

Orbit

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Hamilton Centre



Royal Astronomical Society of Canada

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Issue Number 9, September, 2012

Roger Hill, Editor

Now THAT was an interesting summer! From my point of view, there were a number of great things about the summer. It started with the Transit of Venus, and a few days later came the Hamilton Centre Banquet, continuing on with the visit of Les Nagy to Canada, and later I had my Canon T1i modified. I spent a wonderful few days with my wife and son on the Bruce Peninsula in skies much darker than Starfest (after the Moon went down), and I also managed to acquire an H α filter for the camera. There was also the death of Neil Armstrong.

With my work schedule and family duties, I have had far less time for astronomy than I would have liked. I haven't had much time to play with the camera and the filter yet! Oh, and I also had to deal with a skunk that took up residence underneath my observatory!

Some of these things I'll save for Members Night.

Instead, I'd like to take a few minutes of your time and ask you to consider volunteering to join the Board of the Hamilton Centre.

Why? Well, last year Andy set out a very ambitious plan to reform the Centre. I think it's fair to say that he has managed to deliver on the major initiatives, and yet has had difficulty with a couple of others. The main reason was a lack on manpower. Certainly not on the part of those on the Board—the commitment of the Board members this past year was the equal of the best I have seen in many years. But they could have used a lot more help. Oh, people certainly came out to help for specific events, and all that assistance was incredibly useful, but it's the ad hoc things that come up that are needed.

I think that the Board needs more people on it to help avoid burn-out. While a small Board is great for camaraderie, and can make for a cosy atmosphere, there is little doubt that a larger Board can do great things. You can avoid the situation where the recorder and the secretary are one and the same; where the guy looking after the web site is also fixing the telescopes.

The guys on the current Board have put in some serious time and they need some help, particularly if all the positive work put in this past year is not going to go to waste. There is the nucleus of a Board there that is capable of achieving Andy's vision, but it could all go to waste if they don't get some help.

What is needed is another half a dozen people who have a few hours spare each month. For instance, the Recorders job is to take notes at the Board meeting and record (for posterity) the decisions, discussions, and reports of what happened at the Board meeting. These "minutes" need to be ready for the following Board meeting, but earlier is normally better, as many Board members will use them as a "To Do List" for the upcoming month. Ideally, this should also be done for each of the General meetings, too. It's not particularly difficult, and there are some very good templates around on which to base the Minutes, but it does take some time to do it properly. The Recorder should take four to 6 hours per month, including the actual Board meeting.

So, please print out and fill in the form in the back of this months Orbit and join us on the Board.

Until next month,

Roger Hill

Front cover picture by Colin Haig. It a Hand Held shot of the full(ish) Moon 1/320s f5.6 400mm ISO400 Daylight white balance. Canon 5DmkII, Image stabilizer on. Banquet pictures by Ed Mizzi.

.Presidents Message—Andy Blanchard

Dear Fellow Members and Friends

September marks the end of our first year for this board. I hope you have enjoyed the format this year and the changes we have made to the club, meetings and programs.

This year we have added a few more interesting elements to see if we can improve our formula. If you have a minute I would like to get your feedback on our mistakes and achievements. I have often found I learn more from criticism than I do from compliments. Please drop me a private note, (atacamandy@hotmail.ca) and let us know what you're thinking. If we don't get any feedback, it becomes very hard to see what direction would be best for the club.

If you have signed into our on-line calendar you will probably already have noticed that we have an excellent lineup of speakers this year. We have only two more meeting nights to fill with speakers, so if you know of a good candidate please let me know.

Our membership numbers have continued to grow over the summer (75), What's interesting about having 75 members is that we can now pay the bills at this level (positive cash flow). I would be much happier if we could get 50 more new members this year. So please don't be shy bring out a new potential member to a meeting or to the observatory. The scouting outreach program has met with enthusiastic participation. Our Armchair, Public and Astrophotography nights are also back on the calendar.

At the banquet many members received their star awards. So be sure to wear them to the meetings, and for those of you that did not receive a star this spring, be sure to ask us how to earn your stars.

Our first meeting is as always a members meeting. Take a minute to prepare a slide show of your pictures, experiences or just stand up and tell us what you did this summer. October is our Centre's election night. We will be looking to get nominations for board positions, and of course if you would like to help out consider running. You will be receiving more about this very shortly.

I hope to see you all at the first meeting.

