

Volume 15, Issue 8

November 2008

HAMILTON
AMATEUR
ASTRONOMERS



Event Horizon

15th Anniversary Dinner

By Don Pullen



On Friday, Oct 17, 2008, 52 members and friends of the HAA met for dinner to celebrate our 15th Anniversary at the Mandarin in Hamilton.

Jim Wamsley and Don Pullen welcomed everyone as they arrived and were each given a door prize ticket. At 7:30, club chair Mike Spicer opened the evening with some welcoming remarks. Then we dove into the sumptuous buffet, choosing amongst shrimp, crabs legs, vegetables of all

(Continued on page 2)

From The Editor's Desk

The season of ghosts and goblins and things that go bump in the night has passed and now we enter into a period of mixed blessing for amateur astronomers.

This is that time of the year when the winter constellations hove into view along with some of the best seeing conditions of the year.

Unfortunately, it is also a time of intense cold, dewy optics and night after night of cloudy weather. It is a good time to use those cloudy nights to do maintenance on your equipment and to get ready for the next clear night.

It is also a good time to read up on your hobby and perhaps learn something that will add to the enjoyment of your hobby.

I hope you enjoy this issue of the Event Horizon. There have been a few changes to the graphics and layout of the newsletter with more to come in the future. Any comments are appreciated.

Tim Philp, Editor



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HAA 15th Anniversary Dinner Highlights

By Don Pullen (Continued from Front Page)

sorts and many other delicious items.

After everyone had their fill, and coffee and tea had been served, the main festivities began. With the help of Brenda Frederick and Alexandra Tekatch, door prizes were drawn. Ray Kahn was present to help draw the binoculars he donated to the event which were won by the Hepburns. Then a laser pointer donated by Camtech (through Roger Burrough and Steve Kinsella) was drawn. Brenda generously made up a number of gift baskets

and bundles with useful items such as hot chocolate, hand and feet warmers, etc which were

drawn. Alex, all dressed up, did her usual great job of announc-



ing the winning numbers.

Mike handed out some books he graciously donated to several

members to recognize their contributions to the club. These included Jim Wamsley, Ray Badgerow, John Gauvreau, Gary Krevenky, Darrell Maude, Alexandra Tekatch and Tim Harpur.

Ann Tekatch read a letter from Grant Dixon, one of our club's founding members, who is now residing in Nova Scotia. While distant and regretting he couldn't join us, he expressed his continuing fondness and admiration for the club and congratulated us on our 15 years.

As an aside, for those that might be interested, the founding members included:

(Continued on page 4)



Treasurer's Report— By Don Pullen

(Unaudited)

Cash opening Balance (1 Oct 2008)	\$ 3783.58
Expenses	\$ 2029.05
Revenue	\$ 2004.58
Closing Balance (31 Oct 2008)	\$ 3759.11

Notes:

Major expenses included: Oct EH printing (\$70.63), Postage and Mailbox (\$149.88), Brochure Printing (\$14.20), 15th Anniversary dinner (\$1794.34)

Major revenue sources included: Memberships (\$810.00), 15h Anniversary dinner ticket sales (\$1121.00), 50/50 (\$40.00), Coffee Fund (\$27.58), Donation (\$6.00)

15th Anniversary Dinner: Revenue (\$1489.00), Expenses (\$1794.34), Net cost (\$305.34)



From the Chair

by Steve Germann

With the start of November, and this issue of the EH, I start my new role in the club, as Chairman of the HAA council.

The support I have received from other councillors and also the potential speakers for our upcoming meetings has been gratifying. It's an honour and a privilege to serve you as Chairman this year.

I would like to recount a bit of my astro-history, by way of introduction. I am an engineer by trade, electronics and embedded software at first, now more into application software. I graduated from the University of Toronto in 1984, Engineering Science.

I first heard about the HAA when my dad spotted an advertisement for a public night, back in the year 2002 or 2003. We read about the maximum 'opening' of Saturn's rings, and that was as good a reason as I needed to get going. The rings would not be this wide again for 15 years.

It was a clear night, and I recall visiting Ann's and Heather's and Mike's scopes, and getting a good look at Saturn. It was my Galileo experience. I remained and toured other objects as were visible from Bayfront Park at the time.

Thereafter I watched for

events on the club's website, and learned how to use the clear sky chart. Unfortunately, my attempts to attend meetings were often thwarted by the Hamilton Bulldogs (and my season's tickets), which always seemed to have a game on the same night.

In 2006 I decided to change priorities, and forgo the Bulldogs tickets for astronomy.

It was a good move. I paid up my membership and came to all the meetings, seeing some of the faces I recalled from the public nights I had attended.

I bought Mark's 15x70 Celestron binoculars, and they served me well. A parallelogram helped to stabilize them and make them useful. However, I still could not see Saturn clearly with them, as the 15x magnification was insufficient.

Our club had a telescope loaner program, sponsored by Mike Spicer, and he arranged for me to borrow a 4 inch Newtonian, with a mount and some eyepieces. Again I sought out and found Saturn. Much better, but as a telescope newbie, also a bit of a challenge.

It was a step in the right direction, but by then 'Aperture Fever' was raging.

The 16 inch Meade Lightbridge was the perfect answer, and I

have been delighted with it ever since. I am grateful to members of the club who provided me with advice and assistance in getting it properly set up and decked out, especially Ann, who helped assemble the shroud it uses.

I joined council last year in an effort to 'give back' to this club which has become dear to me, and when the chance to put my name forward for Chair arose, I was glad to have the opportunity to apply my enthusiasm for the hobby, and appreciation for all that the members have done over the years.

This year has been declared the UNESCO International Year of Astronomy, and our public nights will have extra publicity and significance. Perhaps it will be the extra nudge that will get more people like me to come and look through a telescope, and have a 'Galileo experience'.

We always aim for public enjoyment and participation, so it should be a breeze for us to do what we do best.

I look forward to serving you in the coming years. There's an exciting list of events, speakers, and outreach being cooked up by our excellent council which has 14 members this year.



HAA 15th Anniversary Dinner Highlights

By Don Pullen (Continued from Page 2)



vez and Martin Bryan with a plaque and individual copies of Kerry's Milky Way over Binbrook photos.

To add to the levity of the evening, Don Pullen had made up several certificates bearing the HAA and Guinness World Record logos to award certain notable individuals for their distinctive activities within the club. These included Tim Harpur's minimalist astro-photography and Steve Germann's VW packing efforts. Other recipients included Ray Badgerow, Marg Walton and Bruce Peart, Jim Wamsley, and Mike Jefferson.

Finally, since this was the last official function for Mike Spicer, as he steps down from council and several years as observing director and club chair, Don Pullen presented him a trophy on behalf of the club in recogni-

Doug Welch, Ann and Bill Te-katch, Barb Wight, Grant Dixon, Charles and Patricia Baetsen, Patricia Marsh, Stephen Sheeler, Ev Rilett, Stuart Attlessey and Mike Jefferson. We were fortunate that 4 of them were able to join us on our 15th Anniversary.

