

POLARIS



Royal Astronomical Society of Canada
London Centre Newsletter
October 2009

Fall'n Stars David McCarter

My wife Jan and I drove up to Tweed, north of Bellville, on September 25th to take part in the star party that Kingston and Belleville jointly put on called Fall'n Stars. In part this was to deliver some Galileoscopes to Kim Hay of Kingston Centre, in part to enjoy another small star party, and we also hoped to enjoy the fall colours in the area.

Driving through Toronto is my least favorite activity, more so when it is a Friday afternoon and everyone is on the road trying to get home or to their cottage. Traffic was so bad that it was stop and go from the 407 east of Milton all the way to Oshawa, a distance of at least 90km. Thus we arrived at the rustic Vanderwater Conservation Area Boy Scout Camping Area east of Thomasburg, Ontario, well after dusk. Even though we entered the observing field after dark we were greeted warmly, and soon we were making the rounds, talking to people, sharing views through telescopes. The moon was very near first quarter and provided enough light to see by, but the sky was transparent enough that it did not hinder observations.

It was inevitable that we would end up beside Doug Angle and the Kingston Centre's 63.5cm (25 inch) Dobsonian. Jan enjoyed various views while perched several steps up the ladder, and Doug explained what we were looking at. At one point, about 21:00, I suggested we compare the just observed M13 with the nearby M92, and Doug was at the eyepiece trying to find it while I looked past the Telrad finder and coaxed him closer.

I spotted a faint meteor moving quickly southwest through Hercules, and was about to say "there's a nice one" when it rapidly became brilliant and all this

overloaded brain could do was shout incomprehensively. Doug looked down at this shouting fool, and realized that something bright must be lighting my face. The Bolide, now many times brighter than the full moon and lighting up the surroundings with its flickering light sailed through western Ophiuchus, completely hiding from view all of the brightest stars.

The cyan colour of the fireball contrasted with the brilliant white of the centre, and the yellow trailing to orange and red of the long train behind. Doug turned to see what was causing this commotion, and caught the last second of flight. I remember two bright flashes during this run, but didn't see any obvious debris falling behind. Then the Bolide fell behind a stand of tall spruce to the south west, out of sight but still the sky was bright, and then the entire western sky and the tree tops flashed as if from distant lightning as the terminal flash occurred. Once my brain get back into gear, which I admit took some time, I pulled my watch and small flashlight from my pocket and read the time as 21:04.

Of course everyone started comparing notes on what they had just witnessed, and I called out for silence, suggesting that everyone should listen carefully for a sonic boom. The silence was more or less effective, but after five minutes we all relaxed and resumed chatting. At the time we didn't realize that the flight from 100km over Guelph to 20km over Stony Creek had taken place over 230km away, and the sound travel time would exceed 12 minutes. Many people expressed the notion that "It has fallen just behind the tree line", so convincing was the brightness and speed.

When I next had email I sent a brief description

(Continued on page 4)



Moon Phases



Oct 18 2009



Oct 26 2009



Nov 2 2009



Nov 9 2009

Error in Earth orbit size

Oops! Sometimes mistakes are made and are not found before publishing the newsletter. Last month I wrote the diameter of Earth's orbit was 300,000 kilometers! Oh boy.

I meant Earth's orbit is 300,000,000 kilometers!

Amazing what a difference a few zero's make!

Sorry for the typo! And thanks to Bob Duff whose keen eye caught my error!

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Find the Polaris newsletters on the internet at: www.patusratus.ca/Polaris

LONDON RASC MONTHLY MEETINGS

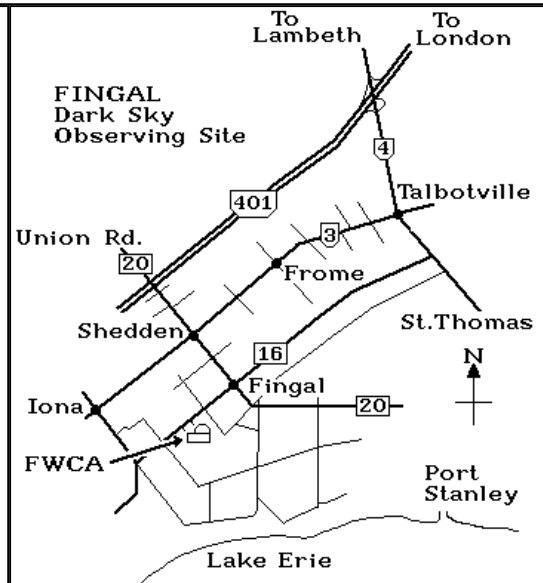
The London RASC group meets at Fanshawe college in London Ontario, September through July on the third Friday of the month at 19:00. They meet in room B1073.

