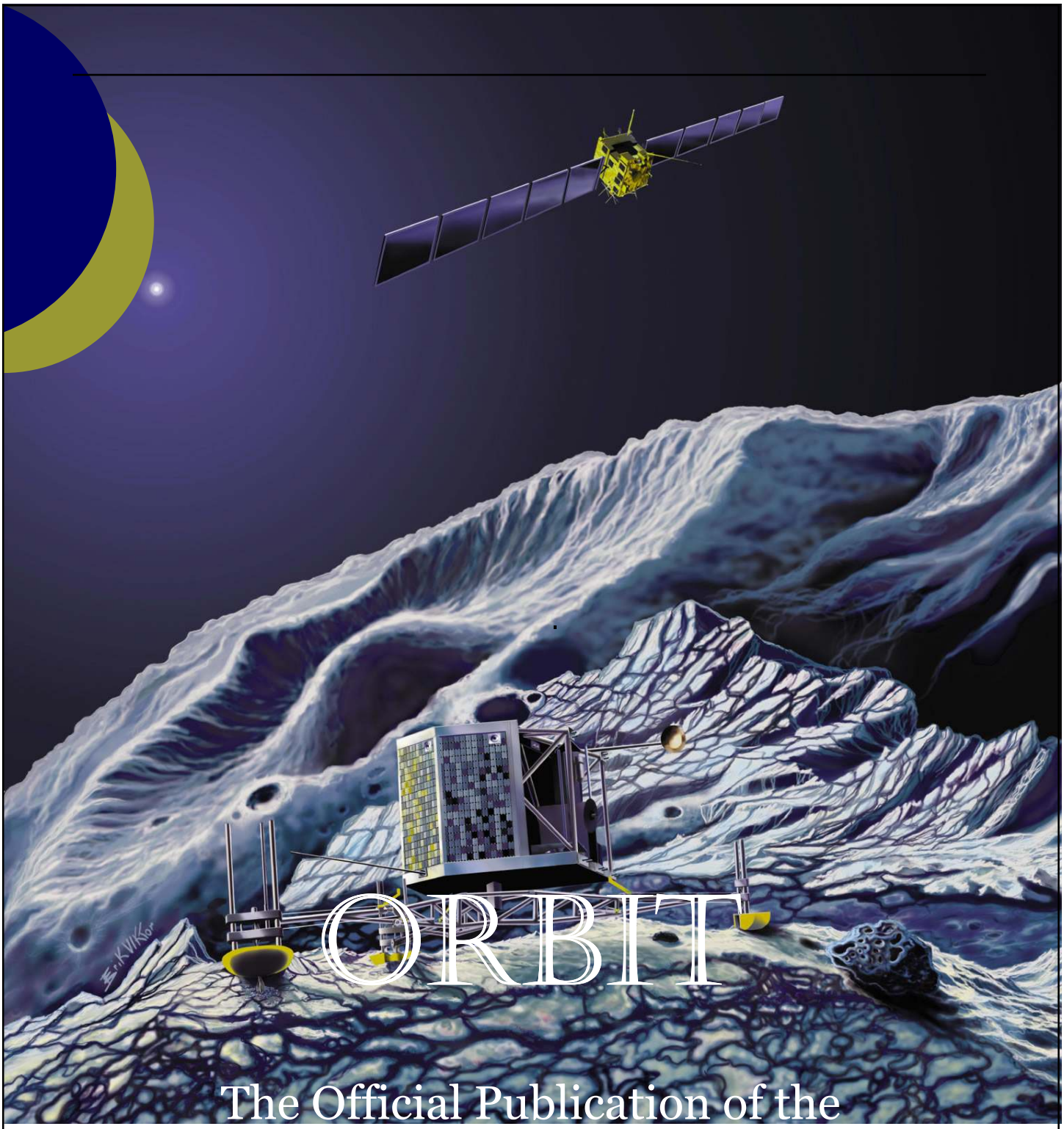

ORBIT

The Official Publication of the

Hamilton Centre of the Royal Astronomical Society of Canada

Volume 44, Issue 7: May, 2012

Issue Number 7, May, 2012
Roger Hill, Editor

I heard from my daughter a couple of weeks ago that she'd looked into the western evening sky in Wollongong and saw Orion, lying on its side. She mentioned this to one of the Aussies she was with and they told her to turn around. She saw the Southern Cross (Crux) for the first time. It's the smallest of the modern 88 constellations, but one of the most iconic, appearing on the flags of multiple nations, including Australia, Brazil and New Zealand.