The Ten Commandments for Amateur Astronomers

1. Thou shalt have no white light before thee, behind thee, or to the side of thee whilst sharing the night sky with thy fellow stargazers.
2. Thou shalt not love thy telescope more than thy spouse or thy children; as much as, maybe, but not more.
3. Thou shalt not covet thy neighbor's telescope, unless it exceeds in aperture or electronics twice that of thy wildest dreams.
4. Thou shalt not read "Astronomy" or "Sky & Telescope" on company time, for thine employer makes it possible to continue thine astronomical hobby.
5. Thou shalt have at least two telescopes so as to keep thy spouse interested when the same accompanies thee under the night sky or on eclipse expeditions to strange lands where exotic wild animals doth roam freely.
6. Thou shalt not allow either thy sons or thy daughters to get married during the Holy Days of Starfest.
7. Thou shalt not reveal to thy spouse the true cost of thy telescope collection; only the individual components and that shall be done with great infrequency.
8. Thou shalt not buy thy spouse any lenses, filters, dew shields, maps, charts, or any other necessities for Christmas, anniversaries, or birthdays unless thy spouse needs them for their own telescope.
9. Thou shalt not deceive thy spouse into thinking that ye are taking them for a romantic Saturday night drive when indeed thou art heading for a dark sky site.
10. Thou shalt not store thy telescope in thy living room, dining room, or bedroom, lest thou be sleeping with it full time.

Transit of Venus – June 5, 2012-09-03 *By Gary Bennett*

As a still relative “newcomer” to astronomy (7 years now), this was my first Transit of Venus, and sadly, my last as well. As a recount of what I experienced that day, I could write about my observations of the astronomical phenomenon itself. Such as chronicling facts, descriptions of my observations, etc. But to me, this event was meaningful because of the people. For many of our visitors, this was their first opportunity to peer through a telescope.

My anticipation of this event in advance of the big day was that a little black dot marching across the Sun was not going to live up to the hype. Well, I was wrong! What made this day one that I will never forget are the people who came out to share this rare astronomical phenomenon. Hundreds of people and only a few of them were astronomers! I found it especially interesting that we were engaged in an astronomy event that happens in daylight! There were lots of people I had met before at traditional astronomy events. I knew their names, and recognized their voices, but never knew what they looked like until this daytime event.

Equally rare was the perfect skies! Not just clear, but that still air, crystal clear, deep blue sky, that we so rarely see. We were set-up at Saltfleet School in Stoney Creek. From our high ground vantage point we could see a ring of clouds encircling us off in the distance, but they stayed where they were until long after the Sun had set. We could not have asked for better weather!

We made a good effort to get local media to run a news story about the event and we did get some nice coverage from local newspapers written by Pieter van Hiel who is a reporter for Grimsby Lincoln News and Niagara This Week. We had also contacted CHCH TV News but never heard back from them until I was in my car driving to Saltfleet School. Shortly after I arrived, Al Sweeney, a news reporter from CHCH TV was there with his camera crew and did a fabulous job (he did some homework before arriving) conducting two interviews. One of those was a live interview that aired at exactly at the time that Venus made 1st contact (6:04PM).



At 5:00, while we were still setting up telescopes, the hoard of spectators began to arrive. We had entire families, young & old, with lawn chairs & strollers, picnic baskets, as though they intended to stay for a while. In all, we had approx. 700 visitors and from what I saw, each one of them was keen to wait in line to see the view from each of the 10 telescopes we had on hand. At 8:45 the Sun disappeared behind a line of trees that were off in the distance, but many of our visitors stayed on, content to sit and reflect what they had just witnessed.

Now I know that I had a ton of fun that day. But there was one person who seemed to enjoy the day even more than I... Bert Rhebergen. Bert was in his glory! He brought two (or was it three?) of his telescopes and when he was not tending to visitors you would find him peering through his telescope with a sketch pad and pencil in hand, drawing what his eyes were seeing. Many of the visitors saw what he was doing and were instantly compelled to go over to him and see what he was drawing. Bert, you are an astronomy rock star!

Our thanks go out to Tony Arpino of Saltfleet School for his help in making the arrangements for our observing location.



Images supplied by Gary Bennett

Pocket Sky Atlas Challenges for September—John Kulczycki

Sky and Telescope's "Pocket Sky Atlas" is a wonderful resource for all amateur astronomers. These challenges are designed for spicing up your observing. Sky and Telescope Magazine's "Pocket Sky Atlas" has found a place in the tool kit of many amateur astronomers. The convenient size makes it easy to use at the telescope without requiring a separate chart table. For urban astronomers, the charts are sufficient for the brighter stars visible under urban skies; the charts offer enough detail for star hops with telescopes or binoculars. When taking advantage of a dark sky location, the details of the charts allow for hours of wanderings per page depending on the size of the telescope and the skill of the operator.

