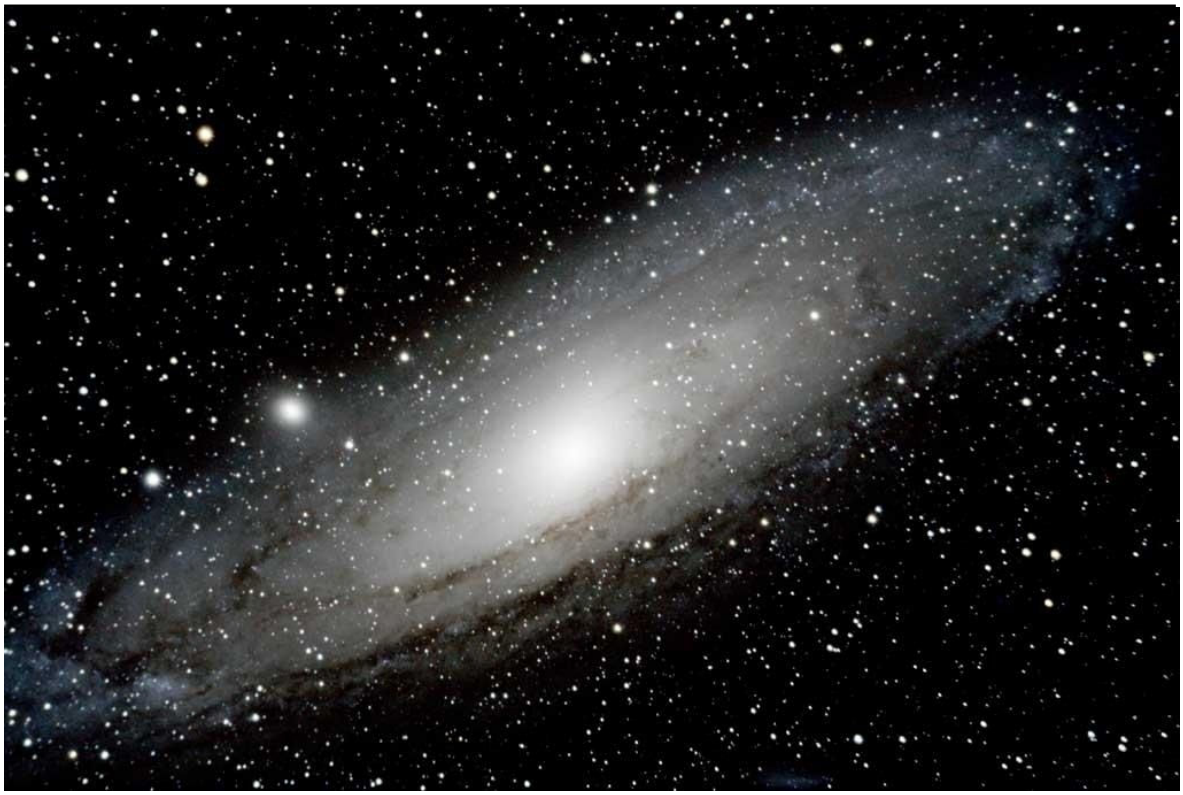


Orbit

The Official Publication of the Hamilton Centre of the Royal Astronomical Society of Canada

Volume 41, Issue 1

November, 2008

Issue Number 1, November, 2008

Roger Hill, Editor

Okay, I never really expected to be President again, and I certainly didn't expect to be Editor as well! At least I don't have far to look when wondering where the Presidents Report is. And you, gentle reader, are now going to have to put up with more of my ramblings.

So what's been going on? A number of things, actually. Personally, one of the nicer things that has happened this past month was that I got to spend a weekend at Gary Coldwell's country mansion. The weather reports leading up to the weekend didn't look very promising, but Friday afternoon saw a change in the Clear Sky Chart for Saturday evening. Starting around 9pm and going until 3am, it looked like it would be clear! Needless to say, I didn't believe it, but you'll find out what happened further in.

I managed to do a bit of observing this month, but not as much as I would have liked, and with November now upon us, I suspect that snow will be on the ground before I get a chance to do much more. Although I will be down south in the Caribbean for a week, it'll be on a cruise ship, so I don't expect to do much viewing of the night sky. I'm not even sure if I'll take a telescope, although my Williams Optics 80mm ZenithStar would be perfect. You'll just have to wait until next month.

