snt Horiz(

Volume 17, Number 7 May 2010

From The Editor

Did you know that the HAA has a special agreement with the Binbrook Conservation Area that allows us to use the park after hours for astronomical observing? There are five HAA members who have a key

to the main gate and are responsible for ensuring that park guidelines are followed while the park is being used by club members. They are Steve Germann, Don Pullen, Jim Wamsley, Jackie Fulton and Ann Tekatch.

Observing sessions

at the Binbrook Conservation Area are planned and scheduled for New Moon weekends throughout the year. These events are posted in Event Horizon and periodically on our website. However, from time to time, other opportunities to observe will arise when conditions warrant a trip to the park. On these occasions, keyholders will send an email to all HAA members with details. These notices are necessarily of short notice (an hour or two before the observing session) and will contain



From the Chair by Steve Germann

Last month was like a perfect storm... every week had something going on, astronomically speaking. This month gives us a little breather. We still expect the moon to go through its phases, so to speak, but in terms of club events, we are starting to wind down for the summer.



The cold and damp of spring will be a memory, and warm gentle breezes and mosquitoes will be with us for the summer.

Of course, the only thing better than observing at night is observing with friends. More people to share the mosquitoes...

So please keep an eye out for chances to come to Binbrook and take in the wonders of the night sky.

IN THIS ISSUE:

- Lunar Photos
- Treasurer's Report
- Masthead Photo Details
- Member of the Month
- Astronomy Crossword
- Dwarf Planet of the Month Shuffle Off to Buffalo
- April General Meeting Report

- Club Astronomie
- The Big Shrink

- You Might be an Astronomer
- Astronomy in Australia & N.Z.
- For Sale
- The Sky This Month & Star Charts
- A Truly Great Club
- Cartoon Corner
- Astronomy Crossword Answers
- BCA Sunset Photo
- Upcoming Events
- Contact Information

From the Editor (continued)

information on when the observing session will begin and end and what the combination is for the lock at the main gate.

HAA members wishing to use the Binbrook Conservation Area at other times can contact the club's five keyholders by sending an email to:

keyholders@amateurastronomy.org

Keyholders are volunteers who frequently observe at the park. Please note that keys cannot be copied or loaned out. For those occasions when a keyholder isn't available, the alternate site on Tyneside Road is always open and does not require a keyholder.

Please remember that our access to the Binbrook Conservation Area (BCA) is a privilege, not a right. Club keyholders are responsible for ensuring that park guidelines are followed and any member using the park must respect their authority over all aspects of park use.

Let's hope for many clear skies this year so we can use the park to its fullest advantage!

Ann Tekatch



Two beautiful lunar photos!

Left: Don Pullen took this photo through his scope with a Canon 40D DSLR.

Right: Joe McArdle took his photo afocally with a Canon Power-Shot SX110.





May 2010 Treasurer's Report by Don Pullen

| | (Unaudited) | | |
|--------------------|-------------------|-------|----------|
| Cash opening Bala | ance (1 Apr 2010) | \$ 40 |)(|
| Expenses | | \$ | |
| Revenue | | \$ 1 | Ľ |
| Closing Balance (3 | 80 Apr 2010) | \$ 42 | <u>,</u> |

5 4037.16 0.00 5 172.90 5 4210.06

Notes:

1. Major revenue sources included: 50/50 (\$42.90), Memberships (\$110), Donation (\$20)

This Month's Masthead Photo: Comet Wild 2 (81P) taken by Bob Christmas on April 12 from the dark skies of Spectacle Lake, east of Algonquin Park. Camera: Canon Digital Rebel 300D Lens: Tamron 300mm f/2.8 telephoto Settings: f/2.8, ISO 1600 Exposures: (5 X 101 seconds) + (10 X 97 seconds) = 24 minutes 35 seconds total. Member of the Month: Mario Carr by John Gauvreau



Each month I have the great pleasure of giving a brief presentation at our monthly meetings. Being up at the front of the room has meant that many of you have gotten to know me, and one of the great benefits of doing this task has been that I have gotten to know many of you as well. Of course, there are many other members that work behind the scenes to keep the club running; members that you may not recognize, but that you would enjoy knowing.

As our club's current publicity director, Mario Carr is one of the unsung heroes of the HAA. Although I met him a number of times before we served on council together, I have really come to know him better these past couple of years and that has been a great pleasure. Of course, considering Mario's long history in amateur astronomy, it's amazing that we hadn't met before!

Like many current amateurs, Mario's fascination with all things space began in the 1960's when two wondrous things appeared nearly simultaneously on his television; the Apollo missions to the Moon, and Star Trek! Mario is in good company here, for many current space scientist and astronauts give those very same reasons for getting in to the field. Mario's father worked at the Hamilton Spectator at the time, and brought home an Apollo press kit for his enthusiastic son. Each step of the mission was duly recreated in Mario's home using the components of the kit. Mario says, "From launch to the return of the astronauts, I was glued to the television. I precisely marked every stage of the spacecraft's progress with the miniature Apollo cardboard cutout on the fold out chart included in the kit." Yes, Mario was hooked for life.

Mario went to McMaster and studied physics, wanting to get into science writing. In the end though, he following in his father's footsteps and went into the newspaper business. Mario has worked as a reporter, in publicity, promotion and has even published his own financial newspaper. Further endeavors in the communication field have led him to a variety of exciting vocational experiences.

All the while, of course, his love of astronomy was there. While in Toronto, he joined the Toronto Center of the RASC, and started going to Starfest in the 1990's. This is the largest gathering of amateur astronomers in Canada, and a worthwhile festival celebrating all things space for any enthusiast! Mario and I both would encourage you to attend this August.