The challenge objects are indexed to the star chart pages containing those objects. The idea is to have fun and perhaps expand your observing past the "usual suspects" that can be found because of past experiences. Seeing conditions may not allow finding these objects every night, but they should be visible at some point during the month.

September Sky

As Summer starts to wane, cooler weather and longer nights are upon us. While this tends to be a busy time for most, there is always a little time to take out a binocular, lean back in a reclining lounge outside for a quick scan of the night sky. Overhead, near Zenith, Vega shines bright, while Arcturus still rules the western sky. In the north east Cassiopeia sits on her throne, offering a wealth of deep sky objects to the keen observer.

By 20:30 hours most amateurs should be able to start observing on a September night: no more almost endless waiting for darkness! Remember to dust off and air out the warmer clothes needed this fall for observing sessions, even September nights can be cold and damp with dew.

Don't miss out on the opportunity to get kids (yours or the neighbours) out to look at the night sky or to the telescope before the weather turns cold. Any astronomy seeds you plant now will most likely sprout in late spring.

Happy hunting!

Naked Eye:

- Pisces (constellation), Page 3 and 5.
 α Piscium RA 02h 02m Dec +02° 46'
- Alfirk (Beta Cephei) Page 61
 RA 21:29 Dec +70:34
- Altais (Delta Draconis) Page 61
 RA 19:12 Dec +67:40
- M31 (Galaxy) Page 3.
 RA 00:43 Dec +41:16
- Algol (Eclipsing Binary, Beta Persei) Page 2.
 RA 03:08 Dec +40:57

Small Scopes and binoculars:

- Delta Cephei (Cepheid Variable star), Page 73.
 RA 22:29 Dec +58:25
- Alnasl (gamma Sagittarii), Page 67.
 RA 18:06 Dec -30:25
- M4 (Globular Cluster), Page 56.
 RA 16:24 Dec -26:32
- NGC 752 (Open Cluster), Page 2.
 RA 01:58 Dec +37:52
- M27 (Planetary Nebula), Page 67.
 RA 20:00 Dec +22:43

Larger Scopes:

- Barnard's Galaxy (NGC 6822), Page 66 .
 RA 19:45 Dec -14:47
- NGC 6217 (Galaxy), Page 61.
 RA 16:32 Dec +78:11
- NGC 6939 (Open Cluster), Page 61 .
 Ra 20:31 Dec +60:39
- M33 (Galaxy), Page 5 .
 Ra 01:33 Dec +30:39
- NGC 6891 (Planetary Nebula), Page 64.
 RA 20:15 Dec +12:42

Bonus Objects

- UGC 10822 (Dwarf galaxy), Page 63.
 RA 17:20 Dec +57:55
- NGC 6800 (Open Cluster), Page 62.
 RA 19:27 Dec +25:08
- NGC 7635 (Bubble Nebula—HII region), Page 72.
 RA 23:20 Dec +61:13
- NGC 6633 (Open Cluster), Page 65
 RA 18:27 Dec +06:30

A Brand New Age: Queue Observing at Mt. Paranal By Dr. Marc J. Kuchner

First a caravan of white observatory cars arrives, winding up the narrow road to the 2600-m- (~8500-foot-) high summit. Then the shutters around the domes open, and rays from the setting sun alight on colossal mirrors and metal struts. It's the beginning of another busy night at Mt. Paranal, Chile, where I am learning about new, more efficient ways of managing a modern observatory.

I stepped into the observatory's control room to soak up some of the new, unfamiliar culture. Here, under florescent lights and drop ceilings are banks of computer screens, one bank to control each of the four big telescopes on the mountaintop and a few others too. At each bank sits two people, a telescope operator and an astronomer.

The layout of this workspace was not unfamiliar to me. But the way these Mt. Paranal astronomers work certainly was. When I was cutting my teeth at Mt. Palomar observatory in California, I would only go to the telescope to take my own data. In stark contrast, everyone observing at Mt Paranal tonight is taking data for someone else.

The Mt. Paranal astronomers each spend 105 nights a year here on the mountain performing various duties, including taking data for other astronomers. The latter, they call "executing the queue." Headquarters in Germany decides what parts of the sky will have priority on any given night (the queue). Then the Mt. Paranal astronomers march up the mountain and carry out this program, choosing calibrators, filling the log books, and adapting to changing conditions. They send the data back to headquarters, and from there it makes its way out to the wider astronomical community for study.

This new way of working allows the Mt. Paranal astronomers to specialize in just one or two telescope instruments each. Surely this plan is more efficient than the old-fashioned way, where each of us had to learn every instrument we used from scratch—sifting through manuals at 3:00 AM when the filter wheel got stuck or the cryogen ran out, watching precious observing time tick away. Here at Mt. Paranal, much of the work is done in a big room full of people, not off by yourself, reducing some dangers of the process. Also, queue observing cuts down on plane travel, an important step for cutting carbon emissions.