We've been fortunate as a club to have access to Binbrook Conservation Area for our observing. It is a great park for both daytime and nighttime activities, and is in easy reach of most of our members. It is

mainly through the support of 3 individuals that we continue to enjoy such a wonderful location. So to say "thanks", the HAA presented Jim Douglas, Andy Fe-



HAA 15th Anniversary Dinner Highlights

By Don Pullen (Continued from Page 4)



helping to locate and contact the founding members. John Gauvreau for his enthusiastic and entertaining trip down memory lane of the 15 years of HAA history. Brenda Frederick, Ray Kahn, Camtech Photographic and Mike Spicer for their generous donations for door prizes and gifts. Kerry-Ann Lecky Hepburn for the kind use of her Binbrook/Milky Way photo for inclusion on several of the awards and the anniversary cake. And to the others I may have missed - thank you to all who helped make this a great evening.

Finally I'd like to extend my thanks to our members and friends for coming out and helping to make this the wonderful night it was. It is something we'll be talking about for the next 5 years when we're ready to celebrate our 20th anniversary.

tion of the great and generous contributions he's made to the club. We have been fortunate for his support and help to many of the newer and established astronomers. He has provided many scopes for our contests and gifts for door prizes. He's allowed us to have a telescope loaner program and has done many presentations on various aspects about astronomy. So for all of this and much more, the HAA thanks you Mike and we look forward to having you as an active member for many more years to come.

On behalf of the members and the council, I'd like to extend my thanks to the following people for helping to make this a great eve-

ning. Mike Spicer for initially organizing the dinner and getting the reservations, tickets and prices sorted out for the club. Jim Wamsley for helping to get the cake and the projector screen set up. Ann Tekatch for





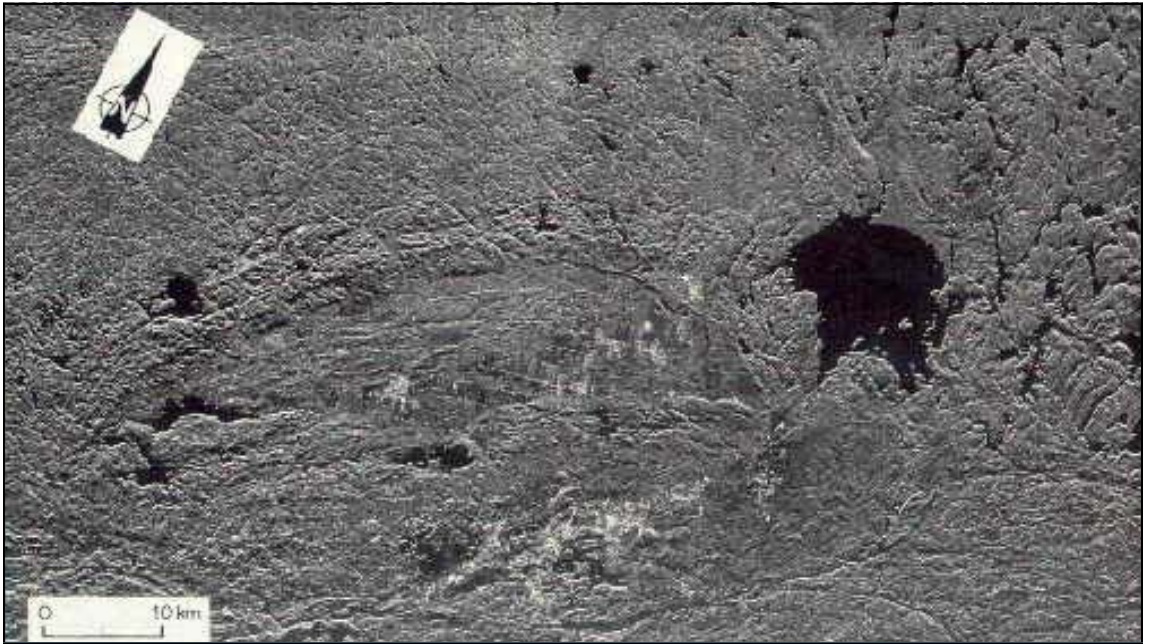
The Sudbury Impact Crater

By Tim Philp

Anyone living in the Sudbury area is well familiar with the jokes about the magnificent landscape that surrounds the city. Moonscape is probably the least unkind of the adjectives that is used to describe the area. It certainly did not help reduce the teasing very much when the Apollo astronauts trained for their lunar missions in the Sudbury Basin.

While it may not be politic to compare Sudbury to the lunar landscape, there is a lot more truth to this than commonly realized. The landscape just to the north and north west of Sudbury is the site of a massive impact that completely shattered the Earth's crust and was responsible for creating one of the richest mineralogical deposits in the world.

About 1.85 billion years ago, a nine kilometre object, possibly a comet, impacted the Earth in what is today known as the Sudbury basin. Trav-



The Sudbury Basin is what is left of an impact that occurred 1.85 billion years ago. You can see the distorted oval crater remains to the North and North-west of Sudbury. Lake Wanapitei to the North of Sudbury is also the result of a much smaller impact crater that is only about 500 million years old.

eling at about 30 kilometres per second the object slammed into the Earth gouging out a huge crater. The energy released from this impact would have been the equivalent of several billions of tonnes of TNT.

Make no mistake about it. This impact was incredible. The resulting destruction caused by this impact would make all our nuclear weapons seem puny by comparison. The concussion wave from the impact wiped out all life, indeed all structures within a 500 kilometre radius from the impact. Several

thousand cubic kilometres of rock was blasted into the atmosphere along with volcanic ash, carbon monoxide, and carbon dioxide.

The impact would have been felt throughout the entire North American continent. Sunrises and sunsets would have been spectacular for several years after the impact due to fine ash suspended in the upper atmosphere.

Worse for life on Earth, the rain of ejected rock from the impact, thrown clear of the atmosphere, would have fallen back to Earth generat-

The Sudbury Impact Crater— Continued

By Tim Philp

ing tremendous heat that would have fried life throughout the globe.

Fortunately for modern day Sudbury, the impact has left a ring of blast debris that contains some of the richest mineral deposits in the world buried beneath the surface of the crater's rim.

It took a long time to recognize that the Sudbury Basin was indeed a meteor crater. It certainly does not have the clean circular shape of the typical lunar crater. The crater today has been squished from the South by geological

processes while continental drift has shifted the continents over the past 1.85 billion years.

The original crater was probably more than 200 kilometres in diameter and more than 12 kilometres deep but Earth's active geological processes have distorted the shape and size of the crater to leave it at its present 60 by 20 kilometre oval shape and size.

