star and adjust the collimation knobs until the images through the binocular merge. I found this process to be natural and easy, and it can be accomplished in a minute or less.

One of my chief concerns with this mount was the possibility of light loss and/or optical aberrations resulting from the introduction of mirrors in the binocular's light path. My first glance proved my suspicions to be completely unfounded. Images are totally unaffected. There is no light loss and there are no distortions; viewing through the mirrors is essentially the same as viewing without them.

continued on page 7

Upcoming Events

CASCA 2000

Canadian Astronomical Society's 31st Annual Meeting.

25 - 28 MAY 2000 University of British Columbia, Vancouver BC.

The 31st Annual Meeting of the Canadian Astronomical Society (CASCA) will take place in Vancouver, BC, between the 25th and 28th May 2000. Over 100 astronomers, mostly from Canada, are expected. The conference will be held daily in the Forestry Building of the University of British Columbia (UBC) from 8:30 a.m. to 6:00 p.m. PDT (8:30 a.m. to 4:00 p.m. PDT on Sunday the 28th).

There will be several press releases about some of the latest findings in astronomy and astrophysics at the meeting. Also, invited talks covering a wide range of topics such as:

- The Sudbury Neutrino Observatory
- Measurements of the Cosmic Microwave Background Anisotropy
- Extra-solar Giant Planets
- Halo Dark Matter Searches
- Upcoming Canadian Space Astrophysics Missions
- Native Cosmology

A special press briefing on "THE FUTURE OF CANADIAN ASTRONOMY" as outlined in the Long Range Plan Report "The Origin of Structure in the Universe" will be held on Friday (26 May 10:00 a.m. PDT in the Forestry Building).

Finally, this year's Annual Meeting is preceded by a workshop on MOST, Canada's first space telescope. This workshop will also be held at UBC between the 22nd and 24th May 2000. More details about CASCA 2000 can be obtained at:

<http://www.astro.ubc.ca/casca2000/>

GA 2000: The Millennium Assembly

Summer is the season when starry

skies, late nights, astronomers and mosquitoes all gravitate to each other. This year in Winnipeg we anticipate the brightest stars, the smartest astronomers and the biggest mosquitoes ever! It all comes together from June 29 through July 02. Planned for this event is an exciting line-up of speakers and paper presentations, as well as events and activities to be enjoyed and remembered by family members for years to come.

The list includes three dynamite speakers for the Assembly, lead off by Dr. Wendy Freedman, one of the three co-leaders of the Hubble Space Telescope Key Project. Recently featured in *Astronomy* magazine, Dr. Freedman's interests lie at the beginning of things—the age and evolution of the universe. Those beautiful images from Hubble showing distant galaxies, Cepheid variables, and the transient glow of supernovae are all part of her search for the beginning of it all.

Steve Edberg and Don Parker are well-known names in the amateur and professional community. Both appear frequently in the pages of *Sky and Telescope* and *Astronomy* magazine, Don for his spectacular high-resolution images of the planets and Steve for his equipment reviews and observing tips. In his day job, Steve works for the Jet Propulsion Laboratory in Pasadena where he helps manage the Cassini probe that is now on its way to Saturn. Don is the consummate planetary observer whose first love is Mars. His work has found a place in professional journals and graced the pages of other publications as well.

The centre of activity will be the campus of the University of Manitoba. Reasonably priced accommodation is available at St John's College. Meals, residences, lectures, the banquet, the Barbecue—everything is within walking distance. For family leisure and entertainment, arrangements have been made for lots of activity. Waiting for visitors is the Zoo, The Fort Whyte Nature Centre, Oak Hammock Marsh

Waterbird Sanctuary, the Museum of Man and Nature, and the Planetarium. The Red River Exhibition will be in full swing until the 1st of July. Just one hour away are the sunny beaches of Lake Manitoba, reckoned one of the best in the world with their incredible white sands. From the centre of Winnipeg, at the historic confluence of the Assiniboine and the Red Rivers, is The Forks, from which river boat trips go downriver to the restored Hudson Bay Company fort. The Forks is also the place to be on Canada Day to join in the big party to celebrate our national identity with a Stage Show and Fireworks, or perhaps visit the shops, Children's Museum, or take in the Children's Theatre. Astronomy has not been forgotten either—the Winnipeg Centre's observatory with its 14" 'scope is always pointed up!