It's a brand new age, I thought as I watched the giant domes spin in the silent, cold Chilean night. And maybe with queue observing, some of the romance is gone. Still, my colleagues and I couldn't help saying as we stared out across the moonlit mountains: I can't believe how lucky we are to be here.

Dr. Marc J. Kuchner is an astrophysicist at the Exoplanets and Stellar Astrophysics Laboratory at NASA's Goddard Space Flight Center. NASA's Astrophysics Division works on big questions about the origin and evolution of the universe, galaxies, and planetary systems.



Women in Astronomy Quiz

1. What person holds the current record for discovering the most comets?

1. Caroline Herschel
2. Jocelyn Bell Burnell
3. Cometta Schwarz
4. Carolyn Shoemaker
5. Wendee Levy

2. On August 10, 1773, Charles Messier discovered M110, the dwarf galaxy in Andromeda, but for some unknown reason, he failed to record it in his catalogue. Ten years after Messier's discovery, what other comet hunter also independently discovered NGC 205, now better known as M110?

1. Caroline Herschel
2. Carolyn Shoemaker
3. Marina Gamba
4. Queen Anne
5. Subrahmanyan Chandrasekhar

3. In 1992, what did astronomer and scientific researcher Vera Rubin discover about galaxy NGC 4550 in Virgo?

1. It contains very few Population II stars
2. Half the stars in the galaxy's disk are orbiting in one direction and half in the opposite direction
3. It is not an E7/S0 lenticular galaxy
4. It is the same type of galaxy as the Milky Way
5. One-third of its planets have no moons

4. While studying the Magellanic Clouds, she discovered the period-luminosity relationship for Cepheid variable stars.

1. Mary Jane Cepheus
2. Henrietta Swan Leavitt
3. Maria Mitchell
4. Susan Blackmore
5. Barbarina Zwicky

5. Sally Ride was the first American woman in space. Who was the first Canadian woman in space?

1. Julie Payette
2. Kim Campbell
3. Ellen Ochoa
4. Celine Dion
5. Roberta Bondar

6. British astrophysicists Jocelyn Bell Burnell and Antony Hewish made this discovery on November 28, 1967.

1. Radio pulsars
2. Fiber optics
3. Speed of light in a vacuum
4. The Doors' new album
5. Black-body radiation

7. What happened to Svetlana Savitskaya on July 25, 1984?

1. She became the first woman to drive the Rover on dusty Mars
2. She became the first woman to walk in space
3. She discovered radioactive properties of neptunium isotopes
4. She celebrated her 57th birthday
5. She discovered the first brown dwarf star.

8. This nuclear physicist was part of the team that discovered nuclear fission. In 1966, she was awarded the Enrico Fermi Award.

1. Dinah L. Moche
2. Mary Fairfax Sommerville
3. Lisa Randall
4. Lise Meitner
5. Maria Mitchell

9. When did Eileen Collins become the first woman shuttle pilot?

1. February, 1995
2. October, 1983
3. January, 1978
4. There has never been a woman shuttle pilot
5. February, 2007

10. What are the only 2 elements named after (non-mythical) women?

1. silver and gold
2. curium and meitnerium
3. burnellium and leavittium
4. europium and ytterbium
5. plutonium and uranium

Past, Present, and Future of NASA - U.S. Senate Testimony by Neil DeGrasse Tyson

Currently, NASA's Mars science exploration budget is being decimated, we are not going back to the Moon, and plans for astronauts to visit Mars are delayed until the 2030s—on funding not yet allocated, overseen by a congress and president to be named later.

During the late 1950s through the early 1970s, every few weeks an article, cover story, or headline would extol the “city of tomorrow,” the “home of tomorrow,” the “transportation of tomorrow.” Despite such optimism, that period was one of the gloomiest in U.S. history, with a level of unrest not seen since the Civil War. The Cold War threatened total annihilation, a hot war killed a hundred servicemen each week, the civil rights movement played out in daily confrontations, and multiple assassinations and urban riots poisoned the landscape.

The only people doing much dreaming back then were scientists, engineers, and technologists. Their visions of tomorrow derive from their formal training as discoverers. And what inspired them was America's bold and visible investment on the space frontier.

Exploration of the unknown might not strike everyone as a priority. Yet audacious visions have the power to alter mind-states—to change assumptions of what is possible. When a nation permits itself to dream big, those dreams pervade its citizens' ambitions. They energize the electorate. During the Apollo era, you didn't need government programs to convince people that doing science and engineering was good for the country. It was self-evident. And even those not formally trained in technical fields embraced what those fields meant for the collective national future.

