

Royal Astronomical Society of Canada

GENERAL ASSEMBLY 2014

CONFERENCE PROGRAM

June 25-29, 2014

Victoria
welcomes
you to our
100th
anniversary
celebration!



NOTES

Ghost Image: The 72 Inch Plaskett Telescope

The beautiful logo that graces the cover of our Conference Guide was created by Curt Bilson, a Victoria Centre member. Curt consulted with Charles Elliott of the Wsanec (Saanich) Territory for the aboriginal designs.



Victoria
Centre
Observatory
14 Inch
Telescope in
action

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Charter RASCALS Extend *A Victorian Welcome* To the 2014 General Assembly



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:

W. J. Sutton, M.E.; Dr. J. S. Plaskett, P.R.A.S. of C., Honorary President;
T. Napier Denison, President; G.G. Aiken.

Beginnings Are Not Spontaneous

In 1914 residents living in the Greater Victoria area on Vancouver Island reveled in the worldwide acclaim following a favourable decision by the Canadian government of the day to site a new observatory in Saanich, on the southern tip of the Island. It had earlier been proposed and designed by Dr. J. S. Plaskett in 1910. In its day the anticipated telescope's 72" mirror would be the largest ever made and it was to be situated in the country's most favourable location after site testing had ruled out other choices. Victoria instantly became the centre of the universe with newspapers worldwide following every step of the new observatory's progress.

FORMER MEMBERS BROUGHT TOGETHER

Prior to 1914 three former members of a failed attempt to start a Centre in Victoria in 1907 still remained as members of the national RASC. When Dr. Plaskett finally arrived in Victoria he raised the question with them of organizing a Centre of the RASC while addressing a public meeting that had been arranged by the Natural History Society on 4th March 1914. Dr. Plaskett spoke of the cultural advantages that would accrue to the city should a Centre of the RASC become established in Victoria. Needless to say, the proposal was enthusiastically accepted and a second meeting was arranged to be held two days later on March 6 when Dr. Plaskett went into detail explaining the objects, the substance of a Centre. After reviewing the history of the RASC he went on to propose that a role call of all those present wishing to become members of the Society should be taken and that the necessary officers should be appointed.

TWENTY JOIN THE NEW CENTRE

Twenty of those present indicated that they would like to become members of the RASC whereupon the chair announced that the creation of officers would now take place. A full slate of officers and an executive committee were duly elected and they wasted no time in deciding that they would meet again on 3rd April. The General Council quickly gave official recognition to the formation of the Victoria Centre of The Royal Astronomical Society of Canada and the number of members grew to 101. However, the outbreak of war in Europe affected everything and membership dropped to around 30 for the duration.

From "History of the Victoria Centre 1914-2014" by Bill Almond.

Download the entire volume of this excellent history at

<http://victoria.rasc.ca/about-us/centre-history/>

President's Message

Victoria Centre President

Nelson Walker

Welcome to Victoria and the 55th General Assembly of the Royal Astronomical Society of Canada. Victoria is doubly proud to be hosting this year's GA because 2014 is Victoria Centre's centennial year, and also the 100th anniversary of the beginning of work on the Dominion Astronomical Observatory, a Victoria landmark visible from almost everywhere in our city, and which is still in use today. We still enjoy, as we have for nearly one hundred years, a privileged relationship with this venerable institution.

Victoria sits like a jewel on the western edge of this beautiful country, and we hope that while you are taking in the meetings and presentations, renewing old friendships and kindling new ones, you will make time to enjoy some of the sights and attractions here. If we can do anything to make your visit more comfortable, please let us know.

Nelson Walker
President
Victoria Centre



12 Horsepower “Motor” Hauls 9.5 Ton Polar Axis Up to the Dominion Astrophysical Observatory, Little Saanich Mountain.

From Saanich Archives 1993-001-006

Welcome to University of Victoria



Message from Jamie Cassels, QC President and Vice Chancellor

It is a pleasure to welcome the delegates of the 2014 AGM of the Royal Astronomical Society of Canada to the University of Victoria, and a particular honour in this 100th year of the RASC's Victoria Centre.

Astronomy has a notable history in Victoria and is a strength in both teaching and research at the University of Victoria. One of the founding chapters in this history was the construction of the 72-inch Plaskett telescope just outside the city, almost a century ago. The continued presence of NRC-Herzberg in Saanich, as the centre for federal support of Canadian astronomy and the source of many of our adjunct faculty members, makes Victoria a major centre for astronomical research and education.

The astronomy research program at the University of Victoria is one of the most highly regarded in Canada and enjoys an international reputation for excellence. Our faculty and graduate students are at the cutting edge of research in fields that range from the solar system to the most distant galaxies. We are also engaged in building, through the partnership of our Faculties of Science and Engineering with NRC-Herzberg, the research instruments of tomorrow. The University of Victoria takes pride in this panoramic engagement in so many aspects of astronomy.

Community engagement and outreach is a theme that unites our university and the RASC. We are proud to boast the largest on-campus teaching telescope in North America, a facility that I hope you will be able to visit during your conference. Every year, almost 1,000 undergraduates and hundreds of school children and members of the public have their minds opened to the wonder of the cosmos, thanks to our courses and outreach programs. We have worked together in the past during the International Year of Astronomy in 2009 and more recently to affirm the value of the Centre of the Universe in Saanich.

Best wishes for a lively and successful AGM. Enjoy our campus and our city and, as star gazers like to say, "clear skies!"

Welcome to Victoria

About our city

The General Assembly takes place at University of Victoria. It is a beautiful modern campus that is somewhat removed from the downtown and commercial areas. Do not despair, however, as Hillside Mall, the nearest large shopping centre, is only 10 minutes away on the bus and you can reach the downtown core in 20 minutes on the express bus. If you cannot make one of our scheduled tours but have some free time, we do encourage you to explore the Inner Harbour area where the Parliament Buildings, Royal BC Museum and Empress Hotel take centre stage. There is a festive atmosphere with a multitude of tourist attractions and buskers working the crowds. Gift shops and restaurants abound along Government and Wharf streets. Once known for its tea and crumpets, tastes in Victoria seem to have drifted towards beer and there are a number of award winning brew pubs in the area. The hardy may embrace the challenge of the Beer Mile (page 26).

If you want to escape the material world, you might consider a stroll along the Dallas Road waterfront from Mile Zero of the Trans Canada Highway to Clover Point. On clear days as you watch hang gliders and eagles soar, the Olympic Mountains will gleam across Juan de Fuca Strait. Victoria lies in the rain shadow of the Olympics and annual precipitation averages 606 mm, making the southern area of the City the driest and sunniest spot on the BC Coast. Due to a prevailing onshore flow of Pacific air, winters are mild in Victoria. The airport reports snow on the ground about 5 days per year and snow is less frequent Downtown ... sorry, that was bad form.

Bus tours are a quick way to get the sense of Greater Victoria which is comprised of 12 communities with a combined population of 345,000. Canada's naval fleet lies to the west in Esquimalt. To the east through the "Tweed Curtain" lies Oak Bay, home to our urban dark sky park and rotund seals that pose for food at the Oak Bay Marina. Saanich, the municipality immediately north of Victoria is home to the Dominion Astrophysical Observatory.

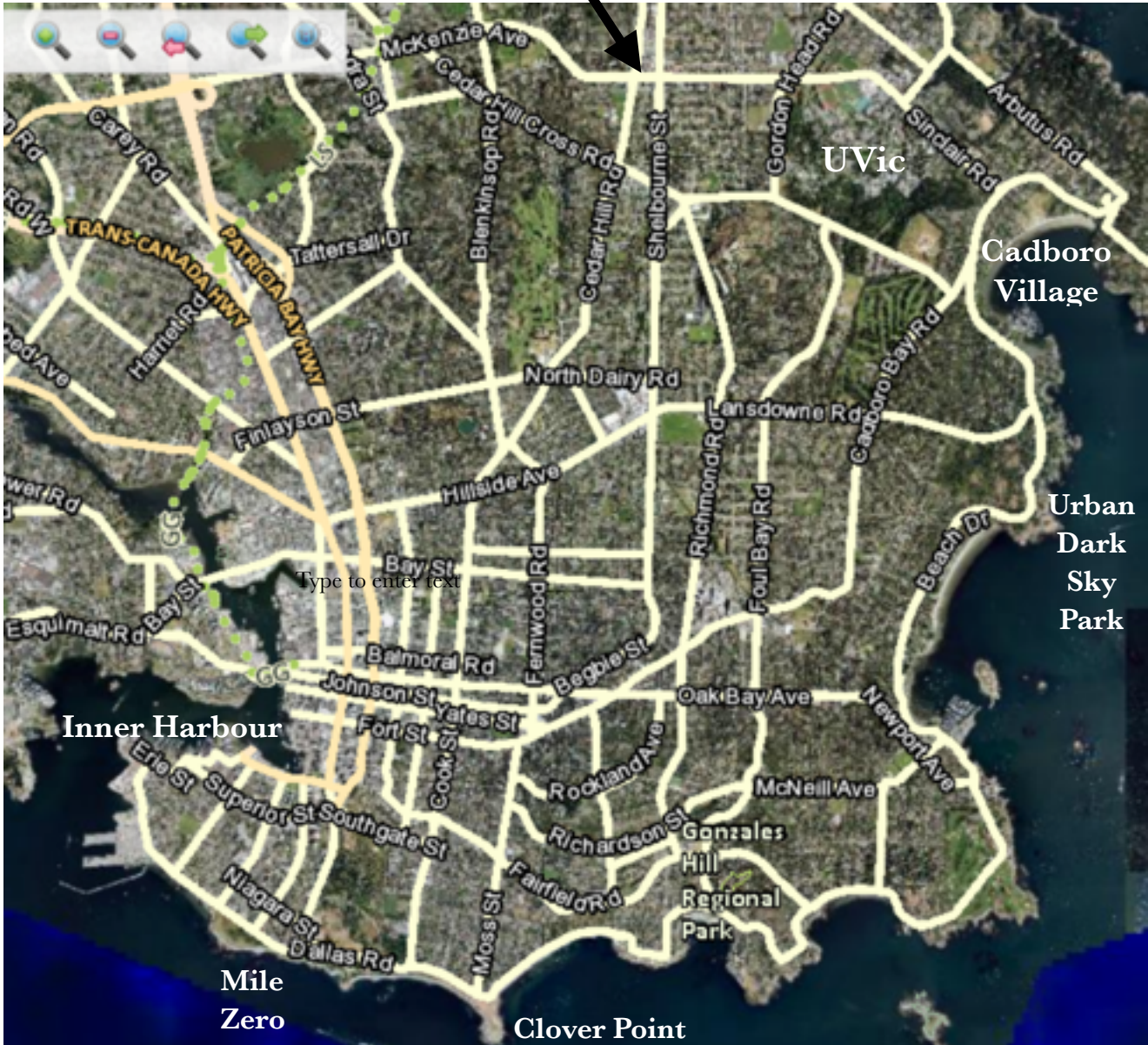
Closer to UVic, a walk east down Sinclair Road Hill will bring you to Cadboro Bay Beach. Those who hike up nearby Mount Tolmie, on the southwest corner of UVic, will be rewarded with a scenic panorama of the city. For further information see the Tour section (page 28) as well as the Victoria Guide and full sized maps included in the Registration Kit.