Information and registration packages can be found at the GA 2000 web site, <http://www.rasc.ca/ga2000/>, by contacting Stan Runge at stan.runge@mts.mb.ca, or by sending a note to Stan Runge, GA 2000, 35 Cunard Place, Winnipeg, MB, R3T 5M1. Information on poster and paper presentations can also be found in the same places. A limited number of registration packages are also available through your Centre representatives. Love to see ya!

3rd Annual Mars Society Conference

The 3rd Annual Mars Society Conference will be held at Ryerson Polytechnic University in Toronto on August 10, 2000 to August 13, 2000. The traditional Saturday night banquet and town hall meeting will be held at the Sheraton Hotel, on August 12, 2000.

Please see the international Mars Society webpage at <http://www.marssociety.org> for registration information. Conference details may also be found on the Toronto Chapter webpage at <http://chapters.marssociety.org/toronto/> *
*

My First Telescope, part II - A Suburban Viewing Session

by Gordon Farrell

Last time, I described my first experiences with my new telescope. Having exhausted the entertainment possibilities of my urban balcony, I decided it was time for an outing.

An opportunity to venture outdoors presented itself in a phone call from my friend, asking if I'd like to go observing with him. Being a work night, we decided to stay within the Lower Mainland and settled on Burnaby Mountain as a good spot. So I packed up my scope and met my friend in the parking lot at Centennial Park. From here, we found a darkish spot near the totem poles (and away from the bored teenagers).

I set up my 80mm refractor and my friend set up his 8" (203mm) Schmidt-Cassegrain. I had the feeling my scope would look equally at home as a finder scope on his SCT, but I put on a brave face and set about finding some targets.

The Mysteries of Magnification

So, given a scope and some eyepieces, exactly how much magnification are you going to get? If you're a novice like me, you'll have to look it up, but I'll save you the trouble. Here's the formula:

$$\text{magnification} = \frac{\text{focal_length}}{\text{eyepiece_length}}$$

By this formula, my scope, with its 400mm focal length, and a 25mm eyepiece will give a magnification power of 16 times. With my 2x Barlow lens, I can double this to 32 times. The shorter the eyepiece, the higher the power. The downside of a really short eyepiece is the really small piece of glass in it. This makes for poor "eye relief," forcing you to keep your eye very still over a very small spot in order to see anything. This is where a scope with a longer focal length, like the 2032mm focal length of my friend's SCT, comes in handy—you can get a far higher magnification with a much

longer eyepiece and a much shakier head (quite handy on those cold winter nights). By the formula, the SCT gives a magnification of 81 times with the same 25mm eyepiece.

To get an idea of the how long an eyepiece you can get away with on a particular scope, you can look at the focal ratio. The higher the focal ratio, the longer the eyepiece you can use to get the same measure of magnification. My scope, for example, has a focal ratio of f/5, while my friend's SCT has a focal ratio of f/10. You can calculate the focal ratio of a scope by dividing the focal length by the diameter of the objective lens or mirror (i.e. 400mm / 80mm = 5).

We shall see what we shall see

Once we were set up, we started hunting for targets. Starting with the easy stuff, we looked for Jupiter and Saturn. Jupiter looked pretty good through my scope, showing two bands, some colour and the four Galilean satellites. I borrowed my friend's 17mm eyepiece which, along with my Barlow, gave me (do the math with me) 47 times magnification. This did reveal some more detail, but it also showed one of the problems with short focal ratio achromatic refractors. As you increase magnification, planets take on a bluish-purple halo. Apochromatic refractors don't have this problem, but who can afford an apochromatic refractor? A better solution is a larger focal ratio or a reflector, such as the SCT next to me. It showed no halo on Jupiter, but the colour wasn't quite as good. The complicated optics of an SCT, which allow for a long focal length in a compact package, don't come without a price. Colours aren't as vivid as those of a refractor, but without doing a side-by-side comparison, you probably won't notice the difference. Still, score one for the little scope!