What I am hoping to do before the snow flies is to remove the wooden pier from my observatory and replace it with a concrete one. My wooden "Mark Kaye" pier was fine for my old orange 8" SCT, but it's just not up to the task of holding my 12" Meade SCT, Wedge, guide scope and cameras. If I can, I'm hoping to drill a hole through the wooden pier, insert a crowbar, and then use a couple of car jacks to try to separate the pier from it's jacket of concrete below grade. Once that's done, I'll pour a completely concrete pier, filling up the big hole in the concrete, and extending it to about three feet above grade. That should hold everything nicely. I'll have to lift up the floor that put in, but fortunately, I screwed the floor down, so that shouldn't be a huge job. Wish me luck!

Anyway, in this issue, you'll read a delightful piece of prose by Gary Colwell that takes a slightly different look at talking about one of his images. I've got a report on a weekend's observing and telescope tuning, there's a Presidents Report, some pictures, and some other stuff.

I hope you enjoy it.

From the Keyboard of the President

Last year, I was not on the Board. I took a year off, although I did help out by producing Orbit. But I missed knowing what was happening in the Centre.

You see, I'm an information junkie by nature, and not knowing what was going on was annoying in the extreme. So, I could do any of several things. I could just get over it, for instance, but that's would have required major surgery on my personality, and I'm not willing to undergo that. I'm stuck with being nosy by nature.

I could have just thrown up my hands and said that if other people didn't seem particularly bothered, why should I? After all, perhaps no news really is good news. But, I was the Orbit Editor, and I'd have loved to have put some Good News in it's pages.

I could have attended all the Board meetings, and acted as a roving reporter. This was a very serious thought, actually, and came the closest to actually being done. The problem was that I wanted a year away from the Board. So what should win...my addiction to knowledge, or my need to step back? The "step back" won, but considering that I was actually spending more time doing stuff for the Centre by editing Orbit, it wasn't much of a "step back". It was the principle of the thing though.

In the end, I couldn't take it anymore, and I decided to re-join the Board, as Orbit Editor. You see, the position of Editor has traditionally been a Board position. I guess if you're going to put all the time in, you may as well get a vote! I figured that it would just mean an extra couple of hours a month on a Thursday night, and it would give me even more to write about. After all, some months I really struggle to produce Orbit, and more source material couldn't be a bad thing.

So, the decision having been made, I attended the September Board meeting to get my nomination form in on time. As I got there, the meeting was just wrapping up. Andy Blanchard, Paul Brandon and John Williamson were there and Paul left as soon as the meeting was over, which was a shame, as I wanted to tell him, personally, as just a regular member, how grateful I was for the work he'd done over the previous year. Paul, if you're reading this, I'd like you to know that I think the Centre is the richer for having had you around.

Steve Barnes put his name forward to be National Rep, and I, for one, think he'll do a great job. However, Steve is travelling the globe and frequently won't be able to make Board meetings, so rather than cause Quorum problems, he opted to not join up, but will try to make as many as he can. I hope he can make all of them. I've known Steve for a long time, and had a chance to spend a lot of time with him here and in Chile. I value his opinions and I hope that he'll be around a lot to make sure I get them!

Gary Colwell, is someone I've known, too. Twice now I've been to Gary's place to do some observing, and I've come to realize that under that joking exterior lies one of the Centre's truly decent people. Gary is going to be doing some work with getting the membership back up again, and is looking forward to doing things like resurrecting the Beginners Group, and other outreach types of programs. If you have any ideas, I'm sure he'd love to hear from you. What he'd like to hear more though is you asking him how you can help!

I've often said that finding a good treasurer is akin to finding gold. In Andy Blanchard we have an excellent Treasurer. He's not just capable of keeping track of the Centre's finances, but he has the happy knack of making you believe you understand what he's talking about, too!

Now, what can I say about John Williamson? In the last year he stepped forward and not only managed to keep the Centre going, but also made sure that the Centre met its obligations as a partner in the RASC General Assembly this June past. Along with a young daughter, a job, and going to University full time, I don't know where he found the time. We should all be grateful he did, though.