Since joining the HAA, Mario has found himself to be mostly an armchair astronomer. One of the great things about our club is that so many different ways to enjoy our hobby are demonstrated by the various members. Mario doesn't have a telescope, but does a little binocular observing. Personal favourites include the summertime classic, the Trifid Nebula (M20) and of course, Jupiter. "It always amazed me how much the moons orbiting Jupiter resembled a miniature solar system. Their precise and predictable orbits started long before I was born and will continue long after I'm gone." One thing that has put Mario at ease in the role of armchair astronomer was weak eyesight. Contrary to the rest of us though, Mario's sight seems to be improving with age. Years from now, I'm sure Mario will be outdoing us all at the eyepiece!

Last year, when I suggested reviving the Cosmology Discussion Group, one of the people whose opinion I sought was Mario. He was not only encouraging, but full of helpful ideas to get the project going. With two meetings now under our belts, Mario has been an enthusiastic supporter, for which I am very grateful. Even better though, as we were talking, Mario immediately put forth his own idea to have an in-club Book Discussion Group. Exploring every-

Member of the Month: Mario Carr (continued)

thing from the latest frontiers of astronomy, to the classic space literature of the past, this group alternates months with the Cosmology group. With Mario as host it is no surprise that the group is friendly, comfortable, and full of sparkling ideas and discussion. If you are an armchair astronomer too (or if you just need a break from the eyepiece) you owe it to yourself to participate in this fun offering from the club.

As our publicity director, Mario has put his expertise and experience to work for us. The recent crop of newspaper articles and photographs, as well as the television appearances, are thanks to him. We all know that we have one of the best astronomy clubs to be found, and now Mario is making sure that the rest of the world knows it too. In the end though, what the club benefits from most by having Mario as a member is something that we all relate to, a word that you hear from so many people when talking about this hobby: passion! Now that you know a little about Mario, I'm sure that you may have some stories of your own to share. Take the time to talk to him and share your passion for astronomy too.



Astronomy Crossword Puzzle by Mario Carr

| Across | |
|--------|--|
|--------|--|

- 1. Follow an arc to
- 3. This author can see in the dark
- 6. Discovered Neptune
- 10. Event
- 12. This nebulae is not for weaklings
- 15. Herschel had one 40 feet long
- 17. A type of cloud
- 19. Comet
- 20. These two people have the same last name. One was a famous doctor and the other boldly went where no other man has gone before.

Down

- 2. Drive a spike to
- 4. Buffalo astrophotographer
- 5. A galaxy named after this washing machine
- 7. April's meteor shower
- 8. Speedy Gonzales likes this galaxy
- 9. Astronomical measurement
- 11. Sun
- 13. Astrophysicists and rocker
- 14. An asteroid
- 16. The apparent path of the Sun
- 18. Spring constellation





Every now and then a news story spreads like wildfire.

"The end of the world" predictions are the fastest spreaders, especially if in addition to 'how' they say 'when'. It does not matter how credible the source is, people have a fascination and spread them widely.

Just yesterday I was asked about '2012' and my opinion on whether the world will end then. I said we cannot even guess what politicians are going to do. How can we predict something so contingent as a natural disaster with precision?

Well, not long ago, people were thinking in more concrete terms about it.

Briefly famous because it was for a time relatively likely to collide with the Earth in 2028, 99942 Apophis is now just another Near Earth Asteroid, but it will come very close to the Earth nonetheless.

Asteroids continue to be discovered almost daily, and the number on Apophis is a clue as to their rate of discovery.

As is the case in many science stories, the account of whom knew what and when is as important as the conclusion.

I will gloss over the exact details of the story, which can be found here:

http://en.wikipedia.org/wiki/9994 2_Apophis

but suffice it to say that at one point the story was being spread that there was a 1 in 37 chance that Apophis would strike the earth in 2029.

That's just remote enough in time to capture the imagination of people who would otherwise be discouraged by news that the Sun will cook the earth in about 5 billion years.

Apophis was discovered in photos taken by the Minor Planet Center.

Once an estimate of Apophis' orbit was made, the archives could be searched for other photos taken which should include it. Careful measurement of its location in those photos provides better data for orbit estimation. Photos up to 8 months before discovery were used to refine the orbit further.

"Recovery" is when you find an object with an estimated orbit, that has for example become visible again after being behind the sun for a time. This often happens with comets. There is an interesting Wiki article which sums up the concept very nicely: http://en.wikipedia.org/wiki/Prec

http://en.wikipedia.org/wiki/Prec overy

To sum it up not so nice, "Precovery" is when archived photos are searched to determine if an image of a freshly discovered object might be on one of them. Having observations that are widely separated in time allows a very precise determination of an object's orbit.

Of course, this is done usually only for 'important' objects which have a chance to impact the Earth for instance.

Since the search can take a while, and new information about a freshly discovered object only extends the timebase by one day per day, it's possible for estimates of impact probability to vary widely as the orbit is refined.

Here's a diagram from Wikipedia showing why the probability of impact can increase then decrease, as the orbit is further refined.



As the projection of Apophis' orbit onto earth's orbit gets more refined the region of uncertainty shrinks. As long as earth is still in the region, the probability of collision increases. As the region shrinks to no longer include the Earth, the probability plummets.

Never to say never, scientists still consider Apophis to have a 1 in a million or so chance of hitting the earth sometime in this century.

Russia is considering launching a space probe to Apophis for the purpose of testing orbit changing technology, in part because the impact area expected might include Russian real-estate.

Back of the envelope, an impact of an object this large would devastate an area about a hundred kilometers in radius, although the crater would probably only be about 10 km in diameter.

Falling fragments and thermal blast would be pretty intolerable; Apophis is estimated to pack a wallop of about 500 megatons. By comparison, Mount St Helens was a blast of about 1 Megaton (but was accompanied by other geological effects which magnified its effect on the region).

There's a mission, colourfully named Don Quixote, planned to do

Dwarf Planet of the Month: Apophis (continued)

an asteroid rendezvous and to assess the changes in trajectory of the asteroid as a result of the impact. As you may know, Don Quixote attacked windmills thinking they were giants. Well, this mission is a bit similar, in that the impactor will have only a miniscule effect on the orbit of the asteroid. One of the targets being considered is Apophis, and the other is Amor asteroid 2003 SM84.