As if to add insult to injury, that was not the last time the Sudbury area was hit from outer space. Lake Wanapitei is the result of another meteor

impact 1.8 billion years after the massive Sudbury Basin was formed. This impactor was much smaller, perhaps only a few hundred metres across, but it created a 3 kilometre crater that is mostly at the bottom of the lake.

Sudbury has certainly had its share of impacts.

The next time somebody makes a joke about Sudbury's 'lunar' landscape, just point out to them that they should have seen the place 1.85 billion years ago. They have had a few years to clean up since then.

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Tech Tips: Make your Dobsonian Track Smoothly

By Tim Philp

Dobsonian telescopes offer the biggest bang for your buck. You can get the largest aperture for the least number of dollars expended than any other kind of telescope on the market today.

The key to these telescopes giving you good views is almost completely dependant upon how easily they move on their bearings. The stiction and friction forces are controlled by Teflon washers that partially support the weight of the telescope.

A Dob that is easy to move is a

dream to use. Only a slight nudge is needed to keep an object in the field of view.

However, a sticky Dob is a nightmare to use. Just finding an object is difficult and when you do, just keeping it in the eyepiece is a very frustrating experience indeed.

The axis that allows the telescope to move up and down is usually not a problem. There is enough leverage on the axle that motion is smooth and easy.

The side to side motion is a different story, especially when

the telescope is pointing high in the sky. Here poor leverage and high friction forces make it difficult to control the scope.

The best solution to this is to replace the Teflon washers, but that is expensive. One low-cost solution is to use old CD's that you no longer listen to (perhaps old AOL disks!)

Put several of these CD 'washers' on the azimuth axis and you will have a smoothly turning instrument.

It is a cheap fix for a sticky Dob!



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The Sky this Month—by John Gauvreau

November will see some remarkable changes in the night sky. All through the summer we have been looked over by **Jupiter**. Although riding along the lowest part of the **ecliptic**, it has been a constant, brilliant companion through the year. Now, at last, we say farewell to **Jupiter** and let an even brighter herald of winter take its place.

Jupiter and **Venus** are now both visible in the western sky after sunset. As the month begins **Jupiter** is still high in the sky and **Venus** seems low in the glare of sunset by comparison, but watch as the month progresses. In the last days of November and the first days of December they will meet and pass each other. On the night of December 1st both **planets** are joined by a **slim crescent moon**, and all three will make a lovely sight in the same binocular field. Astro-photographers be at the ready!

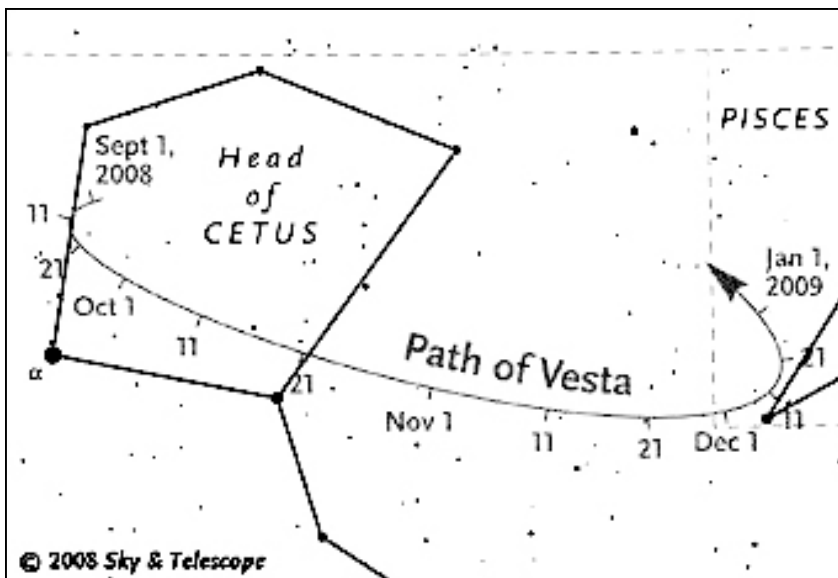
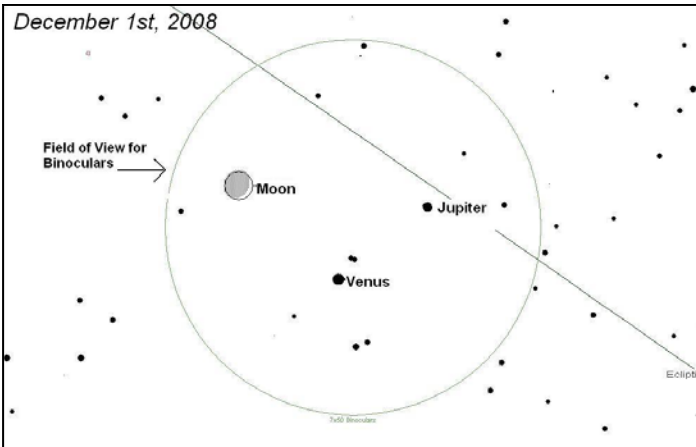
The morning sky brings a different **planetary** treat. **Saturn** is back after a long absence, and each passing week brings it higher and higher in the morning sky. By month's end it is rising by 1am, perhaps early enough for late night observers. For early morning risers it will be high in the south, just below **Leo**, by this time. Watch **Saturn** now, to see the slow transformation of the **rings**, as they open and close. How much detail can you see on the **rings**, and can you see any **extra moons**?

Both **Mercury** and **Mars** are too near the **Sun** to observe this month, but will be little missed with such wonderful celestial distractions in the sky.