Enough of the past, though, what of the future? Well, it seems obvious we need to engage the membership more. Part of that will be doing more outreach, both to the public and to the membership. The Observatory needs some work, too. The job that was done on the Chilton Building floor by Andy and his intrepid work crew is nothing short of magnificent. That building is a joy to be in. Now we have to make sure that the other buildings are up to snuff.

In some ways, I don't mind sitting here at this keyboard, or leading a Board meeting, standing at the front of the room at the Steam Museum, or even trying to hunt down a speaker or two. In fact, I actually enjoy several of these tasks, and I'm happy to do the others. But the plain truth of the matter is that we need help. We need your help.

If you've ever been on the Board before, you know how rewarding it can be. I'm aiming to bring those days back. No bickering, no contentious issues, no massive personality clashes, just some work for a couple of hours a month helping out the Centre with a group of your friends. I'd love the benefit of your wisdom and experience.

If you've never been on the Board before, I'd like to show you that life is more fun when you're involved.

Still not convinced? Then how's this for an offer. Just show up to the Board meeting, and when a project comes up and I ask for a volunteer, raise your hand. No need to vote, no need to worry about Directors Insurance, but you do get to be involved.

Either way, the Centre needs your help.

Humour

"Our loyalties are to the species and the planet. We speak for Earth. Our obligation to survive is owed not just to ourselves but also to that Cosmos, ancient and vast, from which we spring."
- Dr. Carl Sagan

"In 1878 Thomas Edison invented the light bulb. Jerk."
- Starry Night Advertisement

"Time is nature's way of keeping everything from happening at once."
- Anonymous

"Living on Earth may be expensive, but it includes an annual free trip around the sun."

"Twinkle, twinkle, little star,
How I wonder where you are.
Looking up is no solution;
The sky's so full of light pollution."
- David H. Levy

Rejected Neil Armstrong Moon Landing Lines:
One small step for man. Ten million frequent flyer miles for me.
When I spit, it floats upward.
This is the corniest thing I've ever done.
Are you watching, Dorothy Shinbach? Would you go to the prom with me now, Dorothy Shinbach?
I'm taking one giant leak for mankind.
Aieee! Moon weasels.
- David Letterman, Late Show (June 7, 1994)

"I love to revel in philosophical matters - especially astronomy. I study astronomy more than any other foolishness there is. I am a perfect slave to it. I am at it all the time. I have got more smoked glass than clothes. I am as familiar with the stars as the comets are. I know all the facts and figures and I have all the knowledge there is concerning them. I yelp astronomy like a sun-dog, and paw the constellations like Ursa Major.
- Mark Twain

"The stars are made of the same atoms as the earth. I usually pick one small topic like this to give a lecture on. Poets say science takes away from the beauty of the stars - mere gobs of gas atoms. Nothing is "mere." I too can see the stars on a desert night, and feel them. But do I see less or more? The vastness of the heavens stretches my imagination - stuck on this carousel my little eye can catch one-million-year-old light. A vast pattern - of which I am a part - perhaps my stuff was belched from some forgotten star, as one is belching there. Or see them with the greater eye of Palomar, rushing all apart from some common starting point when they were perhaps all together. What is the pattern, or the meaning, or the "why?" It does not do harm to the mystery to know a little about it. For far more marvelous is the truth than any artists of the past imagined! Why do the poets of the present not speak of it? What men are poets who can speak of Jupiter if he were like a man, but if he is an immense spinning sphere of methane and ammonia must be silent?"
- Richard Feynman

….What if?.....by Gary Colwell

Suppose you could plunk yourself into a time machine, set the date for sometime in 1949…then fly off to Mount Palomar to visit with Jesse Greenstein, (Jesse was the astronomer who took many-a-photographic plate in this particular location for years) sitting in the prime focus cage of the Hale 200" telescope. The largest telescope in the WORLD!

You sit and watch as he carefully loads the photographic plate…most likely black and white, and carefully guided the scope for an all night image of M33. After many hours of waiting for the image to be burned on to the plate, you remove it and climb out of that stellar cocoon and trudge off to the lab to have the plate processed. After several baths in some pretty harsh chemicals, you see a beautiful image begin to unfold that could only be achieved using this monstrous telescope and the most expensive and advanced astrophotography equipment available.. You then take the plate to another room where you place it into an enlarger, beam its image onto a sheet of photographic paper and Voila…..M33!
You stand in awe of the capability of this telescope, and marvel at the fact that you are looking at a state of the art telescope in all its glory…….and an image very few other than a handful of professional astronomers could have ever produced. The painstaking and time consuming events of the past evening have all been conducted in order to get this spectacular picture of a neighbour almost 3 million light years away.