For a while there, the United States led the world in nearly every metric of economic strength that mattered. Scientific and technological innovation is the engine of economic growth—a pattern that has been especially true since the dawn of the Industrial Revolution. That's the climate out of which the New York World's Fair emerged, with its iconic Unisphere—displaying three rings—evoking the three orbits of John Glenn in his Friendship 7 capsule.

During this age of space exploration, any jobs that went overseas were the kind nobody wanted anyway. Those that stayed in this country were the consequence of persistent streams of innovation that could not be outsourced, because other nations could not compete at our level. In fact, most of the world's nations stood awestruck by our accomplishments.

Let's be honest with one another. We went to the Moon because we were at war with the Soviet Union. To think otherwise is delusion, leading some to suppose the only reason we're not on Mars already is the absence of visionary leaders, or of political will, or of money. No. When you perceive your security to be at risk, money flows like rivers to protect us.

But there exists another driver of great ambitions, almost as potent as war. That's the promise of wealth. Fully funded missions to Mars and beyond, commanded by astronauts who, today, are in middle school, would reboot America's capacity to innovate as no other force in society can. What matters here are not spin-offs (although I could list a few: Accurate affordable Lasik surgery, Scratch resistant lenses, Cordless power tools, Tempurfoam, Cochlear implants, the drive to miniaturize of electronics...) but cultural shifts in how the electorate views the role of science and technology in our daily lives.

As the 1970s drew to a close, we stopped advancing a space frontier. The “tomorrow” articles faded. And we spent the next several decades coasting on the innovations conceived by earlier dreamers. They knew that seemingly impossible things were possible—the older among them had enabled, and the younger among them had witnessed the Apollo voyages to the Moon—the greatest adventure there ever was. If all you do is coast, eventually you slow down, while others catch up and pass you by.

All these piecemeal symptoms that we see and feel—the nation is going broke, it's mired in debt, we don't have as many scientists, jobs are going overseas—are not isolated problems. They're part of the absence of ambition that consumes you when you stop having dreams. Space is a multidimensional enterprise that taps the frontiers of many disciplines: biology, chemistry, physics, astrophysics, geology, atmospheric, electrical engineering, mechanical engineering. These classic subjects are the foundation of the STEM fields—science, technology, engineering, and math—and they are all represented in the NASA portfolio.

Epic space adventures plant seeds of economic growth, because doing what's never been done before is intellectually seductive (whether deemed practical or not), and innovation follows, just as day follows night. When you innovate, you lead the world, you keep your jobs, and concerns over tariffs and trade imbalances evaporate. The call for this adventure would echo loudly across society and down the educational pipeline.

At what cost? The spending portfolio of the United States currently allocates fifty times as much money to social programs and education than it does to NASA. The 2008 bank bailout of \$750 billion was greater than all the money NASA had received in its half-century history; two years' U.S. military spending exceeds it as well. Right now, NASA's annual budget is half a penny on your tax dollar. For twice that—a penny on a dollar—we can transform the country from a sullen, dispirited nation, weary of economic struggle, to one where it has reclaimed its 20th century birthright to dream of tomorrow.

How much would you pay to “launch” our economy? How much would you pay for the universe?

Preparing To Drive by Stuart Atkinson

Standing statue-still,
Her Martian monster truck wheels yet to turn,
Her onboard oven yet to burn
Even a single gram of grit or dirt,
Curiosity considers her fate.

While Flashy NASA websites insist
The nuclear-powered geologist,
Was sent to Mars to hunt for signs
Of long-dead primitive Martian life
She knows the truth:
She is a robot gladiator,
Taken from the brilliant sunlight
Of a Pasadena summer
And transported to Barsoom;
A metal, glass and wire John Carter,
Abducted from a world of achingly-blue skies
And rain-fattened clouds to fall
Through alien-hued heavens painted
Not fifty but a thousand shades of orange and gold
Before dropping to the stone-strewn ground
On the end of a tether after those now-famous
“7 Minutes of Terror” to begin
A new life in exile on a world so far
From her Californian home it can only be seen
As a star, on the rare nights the smog will allow.

