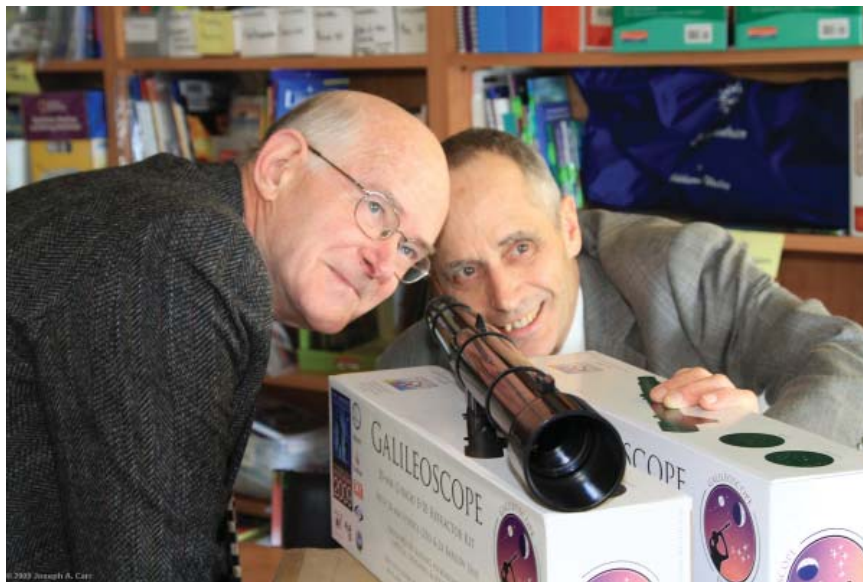


# skynews



*this month*

## **Looking at Cold Stuff: Sub-millimetre-wave Astronomy** **Dr. Gerald H. M. Schieven - HIA**

**December 9, 2009, 7:30 PM, Elliott Lecture Theatre, Rm 061, UVic**

Bridging the (substantial) gap between infrared and radio waves, sub-millimetre-wave astronomy is a relatively new field, having begun in earnest barely twenty years ago. But why do we bother, and why is Canada participating in the construction of the world's largest (and most expensive) astronomical project, i.e. ALMA, the Atacama Large Millimetre Array? I'll try to explain some of this, and how Canada got to be a leader in this field.



### Bio:

Native of a small town in Ontario (Mt. Forest, long before Starfest began, alas), I attended University of Western Ontario (London, ON; BSc 1981), Queen's University (Kingston, ON; MS 1983), and University of Massachusetts (Amherst, MA; PhD 1988). I was a post-doc and faculty member at Queen's (1988-1990), a post-doc at NASA Jet Propulsion Lab (Pasadena, CA; 1990-1992), research officer at Dominion Radio Astrophysical Observatory (Penticton BC; 1992-1995), support scientist at the James Clerk Maxwell Telescope in Hawaii (1995-2008). I'm now a senior research officer at the Herzberg Institute of Astrophysics, where I'm the group leader of the Millimetre Astronomy Group, and Canadian



Project Manager of ALMA. My research interests have included star and planet formation, planetary atmospheres, gamma ray bursters, etc. I've been a member of the RASC since 1975, and a life member since 1979.

*on the cover*

## **John McDonald and Tom Ferris with Galileoscopes**

**by Joe Carr**

November 27, 2009

Victoria School District offices, Victoria, BC

Victoria Centre presented School District 61 with Galileoscopes.



### **John McDonald Veil in color and H-alpha**

*This image is a combination of a color image taken with a modified Canon 350D and a monochrome one through an H-alpha filter taken with a Canon T1i*

*Exposure -  
Color - 35 - 58s light frames at ISO 800 plus 23 darks and 25 flats.  
H-Alpha 29 light and 20 dark frames at ISO 3200 and f/4 for 2 min each with 8 flats for calibration.  
Processing in Images Plus and Photoshop.*

### **Charles Banville The Hale Telescope**

*The 200-inch Hale Telescope in its full grandeur. The Hale telescope was the world's largest from 1948 to 1993. It is still used nightly for a range of astronomical studies.*

*Date: November 21, 2009  
Location: Palomar Mountain, CA  
Optics: Canon EF 17-40mm f/4L USM  
Camera: Hutech modified Canon EOS 5D Mark II  
Exposure: One RAW image of 1/6 second, ISO 3200  
Processing: White balance adjustment in DPP*



## **IYA - The Galileoscope by Joe Carr**

The Galileoscope is one of the cornerstone projects of International Year of Astronomy 2009 (IYA). It is a high-quality, low-cost, easy-to-assemble 50 mm aperture refractor telescope kit which will enable anyone to see the celestial wonders that Galileo first glimpsed 400 years ago. Accompanying the kit are curriculum materials for teachers designed to foster active enquiry, cooperative learning, testing of ideas and predictions, and hands-on experimentation. The Galileoscope gives students a memorable experience at the eyepiece and increases their understanding and sense of wonder at light, optics, and astronomy.