Reference

Map City of Victoria

(full size maps available at the registration desk)

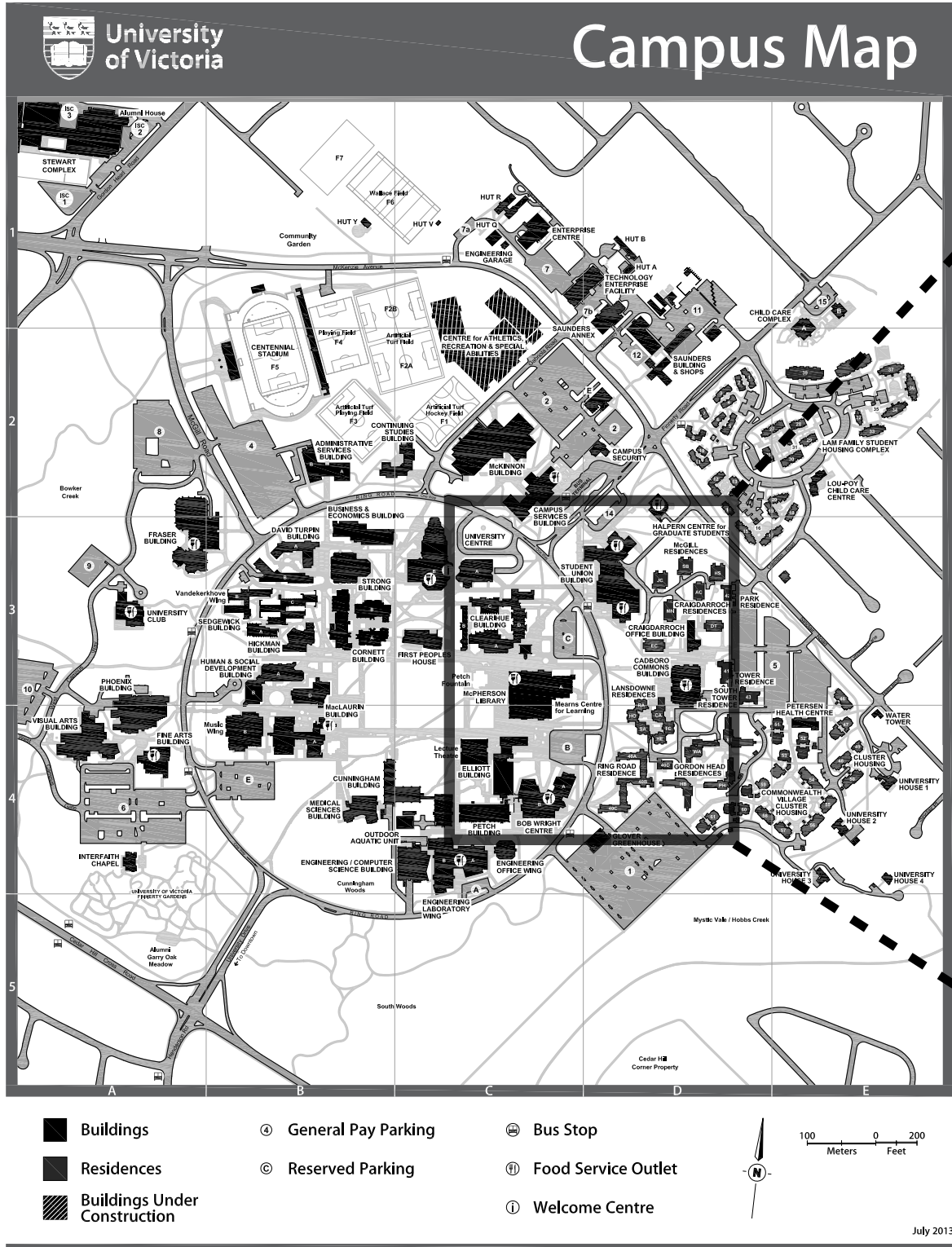
University Heights
Shopping Centre



Reference

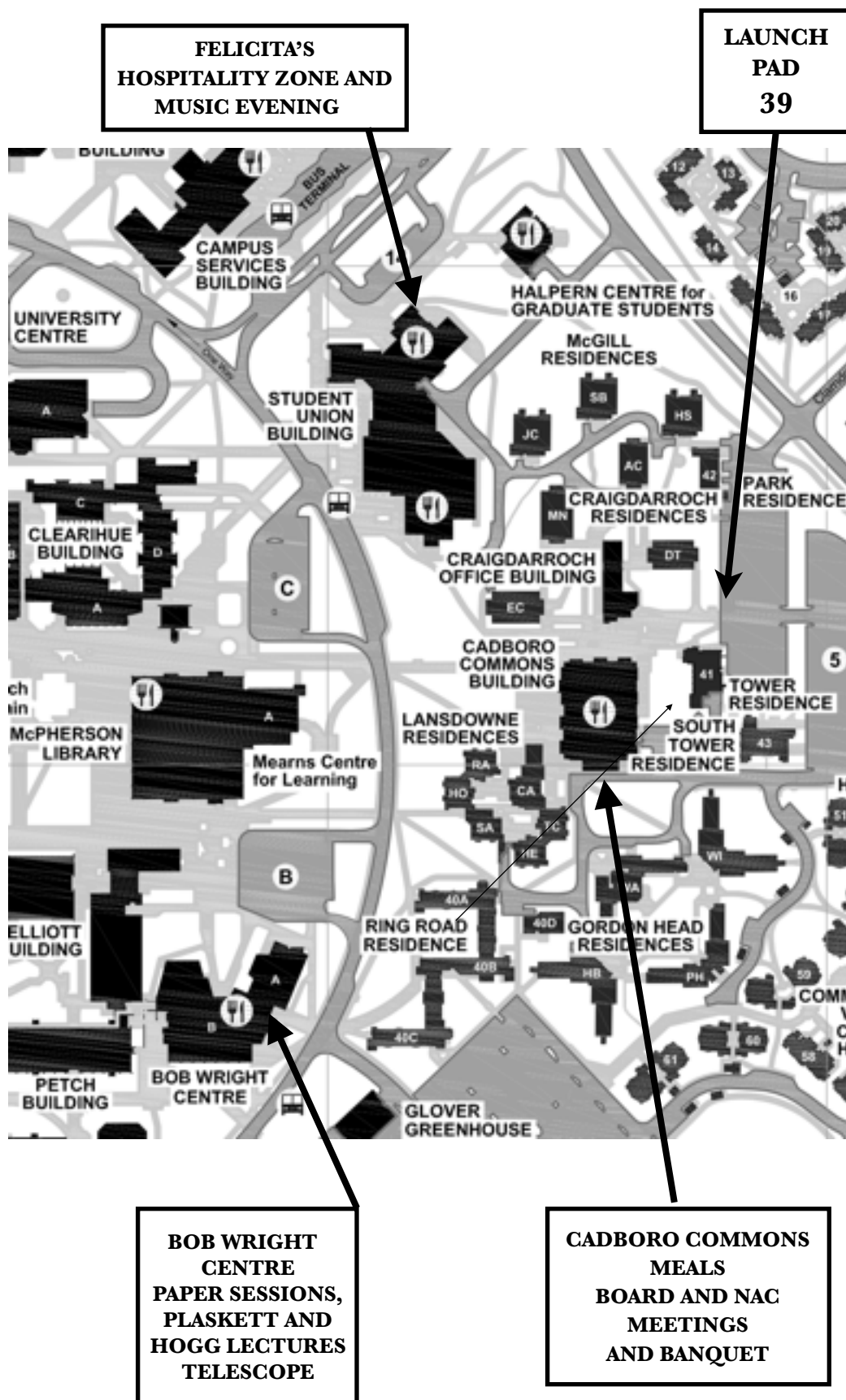
UVic Map

(full size maps in registration kit)



Reference

UVic Map General Assembly Venues



A Room with a View The Victoria Centre Observatory



Silhouette of Victoria Centre 14 Inch Meade SCT by WJ McDonald

4
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General Assembly 2014

Program Description

Wednesday June 25th

Wednesday is arrival day, especially for the members of the National Executive and Board of Directors, who have meetings to attend on the following day. The Registration Desk, located in Cadboro Commons will be open between 13:00 and 20:00.

Thursday June 26th

At 08:30 the Organizing Committee gathers to ensure their ducks are in a row. The National Executive and Board of Directors will meet between 10:00 and Noon. The afternoon is free time for all.

The highlight of the day is the **Welcome Barbecue** held at the **Dominion Astrophysical Observatory**. At 17:00 a convoy of volunteers will shuttle attendees from UVic up to the DAO on Little Saanich Mountain. Follow the signs from Cadboro Commons to **Launch Pad 39** which is the **assembly area** for this adventure. It is situated in parking lot 5 off of Sinclair Road. The Barbecue will begin at 18:00. A panel discussion about the Plaskett Telescope and the DAO will take place between 19:00 and 20:15. See page 32 for details. A tour of the Plaskett Telescope will occur between 20:30 and 21:00. An **open house** will be held at the **RASC Victoria Centre Observatory**. The return to UVic will begin at 21:00 and the last people will be off the hill by 22:30.

For those who want to party on, the **RASC Hospitality Zone** is located at **Felicita's Pub** in the Student Union Building. Closing time is Midnight.

Friday June 27th

The Board of Directors will meet with the National Advisory Council between 09:00 and 15:00 with a catered lunch.

It is play time for everyone else. The following optional **tours** have been scheduled:

08:00 to 13:00 **Orca Spirit Adventures Whale Watching Tour**

09:00 to 13:00 **Downtown Shopping Tour**

13:00 to 17:00 **Butchart Gardens Tour**

At 16:00 the **Plaskett Medal Lecture** will be given by winner **Andy Pon** in Room A104 of the Bob Wright Centre via Skype. This talk on *The Orion and Eridanus Superbubble* is open to the public.

General Assembly 2014 Program Description

Friday June 27th continued

At 17:30 a **Wine and Cheese Reception** will take place at the Village Greens at Cadboro Commons.

At 19:30 gather at **Felicita's** to enjoy an **Evening of Music** featuring “The Peet Vuur Combo”.

After sunset, weather permitting, there will be **Night Sky Viewing** on the roof of the Bob Wright Centre. In the case of poor skies, an escorted tour of the 32 inch telescope will be offered to delegates. You can also retreat to the **RASC Hospitality Zone**, located at **Felicita's**, which closes at Midnight.

Saturday June 28th

This day is devoted to science and technology. A wide variety of fascinating **papers and posters** will be **presented** at the Bob Wright Centre between 09:00 and 16:50.