Everyone interested in astronomy is invited to attend and enjoy our guest speaker, member activity and observing reports, announcements of new discoveries and upcoming events, telescopes and telescope accessories show and tell, and other fun activities. Have a look at our future and past activities on our website to see what we are doing.

Parking is free on Friday evenings, and there is plenty of room in the east parking lot off Oxford St. and parking spaces on the south side of B building. Enter the college by B building doors near Oxford Street, just west of the bus stop. College signs at key hallway locations will help you find us. The London RASC webpage can be found at:

www.rasc.ca/London

They have a preferred observing site at Fingal Wildlife Management area.



Sky Events for October and November 2009

October 21 Antares 1.0° S of Moon
 October 30 Double shadow transit on Jupiter
 November 1 Daylight saving time ends
 November 6 Double shadow transit on Jupiter

Venus is the morning star but is sliding towards the Sun
Mars is in Cancer
Jupiter transits at 7:40 on the 15th
Saturn rises in the morning
Uranus is between Pisces and Aquarius



R.A.S.C. London Centre Library Books of the Month October 2009 *By Robert Duff*

In order to make our library collection available to members,

I bring three books to our general monthly meetings. These “Books of the Month” are available for loan, to be returned at the following monthly meeting.

The books for October 2009 are as follows:

The Backyard Astronomer's Guide, by Terence Dickinson & Alan Dyer. Revised Edition. c2002.

Looking Up: a History of the Royal Astronomical Society of Canada, by R. Peter Broughton. c1994.

Pale Blue Dot: a Vision of the Human Future in Space, by Carl Sagan. c1994.

For a complete listing of our library collection please see our RASC London Centre Web site at: <http://www.astro.uwo.ca/~rasc/>

If there is a particular book or video you wish to borrow, please feel free to contact me by telephone at (519) 439-7504 or by e-mail at rduff@sympatico.ca



Sky and Telescope Subscriptions

Sky & Telescope subscriptions are available at a discounted rate through the London Centre. The cost is \$39.95USD instead of the normal \$49.95USD subscription rate. Please see Bill Gardner for details.

(Continued from page 1)

to Dr. Peter Brown, reporting what I had seen, and from where. I soon learned that the Bolide had been seen by five of the all sky cameras of the Southern Ontario Meteor Network, with the Bolide passing almost overhead of the camera at McMaster.

Marcus Stevens reported that he had been observing at Fingal that evening, and saw the bolide in his eastern sky moving strongly down from North East to East, while Geoff Gaherty emailed that he was at the Wye Marsh doing a star party and everyone with him saw it moving almost directly down “splitting the distance between Jupiter and the moon”.

A quick evaluation of the reports I had led me to think that the fall was southwest of Hamilton, north east of Simcoe. So on the following Tuesday, having not heard from anyone at the University, I drove over to the little hamlet of Villa Nova and did my own search. I simply stopped to talk to anyone I saw, and watched the road for any unusual rocks. No one had seen or heard anything, and nothing was found, but I did meet a nice fellow who keeps bees and bought some great honey.

Phil McCausland then emailed me and asked for assistance searching, which I readily agreed to. We were to search on private land, and Canadian law stipulates that meteorites that fall on private land are the property of the land owner. And as this search was being organized by the University, they wanted all bits found to be available for research. The next day the camera videos and maps of the most probable search area were published on Western’s web page, and located the fall area as just south of Grimsby, which was quite a ways north east of my early estimate.