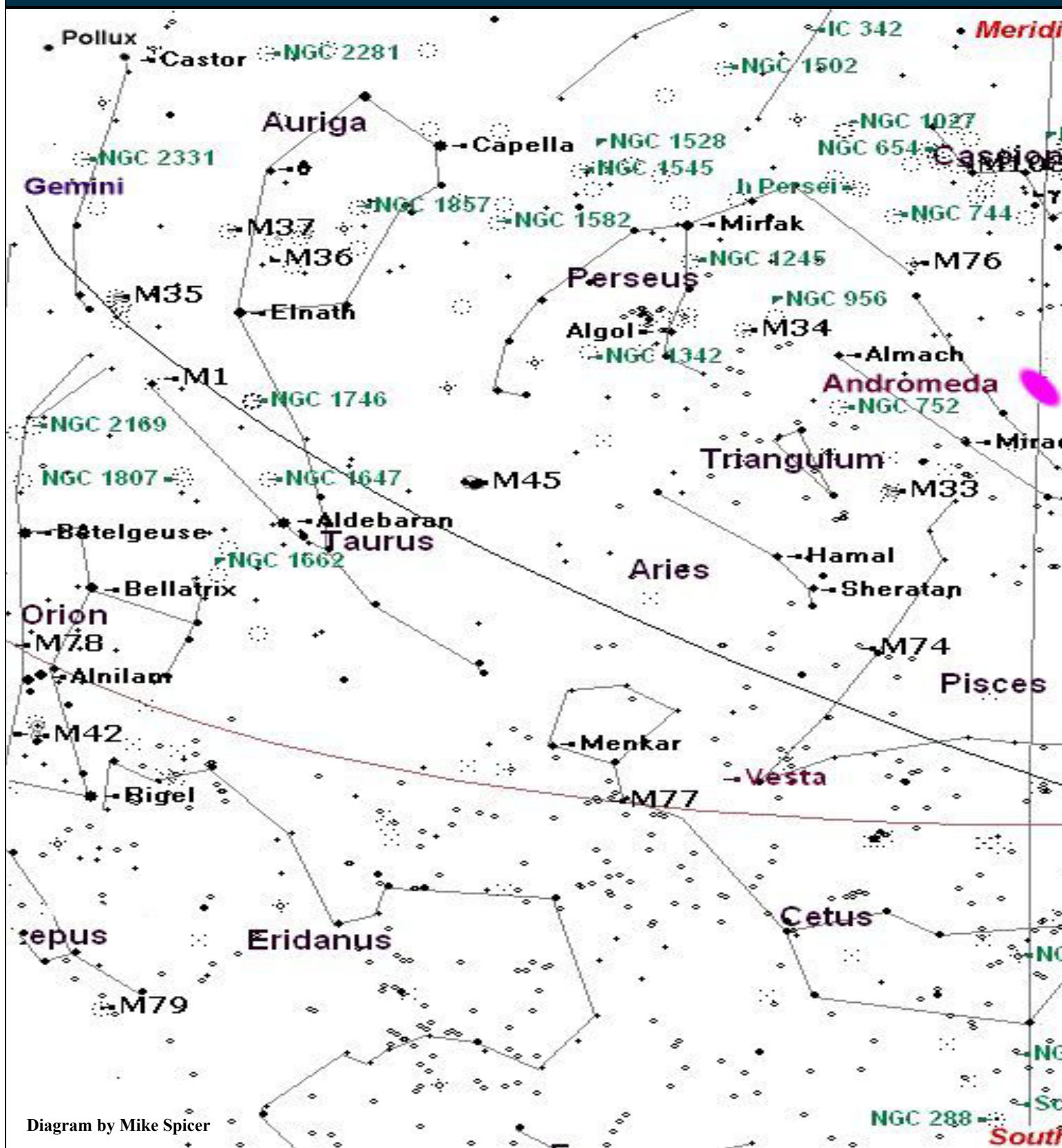
The **Moon** is full on the 13th of November, but here in Canada it should actually *look* more full on the night of the 12th. How does it appear to your eye? Can you see the difference from one night to the next? Look on the night of the 12th and again on the night of the 13th and tell me if you can see the shadow along the limb change from one side to the other. The **Pleiades** are just 3 degrees away on the night of the 13th, and will appear in your binoculars along with the **moon**. Of course, they will be all but lost in the **moon's** glare. Try counting them, and compare how many stars you can see the glare of **lunar** light. Remember that number and compare to how many you can count in a sky that is free of **light pollution**.

For a **Solar System** challenge, try the **asteroid Vesta**. It is at its best in early November, and easy to spot in binoculars at magnitude 6 and high in the sky between **Pisces** and **Cetus**.

Pisces, **Aquarius** and **Cetus** are all up and in a good viewing position. Notice that they are all water constellations. They are high in the **autumn sky** now and well placed for viewing because the **Sun** is in the other half of the sky, but come spring, six months from now, the **Sun** will pass through these **constellations**, and although we won't be able to observe them, we will be reminded by the spring floods and rains that these water **constellations** form the backdrop to our daytime sky.



The Sky th



This is a detailed star chart of the constellation Cygnus and its surroundings. The chart is oriented with Cygnus at the top, facing south at 9 pm on November 20. Key features include:

- Constellations:** Cygnus, Cepheus, Lacerta, Pegasus, Delphinus, Equuleus, Aquarius, Capricornus, Sagitta, Vultur, and parts of Lyra, Cepheus, and Aquila.
- Stars:** Numerous stars are labeled, including Vega, Deneb, Ruchbah, Sadr, and many others. Some are labeled with NGC or M numbers.
- Galaxies and Nebulae:** The Whirlpool Galaxy (M51) is visible in the upper left. The Saturn Nebula (M27) is in the lower right. The Blue Snowball Nebula (NGC 7662) is in the upper left.
- Lines:** The Equator and the Ecliptic are shown as curved lines across the chart.
- Orientation:** The chart is titled "Facing S at 9 pm, Nov 20".



2007-2008 Treasurers Year End Report

by Don Pullen

(Unaudited)

Income Statement

	31 Oct 08	31 Oct 07
Income		
Memberships	\$2,100.00	\$2,331.00
HAA Calendars	\$1,375.00	
RASC Handbooks	\$200.00	\$140.00
Clothing Sales	\$2,309.00	
50/50	\$383.50	
Coffee Fund	\$129.90	
Advertising Revenue	\$100.00	\$100.00
Donations	\$91.50	\$809.00
Messier Marathon	\$145.00	
Miscellaneous	\$44.63	\$1,191.00
Prepaid postage 2007	\$68.49	
Total	\$6,878.53	\$4,571.00
Expenses		
Insurance	\$702.00	\$1,080.00
EH Newsletter	\$874.70	\$809.00
Brochures	\$28.40	\$342.00
HAA Calendars	\$1,200.00	
RASC Handbooks	\$169.07	\$114.00
Clothing Sales	\$2,188.36	
Donations Expense	\$289.13	\$294.00
Depreciation Expense	\$326.33	\$489.00
PO Box Rental	\$127.05	\$117.00
Speakers Allowance	\$82.60	
Office supplies	\$132.15	
Postage	\$32.23	\$82.00
Bank Charges	\$34.10	\$2.00
Miscellaneous	\$302.50	\$181.00
Total	\$6,488.62	\$3,510.00
Surplus/Deficit	\$389.91	\$1,061.00

Balance Sheet

	31 Oct 08	31 Oct 07
Assets		
Bank	\$3,809	\$2,969
Cash	\$0	\$0
Inventory	\$0	\$0
Prepaid PO Box Rental	\$127	\$0
Prepaid Mailing Expense		\$68
Prepaid Liability Insurance	\$702	\$0
Accounts Receivable	\$100	\$0
Total Current Assets	\$4,738	\$3,037
Fixed Assets – Equipment	\$1,632	\$1,958
Total Fixed Assets	\$1,632	\$1,958
Total Assets	\$6,370	\$4,995
Liabilities		
Deferred Membership Revenue	\$1,565	\$1,220
Accounts Payable	\$768	\$0
Total Liabilities	\$2,333	\$1,220
Equity		
Opening Balance	\$4,995	\$5,518
Retained Earnings	(\$1,348)	(\$2,804)
Current Year (Surplus/Deficit)	\$390	\$1,061
Equity Closing Balance	\$4,037	\$3,775
Total Liabilities and Equity	\$6,370	\$4,995

Notes:

1. Membership figures are actuals for fiscal year:
2007-2008: 67 (1-Friend, 10 Royal, 18-Family, 38-Individual) – Total = 96
2006-2007: 66 (2-Friend, 15-Royal, 13-Family, 36-Individual) – Total = 96
2. Deferred memberships refers to money paid in 1 financial year but applied to another.
3. Fixed assets is the projector and is depreciated at 20% per year.
4. Accounts receivable and payable are cheques still not cleared or owed money for EH advertising, but not yet received.