The following optional **tours** have also been scheduled:

09:00 to 13:00 **Downtown Shopping Tour**

12:00 to 17:00 **Maritime Museum with Harbour Ferry Tour**

At 18:30 gather at Village Greens by Cadboro Commons for the **West Coast Barbecue**.

Saturday's main event starts at 20:00 when **Dr. Laura Ferrarese** presents the **Hogg Lecture** in Room B150 at the Bob Wright Centre. Her talk “*The Hidden Lives of Galaxies*” is open to the public.

After sunset, weather permitting, there will be **Night Sky Viewing** on the roof of the Bob Wright Centre. In the case of poor skies, an escorted tour of the 32 inch telescope will be offered to delegates.

Sunday June 29th

We now hit the home stretch with a series of meetings to take care of business.

Between 09:00 and 11:00 the **RASC Annual General Meeting** is open to all members in Room A104 of the Bob Wright Centre.

Between 11:30 and 14:00 the Board of Directors and National Advisory Council will meet in the Cadboro Commons to discuss committee structures and membership. Lunch will be catered.

Between 14:00 and 15:30 the Board of Directors will reconvene in the Sinclair Room for a final meeting.

General Assembly 2014 Program Description

Sunday June 29th continued

The General Assembly began with focus on the past as we celebrated the Plaskett Telescope and its many impacts. As the conference draws to a close it is fitting to look forward to future possibilities. **At 14:30**, delegates are invited to gather in Room A104 of the Bob Wright Centre for what promises to be a most exciting session. **Dr. James Di Francesco**, will lead a distinguished panel of professional Canadian astronomers in a discussion entitled: **2020 Vision- New Projects for the Next Generation of Canadian Astronomers**. See page 49 for details.

For those who couldn't squeeze in some time for a **tour**, this is your last chance! 09:00 to 13:00 **Historical Walking Tour of the Downtown Core** prepared by John Adams, an outstanding local historian.

At 17:45 the General Assembly gathers in the Village Green for the **General Assembly Photo**. Be on time!

At 18:15 it is time for Cocktails at the Cadboro Commons, followed at 19:00 by the **General Assembly Banquet**.

At 20:00 our Guest Speaker, **Bob McDonald**, renowned CBC host of Quirks and Quarks, will entice Banquet members to consider *Space Tourism* as their next astronomy project. This will be followed by the presentation of **Awards and Prizes**.

After sunset, weather permitting, there will be **Night Sky Viewing** on the roof of the Bob Wright Centre. In the case of poor skies, an escorted tour of the 32 inch telescope will be offered to delegates.

Monday June 30th

This is **Departure Day**. There will be transportation available to the Airport or Ferry. Thank you for coming and have a safe trip home! To those who have elected to depart on an Alaskan Cruise, Bon Voyage!

Program Daily Schedule

WEDNESDAY, JUNE 25, 2014						
	Meetings	Location	Food	Events	Trips	Registration
7:30						
8:00						
8:30						
9:00						
9:30						
10:00						
10:30						
11:00						
11:30						
12:00						
12:30						
13:00				New Arrivals Check In To UVIC Residences	Pick-up Attendees at Victoria Airport and Swartz Bay Ferry Terminal	Registration Desk Open at Cadboro Bay Commons
13:30						
14:00						
14:30						
15:00						
15:30						
16:00						
16:30						
17:00		Evening				
17:30		Meal				
18:00		On				
18:30		Your				
19:00		Own				
19:30						
20:00						
20:30						
21:00						
21:30						
22:00						
22:30						
23:00						
23:30						

Program Daily Schedule

THURSDAY, JUNE 26, 2014						
	Meetings	Location	Food	Events	Trips	Registration
7:30			Breakfast at			
8:00			Your			
8:30	Organizing	Bob Wright	Accommodation			
9:00	Committee	Centre Rm A104				Registration Desk Open
9:30						
10:00	National Exec	Cadboro				
10:30	Board of	Commons				
11:00	Directors	Building				
11:30	Meeting					
12:00			Lunch			
12:30			On Your Own			
13:00						
13:30				New Arrivals	Pick-up	Registration
14:00				Check In To	Attendees	Desk Open
14:30				UVic	at	
15:00				Residences	Victoria Airport	at
15:30					and	
16:00					Swartz Bay	Cadboro
16:30					Ferry Terminal	Commons
17:00					Depart to	
17:30					DAO BBQ	
18:00			DAO			
18:30			BBQ			
19:00	Plaskett	Centre of				
19:30	Panel	the Universe				
20:00	Ends at 8:15	Auditorium				
20:30				Plaskett Tour		
21:00				Victoria Centre	Return to	
21:30				Observatory	UVic	
22:00				Open House		
22:30						
23:00						
23:30						

Program Daily Schedule

FRIDAY, JUNE 27, 2014						
	Meetings	Location	Food	Events	Tours	Registration
7:30			Breakfast at			
8:00			Your			
8:30			Accommodation			Desk Open
9:00					Orca Spirit	Cadboro
9:30				Downtown	Adventures	Commons
10:00	Board of	Cadboro		and	Whale	
10:30	Directors	Commons		Chinatown	Watching	
11:00	Nat Advisory	Building		Shopping	Tour	
11:30	Council			Tour		
12:00			Lunch Catered			
12:30			For Meeting			
13:00	Board of	Cadboro				
13:30	Directors	Commons				
14:00	Nat Advisory	Building			Tour	
14:30	Council				of	
15:00					Butchart	
15:30					Gardens	Desk Open
16:00		Wright Centre		Plaskett		Cadboro
16:30		Room A104		Lecture		Commons
17:00						
17:30			Wine & Cheese			
18:00			Reception			
18:30			At Cadboro			
19:00			Commons			
19:30		Felicita's		Evening		
20:00		Student Union		Of		
20:30		Building		Music		
21:00						
21:30		Roof of		Night		
22:00		Bob Wright		Sky		
22:30		Centre		Viewing		
23:00						
23:30						

Program Daily Schedule

SATURDAY, JUNE 28, 2014						
	Meetings	Location	Food	Events	Tours	Registration
7:30			Breakfast at Your Accommodation			Registration Desk Open at Cadboro Commons
8:00						
8:30						
9:00						
9:30	Paper	Bob Wright				
10:00	Presentation	Centre		Downtown		
10:30		Room		and		
11:00	Morning	A104		Chinatown		
11:30	Session			Shopping		
12:00				Tour		
12:30			Lunch On Your		Maritime Museum and Victoria Harbour Ferry Tour	
13:00			Own			
13:30	Paper	Bob Wright				
14:00	Presentation	Centre				
14:30		Room				
15:00	Afternoon	A104				
15:30	Session					
16:00						
16:30	Til 16:50					
17:00						
17:30						
18:00						
18:30		Village Greens	West Coast			
19:00		Cadboro	BBQ			
19:30		Commons				
20:00		Bob Wright		Hogg Lecture		
20:30		Centre	←	Dr. Ferrarase		
21:00		Room B150				
21:30		Roof of		Night		
22:00		Bob Wright	←	Sky		
22:30		Centre		Viewing		
23:00						
23:30						

Program Daily Schedule

SUNDAY, JUNE 29, 2014						
	Meetings	Location	Food	Events	Tours	Registration
7:30			Breakfast at			
8:00			Your			
8:30			Accommodation			
9:00	RASC	Bob Wright			John	
9:30	Annual	Centre			Adams	
10:00	General	Room			Historical	
10:30	Meeting	A104			Walking	
11:00					Tour	
11:30	Board and				of	
12:00	Nat Advisory	Cadboro	Catered Lunch		Downtown	
12:30	Council Mtg	Commons	for Meeting		Core	
13:00	For Committee		Attendees			
13:30	Structure					
14:00				Board of		
14:30	Vision 2020	Bob Wright		Directors Mtg		
15:00	Projects For	Centre		Sinclair Room		
15:30	Next Gen	Room A104				
16:00						
16:30						
17:00						
17:30		Village Green	←	17:45		
18:00		Cadboro	18:15	GA Photo		
18:30		Commons	Cocktails			
19:00			General			
19:30			Assembly			
20:00			Banquet	Guest Spkr		
20:30			Cadboro	Bob McDonald		
21:00			Commons	Awards		
21:30		Roof of		Night		
22:00		Bob Wright	←	Sky		
22:30		Centre		Viewing		
23:00						
23:30						

Good to Know - FYI Registration Kit

We are pleased to provide the following items within your registration kit:

- Conference Guide
- Name Tag with Plastic Envelope and Lanyard
- Conference Meal Plan Tickets (if purchased)
- Pre-ordered GA items
- Full-sized Victoria Map
- Full-sized Campus Map
- Victoria Visitor's Guide
- Surprises

Check Your Conference Meal Plan Tickets

Your conference meal plan tickets will be placed in the name tag envelope. Please review your tickets carefully to ensure that all conference meals that you ordered on line are included. Note that for those who are staying in Campus residences, breakfast is included with your accommodation and separate breakfast vouchers will be provided when you check in to the residence.

Registration Desk

Information about the program and events around the city can be obtained from the registration desk. The desk will be open at Cadboro Commons for the following days and times:

Wednesday, June 25th	13:00 to 20:00
Thursday, June 26th	09:00 to 10:00 13:00 to 17:30
Friday, June 27th	08:00 to 10:30 15:30 to 17:00
Saturday, June 28th	08:00 to 10:30

Also available at the Registration Desk

Victoria Transit Bus Schedules

Additional Tourist Brochures for the city's attractions

Should you require assistance outside of the Registration Desk hours there will be contact information posted at the Registration Desk.

Good to Know - FYI

University of Victoria Residence Information

RESIDENCE CHECK-IN

Residence Check-In takes place at the Residence Services Front Desk located on the **ground floor of the Craigdarroch Office Building**, which faces Lot #5 at the University of Victoria. Enter parking Lot #5 off Sinclair Road. The Craigdarroch Office Building is located across the courtyard from the Cadboro Commons Building where the Registration Desk is located. There will be signage to help you find your way.

On departure, be sure to **check out before 11AM**.

LAUNDRY FACILITIES:

Card-operated laundry facilities are available in each Accommodation area. Smart Cards may be purchased in the Residence Services Front Office Lobby. Irons and Ironing boards will be provided in the laundry facilities.

FITNESS FACILITIES:

There are fitness/recreation facilities in the **Ian Stewart Complex (ISC)** available just a short 10 minute walk from the Residence area. For a drop-in fee, guests are able to use the outdoor pool and gym. Please Contact Vikes Recreation for rates and drop-in schedules: ISC Front Desk at 250-472-4000.

INTERNET ACCESS:

All rooms have internet access (Wireless or Ethernet). The front desk will provide log-in and password information. You must supply your own ethernet cable.

PARKING:

Pay parking is in effect on the Gordon Head Campus Monday through Saturday 24 hours a day. There is no charge for parking on Sunday. Parking rates are \$1.25 per hour to a maximum charge of \$7.50 per day. The daily maximum on Saturday is \$2.50.

Good to Know - FYI

University of Victoria Campus Services

ATM's are located at the following sites:

Scotiabank ATM inside Finnerty Express Cafe (Campus Services Building by the bus terminal).