Bob Duff agreed to come with me and we met the other searchers at the service centre just off the QEW at exit 74, Casablanca Blvd. at 8:30. After a briefing we drove up the escarpment to an open field, formed a line abreast, and started walking through the wet grass, looking for gray to black rocks on the surface, or plunge pits, which are the holes that falling rocks make in soft ground. We found bits of coal, golf balls, speedy field mice, lots of raccoon poop, but no meteorites. After the first few passes we were joined by Ron Charles, a reporter with CBC television and his camera woman. They joined us for many passes up and down the fields, videoing our progress and interviewing the searchers. Another reporter came by and when we got to the end of the field nearest the cars he would shoot his video and ask a few questions, then wait while we walked down the field and back. Later in the morning a helicopter flew over and around us shooting video for CTV, but I never saw a CTV reporter. I guess that didn’t want to get their boots dirty.

The Ron Charles interview appeared on The National later that night, but I didn’t see it that evening as I had collapsed into bed after a hot rejuvenating shower.

Several days later I drove back up to Grimsby for another day of searching, this time on the grounds of a Winery to the east of the Escarpment. Again, nothing was found between the rows of ripe grapes after many man hours of searching. Of course it is almost as important to find out where the fall is not, as where it is, but it would be nicer to have a few pieces in hand. That should happen with a few more days of searching.

Phil McCausland has announced that searching will continue this Saturday and Sunday, and that “a van will be departing from Physics & Astronomy at 6:30 am to arrive in the Grimsby area by 8:30 am. We’ll spend all day there and get back to Western by ~9pm.”

I plan to help out, with the dim hope that I’ll be the first, or second, or even last person to pick up a piece of space fallen to earth. A piece I was lucky enough to see fall to earth so spectacularly while at the Fall’n Stars Star Party. I hope you will be keen enough to join us for a unique experience.



For an aerial photo of where the meteorite might have fallen, see the last page.

**Byron Northview Public School Star Night
September 24th
By Robert Duff**

Despite hazy clouds some 57 grade-6 students and their parents showed up for a star night at Byron Northview Public School, Thursday, September 24th. Dave McCarter gave an outdoor digital slide talk on "Astronomy," calling everybody's attention to the International Space Station, which was bright and glided high overhead from the northwest at 7:55 p.m.

Dave brought his 80mm Stellarvue refractor on its alt-azimuth mount and his Galileoscope on a camera tripod. I brought my 20.3cm Dobsonian. The grade-6 teacher set up his 20.3cm Antares Dobsonian. Telescopes brought by parents, included a Meade ETX-90 Maksutov and a Meade 90mm refractor on what appeared to be a Go-To mount (although the hand-control was left at home).

Jupiter made a pleasing image at 174.3X, using the 7mm Nagler eyepiece in my 20.3cm Dobsonian telescope. I handed each child a Galileo Moment card as they looked at Jupiter with its cloud belts and four Galilean moons. When Jupiter was clouded out I showed a few people the star Vega, high overhead.

I helped one family to locate Jupiter in their new 90mm Meade Go-To refractor, which had to be directed manually, since they had left the computer hand-control at home. They were quite pleased to receive advice and I gave them copies of the London Centre brochure and "Become a Sidewalk Astronomer."

Dave gave "Star Finder" planispheres and copies of "Become a Sidewalk Astronomer" to the people he spoke to who brought telescopes.

The star night ended at 9:00 p.m., as the sky was almost completely clouded out. In all it was a pretty good star night event, with Dave's excellent slide presentation and the opportunity to at least view Jupiter and advise people who had brought telescopes on how to use them.

**Astronomy Talk and Star Night, Hickson,
September 15th
By Robert Duff**

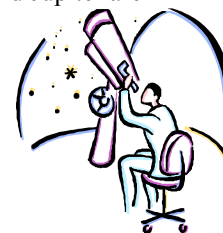
Gerald Kennedy reported that on Tuesday evening, September 15th, he was invited by the Hickson United Church Women's Institute to give a talk on basic astronomy and his observatories, followed by a site visit. Gerald said that they were aware of the IYA2009 and wanted to include some astronomy in their curriculum.

The dinner and meeting began at 6:45 p.m. at the Hickson United Church and was followed immediately by a tour of Gerald's observatory at his farm less than a kilometre away. There were some 25 people at the meeting, including members of the local 4H Club, with 17 people arriving for the tour session at Gerald's farm.