As John McDonald, RASC Victoria Centre President presented Galileoscopes to Tom Ferris, Chair of the Victoria School Board, he said "We hope that the experience of assembling and using a Galileoscope will give students a memorable experience and increase their sense of wonder at Galileo's achievement."

"Anything you can do that inspires confidence in students and teachers around science is a good thing," Ferris said. "To have a resource like this in your classroom makes a big difference."

Sid Sidhu, Director of Telescopes for Victoria Centre and their IYA Coordinator states, "Optics is a big part of the Grade 8 curriculum and after consultation with teachers, the general consensus was that the Galileoscope would be an appropriate resource material. Assembling the telescopes and then analyzing how various parts fit together would be a great exercise of discovery for students. Based upon the response from all three school districts, we have donated almost 100 scopes for distribution, and we still have a few extras in case more requests come in."

The Victoria Centre of the Royal Astronomical Society of Canada has been active since 1914 in bringing astronomy to the general public in Greater Victoria. Victoria Centre's School Telescope Program has provided astronomy speakers for classroom presentations, as well as night sky viewing for students and their families since 1994.

## A Cosmic Crash

by Patrick Barry and Dr. Tony Phillips

Two small planets hurtle toward each other at 22,000 miles per hour. They're on a collision course. With unimaginable force, they smash into each other in a flash of light, blasting streams of molten rock far out into space.

This cataclysmic scene has happened countless times in countless solar systems. In fact, scientists think that such collisions could have created Earth's moon, tilted Uranus on its side, set Venus spinning backward, and sheared the crust off Mercury. But witnessing such a short-lived collision while pointing your telescope in just the right direction would be a tremendous stroke of luck.



Artist's rendering of cosmic collision involving two objects whose combined mass was at least twice that of our Moon. Discovered using the Spitzer Space Telescope in the planetary system of a star called HD 172555 100 light-years away.

Well, astronomers using NASA's Spitzer space telescope recently got lucky. "It's unusual to catch such a collision in the act, that's for sure," said Geoffrey Bryden, A cosmic Crashspitzer — an astronomer specializing in extrasolar planet formation at NASA's Jet Propulsion Laboratory and a member of the science team that made the discovery.

When Bryden and his colleagues pointed Spitzer at a star 100 light-years away called HD 172555, they noticed something strange. Patterns in the spectrum of light coming from nearby the star showed distinctive signs of silicon monoxide gas — huge amounts of it — as well as a kind of volcanic rock called tektite. It was like discovering the wreckage from a cosmic car crash. The silicon monoxide was produced as the high-speed collision literally vaporized huge volumes of rock, which is made largely of silicon and oxygen.

The impact also blasted molten lava far out into space, where it later cooled to form chunks of tektite. Based on the amount of silicon monoxide and tektites, Bryden's team calculated that the colliding planetary bodies must have had a combined mass more than twice that of Earth's moon. The collision probably happened between 1,000 and 100,000 years ago — a blink of an eye in cosmic terms.

The scientists used the Spitzer space telescope because, unlike normal telescopes, Spitzer detects light at invisible, infrared wavelengths. "Spitzer wavelengths are the best wavelengths to identify types of rock," Bryden says. "You can pin down which type of rock, dust, or gas you're looking at." Bryden says the discovery provides further evidence that planet-altering collisions are more common in other star systems than people once thought. The "crash-bang" processes at work in our own solar system may indeed be universal. If so, Spitzer has a front row seat on a truly smashing show.

See Spitzer Space Telescope's brand new Web site at <http://spitzer.caltech.edu/>. Kids can learn about infrared light and see beautiful Spitzer images by playing the new Spitzer Concentration game at <http://spaceplace.jpl.nasa.gov/en/kids/spitzer/concentration>.

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

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*observers group*

RASC Victoria Centre and the NRC have signed a License to Use Land Agreement which gives members of Victoria Centre expanded access to NRC property on Observatory Hill.

If you are a member in good standing of Victoria Centre RASC, consider yourself an "active observer", and wish to take advantage of this opportunity, please send an email to the 1st or 2nd Vice President. More information on this program see: <http://victoria.rasc.ca>

*Presidents Message*

**December 2009**

It's hard to believe December is upon us. This year has been quite a whirl for all involved in International Year of Astronomy (IYA) and other outreach events, the school program, and the Victoria Centre Observatory (VCO) operation.



As I write this I am taking a break from going over the financial figures that our hard working treasurer, Li-Ann provides. Thanks in large part to her efforts, we have come thorough this year in good shape financially. In addition, we have a pretty good handle on where we are at. The Gaming Funds are now nearly spent as planned on the two projects - Outreach (Project 1) and VCO (Project 2). And - we have a positive balance in our regular (members) account.