Scotiabank ATM on the main floor of Cadboro Commons inside the doors on the north side of the building.

RBC ATM in the Student Union Building hallway near the Travel Cuts office.

Cashline ATM in the Student Union Building outside Felicita's Pub.

BOOKSTORE

The UVic Bookstore in the Campus Services Building by the bus terminal is open Monday to Friday from 8:30AM to 5PM and on Saturday from 11AM to 5PM.

FIRST AID AND MEDICAL EMERGENCIES

The Royal Jubilee Hospital Emergency Ward is near the corner of Richmond Road and Bay Street. Call 911 for an emergency.

HOUSEKEEPING

If there any issues associated with your residence, go directly to the sign in desk for assistance.

PHARMACY

Victoria Peoples Pharmacy (Student Union Building)

Good to Know - FYI

University of Victoria

On Campus Dining

Cadboro Commons Building - full service cafeteria open 07:30 to 19:00 daily for regular meals including:

- made to order grill items
- daily hot meals
- salad bar
- wraps and sandwiches
- sushi
- fresh made soup
- fruit, pastries and other sweets
- an assortment of beverages including fresh coffee and tea

Biblio Cafe is located in the McPherson Library not too far from the Bob Wright Centre. 8:00 to 18:00 except 10:00 to 16:00 Sat and Sun.

Finnerty Express Cafe - located by the bus terminal in the Bookstore.

Grad House Restaurant - located in the Grad House just beyond the Student Union Building.

Student Union Building - operates a number of food service outlets including:

Bean There

Felicita's Campus Pub

Health Food Bar

International Grill

Munchie Bar.

There are also vending machines located throughout the Campus.

Good to Know - FYI

Conference Meal Plan

The majority of our conference meal plan offerings will be served out of the Cadboro Commons Building at the University. For those staying on campus, a daily breakfast voucher is included with the cost of lodging and is separate from the Conference Meal Plan. Generally, unless specified below, lunch is on your own at the Cadboro Commons Dining area or elsewhere on or off Campus. **Please note that the following conference meals are only available to those delegates that placed an order at the time of registration.**

Thursday, June 26, 2014

- **Welcome BBQ (\$16.00) at 18:00** at the Dominion Astrophysical Observatory, a National Research Council property which does not permit any alcohol to be brought onto the site.

Friday, June 27, 2014

- **Buffet Lunch for Board of Directors and National Advisory Council only (\$12.00)** in the Cadboro Commons Servery.
- **Wine and Cheese Reception (\$25.00) at 17:30** at Village Greens (Cadboro Commons Building).

Saturday, June 28, 2014

- **West Coast BBQ (\$23.00) at 18:30** at Village Greens (Cadboro Commons Building).

Sunday, June 29, 2014

- **Buffet Lunch for Board of Directors and National Advisory Council only (\$12.00)** in the Cadboro Commons Servery). For others, lunch on your own at the Cadboro Commons Dining area or elsewhere.
- **Cocktail Bar** at Cadboro Commons opens at 18:15
- **General Assembly Banquet (\$50.00) at 19:00** in the Cadboro Commons Dining Room.

Good to Know - FYI Off Campus Dining

A comprehensive list of off campus dining opportunities can be viewed at:
<https://www.rasc.ca/events/off-campus-dining>

What follows is an abridged list that may satisfy your caffeine and carbohydrate cravings. Be forewarned that almost all destinations involve a healthy walk. The eateries are clustered around 3 main intersections:

- 1) **SHELBOURNE AT McKENZIE** located 2.5 km west of UVic along McKenzie Avenue where you can find: Starbucks, Tim Hortons (open 24 hours), Subway, Quiznos, Boston Pizza, Original Joes Restaurant and Bar.
- 2) **SHELBOURNE AT CEDAR HILL CROSS ROAD** located 2.5 km southwest of UVic along Cedar Hill Cross Road where you can find: Starbucks, Tim Hortons (open 24 hours), Subway, Pizza Hut, Oregon's Pizza and Bistro, McDonalds, A&W and Maude Hunter's Pub as well as a variety of Asian restaurants.
- 3) **CADBORO BAY VILLAGE** located 2 km east at the bottom of Sinclair Road Hill where you can find: Starbucks, Smugglers Cove Pub, Thai Lemongrass Restaurant and Olive Olio's.



Good to Know - FYI

Off Campus Services and Shopping

SHELBOURNE AT McKENZIE (2.5km west of UVic on McKenzie)

Banks

- CIBC (University Heights Shopping Centre)
- RBC (University Heights Shopping Centre)

Pharmacy

- Save On Foods (University Heights Shopping Centre)

Grocery

- Save On Foods (University Heights Shopping Centre)
- Thrifty Foods (open 24 hours Tuscany Village)

Liquor Store

- Metro Liquor Store (Tuscany Village)

SHELBOURNE AT CEDAR HILL CROSS ROAD (2.5 km SW of UVic)

Banks

- Scotia Bank (Shelbourne Plaza)
- TD (Shelbourne Plaza)

Pharmacy

- Victoria Peoples Pharmacy (Shelbourne Plaza)

Grocery

- Fairway Market (Shelbourne Plaza)

Liquor Store

- BC Liquor Store (Shelbourne Plaza)
- Maude Hunters Pub

CADBORO BAY VILLAGE (2 km east on Sinclair Road)

Pharmacy

- Victoria Peoples Pharmacy (Cadboro Bay Village)

Grocery

- Peppers Foods (Cadboro Bay Village)

Liquor Store

- Smuggler's Cove Pub Liquor Store

Off Campus Exercise The Beer Mile

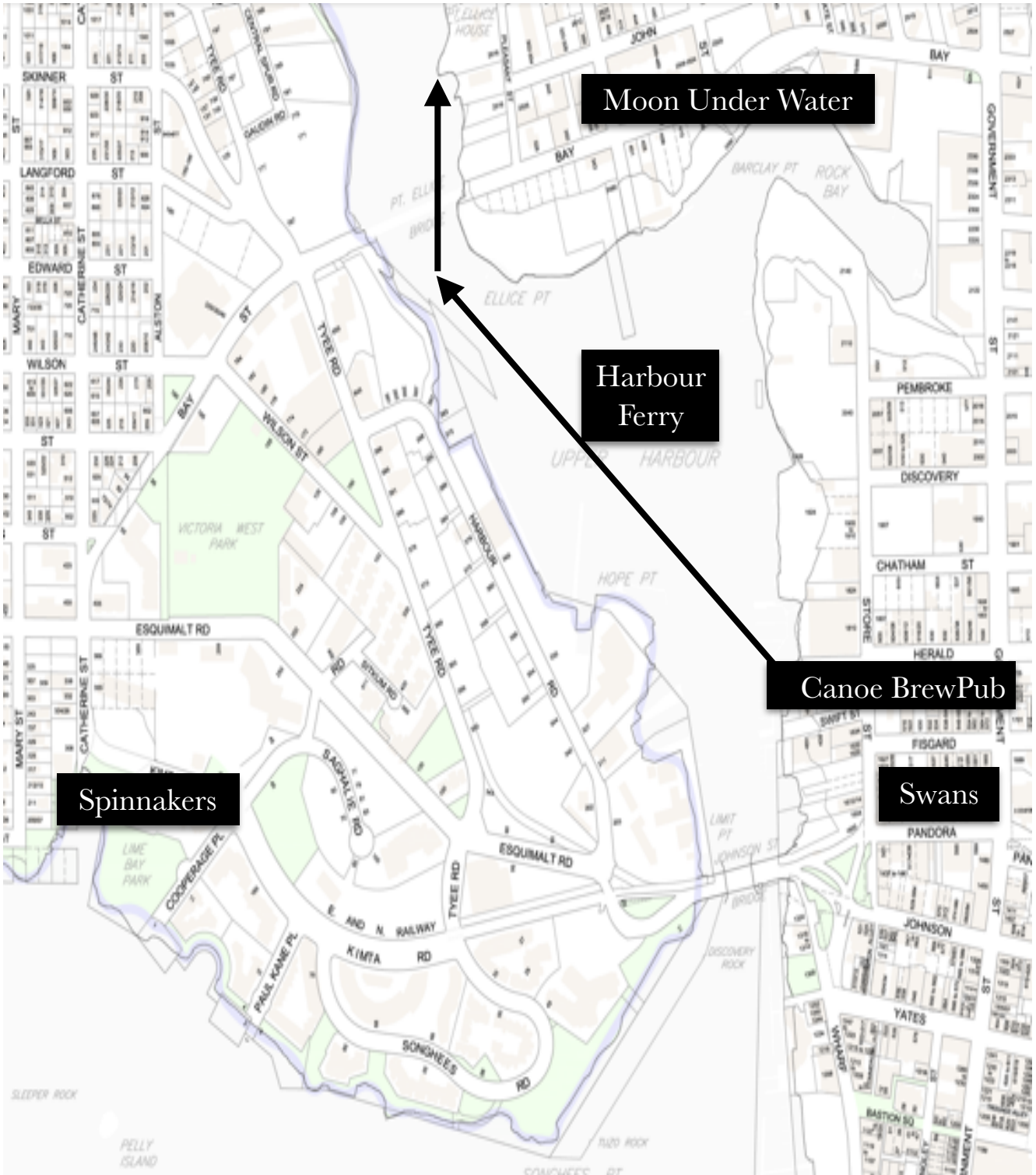
Astronomy is not recognized for its aerobic benefits. The Victoria Centre has developed a plan to change that. We are recommending a 1 mile walking loop around Victoria's Upper Harbour. In the event that this activity proves to be too daunting we have identified four strategic "rest stations". By great good fortune, these "stations" just happen to be some of Victoria's finest Brew Pubs.

To summon one's strength, the mile **begins** with a rest at the **Canoe BrewPub** located on the water just off Store Street at the bottom of Swift Street. Next, call Victoria Harbour Ferry (250-514-9794) which stops directly in front of the Canoe to request a boat ride (\$5.00) along the industrial harbour front to Point Ellice Landing. From there, it is a short walk south on Pleasant Street, then left on Bay St to **Moon Under Water** (350 Bay). After resting at the Moon turn right towards the bridge and stay on Bay Street, which after a half mile trek becomes Catherine Street and ends at **Spinnakers**. You will be rewarded by a great view of the Inner Harbour and a seat in Canada's first brewpub of the modern era. After that, you are on the final leg which involves a short 10 minute stroll along the Songhees Walkway and a crawl across the Blue Bridge to **Swans** (506 Pandora) for a well deserved victory celebration. You have completed the Beer Mile!

Reference Map

The Beer Mile

(full size map available at Registration Desk)



The Beer Mile

Canoe BrewPub > Moon Under Water > Spinnakers > Swans

Good to Know - FYI Tours

There are five tours available. Transportation from UVic will be provided by RASC volunteers. The **departure assembly area for every tour is Launch Pad 39** which is located in Parking Lot 5 off of Sinclair Road. Follow the signs from Cadboro Commons. Please be on time for departure, as some of these tours are very time critical. Note: Tours may be cancelled if too few sign up.