In his talk Gerald presented the basics, including the solar system, how astronomers locate objects and some constellations. The night was clear and many of the visitors were surprised at the number of constellations and different objects that could be seen with the unaided eye. After visiting the photographic observatory in the silo Gerald took them to the visual observatory where they viewed Jupiter in the large telescope. Gerald reported that the visitors had farm backgrounds and were aware of many aspects of astronomy. The star night ended around 10:45 p.m.

October Pocket Sky Atlas Challenges

The last night of the month is a perfect night to do neighbourhood astronomy outreach. The moon and Jupiter are good early targets. If you can, get some Galileo cards to give out as special treats. Don't be spooked by doing outreach! It is not as scary as it seems.



For early risers, Orion returns and M42 beckons
I've indexed the object to its star chart page.

Naked Eye:

M45 Page13, also see close up chart "A" at the back of the atlas. Algol (again)Page 2

Small Scopes and binoculars:

Kemble's Cascade Pages 11 and 13. There are 15 to 25 stars visible here, can you see colour in any of them?

Larger Scopes:

IC 405 Page 12, NGC 7457 Page 74

Bonus objects:

NGC 7009, M30 Page 77

M34 Page 12

Happy hunting.

John Kulczycki

Triple Carries the Shuttle

We first met Triple Nickel as an invited speaker at the 2001 London General Assembly. He has been a friend ever since, and when he remembers to renew, also a London Centre member. Triple flies the Shuttle Simulation Aircraft to train all NASA astronauts how to land this "flies like a brick" spacecraft, and becomes a friend to every one of them.

Recently he had the opportunity to fly NASA911, the converted Boeing 747 used to carry the shuttle from the Edwards landing strip in California back to Kennedy Spaceport. He wrote about his amazing experience for his local club newsletter, the Johnston Space Centre Astronomical Society's Starscan, and the article has since gone viral on the web. A recent Google search turned up 6890 direct hits. Here is his article in full.

Dave

"FAILURE IS NOT AN OPTION", Gene Kranz, APOLLO-13 "....it's all imbedded in the software!"

From: Triple Nickel
Sent: Thursday, June 04, 2009 9:34 PM
Subject: (JSCAS) Shuttle Carry

Well, it's been 48 hours since I landed the 747 with the shuttle Atlantis on top and I am still buzzing from the experience. I have to say that my whole mind, body and soul went into the professional mode just before engine start in Mississippi, and stayed there, where it all needed to be, until well after the flight...in fact, I am not sure if it is all back to normal as I type this email. The experience was surreal.

Seeing that "thing" on top of an already overly huge aircraft boggles my mind. The whole mission from takeoff to engine shutdown was unlike anything I had ever done. It was like a dream...someone else's dream.

We took off from Columbus AFB on their 12,000 foot runway, of which I used 11,999 1/2 feet to get the wheels off the ground. We were at 3,500 feet left to go of the runway, throttles full power, nose wheels still hugging the ground, copilot calling out decision speeds, the weight of Atlantis now screaming through my fingers clinched tightly on the controls, tires heating up to their near maximum temperature from the speed and the weight, and not yet at rotation speed, the speed at which I would be pulling on the controls to get the nose to rise. I just could not wait, and I mean I COULD NOT WAIT, and started pulling early. If I had waited until rotation speed, we would not have rotated enough to get airborne by the end of the runway. So I pulled on the controls early and started our rotation to the takeoff attitude. The wheels finally lifted off as we passed over the stripe marking the end of the runway and my next hurdle (physically) was a line of trees 1,000 feet off the departure end of Runway 16. All I knew was we were flying and so I

directed the gear to be retracted and the flaps to be moved from Flaps 20 to Flaps 10 as I pulled even harder on the controls. I must say, those trees were beginning to look a lot like those brushes in the drive through car washes so I pulled even harder yet! I think I saw a bird just fold its wings and fall out of a tree as if to say "Oh just take me". Okay, we cleared the trees, duh, but it was way too close for my laundry.