Through the Looking Glass

by Greg Emery

There are many skills in astronomy which are useful to learn in order to enhance the observing experience. Like most things in life, once these skills are learned, they are most likely quickly forgotten.

The hobby of astronomy, by nature for most of us, requires dark skies and night time conditions. The human eye is better adapted to bright light conditions than dim or dark situations. A valuable observing trick or skill is to use Averted Vision. You may have heard of averted vision, but how or why does it work.

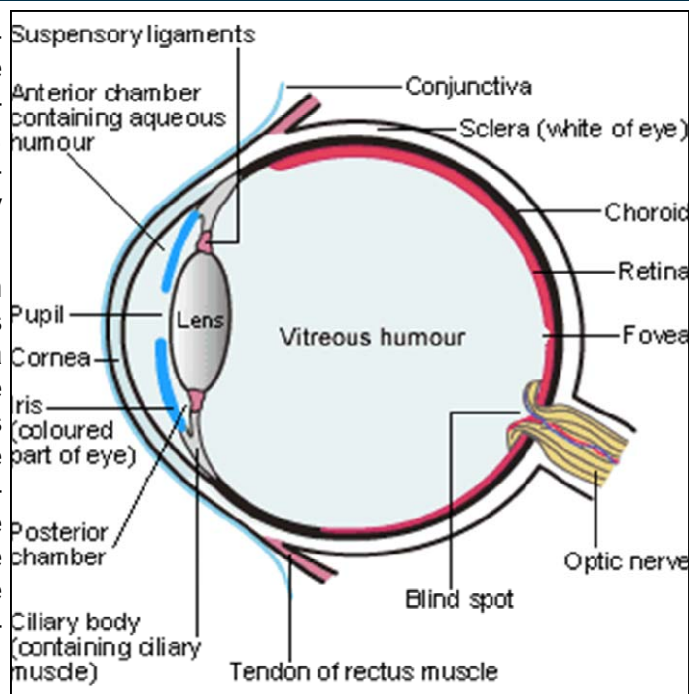
The human eye has an area at the back of the eye that responds to the light. The retina is this area and is comprised of two types of receptors, rods and cones. The receptors responsible for coloured perception are the cones. These respond well to varying colours in a high light situation. Ever notice that as dusk approaches when you are getting ready to observe, that the colours of the world around you seem to fade? The rods, by contrast respond very well to low light

situations. Unfortunately, the rods do not distinguish colours. Night time viewing is essentially monochrome.

Nature, through adaptation has created a retina in which the numbers of rods and cones are not equal, furthermore, the location of these two within the retina are uneven.

The cones are highly concentrated in the central regions of the retina. Under high light conditions, the pupil of the eye constricts, focusing light to the central region of the retina, where the slightly less sensitive cones can distinguish the full array of colours. The lower light conditions of astronomy require the edge regions of the retina to be utilized. The edge regions have a higher concentration of rods which are more sensitive. Under these low light conditions, the central region of the retina responds very little to the light, but the outer regions of the retina respond a lot.

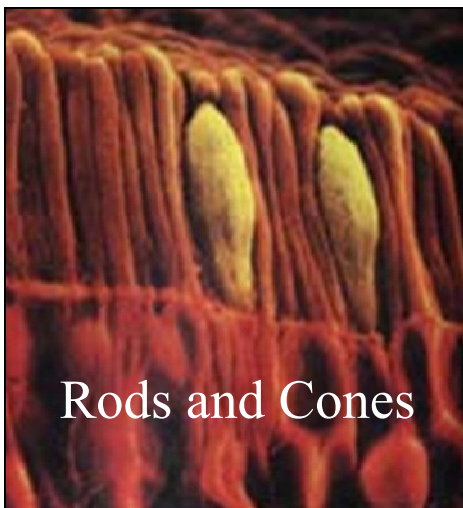
Averted vision is the method astronomers use to utilize the rods of their retinas. When we look or stare intently at something most of the light is focused to the central region of the retina. The outside regions of the retina receive light from the regions near to the region we are gazing upon.



When viewing in an eyepiece at a telescope, do not focus directly on the object you are interested in, by looking to the side (or top or bottom) of the image in the eyepiece, more rods will be brought into play.

An easy way to test the strength or usefulness of this technique is for you to go outside (at night) and perform a quick naked eye experiment.

Look to the East, find the Pleiades (Seven Sisters), star at them. Drop your gaze slightly to the east to find the orange star Aldebaran. With your vision, you should still see the Pleiades at the periphery of your field of view. As you stare at Aldebaran, you will notice that the Pleiades appear to brighten. Look back at the Pleiades, they will seem to dim. This demonstrates the power of Averted Vision.





Blinded by the Light!

By Jackie Fulton

National Geographic has a very informative article on light pollution in their November 2008 issue. For those of us astronomers this is not a new concern. Astronomers have been battling this cause for many years, and seemed to be the front runners in spreading the word. What makes this article so important is that not only have our claims been supported, but National Geographic points out the overall global and environmental impact light pollution is having at all levels. They go on to say that while studies of the effects of light pollution are still in their infancy, already the impacts are notable, affecting migration, reproduction, feeding etc. The main source of the problem is bad lighting design that allows artificial light to shine outward and upward into the sky where it's not wanted. In downtown Toronto, it states, globe shaped lighting wastes much of its wattage overhead. Preferably artificial light should be focused downward.

The bad lighting not only washes out the sky but drastically alters light levels and light rhythms. As a result of this light pollution haze Europe, the United States and Japan are referred to as "nighttime nebulae".

The article goes further to point out other sources of light pollution we may not realize. They note the south Atlantic glow from squid fishing fleets can be seen from space, burning brighter than the city of Rio de Janeiro.

Light is also a powerful biological force acting like a magnet for many species. In Toronto the Royal Ontario Museum collected over 1,000 birds of 89 different species. These birds were collected over a three month period. FLAP, the Fatal Light Awareness Program, says light pollution effects at least 100 million birds a year in North America. At Florida's Singer Island the artificial light along the beach front leads Sea Turtle hatchlings off course, often to their death, in their bid to the sea. Nocturnal mammals have become easier targets for their predators and insects attracted to streetlights are having effects on the bat population.