I first saw Crux from Mexico late one night in the mid '80's, as it appeared to stand on the southern horizon. The Coal Sack (the finest example of a dark nebula in the sky) is right beside it and while I knew it was there , unless you can see it high in a very dark sky, it's hard to appreciate. Being down on the far southern horizon, looking at Crux through a thick blanket of moist sea air was not the best. For that, I had to wait 20 years or so for the view from the Atacama Desert. The juxtaposition of the dark nebular with the bright cross set in the glowing clouds of the Milky Way, with Alpha and Beta Centauri close by, makes Crux arguably the most beautiful constellation in the sky. No wonder it's on so many flags.

Anyway, I told Alison to find someone with a car, and drive out into the country one evening to a place where the Milky Way can be seen and then have a look. From where she is, at 34° S, Crux is just about circumpolar. I'm looking forward to hearing her reaction.

Late last month, a consortium of fairly rich people stated their intention to try to start mining asteroids. This will be a particularly difficult venture, and is likely to tax their combined wealth. And yet, I think that unless we (as a species) do this, we're likely to find ourselves rooted to this single planet.

At the rate we're going, we'll go through all our easily obtained resources well before the century is out. The easily extracted oil will be gone, and along with it, the cheap lubricants and plastics we enjoy. Once our civilization is well down the path of climate change, we'll be too busy trying to protect our coastal cities that we won't have the spare money and resources to expand off-planet. And then once we reach a new equilibrium, I don't see how we'll be able to find the resources necessary to achieve orbit again.

Retrieving resources from off-planet is a way out of this Club of Rome type of doomsday scenario. The western democracies, without any sort of public will behind them, are unable to mount the sort of effort required. And while it remains to be seen if private industry can do it, I'm glad that someone or some organization is willing to make the attempt.

We've got an exciting couple of months coming up, with the very tail end of an eclipse on May 21st, the Transit of Venus on June 5th, and AstroCASM on Saturday, June 9th along with the Banquet.

I'm most looking forward to the Transit. I was down at Van Wagner's Beach in 2004, and watched the Sun rise with a big black spot on it. This remains of one the most amazing sights I've ever seen. I'm going to try to find a place where the Sun will set into a lake, and hope for similar conditions: clear right down to the horizon. If you're going looking for the same sort of thing, the Sun will set at about 300° azimuth, or 30° north of west.

AstroCASM looks like a lot of fun, too...I'll have an ETX90 to sell, and maybe some other goodies. I bought the ETX back in 2004, or so, and used it as a spare telescope to throw in the car and take camping. My 6" Ritchey-Chretien now fills this niche, so I don't use the little Meade anymore. I have a solar filter and a T-Adapter for it, and while I have it on a GOTO type base, it won't come with the Meade 494 or 497 hand box that is needed to make it a true GOTO scope.

Until next month,

Roger Hill

.Presidents Message—Andy Blanchard

April was a great month for the club. We started off with a great presentation by Wayne Parker , famed rocker (Bass player for Glass Tiger—RH), but more recently the creator of Sky Shed and Sky Pod. Wayne came to tell us about Sky Max, his new automated 12' dome, but spent an equal amount of time, if not more time, on his contributions to Astronomy. He was a great speaker and if time permitted I am sure we would have been there quietly listening to his stories all night.

Armchair Astronomy seems to be taking hold with several attendees this month, and afterward we worked on the 16" to get it back operational; lots of fun and if you are not busy the second Tuesday of the month, please join us.

The third Wednesday of each month is our club public night. This month the sky was clear again, and several people dropped in. We all enjoyed views of Saturn, Venus and several globulars. Particularly nice was M37 and a brilliant red central star.