As we started to actually climb, at only 100 feet per minute, I smelled something that reminded me of touring the Heineken Brewery in Europe. I said "is that a skunk I smell?" and the veterans of shuttle carrying looked at me and smiled and said "Tires!" I said "TIRES??? OURS???" They smiled and shook their heads as if to call their Captain an amateur...okay, at that point I was. The tires were so hot you could smell them in the cockpit. My mind could not get over, from this point on, that this was something I had never experienced.

Where's your mom when you REALLY need her?

The flight down to Florida was an eternity. We cruised at 250 knots indicated, giving us about 315 knots of ground speed at 15,000'. The miles didn't click by like I am use to them clicking by in a fighter jet at MACH .94. We were burning fuel at a rate of 40,000 pounds per hour or 130 pounds per mile, or one gallon every length of the fuselage. The vibration in the cockpit was mild, compared to down below and to the rear of the fuselage where it reminded me of that football game I had as a child where you turned it on and the players vibrated around the board. I felt like if I had plastic clips on my boots I could have vibrated to any spot in the fuselage I wanted to go without moving my legs, and the noise was deafening. The 747 flies with its nose 5 degrees up in the air to stay level, and when you bank, it feels like the shuttle is trying to say "hey, let's roll completely over on our back"... not a good thing I kept telling myself. So I limited my bank angle to 15 degrees and even though a 180 degree course change took a full zip code to complete, it was the safe way to turn this monster.

Airliners and even a flight of two F-16s deviated from their flight plans to catch a glimpse of us along the way. We dodged what was in reality very few clouds and storms, despite what everyone thought, and arrived in Florida with 51,000 pounds of fuel too much to land with. We can't land heavier than 600,000 pounds total weight and so we had to do something with that fuel. I had an idea...let's fly low and slow and show this beast off to all the taxpayers in Florida lucky enough to be outside on that Tuesday afternoon. So at Ormond Beach we let down to 1,000 feet above the ground/water and flew just east of the beach out over the water. Then, once we reached the NASA airspace of the Kennedy Space Center, we cut over to the Banana/Indian Rivers and flew down the middle of them to show the people of Titusville, Port St. Johns and Melbourne just what a 747 with a shuttle on it looked like. We stayed at 1,000 feet and

(Continued on page 7)

since we were dragging our flaps at "Flaps 5", our speed was down to around 190 to 210 knots. We could see traffic stopping in the middle of roads to take a look. We heard later that a Little League Baseball game stop to look and everyone cheered as we became their 7th inning stretch. Oh say can you see...

After reaching Vero Beach, we turned north to follow the coast line back up to the Shuttle Landing Facility (SLF). There was not one person laying on the beach...they were all standing and waving! "What a sight" I thought...and figured they were thinking the same thing. All this time I was bugging the engineers, all three of them, to re-compute our fuel and tell me when it was time to land. They kept saying "Not yet Triple, keep showing this thing off" which was not a bad thing to be doing. However, all this time the thought that the landing, the muscling of this 600,000 pound beast, was getting closer and closer to my reality. I was pumped up! We got back to the SLF and were still 10,000 pounds too heavy to land so I said I was going to do a low approach over the SLF going the opposite direction of landing traffic that day. So at 300 feet, we flew down the runway, rocking our wings like a whale rolling on its side to say "hello" to the people looking on! One turn out of traffic and back to the runway to land...still 3,000 pounds over gross weight limit. But the engineers agreed that if the landing were smooth, there would be no problem. "Oh thanks guys, a little extra pressure is just what I needed!" So we landed at 603,000 pounds and very smoothly if I have to say so myself. The landing was so totally controlled and on speed, that it was fun. There were a few surprises that I dealt with, like the 747 falls like a rock with the orbiter on it if you pull the throttles



off at the "normal" point in a landing and secondly, if you thought you could hold the nose off the ground after the mains touch down, think again...IT IS COMING DOWN!!! So I "flew it down" to the ground and saved what I have seen in videos of a nose slap after landing.

Then I turned on my phone after coming to a full stop only to find 50 bazillion emails and phone messages from all of you who were so super to be watching and cheering us on! What a treat, I can't thank y'all enough. For those who watched, you wondered why we sat there so long.