….What if?..... (Cont'd)

But the evening isn't over….not quite yet….it is now your turn. You invite Jesse to join you in your time machine (which he reluctantly gets into) and you blast on back to the future….the date …October 25, 2008…the place….your humble backyard observatory. There is no 200" telescope in the building, (And it doesn't even look like an observatory) … only a 10" Cassegrain telescope….a 1/20 scale Palomar telescope with a 4.3" APO refractor strapped to it, and a 90mm guide scope along with it….

Jesse stands there in bewilderment wondering what you could possibly have in store for him.
You step into your "cage" which is an 8'x8' room (Actually a converted garden shed!) with a small device Jesse has never seen before. Your laptop computer attached to your pint sized telescope. But the fun is just beginning….you turn on the scope and the computer, and a faint electronic buzz is heard ….then the all too familiar Microsoft "jingle" as the computer powers up. Jesse is speechless…
OK now time to get M33 in your gun sights. You select "Starry Night" on the computer and up pops the display of the heavens….you point and click to M33…and the telescope slews all by itself to the point in the sky where M33 makes its home. Jesse is awestruck….but no big deal for you…quite simple in fact.
Now, you command "Images Plus" to come up on the computer, and Jesse asks you where the photographic plate is to take the picture….you point him to the Canon XSi that is sticking out the back of your 4.3" refractor and say "there it is!...The room is silent….
"But what do you expect to photograph using such a small instrument?" asks Jesse with a slight hint of laughter in his voice…."M33!" …just like the one you took at Palomar!....
Jesse's arms fold and a muffled chuckle can be heard….

Back to the computer…you select "live focus" ….and up pops several stars on the screen….you focus the image…and get ready to take the picture….
But before you do… you select "PHD" (which is the first thing Jesse notices as he has one of those too…just not on a computer!)…and he asks…"what does that mean?"…to which you reply …it means "Push Here Dummy!"..… You both erupt in laughter….

….What if?..... (Cont'd)

You move the cursor over a star in the box …press a button and PHD calibrates your auto guiding system to follow the sky with uncanny precision. Next you go to the "capture" screen and select 20 – 240 second images to be taken, press another button to start the whole thing,….then…..you go outside and grab a Tim Horton's coffee! (Brewed earlier in the evening and sitting on your desk in the observatory….) …and discuss the advancements in astrophotography a mere 59 years later!

After a few sessions of taking the necessary dark, flat and bias frames….you process the images, stack them , tweak them and voila!....M33

"But wait a minute"….Jesse says….."This is what you can get with this tiny little telescope???"…and the colours!!!!!!!!!....."Amazing isn't it" I say... "And no messy chemicals!"

Wouldn't that be an interesting thing to do…who would have ever imagined getting "Palomar" quality images with such limited equipment?…can you imagine if you could take pictures produced today back in time and show them to professional astronomers a mere 50 years ago?....no one would believe it!.

Astrophotography today is well within the capabilities of any amateur astronomer, if you are willing to give it a try….invest in some good equipment, and find a nice dark patch of sky to do it in.

SO next time you wish you could take pictures like those taken through the 200" Hale Telescope at Mount Palomar…..just remember…..today…..you can!....

Editors note
Gary has been playing around with ImagesPlus, and I'm hoping to convince him to write a bit about it. Since he started using it, Gary's images have shown a large increase in quality. That's his picture on the front of Orbit this month.

Near Nirvana by Roger Hill

Last year I got the chance to go to Gary Coldwell's mansion in the woods, along with Les Nagy. Others were invited, but were unable to make it. I had a great time, under very dark skies. It's only a few miles from a place that a group of people called OAFs (Ottawa Astronomy Friends) go when they have earned enough observing karma! Although it's a 3 on the Bortle scale (Low light domes (10 to 15 degrees) on horizon. M33 easy with averted vision. M15 is naked eye. Milky way shows bulge into Ophiuchus. Limiting magnitude 6.6 to 7.0.), it actually feels a touch darker than that.. Regardless of the actual number, it's a very good site.

