



NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC

VOLUME 2005 ISSUE 1

JANUARY/FEBRUARY 2005

The Night Sky	1
Done Dies and Gone...	2
President's Message	3
Observing Sites	4
Upcoming Events	6
Occultations...	8
Members' Gallery	10

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.

Jan. 11: Bill Ronald and Dan Collier will demonstrate how to observe asteroid occultations.

Feb. 8: David Halliday, VP and Director of Special Projects at AMEC Dynamic Structures, looks back at successful projects like CFHT, Keck and Gemini and will discuss the coming next generation of telescopes.

Next Issue Deadline

Material for the March Nova should be submitted by Monday, Feb. 28, 2005. Please send submissions to:

Gordon Farrell
(gfarrell@shaw.ca)

The Night Sky

by Ron Jerome

The viewing opportunities this winter have been sparse. Was there a Leonid shower in November or a Geminid shower in December? In this neighbourhood, who can tell? The clouds did part long enough for Bill Ronald, Phil Morris and Dan Collier to record the predicted occultation of (1477) Bonsdorffia/(80)Sappho, although, in their case, it was a “fly-by” as they were south of the actual event boundary.

On the first clear December weekend I knew Doug Montgomery would phone and invite me to go viewing. I knew that because I had a dinner party to attend and my wife would not let me back out. Doug wanted to see the new comet; so did I.

The next clear night was the following mid-week. I stepped out into the parking lot after my Wednesday evening bridge game and stared up into

a sparkling, star-filled sky. There was Orion, and while I knew from a Sky and Telescope article where to look for Machholz, it was not visible to my spectacle enhanced “naked” eye. It was 11:45pm by the time I arrived home (the only problem with astronomy as a hobby is that my day job interferes). While my body was aiming for bed, I knew that I had better catch this opportunity before the clouds settled in on the city again.

“How was your bridge?” Anne asked as I stepped into the house. “Terrible,” I replied, “But I do have a chance to see Comet Machholz tonight!” Taking the binoculars off the closet shelf, I stepped onto the front porch and pulled the plug on all the Christmas lights before walking up the driveway (yes, Chris, I know they are light pollutants, but it is Christmas...). Orion was

continued on page 7

Done Died and Gone to Space Heaven!

by Barry Shanko

Not quite, but this is as close as I'm going to get. From October 4 to 8, the International Astronautics Federation (IAF) 2004 conference visited Vancouver's convention centre. This is the largest gathering of aerospace professionals in the world with over 2500 registered. I'd read about these conferences for years, but this was the first time I'd been to one, mostly because they'd always been held in places far way and too expensive.

With my press credentials, I was able to attend all the events, displays, lectures and press conferences for free. Looking back on it, I think I got more than my money's worth. The event was far too large for me to describe in detail, so what follows are my impressions of a very busy week.

MONDAY

Since I showed up late and

then had to fix a screw up with my press credentials, I didn't get to any of the lectures so I used the time to check out the exhibits, and there were lots of them; they took up most of Canada Place's display area. There were two types: government and industry.

In the industry category were outfits like Lockheed-Martin and our home grown outfits like MDA and MDRobotics, among others. Lots of goodies to be had, ranging all the way from CD-ROMs of MDR's proposed Hubble rescue to nicely done posters which now hang on various walls of mine. But I was surprised Boeing wasn't there.

In the government category, there were the usual suspects like NASA, CSA and ESA. The one that surprised me was India's. Two things drew my attention, the first being the dedication they have to Earth observation applications. I counted at least three different types of satellites they are planning to launch in the

next few years. If the west isn't careful, they're going to not only catch up, but surpass us, and soon. A few weeks later, the industry magazine *Aviation Week and Space Technology* paralleled my thinking in a major cover story on their program.

The second surprise was the effort they are putting into entering the launch market. They are developing a series of launchers not only for their own program, but are selling them to the rest of the world. Software geeks aren't the only ones who should be worried about job offshoring.

For the public, there were free lectures every night as part of an outreach program. The kick off was Dr. Bruce Margon, Deputy Director of the Space Telescope Science Institute. Rather than go through everything he said, let's say Uncle Ray has serious competition.

You can tell a class outfit by

continued on page 5



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N3/05

President's Message

My wife gave me my first astronomy book, *NightWatch*, as a Christmas present in 1996. I had just completed an introductory course to the night sky offered at the SFU Downtown Campus. Over ten evenings, I had become familiar with the lunar cycle, had learned some basic terminology and could identify a fair number of constellations. One of the sessions had comprised a field trip to Stanley Park where the class had actually looked at the night sky and put our new found knowledge to work. Another had been a guest visit to a monthly meeting of the RASC Vancouver Centre.