Saturn was also an impressive sight through both scopes. I could see the shadow of the rings across the planet, and could just make out the shadow of

the planet on the rings. I could also just make out Cassini's division and, if I concentrated really hard, a little spec I took to be Titan. Through the SCT, Titan was much easier to see, along with three other Saturnian satellites I can't identify (I am new to this, after all). Aside from the extra moons, the SCT really couldn't bring out much more detail than my scope. This had nothing to do with the scopes, but rather the poor seeing. Both planets were low in the sky, and some thin clouds were creeping in as the night wore on. Given a better night with the planets high in the sky, I'm certain they would have been quite impressive through the SCT.

Fuzzy blobs

Since the moon wasn't up (which was really a good thing), the next objects on our list were one of the mainstays of amateur astronomy, the fuzzy blobs. Our first fuzzy blob was the best known and brightest, the Orion Nebula (M42). I pointed my scope over at it and saw a faint, fuzzy smear. Not terribly impressive, but then I remembered that ALP filter I bought and gave it a try. What a difference! The nebula appeared to be about twice as bright and was starting to reveal some detail, especially with averted vision. The big light bucket of the SCT was really impressive, especially with the ALP filter, showing a lot of detail and giving a good view of the Trapezium. I could just make out $\frac{3}{4}$ of the Trapezium in my scope, but couldn't quite make out the fourth star.

We next tried to find the Andromeda galaxy (M31). This was actually harder than you'd think. The western skies were deteriorating rapidly by then, but I thought I found it through the binoculars. I tried finding that same spot in the sky through my finder scope, but my upside-down-and-backwards skills aren't very good yet, so it was to no avail. Another sweep with the binoculars also failed to turn it up, so the clouds won that battle.

continued on page 9

continued from page 4

Actual viewing with the mirror mount was truly a delight! For the very first time, I was able to view objects almost directly overhead in an unstressed and comfortable position—this was truly a first. The actual position of the binocular is almost parallel with the ground when viewing objects directly overhead. This allows you to view in a standing or seated position without the need to bend your neck. That first viewing session was almost 4 hours in duration and I suffered none of the customary ill effects as had been the case in the past. The mirror mount is a definite “keeper.”

Perhaps the only caveat surrounding the mirror mount is the difficulty in pointing. Remember, when the binocular is pointing towards the horizon, the optical axis is actually trained on a point near the zenith. Pointing was awkward in the beginning but I found that I quickly developed a knack for the new task and almost automatically made mental adjustments to put any desired target in or very close to the field of view. With time and some practice, the new task of pointing becomes perfunctory.

If you are literally exhausted after a binocular viewing session, if you reject the idea of spending more for a binocular mount than for the binocular, then the mirror mount may be just what you need. ★

Star Party Dates 2000

Pine Mountain, Oregon:

May 30 - June 7 approx.

Manning Park:

June 30 - July 3 and Sept. 1 - 4. (3 day weekends).

Mount Kobau, Okanagan:

July 29 - August 6.

(N.B. Public Program at Manning Park TBA)

ASTROCOMPUTING

SpaceBase™ (473-9357). 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, current world space news and astronomy programs. Provides a file uploading facility for submitting articles and imagery to Nova.

LIBRARY

The centre has a large library of books, magazines and old Nova'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 acquisitions are appreciated.

RASCVC on the Internet

http://members.home.net/ronaldwp/rasc_vc/index.html

H.R. MACMILLAN SPACE CENTRE

The Pacific Space Centre Society is a non-profit organization which operates the H.R. MacMillan Planetarium and Gordon M. Southam Observatory. Annual Membership (\$30 Individual, \$65 Family) includes a newsletter, Discounts on Space Camps, special programs and lectures, Vancouver Museum Discounts, and free admission to the Space Centre. Admission to the Pacific Space Centre includes: Astronomy shows, Motion Simulator rides, multimedia shows in GroundStation Canada, and access to the Cosmic Courtyard Exhibit Gallery. For Membership information, call Mahi Jordao at 738-7827, local 237 for information. You can also reach them on the Internet at <http://www.pacific-space-centre.bc.ca/>

MEMBERSHIP HAS ITS PRIVILEGES!

New members, did you know? The Vancouver Centre has 6 telescopes 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 734-8708, or see him in the lobby of the GSO after the members meeting. The loaner period is for one month only. All telescopes 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 members 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 888-1505 or Howard Morgan at 856-9186.

continued from page 1

ernment in hand, Mr. Hope became the largest registered land owner in the Solar System... as far as we know on Earth that is!