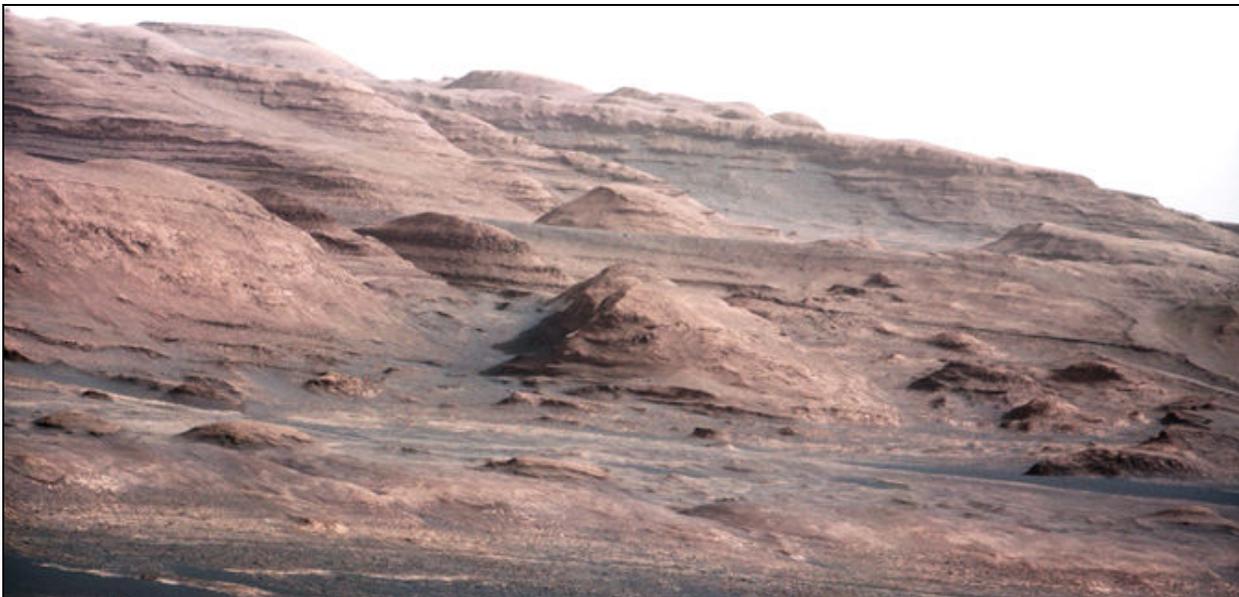
Her battlefield – the place where she is now fated
To live and die - is Gale, a crater that dwarfs
Any visited before. No swaying palm trees here;
No beaches of soft, warm sand.
This land is cold, colder than a comet’s heart,
And all but a ghostly whisper of its once-thick
Atmosphere has been sucked away by Time,
Leaving behind a desert drenched in dust,
Rust- and ochre rocks a’scattered everywhere,
From wheel shadow to horizon,
Where the crater’s jagged rim wrap around it
Like the Coliseum’s curving walls.

Unlike her sister, still roving half a world away,
She will not explore this bone dry wilderness,
Her goal is to survive it long enough
To discover something – beyond incredible.
Curiosity is more Katniss than Captain Cook;
Gale is her Arena, and each Sol Mars will send
A new Tribute to test her:
Dust storms will try to blind and weaken her;
Software faults will seek to stop her in her tracks.
Every dawn could be her last. And with no silvery
Chutes delivering aid from home she will be totally alone
As she roams the crater floor,
Driving where no robot has ever driven before.

But there can be no escape from here;
Tiers of ancient rock surround her on all sides,
So she must drive in towards the crater’s heart,
Through a Barsoomian Badlands of mesas, buttes and scarps
To where a mountain reaches up to scrape the
Butterscotch sky. Yes, a mountain! Not as sharp
As its (unofficial-but-beloved-by-many) name
Suggests, but still, the highest feature yet
To be seen from below by any roaming adventurer
From Earth, the chance to reach out with a robot arm
And touch its gateau layers of stone
Worth the astronomical cost alone –

- but that is all to come.

Today she stands restless, flexing her muscles,
Waiting, waiting, hating being unable to roll forwards;
A bull crushed behind a rodeo gate,
Horns down, snorting at the stony ground,
Must-see driving destinations all around;
One rock already death ray zapped, millions more
Scattered as far as her sweeping Cylon ChemCam eye can see.
“Release me...” she demands, a trapped wolf growling
In the darkness, “set me free and you will see
What I can do...”



What you missed in June...!