Apophis is a small asteroid, about 400 meters in diameter, give or take.

In the year 2036, if you happen to be in Africa or Asia, you will be on the right side of the earth to see it whiz past and appear as a magnitude 3.3 object, moving more than a degree per minute. (Or perhaps, you might want to be on the other side of the earth) Moreover, the date will be Friday the 13th of April. Go figure. Apollo 13 flaunted 13's, launched at 13:13 p.m., etc., and you know what that got them...

Coincidence? You explain it. There will be an HAA meeting that evening.



Shuffle Off to Buffalo by Don Pullen



While the title may be an old cliché, that's almost exactly what I did on April 9 on behalf of the HAA. But the trip actually started almost a year earlier.

Last year at Cherry Springs Star Party, one of the presenters was Alan Friedman. I and several of the HAA members who were there, really enjoyed his presentation about astro-imaging. After he was finished, I approached him about the possibility of coming to Hamilton to speak to the HAA. He was eager to do so, but that's where the idea stayed for about 6 months.

As your HAA council was working out plans for the spring meetings, Alan's name came up again so I contacted him to see if we could figure out a date that would be convenient for all. He suggested an exchange - one of our members would go to Buffalo, at the same time he came here. While it wasn't part of the original plan, I found out with one week's notice that I would be the HAA representative to go to Buffalo. What to talk about, and be able to prepare it in less than a week? Since this was intended to be in part, a cultural exchange, I wanted to talk about the HAA (plus I always enjoy a chance to brag about our club). And since I wanted to impart some "meat", I chose to talk about Space Science. So with 2 presentations rather quickly prepared, I was ready to go.

The trip down was fairly uneventful except for some light, late spring snowfall - after all, it is Buffalo we're talking about. As arranged, I met several members of the Buffalo Astronomical Association (BAA) at a restaurant named Pano's. It was located about 2 blocks from Buffalo State College (BSC) where the meeting was being held and where I would be giving my presentation. My primary contact was Mike Anzalone, one the BAA's councillors. I also had the pleasure of Janice Gardner, their VP; and another member Jack, a retired astronomy professor from BSC and his wife.

After an enjoyable dinner and excellent conversation, we made our way to the large lecture classroom where the meeting was being held. The room is capable of holding about 150 so it seemed a bit empty with the 40 or so members in attendance. But they had excellent equipment for audio and video.

After some initial opening remarks about recent events, some club business and introductions, my time came to either sink or swim.

I started with the HAA: our club history, our organization and the many activities we do as a club and our outreach to the public and cubs/scouts and guides. I also showed off some of our HAA-wear and was resplendent, sporting an HAA T-shirt. Judging from the positive

Shuffle Off to Buffalo (continued)

comments, I suspect we'll be seeing some BAA clothing at future star parties.

After my "club" talk, we took a short break for coffee and I had a chance to speak with some of the members. During this time, they had an opportunity to get copies of the EH and club brochures, and browse some of our HAA Calendars I had brought along. The notes for my second presentation were nearby and they got snatched up in their enthusiasm. Fortunately I was able to retrieve them from 2 of the BAA members. And so the Space Science presentation was able to proceed without further incident.

I really enjoyed my trip and presentation to the BAA. They are very similar to the HAA, particularly in their love for public outreach. They do have better community connections and access to more financial and physical resources then we do, but generally they are very similar in size, organization and mandate.

BAA is tied into the Buffalo State College and also has a close affiliation with the Buffalo Museum of Science which has several rooftop observatories. They hold a lot of events there during museum hours and get great turnouts. They also have 2 observatories outside of town in darker locations, though one is in the process of being shut down in favour of the 2nd. Outside of their bi-week-ly public nights, members can book the observatory for a night or a weekend to hold mini star parties. They are also starting a major fundraising campaign to upgrade the remaining observatory. Their goal is to raise \$25,000

to complete the repairs, upgrades and equipment improvements.



My hope is that we'll be able to do some more joint projects with the BAA in the future. We have an informal invitation to come down for one of their star parties at the observatory, and I extended an invite to them to observe at Binbrook with us some time. I had shown them Kerry's picture from Binbrook and many were enamoured with the location.

I also hope we'll be able to do some more exchanges with astronomy clubs in the area. It's a great way to learn more about our fellow astronomers and get more ideas to make our club even better.

(Photographs courtesy of Don Pullen - Ed.)

April General Meeting Report by Bob Christmas

The April meeting at the Hamilton Spectator auditorium started of with HAA chair Steve Germann taking the floor at 7:30, then Steve made a few announcements of upcoming events, including the activities for Astronomy Day, which were held at Hamilton's McQueston Park two weeks later, The Sky This Season Live, as well as the Messier Marathon.

Steve then introduced the main speaker of the night, Alan Friedman, president of the Buffalo Astronomical Association (www.buffaloastronomy.com). Alan was here in Hamilton to talk to our club, and, as part of a "cultural exchange", the HAA's Don Pullen was in Buffalo, giving his Space Science talk to the BAA.

Alan spoke about his famous imaging and image post-processing techniques for planets, the Moon and the Sun. Throughout, he explained his image acquisition, stacking, and post-processing techniques, and how they differed for imaging the planets, imaging the Moon, and imaging the Sun. While doing so, he showed his beautiful images of Jupiter, Saturn, Mars, craters on the moon, and prominences on the Sun, some of which formed amusing shapes. Many of Alan's images were featured on NASA's Astronomy Picture of the Day (APOD) page, Sky and Telescope, etc. Thanks go to Alan for his highly interesting and informative talk and the accompanying presentation of his awesome images.

You can see Alan's images on his website, www.avertedimagination.com.

Continued on p. 8

April General Meeting Report (continued)

After Alan's talk, there was our usual intermission, which gave people opportunities to chat, look at the Galileo Scope at the front of the room, etc. After the break, Kevin Salwach drew tickets for the door prizes and 50/50 draw.