Following the course, I bought a good pair of binoculars and had my first "wow" experience seeing the moons of Jupiter and a hint of Saturn's rings. Next came the purchase of a 5" Newtonian. As I learned to waltz the equatorial mount about the night sky, my *NightWatch* became my observing diary, the dates of my encounters with various celestial objects penned in the margins. Not recorded were the frustrations of being unable to find certain sights in spite of my best efforts.

I attended some viewing sessions with various RASC members and in all cases was struck by their eagerness to share their knowledge and instruments with a newcomer. It was somewhat intimidating at first because of my

continued on page 6

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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 \$55.00 per year (\$31.25 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 or mailed to the address on page 5.

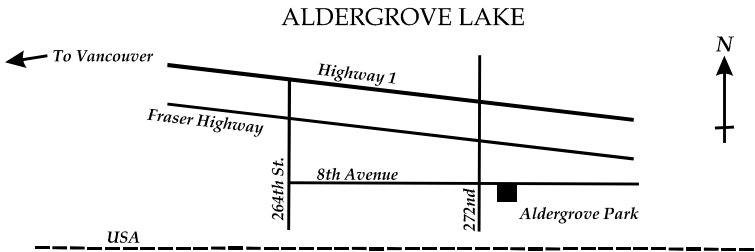
Advertising

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.

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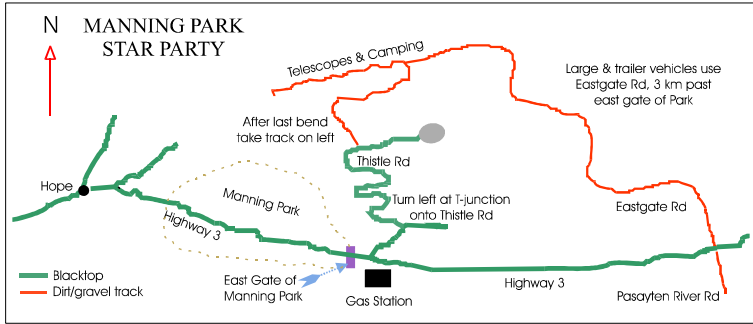
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Observing Sites

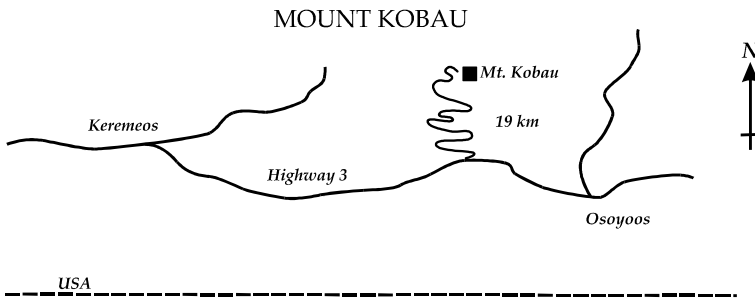


Dale McNabb Observatory in Aldergrove Lake Park (RASC Vancouver Centre's regular viewing site)

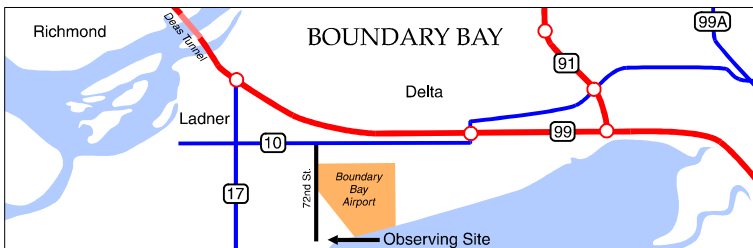
Contact Mike Penndelton (604-888-1505) or Howard Morgan (604-856-9186)



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



Site of the regular Thursday night star party. On the dike at the foot of 72nd St.

continued from page 2

one thing: free booze. Opening night was the reception and the booze and food were free! Chris, Ken and I munched and drank the night away. I was sans jacket or tie, so everyone else looked overdressed to me.

TUESDAY

Thanks to a malfunctioning alarm clock, I missed friend Chris's lecture on the history of the Canadian Space Agency. To ease my disappointment I attended the other lectures. If I ever had an unlimited budget, my dream speaker line up would look like this.

The IAF's format has multiple symposiums happening simultaneously. They ranged from Earth observations to space science to microsatellite technology to new launchers to space history. I noticed space law had their own gathering. Jeez, even in the final frontier we still won't be rid of lawyers....