What makes it even more special is that there is power to the site, a great cottage, a 5th wheel trailer to use as warm up room, everything, in fact, but internet access.

I made two attempts to go this fall, the first time was at the end of September, and although the weather looked marginal at best, I had planned on making the trip until I got an email on the Friday indicating that one of the service providers where I worked would need someone on-site, somewhere between 1 am and 4 pm on the Sunday. Both Gary and I were very disappointed, me in particular because he'd be flying there with a pilot friend, and we all hoped to fly over Holleford Crater, north of Kingston.

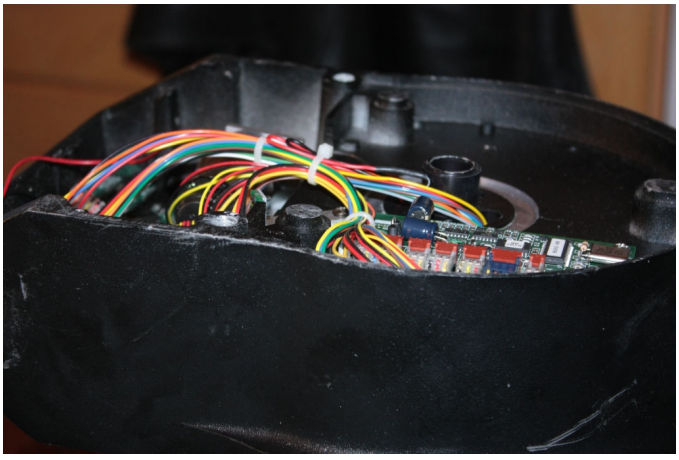
The next attempt this year came at the end of October, the weekend before New Moon. Again, the weather looked questionable all week beforehand, but Gary and another friend of his (also called Gary...it got quite confusing at times) were planning to do some mods on their respective telescopes, balance them, clean them, replace some plastic gears with metal ones and the like. There'd still be good food, good friends, and if it did clear up, where else would I rather be?

This time, the Clear Sky Clo...er...Chart indicated that it just might be clear from about 9pm to about 3am.

With no chance of observing on the Friday night, I took my time, had supper at home, and left before 7pm. Gary had called and said that traffic had been really bad coming through Toronto, and that the 407 might be faster. So, I told a Magellan GPS I'm testing for my in-laws to get me to Plevna, and off I went. I also had some very good directions Gary had given me. So, when I get to the 407 cut-off, the GPS doesn't like it very much. Keeps telling me to make a U turn, but as I listen to the radio, Gary's advice seems sound...the traffic through Toronto is not very good. All I have to do is stay on the 407, then travel along Hwy 7 to Hwy 41. The GPS has other ideas, though, and is not crazy about some of the shortcuts I use (to avoid Port Perry, etc.). It eventually gets muted. A stop for gas, some beef jerky (associated with travelling astronomy in my mind since the Texas Star Party last year), some Tims, and about 11pm, I arrive.

Overnight, it starts raining. Hard. Gary, Gary and I go into Plevna for breakfast, and to get some steaks and baking potatoes for supper. The breakfast is excellent, the coffee good and hot, and the steaks look like they came from Nirvana!

When we get back, Gary C. retrieves his LX200GPS 10" from his pier (see his set up on page 6), and starts going through the manual on how to replace the plastic gears in the DEC and RA housing with the metal ones from Bucks Gears (http://www.petersonengineering.com/sky/buck's_std_gears.htm).



Mission accomplished, and everything meshes well. We fire it up, slew it around, and everything sounds good, and the scope seems responsive.

Gary Bennet, meanwhile, is trying to balance his C11 on the SGT mount, along with a Megrez 110 on a side-by-side mount, along with cameras, and all the other goodies that can make astrophotography so expensive!

Near Nirvana (cont'd)

The job was remarkably similar to what we'd done with Andy Blanchard's scope after the last Board meeting. First, you put the DEC axis horizontal and you lock the RA in place. You then move the telescope or weights around so that the scope won't rotate around the Dec axis. You then clamp the scope in DEC, loosen the RA clamp, and adjust the weights along the counterbalance shaft until it won't rotate in RA, either. You should end up with a scope that will rotate if you put a heavy camera on it (or remove it). So you generally like to balance with the scope in it's "observing" configuration.