Whale Watching - Orca Spirit Adventures – Friday Morning June 27th

Departure is at 08:00 from Launch Pad 39. This 3 hour tour offers delegates the opportunity to enjoy whale watching and wildlife viewing in the waters around Southern Vancouver Island. The tour is made on a covered boat specifically built for whale watching with comfortable seating, an elevated outdoor viewing deck and washrooms. You will have the chance to view orcas, porpoises, seals, sea lions and bald eagles in their natural environment. Return to UVic by 13:00.

City Shopping Tour - Friday June 27th and again Saturday June 28th

Departure is at 09:00 from Launch Pad 39. A half-day shopping tour to experience Victoria's unique and eclectic shopping environment. Delegates will be dropped off in Downtown to explore on their own Victoria's historic shopping core along Government Street and the fascinating import shops and alleys of Victoria's Chinatown. Return to UVic by 13:00

Butchart Gardens Tour - Friday Afternoon June 27th

Departure is at 13:00 from Launch Pad 39. Butchart Gardens is one of the world's premier show gardens. The property features a collection of floral display gardens on a 22 hectare estate. Return to UVic by 17:00

Maritime Museum with Harbour Ferry Tour - Saturday June 28th

Departure is at 12:00 from Launch Pad 39. Located in downtown Victoria's historic Bastion Square, the Maritime Museum of British Columbia houses exhibits on the region's explorers, sailing and shipping history and the many early shipwrecks along the rugged coastline of Vancouver Island. Return to UVic by 17:00.

John Adams General History Tour of Victoria - Sunday June 29th

Departure is at 9:00 from Launch Pad 39. Developed by John Adams, Victoria's pre-eminent historian, this is a 90 minute walking tour of downtown Victoria that will focus on a general history of the downtown core. Return by 13:00.

Good to Know - FYI Transportation

BC Transit offers an extensive bus network in the Capital Region. The University of Victoria is a major transit hub so it is possible to travel around the region from the campus in a number of directions. Most of the bus routes that serve the campus leave from the Bus Terminal located on Finnerty Road across from the Student Union Building. The bus routes that serve the campus include:

- 4 - Downtown/UVic via Hillside to UVic
- 7 - UVic/Downtown to UVic
- 11 - UVic/Tillicum Mall to Tillicum Mall
- 12 - University Heights/UVic to University Heights
- 13 - University Heights/Ten Mile Point to University Heights
- 14 - Victoria General Hospital/UVic
- 15 - UVic/Downtown Express to Downtown
- 16 - UVic/Uptown Express to Uptown
- 26 - Dockyard/UVic to Dockyard
- 39 - Royal Roads/UVic/Royal Oak to Royal Roads
- 76 - Swartz Bay/UVic Express to Swartz Bay

Cash transit fare is \$2.50 payable on entering the bus. If you need to transfer to another route please request a transfer when you pay your fare. All of the Victoria Transit Region is a single fare zone.

UVic Mobile app for iPhone and Android
Displays next 5 buses leaving UVic.
<http://studentaffairs.uvic.ca/app.php>

TAXI

Bluebird Cabs Ltd	250-382-2222
Victoria Taxi Ltd	250-383-7111
Westwind Taxi	250-474-4747
Yellow Cab	250-381-2222

All-Star Telescope

Autoguiding
Getting Started
iOptron SkyTracker
Online Instructional Videos

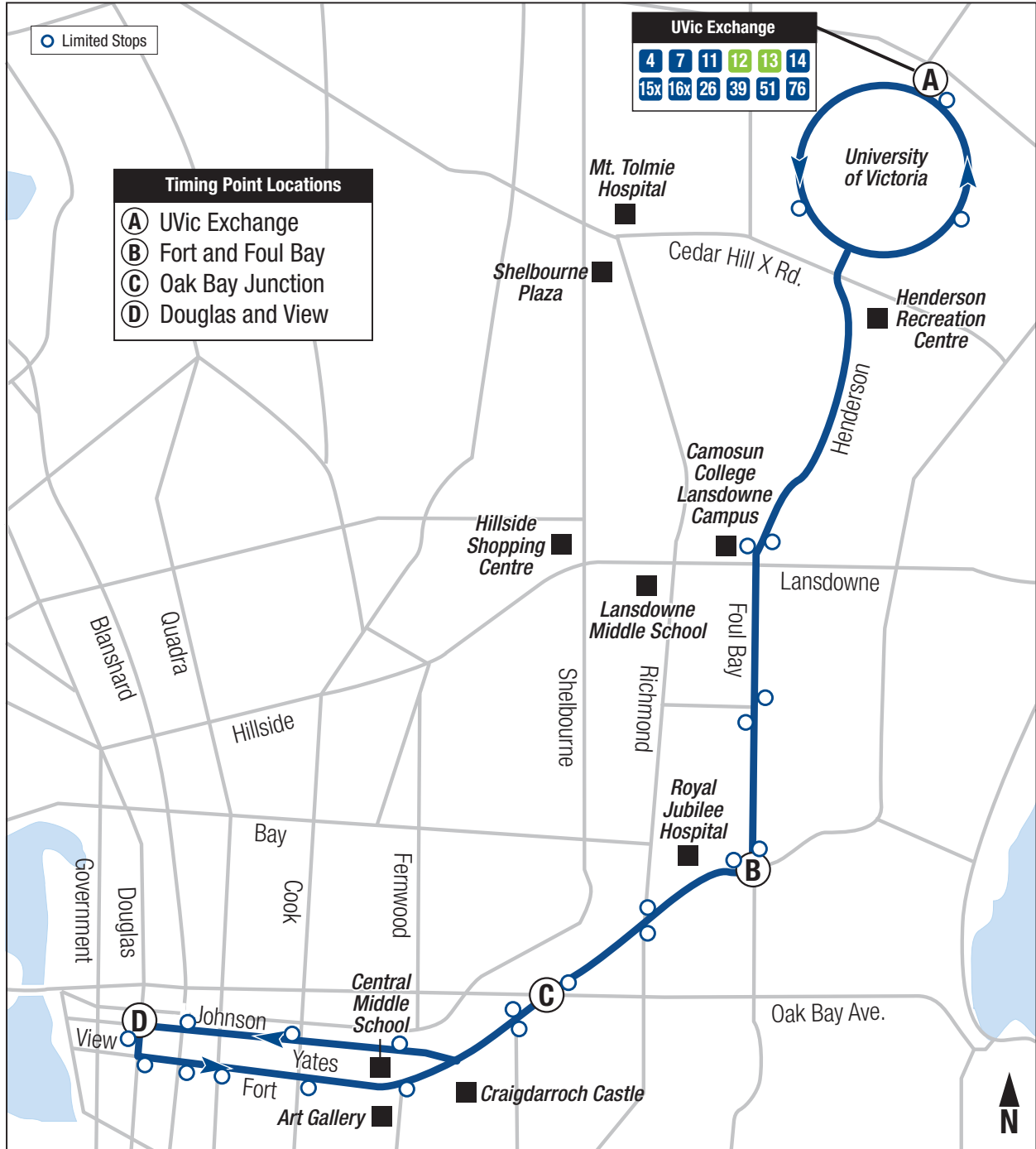
New Mexico Star Party
February 14-21, 2015
(see website for details)

www.All-StarTelescope.com
1-866-310-8844

Good to Know - FYI Express Bus to Downtown Route

15x UVic

15x Downtown

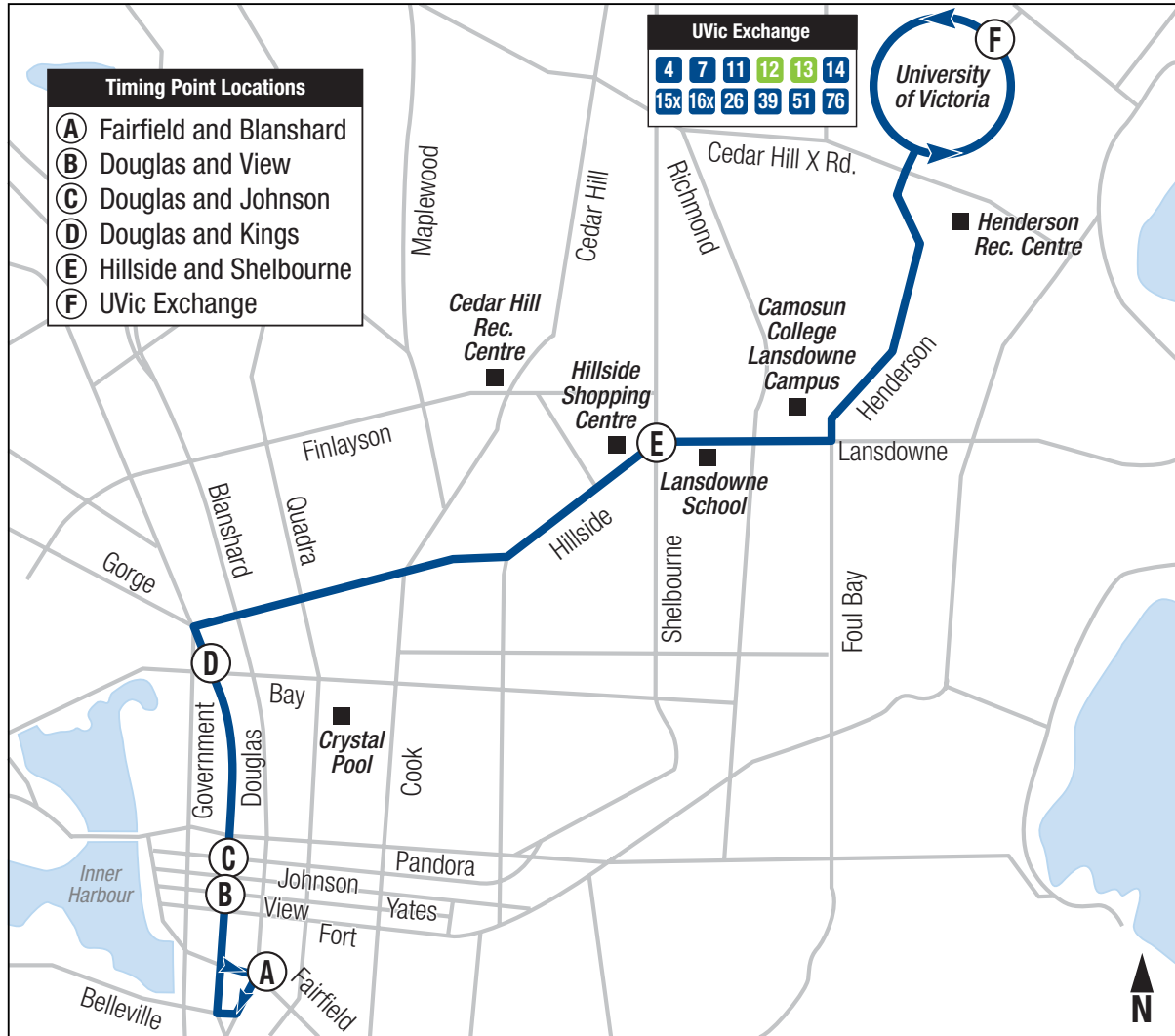


Good to Know - FYI

Bus to Downtown via Hillside

4 Downtown via Hillside

4 UVic



Welcome BBQ Event

The Plaskett Panel Discussion

Centre of the Universe at DAO, Thursday, June 26th 19:00

This interesting panel discussion will take place in the Auditorium of the Centre of the Universe at 19:00 after the BBQ is finished. Moderated by Victoria Centre's Past President, Lauri Roche, the panel will provide an overview of the Plaskett Telescope Story and explore its relationship to the Dominion Astrophysical Observatory/Hertzberg Institute of Astrophysics as well as the Royal Astronomical Society of Canada. There will be time for questions from the audience. Between 20:30 and 21:00 there will be a tour of the Plaskett Dome. An open house will also be held at the nearby RASC Victoria Centre Observatory. The assembly zone for the return to UVic is rumoured to be called Area 51. The transport of attendees off the hill will take place between 21:00 and 22:30. Resistance is futile.