Our task for next year will be simpler and perhaps more challenging. Simpler as we will not have a gaming account to manage and more challenging as we have to run an expanded set of activities with our regular account that relies almost entirely on membership income. I am confident we can do this if we plan carefully. The goals include continuing and even expanding the very ambitious outreach program and VCO activities and making sure that our new members are well served. If you have suggestions for the coming year pass them on to me or any member of Council.

Members are welcome to attend Council meetings should you wish. They are held in the 4th floor lounge of the Elliott building at UVic on the first Wednesday of every second month. That said, the next Council meeting is scheduled for Thursday, December 4, 2009. The regular schedule will resume with the following Council meeting to held Wednesday, February 3, 2010.

Best of the season to all of our members.

John

*address change? information incorrect*

**Contact the National Office**

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**Fax** - 416.924.2911

**Email** - nationaloffice@rasc.ca

**Post** - RASC, 203 – 4920 Dundas St W, Toronto, ON M9A 1B7

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A hands-on introduction to stargazing - telescopes provided

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***Beginnings Are Not Spontaneous***  
**by Bill Almond**

Conditions favourable for the formation of the Victoria Centre did not come of themselves. They were the result of the energy and initiative of a few public-spirited men, notably Mr. F. Napier Denison, Mr. W. J. S. Sutton and Mr. W. A. McCurdy, a past president of the Natural History Society of B.C. and a member of the RASC.

In a letter dated December 31, 1913, when returning a ballot for the general executive for 1914, McCurdy wrote to the general secretary, Mr. J. R. Collins: "The names on the ballot belong to Ontario and Quebec and it occurs to me that this might be a good time to recognize the west" and suggested the inclusion of Mr. F. Napier Denison on the society's board.

In the meantime, Dr. Plaskett, who was then visiting Victoria, was invited to address a public meeting, held on the 4th of March, under the auspices of the Natural History Society. In his address Dr. Plaskett spoke of the cultural advantages accruing to the city from its becoming



1914 Victoria Centre Council: Back row, left to right—E. H. Cotterell, C.E., Secretary-Treasurer; A. W. McCurdy, Vice-President; Major C. B. Simonds, C.E. Front row, left to right—W. J. Sutton, M.E.; Dr. J. S. Plaskett, P.R.A.S. of C., Honorary President; T. Napier Denison, President; G. G. Aitken

a Centre of the RASC. The idea was enthusiastically received and at a second public meeting, held on Friday, March 6, 1914, the present Victoria Centre was formed. The minutes of this historic meeting read as follows: "The meeting being called to order at 8:30 p.m., it was proposed by Mr. W. J. Sutton that Mr. A. W. McCurdy take the chair, which was agreed to. .

"Mr. McCurdy explained the reason for calling the meeting and mentioned that as Dr. Plaskett was in Victoria it was an opportune time to form a Centre of The Royal Astronomical Society in Victoria and as Dr. Plaskett was present the chairman called upon him to explain the objects of a Centre of the Royal Society.

"Dr. Plaskett addressed the meeting giving a review of the history of The Royal Astronomical Society Canada and proposed that a role of those present, wishing to become members of the Society, should be taken and that the necessary officers should be appointed."

Twenty of those present indicated that they would like to become members of the RASC.

A general discussion took place regarding the preliminary arrangements and it was proposed by Mr. McCurdy and Mr. Sutton "That the Society meet on Friday evening at 8 p.m., 3rd April, 1914, and on the first Friday in each month for future meetings and that the Secretary make arrangements for the use of the King's Daughters' Rooms. The General Council meets in about a week's time when official recognition will be given to the formation of the Victoria Centre of The Royal Astronomical Society of Canada".

The National Council gave its blessing on April 28 and the new Victoria Centre was duly launched, with an announcement of the Centre's formation appearing in The Journal 8, p.122, 1914.

*contact us on-line*

**Web Site** [www.victoria.rasc.ca](http://www.victoria.rasc.ca)  
**New Members** [newmembers@victoria.rasc.ca](mailto:newmembers@victoria.rasc.ca)  
**General Inquiries** [info@victoria.rasc.ca](mailto:info@victoria.rasc.ca)

*RASC victoria council*

*this month  
monday nights*

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**Members at Large**  
Bill Almond, Sandy Barta, Dave Bennett, Jim Hesser, David Lee, Steve Pacholk, Colin Scarfe, Dirk Yzenbrand

**Astronomy Cafe**  
Fairfield Community Centre,  
1330 Fairfield, Victoria  
7:30-11pm

Call Geoff at 250.592-2264 for directions and information. New comers are especially welcome. Come and enjoy!

**ASTRONOMY  
CAFÉ**



*second wednesday of the month*  
**Monthly Meeting**  
7:30 PM, Elliott Lecture Theatre,  
Rm 061, UVic.

*as sky and interest dictate*  
**New Observers Group**  
Hosted by Sid Sidhu.  
1642 Davies Road, Highlands.  
Call 250.391-0540 for information and directions.

*by email*  
**Observer/CU Volunteers/  
Members email lists**  
Contact Joe Carr to subscribe to these email lists for important, timely, member-related news.