Having seen how successful that was, Gary Colwell decided that he would like to do the same with his scope. The problem was that it was pouring down with rain, and we'd get very wet getting everything balanced. To say nothing of the scope getting wet! Fortunately, my scope was still in my van, so I took out my tripod (50 lbs) and wedge (45 lbs) ,and set them up in the cottage. We put Gary's scope on, and proceeded to balance his scope. Gary C. has a 10" SCT, a Megrez 110, an old 90mm cheap refractor, a Meade DSI to autoguide, eyepieces and cameras.

The way to balance a fork mount is a little different, and properly requires the ability to slide a weight along the bottom of the telescope tube to counterbalance the guide scopes on top. You then move the weight closer or further away from the body of the scope. Gary's system doesn't do that. He has his weights at a certain distance from the front corrector plate, and then adjusts the amount of weight to get everything balanced. We were able to adjust where the weights were centred, and then moved the weights closer to the tube to get everything just so. It was not possible to get it perfect, but it wasn't more than maybe a pound off. I suggested he get some of the ankle weights that serious joggers use and Velcro them to the equipment to achieve final balance.

There was one odd thing that did perplex me. The cylinder of electronics that sits on top of the tripod in the SGT, underneath the actual mount, could be moved. It didn't form a completely solid whole. It looks like bolts that hold the tripod legs on to the tripod head aren't strong enough. Still, Gary B is nothing if not an accomplished tinkerer, and I'm sure he'll figure out a way of making it act that way. In defense of my humble home made wedge, I should point out that it is rock solid.

Near Nirvana (cont'd)

So, having get everything nicely balanced, cleaned, replaced, we checked outside and it had stopped raining. Looking toward the west, and we could see blue sky. We rapidly went into teardown mode and moved the scopes to the field where Gary C has his observatory.

By the time we were all set up, it was quite dark. Gary B., first to get everything together, went back to the cabin and cooked the steaks and baked potatoes. Gary Colwell got his 10" SCT installed back on it's pier, and I got my 12" set up. Power was initially a problem for me because I'd forgotten to bring a power bar. Fortunately, a spare was procured, and away I went.

I'm not sure what it was that night, but I just couldn't seem to get an accurate polar alignment. Normally, when I do this in my observatory, I use a webcam, or, more recently, LiveView on my Canon XSi. I'd forgotten to pack a t-adapter for my Canon, though, and consequently, I was planning on doing some piggy back work. I spent almost two hours trying to get my Meade DSI to work with an old laptop before I finally just eyeballed it...de-focusing a star image to it almost filled the eyepiece.

All this time we were imaging under some of the heaviest dew conditions I can remember. All that rain that had come down made the air incredibly humid, and when the temperature dropped, it condensed on to every cool surface.

It was a frustrating night for me, and when the clouds rolled in just before 3am, I hadn't accomplished anything like what I'd wanted to.