The lectures were so densely scheduled that I'd have to clone myself many times over to catch everything that interested me, so I had to pick my spots. It turned out not to be as big a problem as I thought since all the presenter's papers were included on the CD given out with the registration goodies. This freed me from the chore of note taking and provided me with contact information for follow-ups.

At lunch, Chris told me about

continued on page 7

ASTROCOMPUTING

SpaceBase™ (604-473-9358,59). 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.

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.

RASC-VC on the Internet

<http://www.pcis.com/rascvan/> or
<http://www.rasc.ca/vancouver>

H.R. MACMILLAN SPACE CENTRE

The Pacific Space Centre Society is a non-profit organization which operates the H.R. MacMillan Space Centre and Gordon M. Southam Observatory. Annual Membership (\$30 Individual, \$80 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 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 604-738-7827, local 237 for information. You can also reach them on the Internet at <http://www.hrmacmillanspacecentre.com/>

MEMBERSHIP HAS ITS PRIVILEGES!

New members, did you know? The Vancouver Centre has 8 telescopes available for loan free of charge! We have telescopes ranging from 60mm to 10" diameter. For more information see Phil Morris, Director of Telescopes in the meeting room of the GSO *after* the members meeting. All telescopes are to be picked up and returned at the GSO. The loaner period is for one month, to be returned after the next meeting. Telescopes are not allowed to circulate outside of these meetings. You can now reserve 2 different telescopes per year and use what is left at the end of the meeting anytime. Phil can be reached at 604-734-8708.

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 Boundary Bay on the dike at the south end of 72nd St. in Delta (see map on p. 4). We are there most clear Thursday/Friday nights. Contact Jason Rickerby at 604-502-8158.

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

Upcoming Events

March

12 – Messier Marathon I at Boundary Bay

April

9 – Messier Marathon II at Boundary Bay

11-17 – International Astronomy Week

16 – Astronomy Day

May

13 or 14 – Sidewalk Astronomy
20-23 – GA2005 in Kelowna

June

5 – Fraser River Festival

July

30 – Mt. Kobau Star Party begins

August

7 – Mt. Kobau Star Party ends
11 – Perseid Meteor Shower at Aldergrove Lake

October

8 or 9 – Sidewalk Astronomy

December

13 – AGM

continued from page 3

limited knowledge but I began to acquire some “previously owned” astronomy books and my library grew rapidly. The occasional cloudy evening gave me a chance to read most of them, a few even twice. I decided that if I became more involved with the RASC I would learn even more and that has certainly been the case. I am pleased to have earned the opportunity to be the president of such a fine organization.

I enjoy looking at the night sky, the result of some good mentors. So, in addition to our regular activities, I am anxious to work with the Education

Committee to develop a workshop that will encourage new members to negotiate the vast reaches of a starry night. Next, there is the question of what scope to buy and, with that in hand, how to take some of those spectacular pictures that abound in astronomy magazines. There are members with extensive knowledge and skill in these areas from whom we can draw to create some additional hands-on training sessions. As always, these are group efforts and the more people that get involved the more successful they will be.

There will be many engaging sights this year, including Comet Machholz and my favourite winter

constellation, Orion, with its feast of viewing targets. Come to the GMS Observatory, located next to the Space Centre, on clear weekend evenings. It should be open, but call ahead. For members’ viewing plans, log onto the Centre’s website by Googling **RASC** (the National site), then selecting **27 Centres, Vancouver** and finally **Observing**. Postings will be found for planned activities.

I look forward to seeing as many of you as possible under the night skies. For me, it is as much about the friendships as it is about the inspiring views.

– Ron Jerome ✱



Past President Bill Ronald (right) presents Bob Parry with the Vancouver Centre Appreciation Award for his service as President during the turbulent years of 1998-2000.

continued from page 1

striking—the four main stars of his extremities and the three belt stars were every bit as pretty as the lights I had just extinguished. The stars of the trapezium winked through a patch of white haze. To the northwest, another jewel box sparkled—the Pleiades. My next-door neighbour always asks me to point them out, even when they are out of season.

According to the information I had, Machholz was about the same distance west and slightly south of Rigel as the distance from Rigel to

Bellatrix or about 13-14 degrees. Using the circumference of my binoculars as a measuring device, I moved to the area where I thought it should be. I lifted the eyepieces to my glasses and was greeted by the sight of a faint fuzzy cloud, an echo of Comet Neat which appeared in our skies last May. Although I knew better, I checked my binoculars to make sure they were not fogging up. The views of comets are not sharp and this was like looking at a dim light through smoky glass. Still, it held me captive.

After a few minutes, I went inside, happy, the bridge game forgotten.