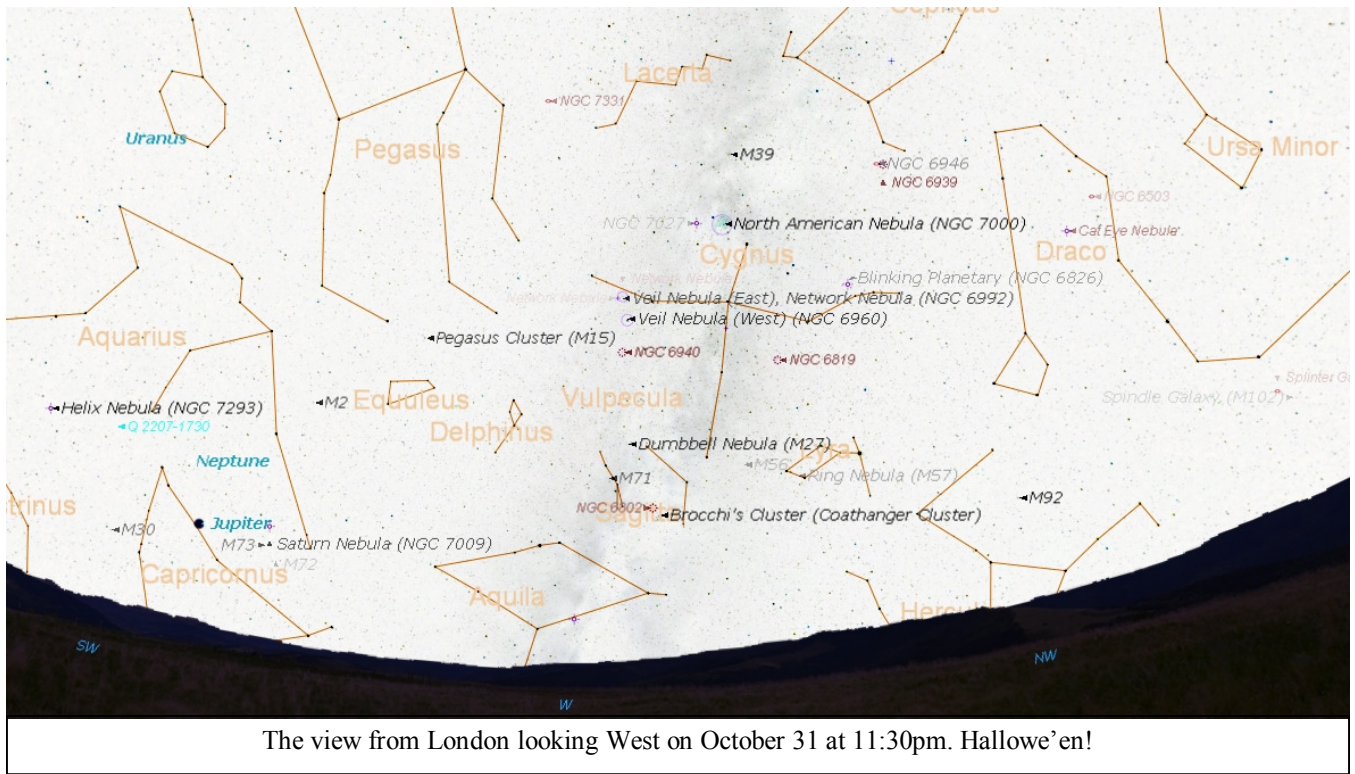
Well, the shuttle had very hazardous chemicals on board and we had to be "sniffed" to determine if any had leaked or were leaking. They checked for Monomethylhydrazine (N2H4) and nitrogen tetroxide (N2O4). Even though we were "clean", it took way too long for them to tow us in to the mate-demate area. Sorry for those who stuck it out and even waited until we exited the jet.

I am sure I will wake up in the middle of the night here soon, screaming and standing straight up dripping wet with sweat from the realization of what had happened. It was a thrill of a lifetime. Again I want to thank everyone for your interest and support. It felt good to bring Atlantis home in one piece after she had worked so hard getting to the Hubble Space Telescope and back.

Triple Nickel NASA Pilot



October 2009



Aerial photo of where the meteorite might have fallen.