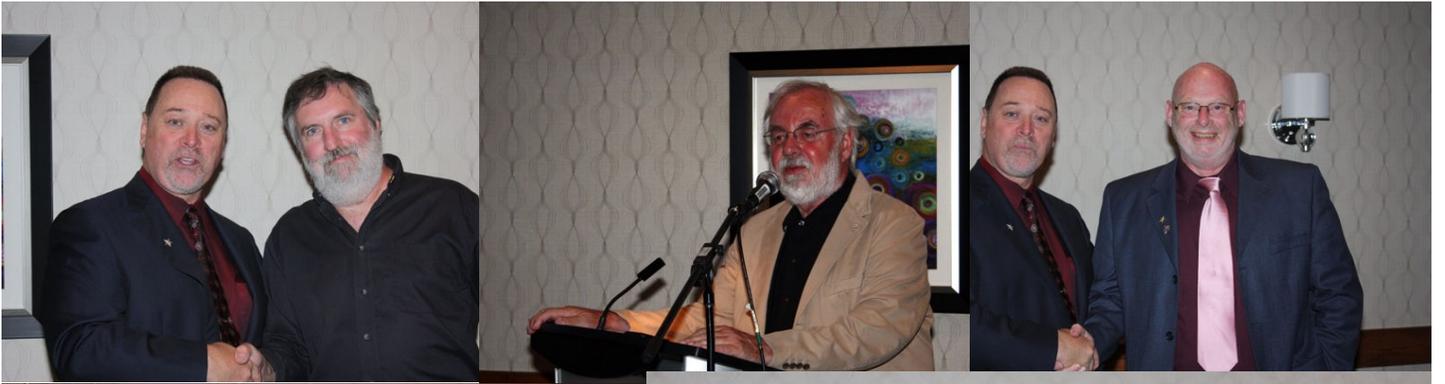
Report and pictures from Roger Hill and Ed Mizzi

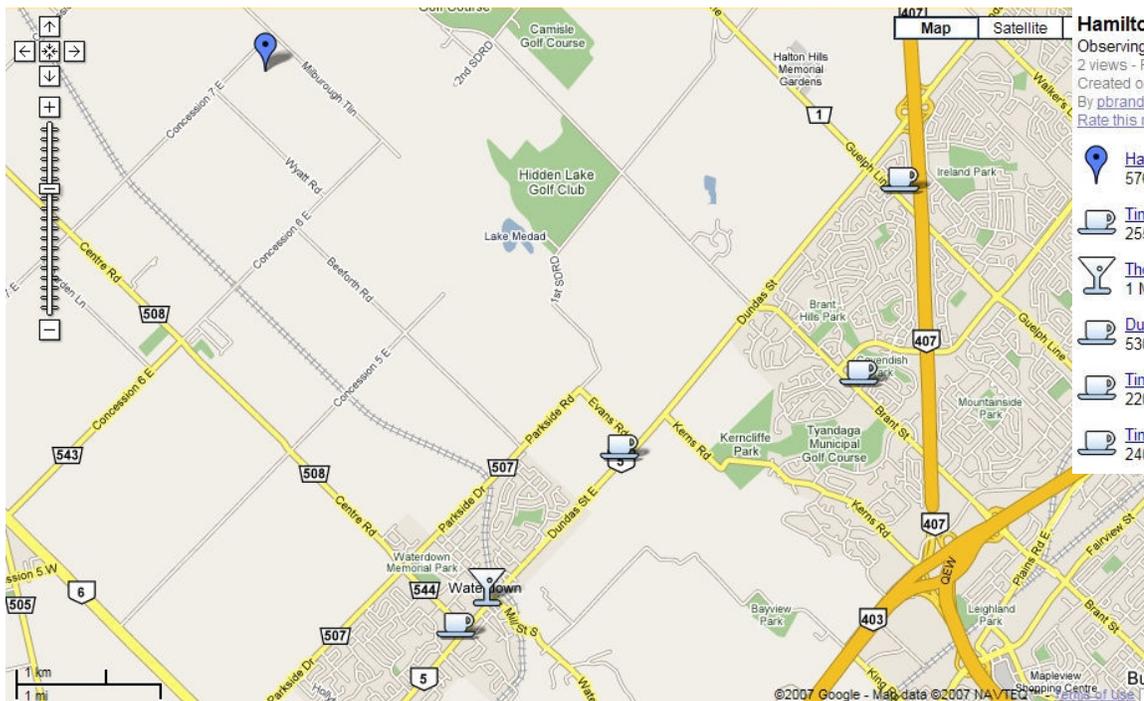
Saturday, June 9, Annual Banquet.

After a gap of a couple of years, The Hamilton Centre held another Banquet. Originally, this was supposed to cap off AstroCASM, but due to problems with the original facility, the swap meet had to be cancelled. The banquet was moved to Burlington.

The facility was excellent, the food was very good and plentiful, there were some great door prizes, and visitors from other Centres: Toronto and London being the most obvious). Awards were handed out, Transit pictures were seen and a good time was had by all. There was even a talk by Terry Dickenson, but if I may be so bold, it was not up to his usual standard.