National Geographic is quick to acknowledge the astronomers' need for a clear dark sky, but as human beings we need



Satellite photos show the extent of light pollution on our planet. While astronomers may influence light pollution standards, it will probably be energy savings that will finally tip the balance toward cutting down on wasted light.

darkness. Darkness is as essential to our biological welfare, to our internal clockwork, as light itself, the article points out. By extending the day, shortening the night, and short-circuiting the human body's sensitive response to light there is a biological impact on humans as well. Amazingly they report a new study that suggests a direct correlation between higher rates of breast cancer in women and the nighttime brightness of their neighborhoods.

During this past summer, many HAA members had the privilege of attending the star-parties at Cherry Springs State Park. We are pleased to congratulate Maxine and Chip Harrison, who run the

park, who along with countless others, succeeded in having the park designated as a protected Dark Sky Site. This was no small task. We are hopeful Canadians will soon be quick to follow their example.

Recently, talking with HAA members, it was discovered there is a possibility if getting hooded street light covers for our local neighborhoods. Considering what we have just become aware of thanks to this article, perhaps a call to our local hydro or municipal office is in order. If only to pose the question as to if these fixtures are available, and if not, why.



Member of the Month—Tim Philp

by Mike Spicer

Member of the month articles were planned to give readers of the *Event Horizon* a little more information about the members who make the club the interesting and successful organization it is. We print an image of the subject; putting a face to the name in case you may not know the member that well. That's not really necessary this month as the Member of the Month for November 2008 is so well known in club circles.

Tim Philp and I first started observing together as high school students and after almost 40 years we still manage to get together to observe from time to time. Over the years Tim has honed his skills as a journalist and during the past four years he has become very well known to Hamilton Amateur Astronomers.

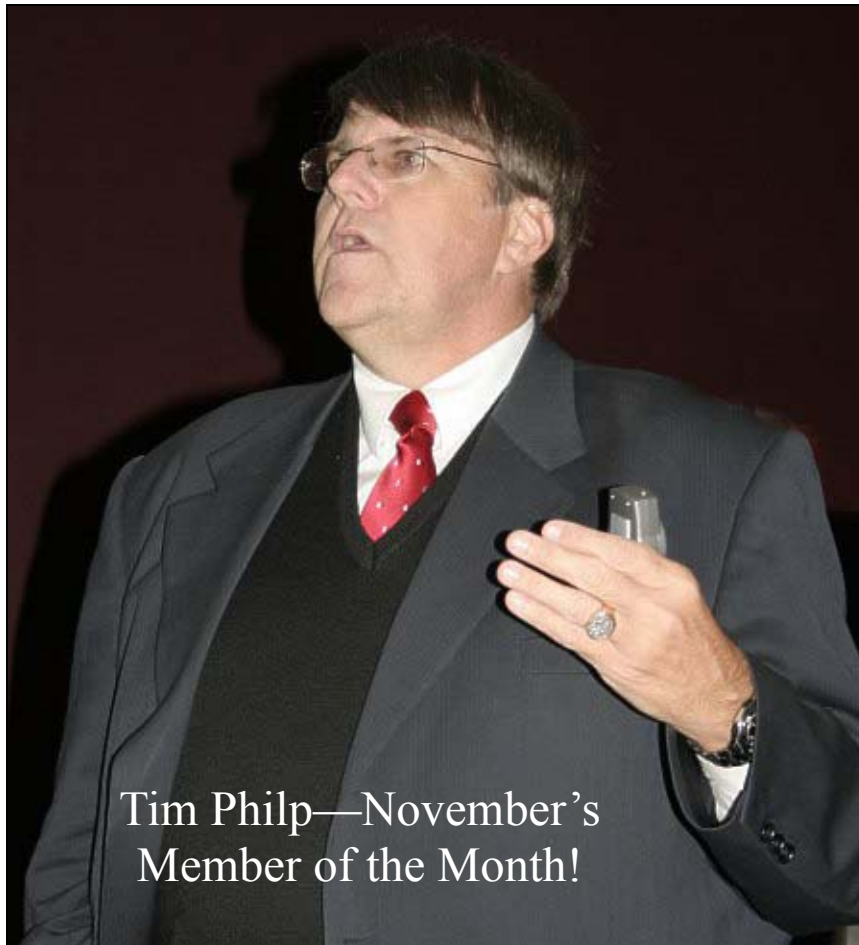
Tim has a weekly Astronomy column in the Brantford *Expositor* and the *Sudbury Star*. In May of 2005 he wrote a story about the HAA after attending our Astronomy Day

activities. He liked the club's enthusiasm so much, he took out a membership and club members have greatly benefited as a result. Gregarious Tim can be counted on to

the country largely due to his hard work. His *Expositor* column regularly carries articles about, and images taken by, members of our club.

It's one thing (and a very good thing) to exercise your paid-up membership by attending the monthly meetings, reading the *Event Horizon* and occasionally coming out to a public night or observing at Binbrook. It's another thing entirely to add many, many hours every month by serving on the governing Council and attending its lengthy planning meetings, or by putting together and then delivering a visual presentation on an

interesting astronomy topic, or by overseeing the layout and production of the monthly newsletter - often writing articles for it as well - and doing all of this while living in a city some distance away from Hamilton. Thank you for all that and a lot more that wouldn't fit in this article, Tim Philp, Member of the Month



Tim Philp—November's
Member of the Month!

give a presentation on timely astronomical subjects every few months at our monthly meetings and is often called on to speak at special public events. For the past two years Tim has also been editor of the *Event Horizon* and our club newsletter has become what I think is the best club astro-publication in



HAA Telescope Contest

1. The contest is open to the public, excluding HAA members but including the children (age 9 - 16 inclusive) of HAA members.
2. The contest runs from 1 September until 9 pm Wednesday evening, November 19th and the winner will be announced and the telescope awarded at the HAA meeting, December 12th.
3. Enter the contest by submitting a composition of 300 - 600 words on

a subject in amateur astronomy or telling what you would do with the telescope if you won it. The entry can be emailed to: chair@amateurastronomy.org but must also be emailed to [edi-
tor@amateurastronomy.org](mailto:editor@amateurastronomy.org)

4. To be valid, the entry must be received by both chair and editor before the closing date and must have the entrant's name, age, mailing address, telephone number and email address for contact purposes.

poses. All entries become the property of Hamilton Amateur Astronomers and may be published in the club newsletter, Event Horizon, at the editor's discretion.

5. The contest is open to members of the public of all ages who reside within the area bounded by Grimsby - Cayuga - Brantford - Cambridge - Milton - Oakville so the winner will be "one in a million".