We will update everyone on the board meeting highlights at the monthly meeting next Thursday, May 3. For me, membership numbers was the highlight, as we are now 71 strong and growing. My thanks to everyone, board members and members at large, for this fantastic effort and the renewal of our club. A special thank you goes to Gary Bennett, who's tireless job of communications has without a doubt relayed our message in local newspapers and multi media. Be sure to give him a pat on the back for a job well done.

To those of you who have joined the club in recent months, please make yourself known, come out to a meeting or a gathering at the observatory or just drop me a note. There is always lots to do and a lot more fun to be had. For me that fun is always the enjoyment of meeting and doing astronomy with others. Don't be shy...we all like looking up.

The last week of April was my annual pilgrimage to NEAIC and NEAF, Astronomy trade shows by wholesalers and retailers of astronomy gear and experts on astrophotography, and the tools to make it all happen. Basically, it is a big candy store composed of 120 venders who have every imaginable item for those of us who dream in the stars.

Although I was traveling, Gary Colwell restarted his basics in Astrophotography on the fourth Thursday of the month. So I will leave it up to him to update you on the evening.

Our speaker in May will be the long anticipated presentation from Wayne Armstrong, who's topic will be Space Weapons. Wayne is a newly minted PhD who did his dissertation on this very topic. I strongly recommend that, if you can attend, this is a presentation you really don't want to miss.

AstroCASM and our year end banquet are only a little over a month away. Be sure to bring your money to the meeting for your dinner ticket which includes your ticket to the swap meet.

See you Thursday, May 3, at 7:30 PM

Andy Blanchard
905-465-2031H
905-847-7777B

After I give lectures - on almost any subject - I am often asked, "Do you believe in UFOs?". I'm always struck by how the question is phrased, the suggestion that this is a matter of belief and not evidence. I'm almost never asked, "How good is the evidence that UFOs are alien spaceships?".

- Carl Sagan, "The Demon Haunted World", p.78

April 2012 Board Meeting: Synopsis

Highlights include the following:

Will Gray, our Treasurer, reported that the latest unofficial membership number currently stands at 71 (unofficially).
There are a few more people who have applied, but this was too late to meet the current report from National.
Planetarium visit had net gain,
Event Insurance-still waiting on figures from National.
Director's Insurance-National's solution best way to go.
Scope repair costs reimbursed to Gary Bennett. and Andy Blanchard.
Andy Blanchard purchased a collimation scope and donated it to the Centre.
Reminder that mileage can be claimed for charitable tax credit but not for regular board and monthly meetings.

Gary Bennett, in charge of Communications, reported that the new email system is working well.
Our Facebook page is still active.
Work continues on bringing the on-line calendar on the web site up-to-date.
The Forum needs more members involved.

Mark Pickett, looking after the Outreach programs, stated that he and Jason Blaine will be working on the Marsh and Bell scopes at Westfield on April 21st. Thanks to Andy Blanchard for donating the brass for the new scope rings.
For the Transit of Venus on June 5, we will be gathering before 6 PM at Dundurn Castle. Mark is hoping that there will be 10-15 scopes available for the public to see the transit through. The Centre will also have RASC Transit goggles available. Gary Bennett will handle advertising for the event, and Andy Blanchard will look into using Dundurn as possible regular Sidewalk Astronomy site, replacing the Burlington Spencer Smith Park location.

Gary Colwell, responsible for the Observatory, has been working on sprucing up the site.

Andy Blanchard, in his President's Report, stated that he has been visiting other Centres in southern Ontario regarding the upcoming Banquet, and AstroCASM. Further, he also wants each committee Chair to give a report at monthly meeting.
Finally, regarding the Scouting initiative, three groups have registered so far.

Roger Hill, attending as a Guest, has volunteered to spearhead the new By-laws initiative. There is a government mandated deadline of 2014 to get this done.

The next Board Meeting will be held on May 17, 2012, at the Observatory. All members are welcome. Please inform Andy Blanchard of your intent to attend, as the location can change, depending on the weather.

Ed Mizzi, Secretary, and Roger Hill (Editor).

From now on, we live in a world where man has walked on the moon. It wasn't a miracle, we just decided to go.
- Jim Lovell,"Apollo 13"

NASA Helps Europe Study a Comet–Up Close and Personal

By Dr. Tony Phillips

Europe's Rosetta spacecraft is on its way to intercept comet 67P/Churyumov-Gerasimenko. Comets have been intercepted before, but this mission is different. Rosetta aims to make history by landing a probe on the comet's surface while the mother ship orbits overhead.