This is the legal basis on which the Lunar Embassy is selling extraterrestrial properties and the reason they have been able to conduct their business without any reproach from the US Government, or any other, for 20 years. The kindest reaction of the US Government was, actually, that two former Presidents became Moon property owners!

The US is the land of raging litigation fueled by rapacious lawyers, so there is no doubt in my mind that the Lunar Embassy has been allowed to continue only because they are not getting rich! They also conduct their business tastefully, in a highly ethical manner, make no misleading assertions and give superb value at nominal cost—a practice I wish more would emulate. Apparently, Dennis declined a \$50 million offer for the entire Moon, preferring to sell properties to thousands of buyers, most of them individuals. According to Jim Davidson on the Houston Space Society website, who spoke with Dennis, the sale of lunar property is “a serious endeavor to interest a vast number of people at an economic level in going there and starting the development of this new frontier.” I think it’s a fantastic, fun thing to do, which provides a living and interests ordinary people in the planets in a unique and entertaining way.

There are now over 63,000 extraterrestrial property owners with the Moon most popular at 52,050 followed by Mars with 11,200 owners. Each planetary body has its own “Shop” or webpage. Currently, you can also buy on Venus and—my favourite—Jupiter’s volcanic moon, Io. Each deed you buy contains 2000 acres of property, about 3.125 square miles, and costs just \$19.99! Moon lots of 1,777 acres are \$15.99. You receive 11- by 14-inch documents printed on simulated parchment consisting of a Property Deed, a

Constitution Bill of Rights and a Site Map with the approximate location of your property. You also receive a copy of a short story entitled “YOU OWN WHAT?” which includes a copy of the declaration of ownership that was filed with the US government—a bargain in itself.

Other possible life forms are granted far more consideration than we have extended our fellow creatures on Earth. If such extraterrestrial life is found, and if such life is sentient enough to make a decision of any kind, in any form, language or gesture, as to whether it would like you on its property or not, then the opinion of the life form will take absolute priority and OVERRULE any rules we may have made. This is regardless of whether such extraterrestrial opinions make sense to humans or not. This means that if, when you get there, a little green thing is on your property, and it says, “We don’t want you here,” well then, unfortunately your 20 dollars were a bad investment and the Lunar Embassy’s too! Further, should any life form that is NOT sentient exist on your property, including microbes, it is your responsibility to ensure that it does not come to any harm due to your presence on the planet.

Science fiction fans will be impressed by the policy regarding another fascinating moon of Jupiter.

Europa will not be for sale out of respect for the works of the visionary and author Arthur C. Clarke and the famous quote from his novel *2010: odyssey two*, which was a message beamed back to Earth from an alien race:

“ALL THESE WORLDS ARE YOURS—
EXCEPT EUROPA. ATTEMPT NO LANDINGS THERE.”

I don’t think NASA will pay any attention to Clarke’s writings when they are able to send a probe down to Europa, which may have an ocean of liquid water under its ice. Hang on to your Y2K emergency kit just in case a Europa Lander does better than the

Mars Polar one and someone’s home!

If, like me, you once thought your mother and father came from another planet, you were right! After touring the planetary body shops (!) visit T.H.E.M. Shop, an acronym for ‘Truth Has Extraterrestrial Meaning’. If your forbears came from another planet, the question is—which one? The denizens of T.H.E.M. Shop claim to have six thousand year old information that enables anyone to test themselves and identify their true planet of origin. For a mere \$24.95, you can use the Alien Test Kit (ATK) to unearth your extraterrestrial kinship and trace your creation to a specific planet. More importantly, you can test others! Have you ever suspected that one of your coworkers may not be, shall we say, one of us? Are you sure your mate is an Earthling?

Apart from the fact that the Alien Test Kit comes with the Lunar Embassy’s full, no-quibble, 30-day money back guarantee, they also guarantee your entertainment. “If you do this in a group of people and you are not entertained by it, then you are either (a) drunk on Pangalactic Gargle Blasters or (b) braindead or (c) an alien. We guarantee you this is more than just fun.” I believe T.H.E.M. because when I read the Embassy’s Email Gems I fell off my computer chair laughing. The ATK comes with tons of neat-looking stuff and we should get one for RASCVC. We have a number of potential aliens just on Council alone, but our members... I’ll ask the Head Cheese about a special bulk rate ATK! While my alien origin was never in doubt, I cannot always detect distant cousins, at least among astronomers. Teehee!