- Hamilton Observing Sites**
 Observing site in Hamilton and area.
 2 views - Public
 Created on Oct 18 - Updated Oct 20
 By pbrandon
[Rate this map](#) - [Write a comment](#)
- [Hamilton Centre Observatory](#)
576 Concession 7E, Flamborough, ON
 - [Tim Hortons, Waterdown](#)
255 Dundas St E Waterdown, ON L0R, Ca
 - [The Royal Coachman](#)
1 Main St N Waterdown, ON L0R, Canada
 - [Dundas Street, Tim Hortons](#)
530 Dundas St E Waterdown, ON L0R, Ca
 - [Tim Hortons, Brant Street](#)
2201 Brant St Burlington, ON L7P, Canada
 - [Tim Hortons, Guelph Line](#)
2400 Guelph Line Burlington, ON L7P, Car

Website: <http://hamiltonrasc.ca/>

576 Concession 7 East, Flamborough ON
 N43° 23' 27" W79° 55' 20"

E-Mails:
 General Inquiries: hamiltonrasc@hamiltonrasc.ca
 President: president@hamiltonrasc.ca
 Orbit Editor: orbit@hamiltonrasc.ca

Hamilton Centre, RASC
c/o Mr. A. Blanchard
2266 Lakeshore Rd. W.
Oakville, Ontario
L6L 1G8

September, 2012: Calendar of Events

Mon	Tue	Wed	Thu	Fri	Sat	Sun
					01	02
03	04	05	06 ● 7:30pm» Public Monthly Meeting	07	08	09
10	11 ● Armchair ● 7:30pm» Arm Chair Astronomy	12	13 ● 7:30pm» RASC Board Meeting	14	15	16
17	18	19 ● 7:30pm» Public Night at the Observatory	20	21	22	23
24	25	26	27 ● 7:30pm» Astrophotography Night	28	29	30

Answers:

1 Carolyn Shoemaker ; 2 Caroline Herschel ; 3 Half the stars in the galaxy's disc are orbiting in one direction and half in the opposite direction ; 4 Henrietta Swan Leavitt ; 5 Roberta Bondar ; 6 Radio pulsars ; 7 She became the first woman to walk in space ; 8 Lise Meitner ; 9 February, 1995 ; 10 curium and meitnerium

NOMINATION FORM for the Board of Directors - October, 2012.

I, _____, being a member in good standing of the Royal Astronomical Society of Canada 1968, Hamilton Centre, do hereby nominate _____ for election at the Annual Meeting.

Signature of nominator and Date - 2012/MM/DD

I, _____, being a member in good standing of the Royal Astronomical Society of Canada 1968, Hamilton Centre and being at least 18 years of age, do hereby accept my nomination to the Board of Directors of the Royal Astronomical Society of Canada 1968, Hamilton Centre.

Signature of nominee Date and 2012/MM/DD

NOMINATION FORM for National Council Representative - October, 2012.

I, _____, being a member in good standing of the Royal Astronomical Society of Canada, and of the Hamilton Centre, and being at least 21 years of age, do hereby accept my nomination for National Council Representative for the Royal Astronomical Society of Canada 1968, Hamilton Centre. (Two year term)

Signature of nominee and Date—2012/MM/DD

Bylaw Number One of The Royal Astronomical Society of Canada 1968, Hamilton Centre (September 13, 2005)

5.04 NOMINATIONS

Any member of the Centre may make nominations to the Board. Such nominations shall be submitted by the member to the Secretary of the Centre in writing at least ten (10) days before the annual meeting, and shall contain the name of the nominator and the written consent to the nomination by the nominee.

Bylaw Number One of The Royal Astronomical Society of Canada (February 2006)

4.07 CENTRE COUNCILS AND OFFICERS

(2) Every member of the Centre Council shall be elected by the members of the Centre, for such term and in accordance with such procedure as is established by the Centre by-laws, at the Centre’s annual meeting or at such other meeting as is duly called for that purpose.

4.08 NATIONAL COUNCIL REPRESENTATIVES

(2) Subject to Article 4.08(4), the National Council Representatives of a Centre shall be elected by the members of the Centre in accordance with the procedure established in Article 4.07(2) for the election of Centre Council members.

(4) If for any reason a National Council Representative of a Centre is unable to attend a meeting of the National Council, then the Council of the Centre may appoint another member of the Centre as an alternate for that National Council Representative. The alternate will be entitled to exercise all the rights of the National Council Representative for whom he or she is the alternate only upon presentation to the National Council of proof in writing from the President or Secretary of the Centre as to the due appointment of the alternate.