"Rosetta is the European equivalent of a NASA flagship mission," explains Claudia Alexander, project scientist for the U.S. Rosetta Project at NASA's Jet Propulsion Laboratory. "It will conduct the most comprehensive study of a comet ever performed."

Rosetta's payload contains 21 instruments (11 on the orbiter, 10 on the lander) designed to study almost every aspect of the comet's chemistry, structure, and dynamics. Three of the sensors were contributed by the U.S.: Alice (an ultraviolet spectrometer), IES (an ion and electron sensor), and MIRO (a microwave sounder).

The main event of the mission will likely be the landing. The 100-kg lander, which looks a bit like a cross between NASA's old Viking Mars landers and a modern microsatellite, will spend two weeks fastened to the comet's icy surface. The European-built probe will collect samples for analysis by onboard microscopes and take stunning panoramic images from ground level.

"First the lander will study the surface from close range to establish a baseline before the comet becomes active," explains Alexander. "Then the orbiter will investigate the flow of gas and dust around the comet's active, venting nucleus."

Rosetta's sensors will perform the experiments that reveal how the chemicals present interact with one another and with the solar wind. Alice and MIRO detect uncharged atoms and molecules, while IES detects the ions and electrons as the solar wind buffets the nucleus.

One problem that often vexes astronomers when they try to study comets is visibility. It's hard to see through the dusty veil of gas billowing away from the heated nucleus. The microwaves MIRO detects can penetrate the dust, so MIRO can see and measure its target molecules even when other instruments can't.

MIRO is one of several experiments focused on the comet's structural properties. It will determine the comet's dielectric constant, emissivity, and thermal conductivity to determine whether it is made of a powdery loose material, has a detectable layer of loose material, or is hard as rock.

"We want to find out whether comets have retained material from when the solar system formed," says Alexander. "If the ancient materials are still there, we can get an idea of what conditions were like at the dawn of the solar system."

Rosetta enters orbit in 2014. Stay tuned for updates!

Check out "Comet Quest," the new, free iPhone/iPad game that has you operating the Rosetta spacecraft yourself. Get the link at spaceplace.nasa.gov/comet-quest.

Front cover picture:
Rosetta's lander Philae will eject from the spacecraft, touch down on the comet's nucleus, and immediately fire a harpoon into the surface to anchor itself so it won't drift off in the weak gravity.

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

NEAIC and NEAF by Andy Blanchard

For the last 15 years the Rockland Astronomy club has been hosting the North East Astronomy Forum (NEAF). About 30 miles outside of New York city, the forum attracts thousands of astronomy enthusiasts from around the world. My first experience at NEAF came several years ago, and all these years later I still look forward to spring and my annual road trip.

I thought for those of you who have not been, it would be nice to share some photos and memories with you. Aside from the long car trip, NEAF begins for me Thursday morning at the North East Astro Imaging Conference (NEAIC). This year, I sat in on classes with Tony Hallas and Jerry Lodriguss, both imagers who have dozens of APODs between them.

The highlight was an extensive demonstration of the new features of Photoshop 6, my favorite being the pucker tool. It feathers and reduces any star regardless of brightness. Tony basically took the large star in the Veil and turned it into a tiny star with no visible indications that a change took place.

If you ever go to NEAF there is one place that everyone needs to try. That's the Airmount Diner. Sounds odd for me to include it in my report on NEAF, but it's such a great eating experience and seems to be part of the experience for everyone who attends NEAF.

When you go to NEAIC, you automatically get a pass to NEAF for the same price as NEAIC. The two day show starts at 8:30 on Saturday morning and, at least from my vantage point, it's not long enough. Your first impression of NEAF comes when you enter the sports facility at Rockland College and witness hundreds of venders selling or demonstrating every possible astronomy related item you can think of. Row after row of the biggest Astronomy store in the world. The best part is that everything is on sale.