Book Review—The Story of Astronomy

by Mike Spicer

I bought this newly published book for under \$20 at a local bookstore a few weeks ago and I'm glad I did. It lays out in the first 15 chapters, the development of Astronomy as a science from prehistory to today:

This is a full-sized textbook with clear and easily legible text written in an easy-reading style. It contains marginal notations and timelines to highlight the textual history, plus many full-page colour plates that illustrate the text very clearly. I would have purchased the book for the frame-able reproduction at page 88 of Thornhill's 1710 portrait of Sir Isaac Newton alone! Aughton is British and if there is an over-emphasis on British contributions to astronomy at the expense of others, it can be forgiven. Perhaps the reference to "The Nebulous Messier Catalogue" buried in the chapter devoted to Herschel, was simply the sly use of a pun?

The last third of the book explores special ideas relevant to astronomy as a science in the modern world, again with some unusual and spectacular images and explanatory charts. It's a meritorious attempt to explain the most difficult concepts in modern science, using clear construction and plain English. I like the writing style and recommend the book for any amateur astronomer.

- Chap. 1: The Origins of Astronomy
2: From Babylon to Ancient Greece
3: The Almagest
4: Astronomy in the Dark Ages
5: The Copernican Revolution
6: The Paths of the Planets
7: Galileo - the Telescope Maker
8: Jeremiah Horrocks
9: The Clockwork Universe
10: English and French Rivalry
11: Finding Longitude
12: William Herschel- Gazing Deeper
13: Understanding the Forces of Nature
14: Relativity Redefines Astronomy
15: The Hubble Universe
16: From Microcosm to Macrocosm
17: Beyond the Visible Spectrum
18: Black Holes, Quasars and the Universe
19: Stephen Hawking
20: Astronomy in the Space Age
21: Evidence of the Big Bang
22: Dark Matter and Dark Energy
23: Planets, Moons and the Search for Life

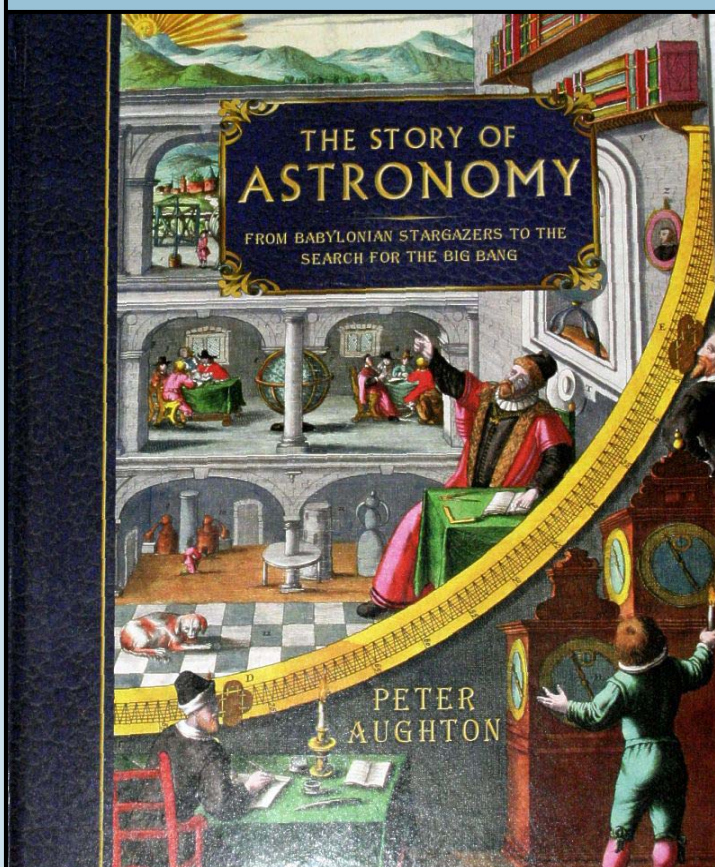
Title: The Story of Astronomy - From Babylonian Stargazers to the Search for the Big Bang

Author: Peter Aughton

Publisher: Quercus Press, London UK 2008

ISBN 978-1-847246226

Length: 223 pages, Hardbound





Star Names

by Tim Philp

*What's in a name? That which we call a rose,
by any other name would smell as sweet." Wil-
liam Shakespeare – 1564 – 1616*

The Bard well knew the value of a name despite the oft quoted phrase about a rose. Unfortunately he knew little about the 'majestical roof fretted with golden fire' as Hamlet referred to the heavens. If he did, I am sure he would appreciate the names of many of the 'golden fires' that he observed.

Of course, not all stars have names; there are far too many of them to name, however, certainly all of the brighter stars have names. Among these names, you will find remnants from Latin, and Greek, but by far the greatest number of names comes to us from Arabic of the middle ages when the astronomers of that area adopted the constellations of Ptolemy and put their own names to the stars.

For instance, the brightest star that you can see at night is in Canis Majoris called Sirius. We sometimes call it the dog star because the English translation of the constellation is the Greater Dog. The name

Sirius itself is an Arabic word meaning 'searing' or 'scorching'. When you think about it, that is an appropriate name for the brightest star in the sky.

Another bright star Procyon comes from the Greek 'pro kion' meaning before the dog. Makes sense when you consider that this star rises before Sirius the dog star. In a similar vein the star Arcturus means 'bear driver' which is appropriate for a star that follows Ursa Major – the greater bear, around the sky.

Another Greek contribution to star

names are the stars Castor and Pollux honouring ancient Greek warriors in the constellation of Gemini – the twins.

Latin also contributed to star names in the form of Regulus, the little king in Leo the lion and Polaris, the pole star.

Sometimes a name can appear in

Bayer in Germany applied lower case Greek letter names to the stars more or less in order of brightness. So, the brightest star in a constellation would be called Alpha, the next brightest Beta and so on. To this he would add the possessive form of the Latin constellation name.

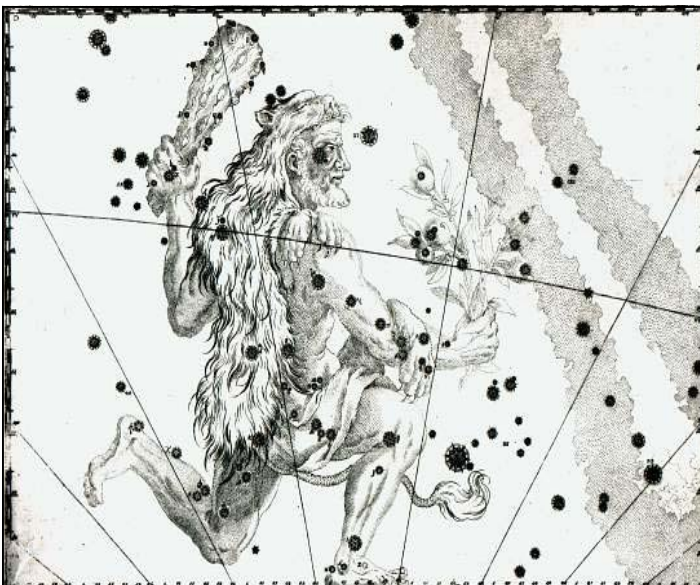
For instance, Vega in the constellation Lyra, a star with an Arabic name became Alpha Lyrae. When he ran out of Greek letters, he used Roman letters, however, few of these are still hanging around such as 'h Persei' and 'G Scorpii'.