E-Mail Gem #1: *I’m worried about my neighbors. If they’re strange, what can I do?*

Well, we get this question more often than you might think. We think there’s a neighbor paranoia out there somewhere. Well. Let’s be honest. We have no answer to that, other than that you

continued on page 9

continued from page 8

can move back to earth if you don't like the neighbors. Its also unlikely you'll ever see them, seeing as you own a piece of land the size of Manhattan. However there is one good side. If your property is on the Moon, and your Lunar neighbor has a really loud stereo, what do you care? There is no atmosphere on the Moon, and therefore you won't hear a thing! You'll get the best sleep there ever. We guarantee it.

E-Mail Gem #2: *Am I allowed to move my Mobile Home to my property on the Moon, because the local campground is charging me a fortune?*

After having verified that this was actually a serious question, the answer is yes, of course you can. It's your property after all. You can do on it whatever you like. (Except offend the Head Cheese of course.) We also asked the gentleman in question that, if he manages to do it, we would like to be the first to know.

E-Mail Gem #3: *How do I declare the property on my Tax Form?*

This one, we believe deserves a 10/10 for brilliance. We have NO IDEA. Yes, you are a property owner and you should not keep this from the taxman. We will not advise you to commit tax fraud, however we are also sure it will confuse him, big time. Seeing as the value of the property is very low, i.e. less than 20 Dollars, it's debatable whether this is actually a Corpus Delicti you can be taken to court for if you don't declare it. The Lunar Embassy shall investigate this further! But don't you think you life is complex enough as it is? Ours is.

Visitors, alien or not, are welcome at the Lunar Embassy, 6000 Airport Road, Rio Vista, CA 94571. Embassy telephone 707-374-6445; fax 707-374-6863. Rio Vista is roughly halfway between San Francisco and Sacramento, less than 30 miles from the Napa Valley...sigh! *

continued from page 6

Moving farther up the western sky, we did manage to find the Pleiades (M45), still visible above the band of clouds. This is a great target for a small scope; large and bright, it looks beautiful through low power.

More power!

By this time it was getting late, so we decided to close out the night with a little experiment. Exactly how high could I push my scope? I chose a nice, high target, Mizar in Ursa Major, and started cranking up the power.

Now with every scope, there comes a point where you stop gaining anything by adding more power. All you're going to do is turn a small, fuzzy smudge into a bigger, fuzzier smudge. I've heard that you can push an 80mm scope up to 150 power if you're really lucky, so I wanted to see how lucky I am. Borrowing some of my friend's shorter eyepieces, I managed to get my scope up to about 100 power and things were still looking pretty good. The sky around the stars was starting to get a little grainy, but the stars themselves were still well defined points. For laughs, I pushed it up over 150 power and was rewarded with a mess—the stars were starting to get fuzzy. Given better skies, I probably could have pushed it a little further over 100 power, but I was still quite happy with what I was getting. We got the SCT up to well over 200 power before we got bored and decided to call it a night.

Next time, my trip to the darker skies of Qualicum Beach, where I learned that I still have a lot to learn. *



continued from page 2

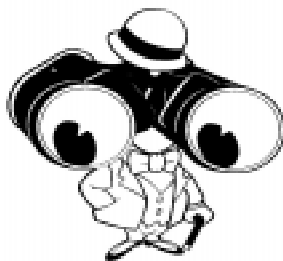
not observed. It appears likely that these sub-clusters have collided two or three times in a billion years or more, and have nearly completed their merger.

The observations were made on August 20, 1999 using the Advanced CCD Imaging Spectrometer (ACIS). The team involved scientists from Harvard-Smithsonian; the Massachusetts Institute of Technology, Cambridge, Mass.; NASA's Marshall Space Flight Center, Huntsville, Ala.; the University of Hawaii, Honolulu; the University of Birmingham, U.K.; the University of Wollongong, Australia; the Space Research Organization Netherlands; the University of Rome, Italy; and the Russian Academy of Sciences. The results will be published in an upcoming issue of the *Astrophysical Journal*. *

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