Invited Speakers

Plaskett Panelist Thursday, June 26th

Randall Rosenfeld, MA, MSL

R.A. Rosenfeld is the Archivist of the Royal Astronomical Society of Canada, a position he has held since its creation in 2008. He was trained at the University of Toronto and the Pontifical Institute of Mediaeval Studies, and researched and published on the tools and technologies of communication ca. 500-1500. Since 2008 he has published numerous articles on astronomical artifacts in a variety of journals, with a particular interest in the graphic records of observations and how they were made. He is a contributor to the forthcoming second edition of Springer's Biographical Encyclopedia of Astronomers (2014). He is a recipient of the RASC's Simon Newcomb Award (2012), the RASC's President's Award (2012), he has twice achieved high standing in the Annual Griffith Observer Writing Contest (2008 & 2013), and the IAU named Asteroid 283990 Randallrosenfeld (2004 SG2) in his honour. He has acted as an adviser to institutions planning exhibitions of astronomical artifacts, and is a member of the CASCA Heritage Committee. He recently served as the keynote speaker at the 2013 convention of the Antique Telescope Society at the Washburn and Yerkes Observatories.



Invited Speakers

Plaskett Panelist Thursday, June 26th

Jim Hesser, Phd

Jim Hesser retired in January, 2014 as Director of the National Research Council's Dominion Astrophysical Observatory, Herzberg Institute of Astrophysics in Victoria, B.C., which he joined in 1977.



He completed his PhD in Astrophysical Sciences at Princeton University in 1966, and was on the staff of the Cerro Tololo Inter-American Observatory, La Serena, Chile for nine years prior to joining NRC. His research on stars, star clusters, galaxies and laboratory astrophysics has been reported in some 200 research papers. From 2002 through 2013 Jim served as Canada's member on the Board of Directors for the Atacama Large Millimetre Array, the first global astronomical observatory developed by East Asia, Europe and North America.

For 11 years from 1994 he served on the Board of the Canada-France-Hawaii Telescope. He was the RASC's Honorary President (2009 - 2013), following earlier service as President of the Canadian Astronomical Society and of the Astronomical Society of the Pacific, and as Vice President of the American Astronomical Society.

In addition to research and management, Jim has engaged extensively in education and public outreach (EPO), particularly through BC's *Scientists & Innovators in the Schools* program. During 2007 - 2010 he chaired Canada's participation in the International Year of Astronomy 2009, a global EPO effort which engaged 2,000,000 Canadians in 3,600 events. Jim has been honoured by a Michael Smith Award for Science Promotion from Industry Canada (1997), naming of Asteroid 39179 after him by the International Astronomical Union (2002), a Queen's Golden Jubilee Medal (2003), the inaugural CASCA Executive Award for Outstanding Service (2010), *Sociedad Chilena de Astronomía (SOCHLAS)* award for distinguished contributions to Chilean Astronomy, and the Qilak Award from CASCA (2013).

An outcome of IYA2009, Jim presently serves on the Board of the Victoria Symphony Society. His greatest honour is his marriage of 50+ years to Betty, a person passionately curious about science, languages and music.

Invited Speakers

Plaskett Panelists Thursday, June 26th Peter Broughton, MA

Peter Broughton graduated from the University of Toronto in 1963 with a BSc in astronomy. He earned his MSc on a part-time basis during the early years of his long career as a high school mathematics teacher. One of the courses he took, given by K. O. May, inspired an absorbing interest in the history of science, with a particular emphasis on the development of astronomy in Canada. This interest was fostered by a very active role in the Royal Astronomical Society of Canada whose Service Award he received in 1987. At the end of his term as national president in 1994, he wrote *Looking Up: A History of the RASC*. In addition he has given many talks, written about fifty articles and reviews, and contributed to encyclopedias and dictionaries. He and his wife, Marilyn, enjoy playing classical piano duets, and love spending time with their two children and four grandchildren.



Daniel Posey, BA

Daniel Posey is a graduate student currently enrolled in the University of Victoria Master of History program. He received his Bachelor's degree in History from the same institution in 2013. Dan's thesis research is centred on the history of the Dominion Astrophysical Observatory and its relationship with the province of British Columbia. Other recent research interests have been focused on an ethnographic study of Indigenous Astronomical Knowledge Circa 1900. Dan is an active member of the RASC Victoria Centre currently sitting on the Technical Committee for the Victoria Centre Observatory. While engaging in visual observation his primary focus is centred on deep-sky astrophotography, with an emphasis on galaxies.



Plaskett Medal Lecture

Andy Pon, PhD

Friday, June 27, 16:00

The Orion and Eridanus Superbubble

Dr. Andy Pon grew up in Calgary, Alberta and obtained his BSc in Astrophysics from the University of Calgary in 2008. He moved to the University of Victoria where he obtained his PhD in May 2013. He is an avid curler and a big sci fi fan, particularly of Star Trek, Star Wars and Doctor Who. He is a postdoctoral fellow at the University of Leeds involved in star formation research, with particular foci on low velocity shocks in giant molecular clouds, superbubble expansion, and the dynamical evolution of filaments.



He was selected as the Plaskett Medal Winner for 2014. The following is the citation from the Canadian Astronomical Society- Société Canadienne d'Astronomie (CASCA) website:

Dr. Pon completed his doctoral studies at the University of Victoria in 2013 under the supervision of Dr. Douglas Johnstone (UVic, NRC-Herzberg). His thesis, entitled “Shocks, Superbubbles, and Filaments: Investigations into Large Scale Gas Motions in Giant Molecular Clouds,” covers a wide range of topics in star formation — including gravitational collapse, turbulent heating, and Galactic ecology. This work bridges theory and observations, and crosses traditional boundaries between the detailed investigation of individual nearby star-forming regions and the much larger scale studies of galactic-scale star formation.

Hogg Lecture

Laura Ferrarese, PhD

Saturday, June 28, 20:00

The Hidden Lives of Galaxies

Dr. Laura Ferrarese's astronomical journey started in Padova, Italy, and continued at the Johns Hopkins University and Space Telescope Science Institute in Baltimore, Maryland, where she received her PhD in 1996. In 2004, after holding a postdoctoral position at the California Institute of Technology, and a four year tenure as a faculty member at Rutgers University, Dr. Ferrarese moved to Victoria, BC, to join the scientific staff at the Herzberg Institute of Astrophysics, National Research Council of Canada.



During her career, Dr. Ferrarese has worked with the world's premier space and ground-based observing facilities. She played a critical role in the HST Key Project on the Extragalactic Distance Scale, which ultimately led to what was -- at the time -- the most accurate measurement of the age of the Universe. She also published the first secure detections of central black holes in galaxies beyond our own. Her subsequent work includes the unexpected discovery that the evolution of galaxies is shaped by the activity of their central black holes, work for which she was awarded the 2012 Queen Elizabeth II Diamond Jubilee Medal.

With over 130 publications in refereed journals, Dr. Ferrarese is one of the most cited astronomers worldwide and a regular speaker at international conferences and Universities across Europe, North America and Asia. She remains firmly committed to the promotion of science and astronomy within the general public, and has published several articles in popular science magazines as well as given frequent public talks. Dr. Ferrarese currently serves as President of the Canadian Astronomical Society.

Banquet Speaker
Bob McDonald, OC
Sunday, June 29, 20:00

Space Tourism: What next?

Bob McDonald, the host of CBC radio's *Quirks and Quarks* since 1992, is Canada's best-known science communicator. He also explains new developments in science to Canadians on the CBC News Network and CBC's *The National*.

Before taking the helm of *Quirks and Quarks*, McDonald hosted a children's science program, *Wonderstruck*. He has written three books, most recently *Measuring Earth with a Stick: Science As I've Seen It*, along with many articles for textbooks, newspapers and magazines.



McDonald is an Officer of the Order of Canada, and he holds eight honorary degrees and many other awards, including the Michael Smith Award for Science Promotion from the Natural Sciences and Engineering Research Council of Canada, the Sir Sandford Fleming Medal from the Royal Canadian Institute, and the McNeil Medal from the Royal Society of Canada.

Although McDonald was based in Toronto for most of his career as a science communicator, he now calls Victoria home.

Program

Paper Session Speaker Schedule

Saturday, June 29th

Time	Speaker	Title
9:00	Lauri Roche	Introduction
9:10	David Chapman & Cathy LeBlanc	The 12 Moons of the Mi'maw Calendar
9:30	Colleen O'Hare	Building the Okanagan Observatory
9:50	Alan Batten	The Story of the Gaseous Sun
10:10	Elizabeth Griffin	We are Not Alone - and I'm not actually referring to Space
10:30	Patrick Côté	CASTOR: A Proposed Canadian Space Telescope
10:50	Coffee Break	Poster Session Bob Wright Centre Foyer
11:10	Karen Mortfield	David Dunlap Observatory - An Alternate History
11:30	Paul Mortfield	Bringing the Largest Telescope in Canada Back to Life
11:50	Robert Dick	Red Light or Amber?
12:10	Rita Mann	Planet Formation in the Beautiful Orion Nebula
12:30	Lunch	Poster Session Bob Wright Centre Foyer
13:30	Nathan Gray and Paul Gray	Supernova Scotia - Young Super Nova Hunters
13:50	James Di Francesco	New Insights into Star Formation from the Herschel Space Observatory
14:10	David L. Clark	Dynamic Modelling of Meteoroid Streams
14:30	Randall Rosenfeld	Inviting the right aliens to tea - The state of the question at the Victoria Centre, 1931
14:50	Coffee Break	Poster Session Bob Wright Centre Foyer
15:10	Janeane MacGillivray	Journey Through the Universe outreach program: Astronomy "voluntourism" on the Big Island of Hawaii
15:30	Richard Schmude	Mars Activity in 2013-2014
15:50	Michel Michaud	An Investigation of binary stars in the Pleiades
16:10	Miles Paul	Adventures of Two Amateur Astronomers in Namibia
16:30	Dennis Crabtree	Astronomy: Canada's Research Success Story and How it All Started

Program

Abstracts: Morning Session

The 12 Moons of the Mi'kmaw Calendar

09:10 - David Chapman (Halifax Centre) with Cathy LeBlanc of Acadia First Nation

Currently, the 12 months of the civil calendar have been assigned 12 traditional names in the Mi'kmaw language, each having seasonally appropriate names. But how did the Mi'kmaw people note the passage of time before European contact? The traditional names were assigned to actual lunations, but 12 moons don't quite make a year, and it was necessary to insert a 13th moon name every 2 -3 years to keep moons in line with the seasons. There is evidence in the teachings, stories, and language that a 13th moon was used, but this knowledge has faded over 500 years, and it is now hard to specify what the 13th moon was called and when it was used.