Comet Machholz will be with us well through May, rising higher in the southern sky each night. It will also become brighter until mid-January, reaching an estimated 4th magnitude—about as bright as the Orion Nebula. By comparison, Comet Neat peaked at 3rd magnitude. While it may not have the visual impact of the nebula or the Pleiades, it is still a remarkable treat. ★

continued from page 5

the morning press conference. Chinese Space officials showed off their first astronaut for public display. He described the gathering as resembling the scene from the movie *The Right Stuff* where the Mercury 7 astronauts are introduced; lots of cheering, the sound of massive quantities of camera flashes going off and you could almost hear heavenly choir music. I'm sorry I missed it.

That afternoon, I sat in on the Space Exploration symposium. Jupiter seems to be a future favourite target based on the number of European and Japanese papers. The Japanese outlined a Jovian orbiter that uses solar sail propulsion to get there. Later, the engineer for NASA's

Pluto probe gave a progress report. She reported it is on track for a 2006 launch. For a spacecraft that can fit on a desktop, I got the impression it is very capable.

For me, the most interesting talk was one on Venus exploration. Inspired by the success of the Mars rovers, scientists at NASA Goddard are proposing one to drive on its surface. "Yah, right," said I. But after talking to the presenter, they may be onto something. The plan is to drop a very simple rover onto the surface. Progress in deep sea exploration technology makes them believe they can design a rover that can last 90 days on Venus' hellish surface. All the sensitive electronics would be carried in an aircraft that would

circle about 20 miles overhead and would be the rover's remote brain. All transmissions to and from Earth would be carried out by a repeater spacecraft in orbit around Venus. This is a paper mission, and is not funded.

That night, Canadian astronaut Chris Hadfield gave a public lecture at the planetarium about installing Canadarm2 onto the space station. Good talk, but I wish he'd stuck around to talk to the people who pay him.

WEDNESDAY

Kick off was Cassini's project manager who showed stunning pictures of Saturn's rings. This was a few weeks before the first Titan encounter. If only the conference had been a

continued on page 11

Occultations Ain't Witchcraft

by Dan Collier

Asteroids are gaining the attention of Vancouver Centre members. Last November it was Bonsdorffia, a 28-km rockball in the main asteroid belt some 220 million km from Earth. Little Bonsdorffia (minor planet no. 1477 in the official list) passed in front of a magnitude-8 star near Alpheratz and blocked out its light for a few seconds.

The event was witnessed at Southam Observatory by Bob Parry, Pomponia Martinez and Susan Nagy along with some bemused bystander who saw that the dome was open. Bill Ronald, Phil Morris and I mounted a Supercircuits closed-circuit TV camera on the 20-inch AMEC Cassegrain. To focus it, we slewed to Alpheratz, a star bright enough to be visible in twilight even out of focus. As the sky darkened, we star-hopped to the target star's coordinates by picking up ever-fainter field stars plotted by TheSky. The target star, HIP 2421 (aka SAO 74054), appeared brightly on the TV just where TheSky said it should be. To document the timing, we used Bill's Navstar-GPS and my short wave receiver tuned to WWV. For safety, we used two VCRs to

record the event.

Fifteen minutes before the predicted time, we started the VCRs and "locked down the dome" to prevent anyone from interfering. I had learned to do this from my attempt to record an occultation by asteroid Frigga a few years ago. Lots of things can go wrong at the worst possible moment, and will, as Murphy warned.

It's not always the case that occultations come out exactly as predicted. We use maps posted on line by Steve Preston of Seattle, who calculates occultations daily for locations all over the world. At a glance, the observer can tell from his maps whether an occultation is worth going out to observe. Our previous attempt, an occultation by Simeisa in October, failed because his prediction had a slight error that shifted the 114-km-wide track from Vancouver to Seattle. Steve was observing that night too—just in case—and recorded Simeisa's occultation perfectly. We saw both star and Simeisa, but no occultation!

Steve had posted a time of 3:11:14 UTC for Bonsdorffia at Vancouver's longitude. Again he was in error, but luckily only in the timing. At 3:11:26 the

star blinked off, returning to view just over six seconds later (Bonsdorffia, at mag 15, was too faint to be visible on TV).

The event was so beautiful that I thought of showing the tape at the next RASC meeting. So I rewound it and cued it to 3:11 for convenient playback. Bad idea. That same night I succumbed to the temptation to view it again with my unreliable VCR at home. Needless to say it mangled my tape upon loading, and the damage was exactly at the place where the occultation was recorded on it. That's why we recorded a second tape!