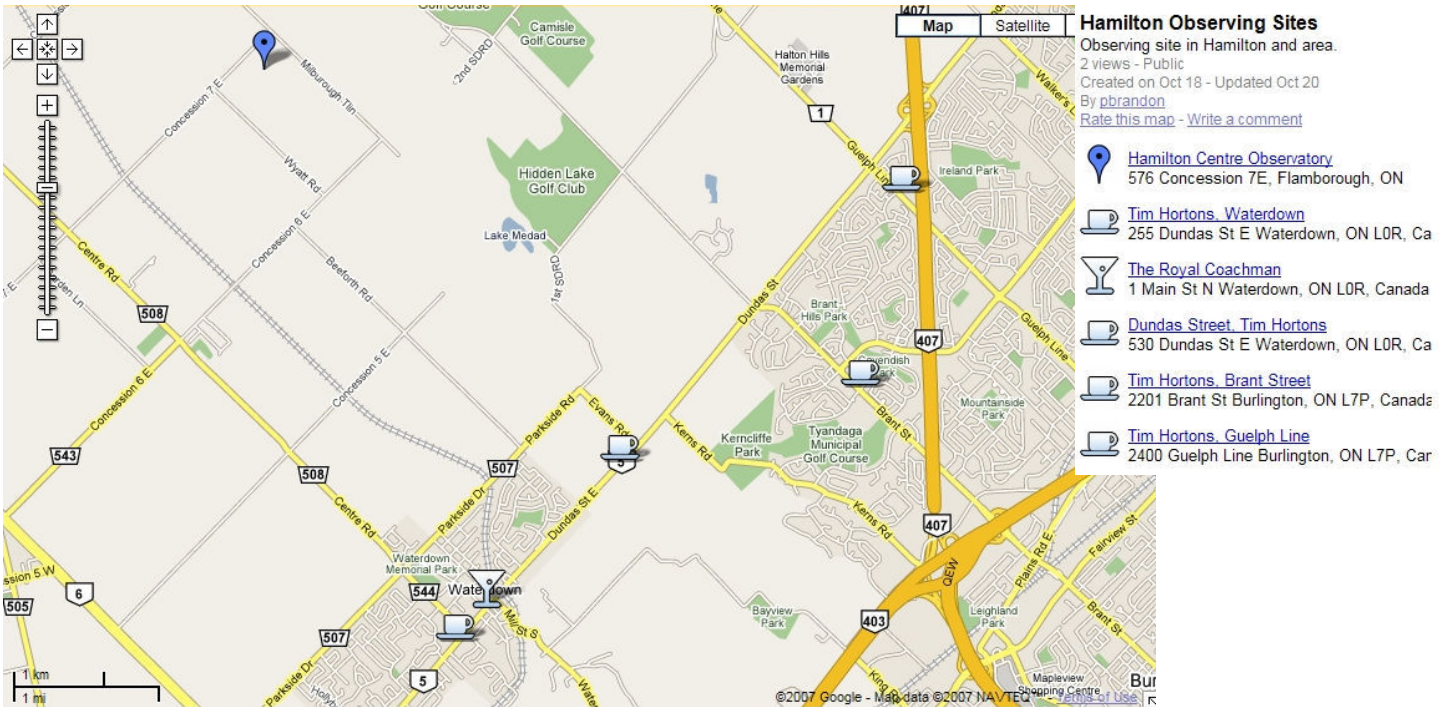
So, with permission, here are some of the images that the two Gary's managed to get that night.

Flame and Horsehead by Gary Bennet: October 26, 2008 50 min exposure (10 X 5 min.s) @ ISO 800 Camera Canon 40D (Baader IR Modified) Imaging Scope: Williams Optics 100mm Megrez WO .8 Field Flattener Mount: CGE Guided : Starshoot Autoguide Camera, PHD Software

Near Nirvana (cont'd)

NGC 2237 Rosette Nebula Distance 5,200 light years October 26, 2008 40 min exposure (8 X 5 min.s) @ ISO 800 Camera Canon 40D (Baader IR Modified) Imaging Scope: Williams Optics 100mm Megrez WO .8 Field Flattener Mount: CGE Guided : Starshoot Autoguide Camera, PHD Software

Also, check out the front cover picture from Gary Colwell It's a 75 minute exposure of M31 through his Megrez 110 and a Canon XSi, processed using Images Plus.



Website: **http://www.hamiltonrasc.ca/**

Observatory Phone: (905) 689-0266

E-Mails:

General Inquiries:	hamiltonrasc@hamiltonrasc.ca
President:	president@hamiltonrasc.ca
Secretary:	secretary@hamiltonrasc.ca
Treasurer:	treasurer@hamiltonrasc.ca
Orbit Editor:	orbit@hamiltonrasc.ca
Web master:	webmaster@hamiltonrasc.ca

576 Concession 7 East, Flamborough ON
N43° 23’ 27” W79° 55’ 20”

Mailing Address:
Hamilton Centre, RASC
Box 1223 Waterdown, Ontario
L0R 2H0

2008-TC3 from Chile.

Yet another amazing picture from Steve Barnes. This was 2008-TC3, a small meteoroid 2 to 5 meters (7 to 16 ft) in diameter that entered Earth's atmosphere on October 7, 2008, at 02:46 UTC (5:46 a.m. local time) and burned up before it reached the ground. The meteoroid was notable as the first such body to be observed and tracked prior to reaching Earth.

This is a 10 second exposure taken just a couple of hours prior to it’s explosion as a Bolide.