Up next, filling in for John Gauvreau, yours truly (Bob Christmas) did The Sky This Month for April 2010. In early April, Venus and Mercury were side by side in the western sky right after sunset. I showed the late winter sky and pointed out that April was the "last chance" to see these winter sites until next fall and winter. I did a tour of the spring sky, including Saturn, Mars, M44, M65, M66, NGC 3628, the Virgo Galaxy Cluster, M104, NGC 4565, M51, M101, M81 and M82. While I showed a few of my own deep sky images of some of these sites as a guide, my picture showing also included HAA member Kerry-Ann Lecky Hepburn's stunning close-up image of M81, and I also announced that Kerry's and Stefano Cancelli's collaborative image of the Cone and Fox Fur nebulas was chosen to be NASA's Astronomy Picture of the Day (APOD) just that week. Congrats to Kerry and Stef!



Club Astronomie by Mario Carr

The book club meeting on April 28 to discuss the book *Seeing in the Dark* by Timothy Ferris was small but the quality of the discussion was exceptional.

I learned insights about the book and about astronomy in general that I wouldn't have seen on my own. I think that is because everyone there brought their own unique perspective, knowledge and experiences to the table.

I think it is also by listening to these perspectives and by engaging in dialogue that we can truly grasp a deeper understanding of a book like Ferris's. That being said, this strategy probably can be applied to anything else we endeavor in life.

The meeting was attended by Jim Wamsley, John Gauvreau, Doug Black, and later Joe McArdle. Jackie Fulton wanted to attend but had to work. Ann Tekatch also wanted to attend but sent her regrets as she was under the weather.

A theme that kept emerging in the book was the significant role that amateur astronomers played in the advancement of the science. Even today, amateurs play a significant role.

One of the many examples that Ferris gave on this point, were the contributions by Patrick Moore who made detailed maps of the moon. It was from his detailed maps, while observing, that guided the landing of the Apollo 11 spacecraft to the moon in the 60s.

John admitted that he hadn't read the book in awhile, but after being involved in the discussions, I could see that the interest in the book was starting to peak again as he flipped through the chapters of Jim's book.

By the end of the evening, Doug Black made a proposal that for our next meeting instead of reading a particular book, we should pick a topic and discuss it. The group unanimously agreed that this was a fantastic idea as there wouldn't be a rush at the library for a particular book.

Collectively, we decided that at our next meeting, which will be held on **Saturday June 28 at 7:30 p.m.**, the topic will be: **What inspired you into astronomy?** Your astronomical inspiration can be anything such as a book, article, video, magazine, person or whatever. So, for the next meeting, if it is possible, bring along this inspiration with you and discuss it.

If you would like to attend, please RSVP Mario Carr at <u>mariocarr@cogeco.ca</u>. See you at the next book club meeting.

The electron is a well-characterized particle. One thing that is not known about the electron is its true size. All attempts to measure a finite size have found that it appears to be point like. But even if it is a point, because it has mass it will also have a Schwarzschild radius. That is it could be treated as a very tiny black hole.

So now let's go back to just before the Big Bang. Here is an alternative description of what the universe was like then. Considering that the Schwarzschild radius is inversely proportional to the speed of light squared, if the speed of light was zero, the Schwarzschild radius of every particle would be undefined and perhaps infinite. Then the universe could be thought of as a solid matrix where every particle was a black hole with a Schwarzschild radius of infinite size that encompassed every other particle in the universe. Whether the universe remained in this state for less than an atto-second or more than a googolplex of years will always be unknown and irrelevant, as time did not exist. This early universe had no space outside of the Schwarzschild radius so space as we know it did not exist.

What did exist? Was this timeless blob of particles with no space and yet infinite in size, the universe? Maybe, yes. But why or how did it start to change? This is where quantum physics and a cat come into the picture. In a strange way the universe was carried into the future on the back of Schrodinger's cat through the tunnel of particle-wave duality. Particles can have both wave-like and particle-like properties. If one particle in this early universe were to manifest itself as a wave, it would have caused the formation of a tiny bubble of space. All of the particles in the universe would instantly have their Schwarzschild radii change from infinite to finite. This is the Big Shrink.

Going from infinite to finite is a very big change indeed. This was also the start of time in many ways. Time is that which separates events, and events are change. But the start of time was most importantly caused by a change in space. This is why time can be viewed as dynamic space. The formation of space outside of black holes or particles, is due to mass being converted to an electromagnetic wave which causes space to increase and time to move forward. The start of time caused a cascade of events that resulted in the universe that we see today. Can we prove that this previous interpretation is true? We need a test. If the Schwarzschild radius of all particles is still shrinking, could there be some detectable changes? Perhaps as particles shrink, the nuclei of atoms will become unstable. This might be revealed by the half-life of radioactive elements becoming shorter over billions of years. If so there may be a detectable dispersion in the expected isotope ratios in rocks of greatly different ages. From the astronomy perspective, we may see that the glow of a supernova due to the decay of radioactive nickel might exhibit a more gradual decline the farther back in time we look.

What does the future hold for the universe? As long as energy is released, the mass density of the universe will drop and time will move forward. The Schwarzschild radius of black holes and all particles will continue to shrink. Eventually particles will become so small that only large stars can shine, and ultimately black holes will be the major energy sources. Since the passage of time depends on the release of energy, the far future would appear to us as slowing down. In fact a second is always a second just as the speed of light is a constant. This means that if you were there observing the universe in the far future, even though the stars did not shine, other processes such as the merging of black holes would release energy at the same rate as today. Finally all the black holes would merge and the universe would become a solid matrix where every particle was a black hole with a Schwarzschild radius of infinite size and time would not exist.



Schrodinger's Cat ??