You can’t go to NEAF without buying at least one thing. This year Feather Touch had a gigantic fine focus knob to replace their tiny knob. The small one moved the focuser a small amount, the giant one moves the focuser in even smaller increments. The focuser knob is so large it looks ridiculous, but in a way it looks odd enough to be cool.

Sadly after spending hours walking and talking to each booth owner, it was time to head home, until next year. I sure hope you can make it to NEAF one day. I do believe you will feel as I do that it’s worth the trip.

More Snaps from NEAF

Gary Colwell's Astro-imaging session—A review by Rick Cudmore

For those of us who attended Gary Colwell's Astro-imaging session, we were not disappointed. It was another great example of how one can venture into the dark side of astronomy without it being too complicated.

Gary discussed the various planetarium and astronomy software available and for those interested, the Hamilton site lists most of the products discussed. Once the site is open on your browser, click the resource link on the top and scroll down and click on software tools. This opens another page with planetarium software and astrophotography software on the left. From there you can select either one and see the list of products. I have gone through the list and have provided some additional information.

The planetarium software link has TheSkyX, Starry Night, Stellarium, and Carte du Ciel. All can be run with Windows or Mac. Stellarium and Carte du Ciel are free. Earth Centered Universe (ECU) is missing from the list and is run on Windows only from what I found on the website. It is $80*. This product was developed by Dave Lane of the Halifax centre and past RASC president. He is quick to respond to questions. If you click on TheSkyX link it will state post not found but the links on the top work fine. I use ECU and just recently obtained TheSkyX.

The astrophotography software link has BackyardEOS which runs on Windows from what I could find on the website and is a great program for those who use a Canon camera. The creator lives in Ottawa and is quick to answer questions on the forum in the Yahoo groups. Images Plus (link on our website not working) which Gary talked about runs on Windows. This is a popular program used by many astronomers and will most likely be my next full purchase. Nebulosity can be run with Windows and Mac and is a good starter program for the price with a great forum on Yahoo groups. Maxim DL can be run on Windows and is the granddaddy of programs. Deep Sky Stacker uses Windows and is free. PHD autoguiding is run with Windows or Mac and is free and is distributed from the same site as Nebulosity. Astro Photography Tool (APT) is not listed but used by Gary and looks similar to BackyardEOS. I use BackyardEOS, Nebulosity and PHD.

I found this link http://astronomy-software-review.toptenreviews.com/ which gives a comparison of various programs. Hopefully it won't confuse the issue.

Many of the programs can be found on the Yahoo group forums. To get a better idea if a product is suitable for your needs, check out the website and ask fellow astronomers what they use. Hope this is helpful and I am looking forward to Gary's next session.

* A free version of Earth Centred Universe comes with an RASC membership...see your 2012 Observers Handbook. It does not do Telescope Control, but it is a very good Planetarium program. What is great about this program is how fast it is. If, like me, you use an old laptop out in the field (or if you're fortunate enough to have a wife that lets you build a backyard observatory (again, like me)), then ECU just might be for you! I have an old copy of ECU V3.0A that has the telescope control, and it has run perfectly on some very old equipment (10 years ago it ran on an old Pentium 133, with 16 meg of RAM!!). It's a little finicky as to which serial ports it can use, but as long as you can define your USB-Serial adapter to Com ports 1, 2, 3, or 4, then it's very happy. RH

Fate has ordained that the men who went to the moon to explore in peace will stay on the moon to rest in peace. These brave men, Neil Armstrong and Edwin Aldrin, know that there is no hope for their recovery. But they also know that there is hope for mankind in their sacrifice. These two men are laying down their lives in mankind's most noble goal: the search for truth and understanding. They will be mourned by their families and friends; they will be mourned by their nation; they will be mourned by the people of the world; they will be mourned by a Mother Earth that dared send two of her sons into the unknown. In their exploration, they stirred the people of the world to feel as one; In ancient days, men looked at stars and saw their heroes in the constellations. In modern times, we do much the same, but our heroes are epic men of flesh and blood. Others will follow, and surely find their way home. Man's search will not be denied. But these men were the first, and they will remain the foremost in our hearts. For every human being who looks up at the moon in the nights to come will know that there is some corner of another world that is forever mankind.