Occultations are interesting because they allow astronomers to work out the size and shape of asteroids that are too small to resolve with telescopes or too far away to scan with radars. They are also a rigorous test of the methods used to calculate the orbits the asteroids follow, and of the catalogues of the stars they occult. With Simeisa, the error was only a fraction of an arc-second. It's amazing that so many occultations are successfully observed at all!

The next interesting occultations for the Vancouver area:

continued on page 10

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continued from page 8

Eros: Jan 20, 1132 UTC
(3:32 AM Thursday morning)

*Tamariwa: Jan 21, 1000
UTC (2:00 AM Friday
morning)

*Patroclus: Jan 28, 0744
UTC (11:44 PM Friday night)

*Kalypso: Jan 29, 0247
UTC (6:47 PM Friday night)

Kassandra: Jan 30, 0152

UTC (5:52 PM Saturday
afternoon)

Aida: Feb 2, 0441 UTC
(8:41 PM Tuesday night)

Times are subject to
revision. Most of these are
predicted to be “appulses.” If a
Vancouver observer sees an
occultation, it’s by accident.
Events starred (*) are the most
interesting ones. Should the

weather clear for these events,
we will try to record them at
Southam Observatory. Call
604-738-2855 to see if
someone is in the dome. To
leave a message with me at the
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Members' Gallery



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Brian Morse

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14" Celestron SCT

continued from page 7
month later...

I spent the morning at a Microsat seminar. Most of the papers were on Canadian developments, all the way from control systems to space science ideas to future missions. Members of the Chinese program outlined the difficulties and methods involved in designing a mission to land on the Moon's south pole. A clone of Jaymie Matthews' MOST spacecraft was talked about by Allan Hildebrand. He proposed using it to find near Earth asteroids inside our orbit which are hidden by the sun's glare. With luck, he'll be dropping by to tell us about it in 2005.

In the evening, Jaymie spoke on MOST. I wasn't there since I'd seen him a few weeks before at the Vancouver Centre. Those who saw him this time said he was his usual self.

THURSDAY

The project scientist for Europe's SMART-1 lunar orbiter opened the day. If it succeeds, this will be an impressive debut for small, but very capable sensors that in spacecraft past would have been huge suckers. For example, the camera system fits in the palm of your hand. The entire spacecraft is only one cubic meter, minus the solar panels.

I spent the day on Mars. ESA's Mars Express mission is one that hasn't received a lot of press on this side of the water.

Pity. The photos were nothing short of stunning! JPL's Mars Reconnaissance Orbiter is designed to map the red planet with a resolution of up to 1 metre to search for water and find sites for future landers. The project engineers showed how this spacecraft should return 100 times the data returned by all Mars missions from the beginning to now. One of the previous night's public speakers, the project manager for the MER rovers, and the rest of his team gave a detailed talk on the planning and the mission results so far.

For lunch I went to deep space. There was a panel discussion between NASA, CSA, ESA and Russian space officials on the topic of NASA's plans to carry out Bush's deep space exploration plan. The consensus seemed to be: go to the Moon to test systems; go to near Earth asteroids to gain long term, long distance experience; then Mars.

After, I returned to Mars by listening to Canada and Europe explain their missions or participation in other's missions. JPL's '07 "Phoenix" lander is graced with the presence of an MDRobotics arm and engineers from both organizations talked about the mission and the science objectives. Later, I had a chance to talk to the JPL project manager who complained about the restrictions the State Department placed on him in order to work with us Canucks.

The project scientist for ESA's Rosetta mission to Comet 67P/Churyumov-Gerasimenko gave the public talk that night. In my chat with him, he said the major difference between his mission and one like NASA's Stardust was Rosetta's approach—speed was orders of magnitudes lower. This reduced the velocity of any dust grains hitting the spacecraft, dropping the risk of the spacecraft being damaged. The trade-off was existing rockets don't have enough oomph to send a spacecraft into an appropriate trajectory to one, meaning long travel times, in this case about 10 years.

FRIDAY

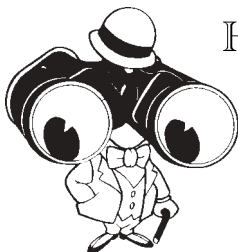
Chris gave his AVRO Arrow Canadians-to-NASA talk to a joint space history/future launch vehicles symposium. Someone asked how accurate the CBC mini-series on the Arrow was. He replied it was about as truthful as the Right Stuff movie: faithful in outline but inaccurate in details.

Then it was over. I may have been loaded down with goodie bags and tired from a full, busy and long week, but would I do it again? Anyone want to cover my expenses to go to Tokyo next year? *

RASC MERCHANDISE

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