Of course, Bayer was not consistent but, for the most part, his star names are still used today.

The next guy to try the trick of naming stars was John Flamsteed who, in the 18th century created one of the finest star charts of the day. Flamsteed named stars with numbers depending upon their position in the sky. The most westerly star in a constellation would be called number one. For instance, the westernmost star in Lyra would be called 1 Lyrae, the next 2 Lyrae and so on. Not very poetic, but certainly systematic.

Since Flamsteed, there have been other attempts to give names to stars, but the one that is in most current use is the Hipparcos data that came from a satellite in the 1990's. Its job was to measure the distances to over 100,000 stars. Each star was given a number so, Vega becomes HIC 91262 and Canopus becomes HIC 30438.

Our modern star charts are incomparably more accurate than earlier star charts, but there is a lot less art and history to their names.

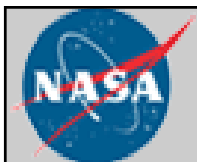


Johann Bayer's landmark star atlas of 1603 called *Uranometria* devoted individual charts to each of the 48 Greek constellations. The beautiful plates were engraved by Alexander Mair. Here Hercules is seen holding a branch from the golden apple tree of the Hesperides. Bayer's *Uranometria* was highly popular on account of its comprehensiveness, its artistic quality, and its introduction of the system of labeling stars with Greek letters.

many forms such as Deneb in Cygnus the swan. Deneb means 'tail' in Arabic and that name is used elsewhere. For instance, Denebola in Leo's tail and Deneb Kaitos, meaning the sea-monster's tail in Cetus the Whale.

Of course, when the Arabic texts were translated into Latin, there were many errors and mistranslations that have left us with errors in the ancient star names. To solve this problem, new systems of nomenclature were devised.

Sometime around 1600, Johannes



Space Place—The Chemical Weather Report

“Sunny tomorrow with highs in the mid-70s. There’s going to be some carbon monoxide blowing in from forest fires, and all that sunshine is predicted to bring a surge in ground-level ozone by afternoon. Old and young people and anyone with lung conditions are advised to stay indoors between 3 and 5 p.m.”

Whoever heard of a weather report like that?

Get used to it. Weather reports of the future are going to tell you a lot more about the atmosphere than just how warm and rainy it is. In the same way that satellite observations of Earth revolutionized basic weather forecasting in the 1970s and 80s, satellite tracking of air pollution is about to revolutionize the forecasting of air quality. Such forecasts could help people plan around high levels of ground-level ozone—a dangerous lung irritant—just as they now plan around bad storms.

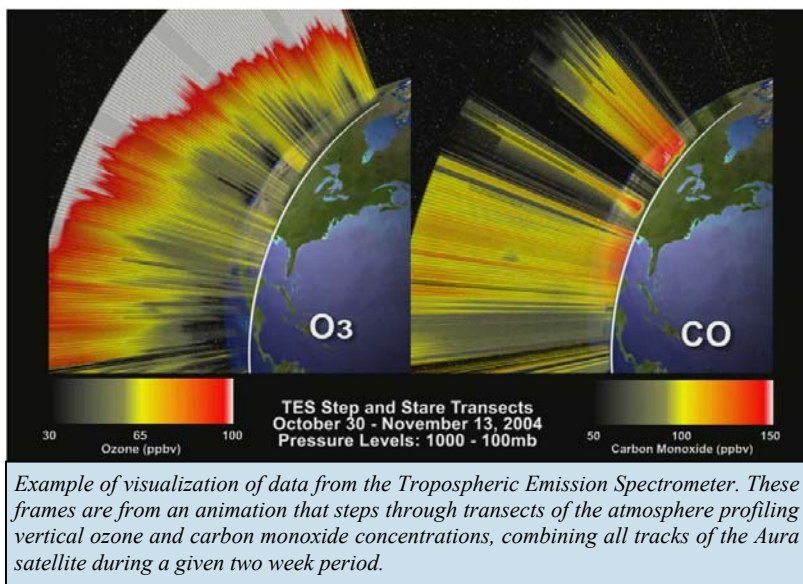
“The phrase that people have used is chemical weather forecasting,” says Kevin Bowman of NASA’s Jet Propulsion Laboratory. Bowman is a senior member of the technical staff for the Tropospheric

Emission Spectrometer, one of four scientific sensors on NASA’s Aura satellite.

Aura and other NASA satellites track pollution in the same way that astronomers know the

watching satellite into geosynchronous orbit—a special very high-altitude orbit above the equator in which satellites make only one orbit per day, thus seeming to hover over

the same spot on the equator below. There, this new satellite, called GEO-CAP E (Geostationary Coastal and Air Pollution Events), would give scientists a continuous eye in the sky, allowing them to predict daily pollution levels just as meteorologists predict storms.



chemical composition of stars and distant planetary atmospheres: using spectrometry. By breaking the light from a planet or star into its spectrum of colors, scientists can read off the atmosphere’s gases by looking at the “fingerprint” of wavelengths absorbed or emitted by those chemicals. From Earth orbit, pollution-watching satellites use this trick to measure trace gases such as carbon monoxide, nitrogen oxide, and ozone.

However, as Bowman explains, “Polar sun-synchronous satellites such as Aura are limited at best to two overpasses per day.” A recent report by the National Research Council recommends putting a pollution-

“NASA is beginning to investigate what it would take to build an instrument like this,” Bowman says. Such a chemical weather satellite could be in orbit as soon as 2013, according to the NRC report. Weather forecasts might never be the same.

Learn more about the Tropospheric Emission Spectrometer at tes.jpl.nasa.gov.

Kids can learn some elementary smog chemistry while making “Gummy Greenhouse Gases” out of gumdrops at spaceplace.nasa.gov/en/kids/tes/gumdrops.

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www.amateurastronomy.org

Article Submissions

The HAA welcomes your astronomy related writings for the Event Horizon newsletter. Please send your articles, big or small, to:

editor@amateurastronomy.org

The submission deadline is two weeks before each general meeting.

The Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA). The HAA is an amateur astronomy club, for people of all ages and experience levels, dedicated to the promotion and enjoyment of astronomy. The cost of the subscription is included in the \$25 individual or \$30 family membership fee for the year. Event Horizon is published a minimum of 10 times a year.

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Next Meeting

December 12th, 2008

7:30 PM @ The Spectator

Observing site for the HAA provided with the generous support of

Binbrook Conservation Area..

Come out observing with other members 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.

www.conservation-niagara.on.ca/conservation_areas/binbrook/binbrook.html

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