You Might Be an Astronomer by Andrew Bruce (In the style of Jeff Foxwothy's "You Might be a Redneck")

1. If you have ever used averted vision to gaze into your lover's eyes..... You Might be an Amateur Astronomer

2. If you don't own a flashlight which isn't covered with red cellophane..... You Might be an Amateur Astronomer

3. If you decided on which car to buy based on whether your telescope would fit in it..... You Might be an Amateur Astronomer

4. If you stay out observing until four in the morning knowing that you have to be at work for six in the morning...... You Might be an Amateur Astronomer

5. If you missed the sunset because you were taking flats..... You Might be an Amateur Astronomer

6. If you consider a few thousand light years away to be "in the neighborhood"..... You Might be an Amateur Astronomer

7. If you're actually jealous when you hear someone complain about getting "only" two hours of sleep the night before..... You Might be an Amateur Astronomer

8. If you know the entire Greek alphabet, but have never taken a single Greek class..... You Might be an Amateur Astronomer

9. If you consider -3 to be bigger than 9 (or at least brighter)..... You Might be an Amateur Astronomer

10. If you have your own meteorite..... You Might be an Amateur Astronomer

11. If you have ever proposed to your union that sleep deprivation caused by self-inflicted excessive observing, is an acceptable "Sick Leave" excuse... You Might be an Amateur Astronomer

12. If someone mentions Jodie Foster and you think of Eleanor Arroway..... You Might be an Amateur Astronomer

13. If someone mentions APOD the first thing you think of has nothing to do with peas..... You Might be an Amateur Astronomer

14. If you have August 11th, November 17th and December 13th marked down in your calendar as important dates but forgot to mark down your spouse's birthday..... You Might be an Amateur Astronomer

15. If you know which moon in the solar system resembles the Death Star... You Might be an Amateur Astronomer

16. If you've ever thought of 1000 years to be quick...... You Might be an Amateur Astronomer

17. If you know more than the person giving the planetarium show..... You Might be an Amateur Astronomer

18. If you stay up until three in the morning on a cloudy night, because you actually saw a star at 11:00..... You Might be an Amateur Astronomer

19. If you have ever been warned about sending threatening letters to the Weather Network...... You Might be an Amateur Astronomer

20. If you can pronounce Betelgeuse, Uranus, Charon, and Cassiopeia at least two different ways each..... You Might be an Amateur Astronomer

21. If you've ever scorned someone for saying "hey, aren't you into all that astrology stuff?"..... You Might be an Amateur Astronomer

22. If you can relate to any of the points on this list.....you might be a Hamilton Amateur Astronomer!!!!





Astronomy in New Zealand and Australia in March 2010 by Mike Jefferson

During the month of March, 2010, my friend Jean and I took an incredible vacation in New Zealand and Australia. The pretext for this visit was my nephew's marriage to a 'Kiwi' whom he followed there from his construction work in Australia. A few years back he had worked in the same capacity in Kitchener and Waterloo, ON. The interest in visiting Australia took him over there and led to his engagement and marriage at Ohope (New Zealand) Golf Club on March 06 of this year.

It did not make sense for Jean and I to go all that way for one week, so we made a tour of it over the next 3 weeks. My sister (the groom's mother), her husband and two close friends went their own way, after the wedding, for the next 3 weeks, also.

Visiting the Southern Hemisphere puts an amateur astronomer in mind of exploring what those skies have to offer. So...some astronomical components were built, by me, into what land, NZ. Our luxurious 'bed and

was a general-purpose tour. I had intended to present this as a talk and slide show to HAA. However, our administration advised me that I would not have enough time between now and January of 2011 to cover both countries' skies, Therefore, it is being presented as an Event Horizon article and also visual materials on the back table of the Hamilton Spectator Auditorium. Ask me questions and discuss anything about the trip that interests you @ 1/2 time or at the end of the general meeting (May 14/2010). I can also be reached by telephone (905-648-8919) and email (h_aa_2010@hotmail.com) if you have later questions or are planning your own expedition there.

With that preamble said, I'll highlight the astronomical aspects in chronological order.

1) After arriving at Aukland Airport (North Island, NZ), we drove to Whakatane, near Ohope, North Isbreakfast' just happened to be very close to an amateur observatory the Whakatane Astronomical Society!! It hosts 2 nights/week for public observing. Unfortunately, both evenings were clouded out. So, we missed out on that experience. However, that club had two completed buildings and a third under construction. Evidently, that group is a going concern!

2) From Whakatane was the first time I had ever seen the Magellanic Clouds - an amazing experience that I witnessed from the front patio and driveway of our B&B! They looked like patches of mist in very black skies and were amazing sights in small binoculars!

3) After we had joined the tour (back in Aukland), the next astronomical opportunity did not come until we flew to the South Island. This was at our hotel, "The Hermitage", where we overnighted near Mount Cook. Rushing among getting

Astronomy in New Zealand and Australia (continued)

pictures of Mount Cook as the sun set these days, being open only at seand missing the hotel's planetarium show (because it conflicted with dinner), I did manage to get involved with the astronomical public night at the local airport, about 5 minutes by hotel bus from our lodging. This facility (air & heli port) was a daytime operation only and was pitch-black at night. I was able to view, Sirius, Orion (upside-down, until you face south and look back over your shoulder to find it rightside-up, again!), the Beehive Cluster and others (from the northern hemisphere), Omega Centauri, the Magellanic Clouds (again), the Southern Cross, Rigil Kentaurus, Hadar, Centaurus A and the Coal Sack - all come to mind. Obviously, the zodiacal constellations are visible from both hemispheres, as these are in all mythology from around the planet. The astronomical tour guide was most helpful as he provided me the opportunity to set up my camera and tripod on top of one of his equipment carts for doing photography and gave me lots of suggestions!

4) The next day, we saw Mount John (University of Canterbury, Canterbury, NZ) Observatory (NZ's premier astronomical research observatory) way up on a mountain top about one hour after we left Mount Cook. Unfortunately, it was not on our schedule! Being a research institution, it probably does not host public visitations and its website does not indicate such. As of June 2008, it discovered what is at the time the smallest planet known outside of our solar system. The planet MOA-2007-BLG-192Lb is 3.3 times the size of Earth and is orbiting a small star, MOA-2007-BLG-192L at ~3,000 light vears from Earth.