- speech prepared in case of failure of Apollo Moon Mission for Pres. Nixon

ERUPTION

The image, taken by our faithful solar sentinel, SDO,
Made even the most ignorant-about-the-universe gasp:
A great ragged arch of fire leaping off the surface of the Sun;
A jagged splash of cherry-red rising from
Sol's perfectly curved limb. Outrageously violent,
Supremely savage, sensuously silent.

Staring at it on my screen, my mind reeling
From the brutal beauty of the blast,
I couldn't help but wonder if Science had got it wrong.
Surely that *couldn't* be natural; surely
That eruption was *more* than just the result
Of a perfect storm of magnetism and currents?
No… come on… *please…*
There *had* to be more to it than that.

I wouldn't be at all amazed if, one far-future day,
Astronomers falling through the Sun in some
Fantastic, force-field shielded ship
Discover our star had been impregnated by
A wandering alien queen, back at the solar system's
Dusty dawn; back when our infant Sun was just warm
Enough to provide the perfect nest for its crystal-shelled eggs,
Which, once laid, stayed clustered around its core for four
Billion years, undetected, unseen just the occasional beam
Of neutrinos betraying their radiation-soaked dreams…

And now… each petal pink prominence a contraction;
Each coronal mass ejection a solar chest-burster,
Setting the Sun shaking and shuddering, convulsing like John Hurt
On the Nostromo's kitchen table; screaming
As ripples of ruby red spread across its face
Before its plasma blood gushes out into the black,
The newborn soaring free, invisible against
The rippling orange waves, witnessed by millions an AU away…

Ridiculous, I know… But looking closely
At this SDO movie I'm *sure* I can see
Something silhouetted against the flames,
Streaking away –
Ahhhhhhh… And remember how we all assumed
Comet Lovejoy had survived its Christmas kamikaze dive
Through the corona when we saw
That strange twizzly thing corkscrewing away from the Sun?

Just saying…

What you missed in April...!

Reports from Ed Mizzi, Secretary

April 5, General Meeting

On April 5, we held our fourth monthly meeting of this year. Our president, Andy Blanchard, began with a warm welcome to everyone, including our speaker and new members. He gave a short review of our activities in March, including a great night at the McMaster Planetarium and a super Public Night, hosting a Boy Scout group as well as other visitors. He also encouraged everyone to purchase tickets to our June Swap Meet (AstroCASM) and our banquet (with guest speaker Terence Dickinson), as well as volunteering to help with the Swap Meet. Members can purchase tickets online.

Our guest speaker was non other than the Sky Shed guru of Canada, Wayne Parker. Wayne is the inventor of the Sky-Shed POD personal observatory. He entertained us with both photographs of several installations and interesting stories about some of his clients who can be found across the globe. Wayne also discussed his latest innovation, the 12.5'+ POD MAX fully automated robotic dome and showed us images of the first mock-up of this super extension of his first proven POD, which is in use in hundreds of locations around the world. It was obvious that Wayne is sincerely interested in helping to promote the study of astronomy and make home observatories affordable for everyone.

Thanks to all who attended and we encourage everyone to join us on May 3 for our next monthly meeting.

Public Night, April 18

Once again, Public Night proved itself to be a favourite of both club and non-club members. The April 18 outing was blessed with clear skies and views of Venus, Mars and a few deep sky objects. There were 15 people out for this event and two of them had their own scopes set up, shared with others, and received tips on using them. The majority of participants were also taught how to use a planisphere and went home with their own planisphere and a better understanding of how to find objects in the Northern Hemisphere skies. A vast spectrum of ages was represented by those who took part in this fun-filled evening and yes, even a few brave mosquitoes came out to greet us. The next Public Night is scheduled for May 16, but please check our calendar before venturing out on that night. Thanks to all who joined us. We hope the successes of these event continue into the coming months.


WEATHER


CELESTRON

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

Calendar for May, 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29 6p Orbit Deadline	30	1	2	3 7:30p Monthly Meeting - Dale Armstrong - Weapons In Space!	4	5
6	7	8 7:30p Armchair Astronomy	9	10	11	12
13	14	15	16 7:30p Public Night	17 7:30p Board of Directors Meeting	18	19
20	21	22	23	24	25	26
27 6p Orbit Deadline	28	29	30	31	1	2