Building the Okanagan Observatory

09:30 - Colleen O'Hare (Okanagan Centre)

My talk will highlight the trials and tribulations of building the Okanagan Observatory (www.okanaganobservatory.ca). This includes site acquisition, building the Gamble 25" telescope and Sky Theatre as well as how we are providing complete wheelchair access including direct visual observing using the Articulating Eyepiece. The successful Outreach program and future plans for radio astronomy and other projects will also be shown. **There will be an accompanying poster.**

The Story of the Gaseous Sun

09:50 - Alan Batten (Victoria Centre, CASCA)

We all know that the Sun is a huge sphere of incandescent gas (mainly hydrogen and helium) but how did we come to this knowledge? Even in the early nineteenth century, many astronomers believed that the Sun had a surface on which living beings might possibly exist. In this paper I will describe how gradually (and sometimes reluctantly) astronomers abandoned this idea.

Program

Abstracts: Morning Session

We are Not Alone- and I'm not actually referring to Space

10:10 - Elizabeth Griffin (Victoria Centre)

Astronomy has many caches of valuable data. In addition to the ever-expanding databases from modern surveys, there are also photographic archives of historic observations, each a unique image of some event, object or spectrum -- a once-only observation, and a one-only version. Analogue data like that cannot be copied; they are precious, fragile, and imperiled. They are essential for time-sensitive research but cannot be ingested into modern analyses until they have been correctly and completely digitized, a procedure that is not easy, not cheap, and not commonly found. This story is not new, but what IS new to many astronomers is the realization that other sciences are in just the same, or even worse, predicament. In other sciences, historic data may be heaps of record sheets, the ink fading and the paper attacked by vermin. Unlike astronomy, whose plates are neatly filed in observatory plate vaults, and carefully card-catalogued, other sciences look for their historic data in uncharted territory, often relying on word of mouth or chance for their discovery and recovery.

The situation must be addressed before the records and photographs degrade to being unusable. Individual sciences have to compete with one another for funds to translate their analogue data into manageable electronic versions, but if the individual challenges are federated into a global scientific project, with Astronomy being just one partner that also has good experience to share, the problem becomes a recognized, international shared concern. Its solution will enable all sciences (and thereby human knowledge) to become much better informed. The talk will demonstrate that claim through specific examples, and will also bring astronomers up to date on the progress that is being made to provide rapid and reliable access to the historic astronomical data of the world.

CASTOR: A Proposed Canadian Space Telescope

10:30 - Patrick Côté (Victoria, CASCA)

The 2010 Long Range Plan for Canadian Astronomy identified the highest priority for Canada in space astronomy in the coming decade as “involvement in the next generation of dark energy missions ... or a Canadian-led mission, the Canadian Space Telescope”, noting that “Canadian space astronomy technology has reached the point that we could [now] lead a large space astronomy mission.” I describe a concept study sponsored by the Canadian Space Agency for such a mission --- CASTOR --- that would perform deep, panoramic imaging in three ultra-violet/blue-optical filters. With a spatial

Program

Abstracts: Morning Session

comparable to the Hubble Space Telescope, but with a ~200x gain in field of view, CASTOR's scientific potential would be immense, ranging from the study of cosmology and dark energy to the structure of the outer solar system.

10:50 - Coffee Break

David Dunlap Observatory – An Alternate History

11:10 - Karen Mortfield (Toronto Centre)

As RASC Toronto Centre members have immersed themselves in the history of the 80-year old Observatory, they've come across some fascinating evidence of a DDO that almost was. Take a look back at the largest optical telescope in Canada and learn about the companion scope that might have been.

Bringing the Largest Telescope in Canada Back to Life

11:30 - Paul Mortfield (Toronto Centre)

It is a considerable challenge to resurrect any mothballed observatory, let alone an 80-year old telescope weighing 23 tons. This is the ongoing story of the David Dunlap Observatory located in Richmond Hill, Ontario, and how members of the RASC Toronto Centre saw an opportunity to bring the unused observatory back to life. For the past five years the repurposed telescope and observatory have been used by Toronto Centre members to put on amazing education and outreach programs attracting over 17,000 visitors. The talk will describe the bold steps taken to resurrect the facility and its new outreach mission as a Space Science Campus.

Red Light or Amber?

11:50 - Robert Dick (Ottawa Centre)

Astronomers make the most of every celestial photon by observing quietly with no artificial light - to preserve their night vision. However, observing sites are speckled with red lights from power bars, computers, telescope drives and personal flashlights – the area is decidedly not dark.

Red light is generally used because it provides very little exposure to our sensitive scotopic rod cells that provide our night vision but our cone cells are not very sensitive to red light so relatively bright illumination is needed for red light to be practical. We propose an illumination spectrum called true amber. Our rod cells can detect this light but the sensitivity of these cells permit

Program

Abstracts: Morning Session

very low illumination levels that will not saturate or bleach them. This allows rapid recovery from the use of true amber. It also has a reduced impact on the natural environment than other minimized colours of light.

Planet Formation in the Beautiful Orion Nebula

12:10 - Rita Mann (Victoria CASCA)

The Solar system formed out of a disk of gas and dust surrounding our young Sun. By studying similar protoplanetary disks around young stars, we can begin to understand how common the conditions which gave rise to our planetary system are, and place our Solar system in context. Our Sun, and most other stars in the sky, form in close proximity to massive stars. These massive stars can evaporate protoplanetary disks, a process that has been captured beautifully by detailed Hubble Space Telescope images of the Orion Nebula. We used a revolutionary new telescope, ALMA, an array of submillimetre wavelength telescopes currently under construction in the Atacama desert of Chile, to observe the Orion protoplanetary disks and study their potential to form planets like our own. In this talk, I will describe our results, and what we have learned about planet formation in the most common birth environment of stars.

Program

Abstracts: Afternoon Session

Supernova Scotia - Young Super Nova Hunters

13:30 - Nathan Gray and Paul Gray (Halifax Centre)

In 2010 Kathryn Aurora Gray found a supernova at the age of 10 while searching through data provided by amateur astronomer David Lane. In late 2013 Nathan Gray also found a supernova using the same process as his older sister. Since January 2010 Kathryn and Nathan have searched thousands of images seeking the elusive prize of an undiscovered supernova.

This paper will highlight the drive and excitement young astronomers have for undertaking such a program as well as the rewards and growth that may come with it. Demonstration of the hunting process as well as an overview of the program and the experiences the two supernova hunters have had will be highlighted.

New Insights into Star Formation from the Herschel Space Observatory

13:50 - James Di Francesco (Victoria Centre, CASCA)

I will highlight some of the exciting results we are learning about star formation using data from the ESA Herschel Space Observatory. This 3.5 m-diameter satellite observatory, which operated from 2009 to 2012, scanned the sky at far-infrared and submillimetre wavelengths that are unobservable from the ground, revealing in unprecedented detail the cold reservoirs of gas and dust out of which stars form. One of the examples I will be showing is a spectacular 1 square-degree image of the Rosette Molecular Cloud, as observed at 70 microns (blue), 160 microns (green), and 250 microns (red) by our team with Herschel.

Program

Abstracts: Afternoon Session

Dynamic Modelling of Meteoroid Streams

14:10 - David L. Clark (London Centre)

Accurate simulations of meteoroid streams permit the prediction of stream interaction with Earth, and provide a measure of risk to satellites and interplanetary spacecraft. Current cometary ejecta and meteoroid stream models have been somewhat successful in predicting some stream observations, but have required significant assumptions and simplifications. Extending on an approach by Jeremie Vaubaillon et al. (2005), I model dust ejection from the cometary nucleus, and generate sample particles representing bins of distinct dynamical evolution-regulating characteristics (size, density, direction, albedo). Ephemerides of these particles are integrated and recorded for later assignment of weights based on model parameter changes. To assist in model analysis I am developing interactive software to permit the "turning of knobs" of model parameters, allowing for near-real-time 3D visualization of resulting stream structure. Using the tool, I will revisit prior assumptions made, and will observe the impact of introducing non-uniform and time-variant cometary surface attributes and processes. **A poster will accompany this presentation.**

Inviting the right aliens to tea - The state of the question at the Victoria Centre, 1931

14:30 - Randall Rosenfeld (RASC unattached)

In 1931, the Victoria Centre sponsored the symposium "On Possibilities of Life in the Universe". The speakers were drawn from the professional and amateur astronomical ranks of its membership. The symposium has not attracted the attention it deserves in the subsequent literature on the Extraterrestrial Life Debate (e.g., Crowe 1986), despite prompt publication in JRASC. This presentation will assess how representative the divergent views of the speakers were for the time, compare and contrast their astrobiological science to ours, and through this event explore the validity of the Sagan thesis (1974) on the state of planetary science in prior decades (Osterbrock 1991; Doel 1996). It will also provide a window on professional and amateur relations within the RASC eight decades ago. As with all good stories, there are lessons and surprises.

14:50 Coffee Break

Program

Abstracts: Afternoon Session

Journey Through the Universe outreach program: Astronomy “voluntourism” on the Big Island of Hawaii.

15:10 - Janeane MacGillivray (Victoria Centre)

The Big Island of Hawaii is the best place in the world to conduct ground-based astronomy, with 13 observatories representing 10 countries located atop the magnificent 4,092m dormant volcano Mauna Kea. Journey Through the Universe (JTTU), a week-long national (U.S.) science education program, was held for the 10th year this March in the support town of Hilo. Co-sponsored by Gemini Observatory and the local Hawaiian Department of Education, 80 scientists, engineers, and educators come from the U.S., Canada, and beyond to engage in classrooms with several thousand K-12 students over the week. I will share my experiences working as a volunteer JTTU Ambassador (classroom assistant) in 2012 and 2014 and let you know about this and other astronomy and space science tourism and “voluntourism” opportunities on the Big Island. See www.gemini.edu/journey for info. **A poster will accompany this presentation.**

Mars Activity in 2013-2014

15:30 - Richard Schmude (Kingston Centre)

This talk summarizes measurements made by the writer in late 2013 and early 2014. Some of the conclusions of this work are: 1) the North Polar Cap was a little smaller in late 2013 than what it was at the same season four years earlier; 2) Cecropia is a bright area that disappears almost completely during the early summer and then appears to reform later on. In addition, brightness measurements of Mars will be summarized including those made in the near infrared which will be taken in April and May of 2014. **A poster will accompany this presentation.**

Program

Abstracts: Afternoon Session

An Investigation of binary stars in the Pleiades

15:50 - Michel Michaud (Victoria Centre)

The WDS catalog contains hundreds of double star candidates from the Pleiades cluster but few with determined orbits. A sample of 159 candidates was selected from the catalog with a separation of greater than 1.79 arcseconds and when combined with a wide range of observations, the probability of physical pair status was evaluated. Numerous fundamental techniques based on photometric and astrometric variables will be presented. In addition, provisional orbital elements of visual binaries obtained by numerical orbit integrations will be briefly demonstrated.