5) Next, our tour took us to Australia, first to Sydney and then to Melbourne, where we were able to see the Old Melbourne Observatory from the the Botanic Gardens of Australia. There is a description of it and its history on its website. However, it seems that it is a bit of an 'ornament'

lected times for shows and exhibitions during the year, with the botanical gardens running it. It seems that the horticultural aspects of the place take precedence these days. It is, after all, in downtown Melbourne!

6) We flew out of Melbourne to Alice Springs in the 'outback'. What appeared to be an observatory of many large domes from the airplane, as it landed at Alice Springs, was actually an American military satellite tracking station. Our bus driver later told me that we'd never get anywhere near it - obviously running under a cloak of secrecy!

7) Our bus carried us safely to Uluru, popularly known to all astrophotographers, and others, as Ayer's Rock. It is probably going to be 'returned' to "Uluru", the original name of this indigenous 'holy place'. Uluru is one of three very interesting, large rock formations in that part of Australia. As you approach the Uluru area in a vehicle, the first of these formations seen is a monolithic, truncated mountain. It has probably been glaciated once. Travel operators have mistakenly told their passengers that this one is Uluru - it is not! The second, called The Olgas-Kata Tjuta, which we climbed partially on the Walpa Gorge walk, is a series of domes, rocks and boulders that appear to have been crushed together during a second glaciation (like a huge pile of cobblestones). The Valley of the Winds Walk around it is probably the best hike in the whole of Uluru-Kata Tjuta National Park! The third, Uluru, is also a monolithic structure and glaciated only once. How two of these were glaciated once and one of them, twice, is a geological mystery. There is also some evidence that all three are connected deep underground.

It was from this location that Jean and I experienced "The Sounds of Silence". This was a gastronomic-cultural-astronomical presentation put on in the outdoors of the dessert,

several miles away from Uluru by the hotels in the area. One of the local cattle drovers started the presentation with several solos on the indigenous instrument, the digeri-doo, which you probably know as the producer of mellow base tones and notes. This was followed by our banquet at tables with white linens and cloth napkins! As the eating progressed, the stars, Moon and light clouds appeared. Many of the sights of the southern skies became visible and an 'observing director' began to point interesting things out to us! He had set up several telescopes with which to view the planets, Mars and Saturn. Video monitors showed Hubble and other large telescope photos. However, Moon and light cloud made deep sky observing less than ideal. As it goes with the northern hemisphere, so it goes with the southern - weather patterns are a problem for astronomers anywhere on this planet.

8) The Australian outback soil is red and contains much iron oxide, like the surface of Mars. Many of its 'rivers' are simply damp or dry beds, until there is a heavy downpour, when they come alive with water! Would this be a good model for analysis of the Martian conditions - temporary planetary warming and flash floods, both bringing 'riverbeds' 'alive' and creating similar conditions?? It is an interesting thought which came to mind while we were on the trip.

Finally, some caveats about travel and astronomical endeavours south and south-of-the-equator:

1) Uluru (formerly known as Ayer's Rock) has been and is a 'mecca' for photographers and astrophotographers, alike. Recognize that it is in the 'outback' of Australia and is very hot and sunny much of the year. Travel is long and arduous (Australia is as large as the continental United States), so allow yourself plenty of time for any astrophotography expedition. The flies are a nuisance dur-

Astronomy in New Zealand and Australia (continued)

ing the day. They don't bite but they do annoy. We did not use them but repellants would be advisable at least part of the time. Uluru is an aboriginal mythological 'holy' place. The National Parks still allow visitors to climb it on the designated, handrailed trail; but the indigenous people would prefer that you did not. Please restrain your desire to do so. Incidently, it has claimed 35 lives + injuries over recent years! If, once you start to roll down its very steep sides, there will be no stopping yourself and the height is at least 350 vertical feet (Australia and New Zealand have VERY HIGH terrain!)! There is a walk around it of ~11km. It can be accomplished (+ picturetaking) in ~2.5 hours and no one has any problem with you doing that. This National Park will charge you a fee of Au\$25.00 to enter this park and may not let you in after dark. So, any astrophotography activity may have to be carried out near the park perimeter or elsewhere in the nearby outback. Hats are very advisable during the day! Tilleys, fedoras, baseball caps, women's sun hats, Aussie bush hats and cowboy hats are very common.

2) I saw the blackest skies I have ever seen in Costa Rica 5 years ago when my nephew's sister got married there (I guess this family likes to 'tie the knot' in faraway places!!). The Moon, Saturn, Jupiter, M-31 and M- 33 were gorgeous! However, water vapour blocked out many of the fainter deepsky objects. You need to be prepared for that possibility - ie. getting a 'solar system' atmosphere instead. The sky in either hemisphere isn't going to arrange itself just to suit your vacation.

3) The southern sky does not mean perfect conditions all year long! You will be dealing with clouds, weather and the lunar cycle just as we do in the northern hemisphere!

4) Make sure your powered alt-az or equatorial mount will run in the opposite direction as well! You are now BELOW the equator! Most DC equipment will; and there are optional, reverse-windings AC motors available for the better brands of telescopes and mounts. Recognize too, that you will be allowed only one large bag and one 'carry-on' for all flights in continental Australia and New Zealand. Tripods, telescopes, heavy cameras and equatorial mounts will cost you extra. If you are on an astrophotography or eclipse expedition, this may seem reasonable for you. However, there is no margin for large amounts of specialized equipment on general-purpose tours. Buses do not have the room. In that case you will probably be driving yourself and you will be ON THE OTHER SIDE OF THE ROAD IN BOTH COUNTRIES! 'Small, compact and

multi-purpose' equipment is what you will need.

We went with the following: Leica 8X20 folding mini-binoculars (great for flora, fauna, scenery, opera and astronomy); Canon Power Shot SX120 IS digital (digital with multi built-in functions and focal lengths - does almost everything well or fairly well); small AA Maglite with red filter; remote cable release (found to be useless later during the trip, as the camera has no provision for such an attachment - I found that out after we left home.); 20 mw Beta Laser pointer; "Peterson Field Guide to the Stars and Planets"; and an 8 inch (extendable-to-12") mini-tripod. Since we could have only one piece of carry-on baggage, that ruled out dedicated camera bags since we needed raingear and other travelling sundries at hand. The above astronomical equipment stowed perfectly with other travel necessities in a backpack. Keep in mind, too, that both countries run on 240 volts and have their own dedicated-style plugs, in case you need to attach your equipment directly to alternating current.

All in all, it was the trip of a lifetime and we'd certainly do it again. If you get the opportunity, do not pass it up!



For Sale:

8" (203 mm) Meade S.C.T. , focal length 2000 mm, yoke mount, clock drive, red dot finder, illuminated setting circles and a dew shield but no tripod. (I can make an adapter to fit most standard tripods and piers.) \$600.00 or best offer. Alternatively, I need 3-2" eyepieces, a 2"--2x barlow, a 2" mirror diagonal and 5-2" lunar & planetary filters. I will trade the telescope for items of equal value.

Please contact Harvey Garden at 905-692-4595.

The Sky This Month May 2010 by John Gauvreau

The month of May is a delightful, teasing time of year. Although April, and even March, bring the occasional hot day, and even the odd mild night, it is the month of May that brings us consistently warm temperatures, and with them the lure of an evening out under the night sky. At last, we can comfortably head out of the city, to our favourite dark sky site, and stay as long as we like without worrying about frost on the telescope lens, or our noses. But May also means that those evenings start much later. We have been in the midst of Daylight Savings Time for a while now, but we can really start to see the days getting long, and the nights getting short. Even now, at the beginning of May, it doesn't get dark until after 9pm. Oh, that tease of a month, May lures us out to the night, and then takes so much of it away!

Still, there are plenty of dark hours to enjoy the spring constellations of Leo, Bootes, Cancer, Virgo and Hercules. Just a few nights ago I had my first look of the season at M13, the great globular cluster in Hercules. It was at last up high enough to enjoy a clear view, and its impressive size and majesty again delighted me, as it has for decades. The great galaxies of Virgo and Coma Berenices will keep a telescopic observer busy all night, and the sight of the Summer Triangle rising in the east is a reminder that there are many more months of warm observing nights to come.

May of 2010 brings to us a sky full of not just these perennial wonders, but a host of planetary sights as well. **Venus** dominates the early evening sky, as it has now climbed high enough in the west to be observable for two full hours after sunset. It is currently a gibbous phase, and during its well-timed visit this year, we can watch it pass through all the phases until, as a crescent, it disappears from out sky in September. At magnitude -4, it is about 10 times brighter than its nearest nocturnal rival, Sirius, the brightest star in the sky (Venus, of course, is a planet). Try looking for Venus a little earlier each night, remembering where it was in the sky the night before, until you can spot it in the twilight of dusk. Use a terrestrial landmark, like a tree or the neighbours' chimney, to help you locate the right part of the sky for Venus. With some practice, you can actually see Venus before the Sun sets; it's that bright! Give it a try and let me know how you make out. I've done it, and although it's very challenging to locate Venus in the clear blue sky of day, once you find it, you'll be amazed at how clearly it shows. Telescope observers might actually find that the view is better during the day, since the glare of this dazzling planet is so greatly reduced. Of course, always be very careful to keep you scope pointed away from the Sun!

The yin to Venus's yang, the dark to its light, the celestial counterpart to Venus's mythological luminance, is Mars. As Venus is the closest planet to Earth in one direction, Mars is closest in the other direction. We, on the good Earth, are sandwiched between them on space, and we find that reflected our sky now too. As you stand and look at both Venus and Mars in one sweeping glance, try to visualize the great three dimensional celestial structure that you are part of. See those lines of the planetary orbits, not just on a map, but in the sky. Mars is still high in the sky, between the constellations of Cancer and Leo. Although small in the telescope, it is certainly worth a look since it provides a strong visual contrast to Venus. As it travels along its path though our sky, and wanders from Cancer to Leo, it will eventually come to Regulus, the brightest star in Leo at the base of the sickle. Just before we meet again, in early June, the two will converge. At their closest on June 6th and 7th, Mars will pass less than a degree from Regulus. For those that watched Mars pass M44, the Beehive Cluster, last month, this will be a lovely companion pairing. They will both fit into a telescopic field of view, but I think the best view will be with the unaided eye. As Mars passes the great star, each night during those first two weeks of June will provide you with an opportunity to keep track of the planet's motion, and actually observe a planet move in its orbit! During those few days when Mars and Regulus are closest, the nightly motion will be very obvious. For an even greater challenge, try comparing not just colour, but brightness. There is only a fifth of a magnitude difference between the two. Can you tell which is brighter? Let me know how they look to you, and we can compare observations.

The Sky This Month: May (continued) Leo Minor Saturn Mars Regulus Corvus Cancer^{Praesepe} Crater

At their closest on June 6th and 7th, Mars will pass less than a degree from Regulus.

Saturn is, of course, the showpiece of the sky. As uninteresting as Mars is through the telescope this month, Saturn makes up for it and then some. Located in Virgo, but easily spotted beneath the eastern end of Leo, Saturn will give us just two more months to observe its beauty. The rings are currently tipped 1.7 degrees from edge on, and so continue to look very thin, but by the end of the month they will begin to open up. Who can see the Cassini division at the ring's ansae? (The ansae are the outermost, end parts of the rings, as seen from Earth, and the place where the dark gap of the Cassini division is easiest to see). Saturn is high and easy to see, so soak in all you can of this wondrous planet, for you'll miss it when its gone later this summer.