Adventures of Two Amateur Astronomers in Namibia

16:10 - Miles Paul (Victoria Centre)

After a brief introduction to Namibia, I will take you to the Sossusvlei Desert Lodge in the Namibrand Nature Reserve, Africa's first International Dark Sky Preserve, where Dorothy and I have been resident astronomers for a total of 20 months in 7 visits since 2003. In addition to describing Lodge activities which include night sky viewing for guests, I will feature some of our favourite objects in the far southern sky as well as the surprisingly rich flora and fauna of the Namib Desert.

Astronomy: Canada's Research Success Story and How it All Started

16:30 - Dennis Crabtree (Victoria CASCA)

Astronomy is one of Canada's research successes and consistently ranks amongst the top three countries in terms of astronomical research. I will compare our astronomy research output and impact to other countries using various metrics. I will also provide some historical context on why Canada has been near the top of astronomy for almost 100 years.

Program

Posters: Friday afternoon thru Saturday Night On View in Bob Wright Centre Foyer

Note: Poster Authors may be present during the Saturday Coffee Break sessions at 10:50 and again at 14:50 to discuss their projects.

Victoria Centre History Poster RASC Victoria Centre

A glimpse through photographs of the history and work of the RASC Victoria Center through 100 years.

Rationale for the RASC and IDA Lighting Protocols Poster - Robert Dick (Ottawa Centre)

An observing site should be devoid of all artificial lighting. However in a large field with many people such as a public campground there is an inevitable need for some artificial light at night to assist in navigation around the site. I developed for the RASC and the IDA a lighting protocol that is a compromise between these competing needs. This poster presents the rationale behind the protocol to help people to understand these limits.

History of the DAO Poster David Bohlender

Building the Okanagan Observatory Poster - Colleen O'Hare (Okanagan Centre) For further details see Abstracts: Morning Session

Dynamic Modelling of Meteoroid Streams Poster - David L. Clark (London Centre) For further details see Abstracts: Afternoon Session

Mars Activity in 2013-2014 Poster - Richard Schmude (Kingston Centre) For further details see Abstracts: Afternoon Session

Journey Through the Universe outreach program: Astronomy "voluntourism" on the Big Island of Hawaii. Poster - Janeane MacGillivray (Victoria Centre) For further details see Abstracts: Afternoon Session

Program

Posters: Friday afternoon thru Saturday Night On View in Bob Wright Centre Foyer

Testing the core accretion model of high mass star formation with WIRCam JHKs imaging of IRAS 20126+4104

Poster Megan Tannock (UVic) and Karun Thanjavur (UVic, CFHT)

We aim to quantify the importance of mass accretion in the formation of high mass stars (O and B classes, $M > 10 M_{\text{sol}}$), and thus test the standard “competitive accretion” model of star formation (Shu et al 1989). The model predicts that O/B stars are only built by mass accretion on to A or later type stars in the cores of high density young stellar objects (YSO) clusters, implying that such massive stars may never be observed in isolation. However, a few recent near-IR observations, complemented by mid-IR Spitzer colors have found that 5 to 10% of O/B stars are in isolated field locations, arguing for a different star formation model, called “core accretion” in which star formation at all mass scales is a stochastic process, with stars drawn randomly from the Initial Mass Function (IMF). To test these models, we have obtained deep ($K_s = 22\text{mag}$) multi-colour nIR observations with CFHT/WIRCam of the high mass star forming region, IRAS 20126+4104, which when combined with archival Spitzer MIPS+IRAS photometry permit us to obtain a YSO census at least two magnitudes deeper than previous observations and thus identify any low luminosity companions, especially in these regions of high extinction. In this presentation, we discuss first results from our ongoing study of IRAS 20126 and encourage involvement from interested RASC members in our plans for a larger survey of similar high mass star forming regions.

Search for White dwarf Eclipsing Exo-Planets, (SWEEP) at the DAO **Maaïke van Kooten, Kyle Finner, Karun Thanjavur, Russel Robb,** **John Vincent (UVic)**

We present our ongoing observational survey, SWEEP @ DAO, aimed to detect planetary eclipses of white dwarfs (WD) using transit imaging with the Newtonian Imager on the 1.8m Plaskett telescope. Planets around WD may have survived the Red Giant phase of their parent star or may form in the debris disk from disrupted planets during the cooling phase of the WD. Models predict that precise (few centi-mag) differential photometry will reveal Earth sized planets in the Habitable Zone (HZ) around cool WD. Given the near equal sizes of the planet and the WD, eclipses will be 0.2 magnitude or deeper, but only last of order 2 minutes, thus requiring fast observing cadence. Our DAO observations to date indicate that the Newtonian Imager + SDSS r filter achieve the required photometric precision for WDs brighter than 17 magnitude with an observing cadence of 35s to temporally well resolve the eclipse. In this poster we provide justification for our work, the observational methodology and results from our ongoing survey from Jan 2014. This survey, with high scientific impact potential, also has ample scope for collaboration and this presentation is aimed to encourage discussions with interested RASC astronomers.

Program

2020 Vision: Panel Discussion

Sunday June 29th 14:30 Rm A104 Bob Wright Centre

2020 Vision- New Projects for the Next Generation of Canadian Astronomers

Dr. James Di Francesco, Senior Research Officer at the NRC and CASCA Secretary, will chair a distinguished panel of professional Canadian astronomers involved in major long range astronomy projects. Each panelist will give you a sense of the scientific excitement around the project they represent, its present status, and the broader benefits that will accrue to Canada (and humankind) from its development. Our panelists include:

Pat Côté: Cosmological Advanced Survey Telescope for Optical and ultraviolet Research (CASTOR)

Lewis Knee: Square Kilometre Array (SKA)

Brenda Matthews: Cerro Chajnantor Atacama Telescope (CCAT)

Alan McConnachie: Mauna Kea Spectroscopic Explorer= Next Generation Canada France Hawaii Telescope (MSE/ngCFHT)

David Schade: Canadian Advanced Network for Astronomical Research (CANFAR), Cloud Computing for “big data”

Luc Simard: Thirty Metre Telescope (TMT)

A question and answer period will follow the panelist presentations

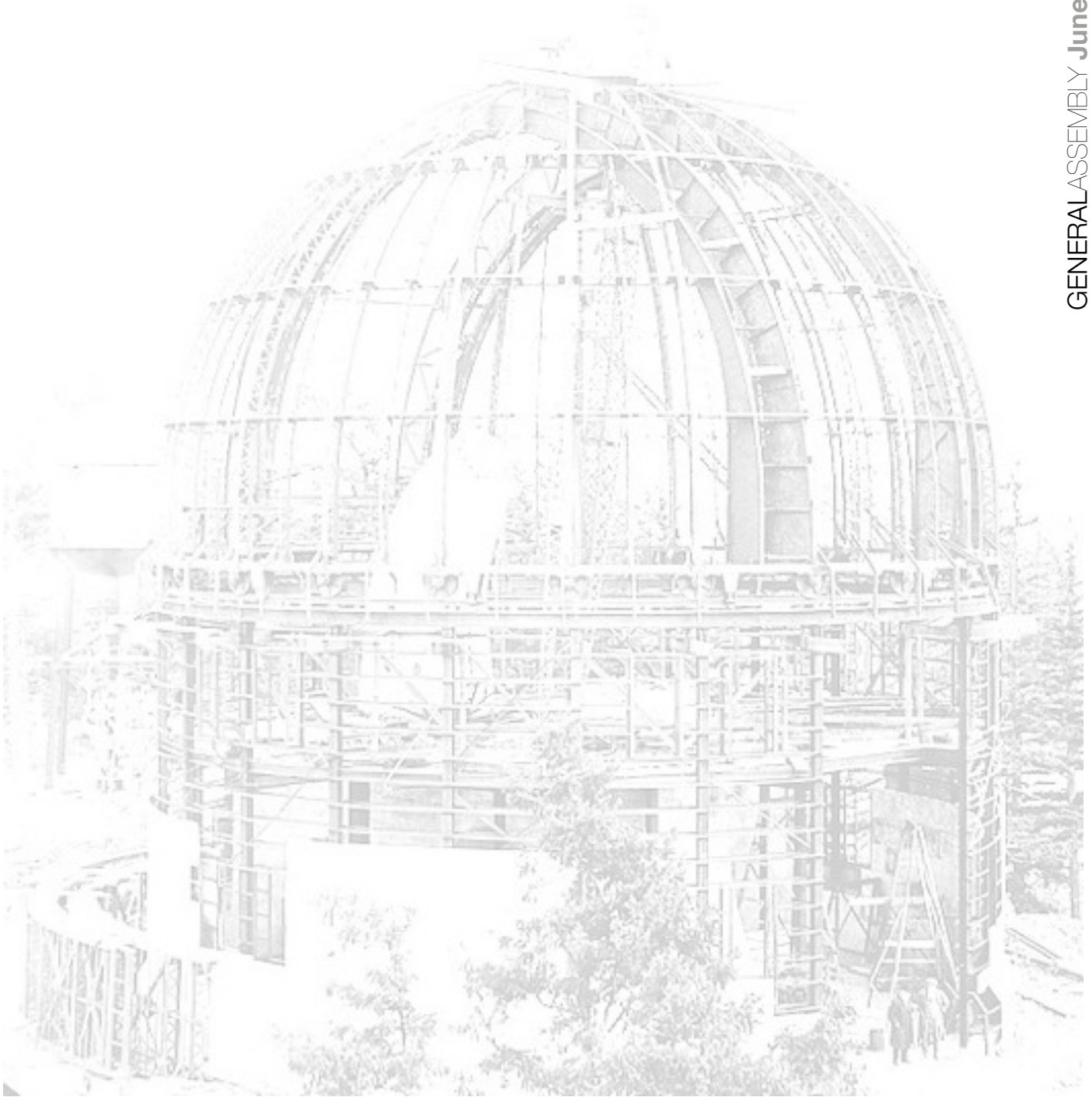
Victoria's Centennial RASCALS
Thank You
For Attending
Have a Safe Trip Home
And Come Back Soon!



Victoria RASCALS Embrace Space Tourism
Beam Us Up, Scotty!

NOTES

GENERALASSEMBLY June 25-29,2014



Ghost Image of Plaskett Dome Under Construction