The **Moon** is full on the 27th, for those that would like to go out to watch the full Moon rise, but a week earlier, on the 20th, the Moon is at First Quarter. On that night, and the couple of nights before and after quarter, is when the Moon's terminator shows us the most detail. Don't shy away from moonlit nights; it is still the closest celestial object to us, and the one that shows us the most detail. Think of what you would give to have just one night when you could observe Ganymede, or Titan, or Europe with the detail that you can see on the Moon. The impact craters, mountains, valleys and lava flows of another world are waiting for you to discover them. At this time of year, when so many of us are notching up another deep sky object from the Messier list, or the Virgo galaxy cluster, how about notching up another crater on the moon? You know how close a binary you can separate in your telescope; how small a feature can you identify on the Moon? At the risk of sounding like a tourist ad, see something you've never seen before right in your own backyard. Let me know what you have observed on the Moon that

you have never observed before.

The **Eta Aquarid meteor shower** is just past its peak, but it is a shower that lingers, and you can still catch some latecomers for the next week or so. They are tough to catch, since they are not plentiful to begin with, look better from the southern hemisphere than the north, and peak each night just before dawn, but if you do see one (and you can tell it's an Eta Aquarid and not a sporadic meteor because it will seem to come from the direction of the constellation Aquarius) it is well worth it. Like most meteor showers, these are the leftover debris from a passing comet, and in this case a very famous one. The Eta Aquarids are from Halley's Comet! If you didn't see the comet itself in 1986, and don't want to wait until its next appearance in 2061, you have a chance each year to see at least a small piece of it, as it shoots through our atmosphere and appears as an Eta Aquarid meteor!

Go now, and soak in those warm spring nights. Listen to the spring peeper frogs' serenade you as you dance around the night sky, Fred Schaaf, in his lovely book, *A Year of the Stars*, reminds us that Carl Sagan referred to a "meadow in the middle of the sky". Carl meant the Earth, hanging in the dark of space, but Fred found the phrase particularly fitting for these May evenings, when an amateur astronomer might be found out in a field of fresh spring grass, looking up at a field of stars, or even galaxies. A meadow in the sky, indeed.

As always, comments, observations, reports, drawings or photographs are welcomed and encouraged. Share with your club members by emailing me at observing@amateurastronomy.org .

A Truly Great Club by Harvey Garden

Some years ago, I saw an item in the Hamilton Spectator mentioning an astronomy club that had a large telescope set up in their observatory located in Flamborough, with a telephone number to call if the reader was interested in joining. Finally, I had found a path to a hobby I have wanted to do for many decades. I made the call, paid my fees and joined the club. I could hardly wait for my first astronomy meeting. It finally arrived. As the meeting progressed, I realized I had no idea what the members were talking about. It could have been Greek for all I knew. I weathered it out for a year then decided I'm not getting anywhere here, I'll have to find another club that would help me. Did I say that I was as green as grass? Unfortunately the club I had joined, with its seemingly well-weathered members, had no time for me. I searched the phone book looking for another club, but to no avail. Wait a minute, I'll go to see Roger at Camtech. I had purchased my first scope from him about half a year earlier. Roger couldn't think of another club in the area, but he looked in an old Sky and Telescope magazine and gave me a phone number of a fellow in Hamilton that was a contact person for a club. It turns out this fellow was a former HAA member and the rest is history.

I now have 7 telescopes, 5 binoculars, 1 binocular box, and an observatory that had a flip open roof to house my first telescope, (a 4" Maksutov-Cassegrain Goto), but has since been renovated with a rotating top to house my new 8" Schmidt-Cassegrain (also a Goto). A number of telescope piers also belong to my inventory that are used at home and at our place at Rice Lake, which has Very Dark skies like our skies were when we moved to Binbrook over 30 years ago. Oh, by the way, home is approximately 2km south of the Binbrook Conservation entrance. Ironic isn't this? I've been living within a stone's throw of HAA's prime viewing site all this time. Obviously fate does work.

I cannot say enough about the benefits of being a member of the HAA. It's the BEST. Lots of good information given, excellent help for new members, excellent speakers both in-house and guest, great comradery and where else would a person go to have company while freezing your butt off? I will be submitting some pictures of my homemade and retrofitted pieces of equipment in future EH issues.

IF... I find some extra time, I may get into amateur rockets. Who knows? I might be able to build one.

Yeah.....right!!!







UPCOMING EVENTS

June 5 Cosmology Discussion Group Meeting - contact John Gauvreau for details (observing@ amateurastronomy.org).

June 10-13 Cherry Springs Star Party, Cherry Springs State Park, Pennsylvania. See <u>http://www.astrohbg.org/CSSP/Information.html</u> for details and registration.

June 18 *Note change in date* - General Meeting, Hamilton Spectator Building., 7:30 pm. Speaker is Peter Brown of the University of Western Ontario

2009-2010 Council

Steve Germann

Chair

Second Chair Jackie Fulton Treasurer Don Pullen Membership Director Jim Wamsley Observing Director John Gauvreau

Event Horizon Editor Ann Tekatch

Webmaster Bob Christmas

Recorder Mike Jefferson

Secretary Wayne Stansfield

Public Education Mario Carr

Councillors at Large Brenda Frederick Ray Badgerow Harvey Garden Andrew Bruce Darrell Maude Joe McArdle

Observing site for the HAA provided with the generous support of the **Binbrook Conservation Area** Come observing with the HAA and see what a great location this is for stargazing, a family day or an outdoor function. Please consider purchasing a season's pass for \$70 to help support the park. <u>http://www.npca.ca/conservationareas/binbrook/</u> 905-692-3228 Domain name and web hosting for the Hamilton Amateur Astronomers club supplied by Axess Communications Corporate and Residential DSL and Web Hosting www.axess.com Support@axess.com

Contact Us

Hamilton Amateur Astronomers PO Box 65578 Dundas, ON L9H 6Y6

www.amateurastronomy.org

General Inquiries: secretary @amateurastronomy.org

Membership: membership@amateurastronomy.org

Meeting Inquiries: chair@amateurastronomy.org

Public Events: publicity@amateurastronomy.org

Observing Inquiries: observing@amateurastronomy.org

Newsletter: editor@amateurastronomy.org

