



Event Horizon

Volume 17, Number 3

January 2010



From The Editor

Happy New Year! There are some exciting new activities coming this year for HAA members, beginning with the revival of the Cosmology Discussion Group on January 30. In February, our first ever Book Club meeting will occur. Neither of these will conflict with prime observing windows, ensuring that all members will be able to enjoy new opportunities to meet and socialize with fellow HAAs. Information on the Cosmology Discussion Group meeting can be found inside this issue.

Speaking of membership, have you renewed yet? Our membership year runs from November 1st to October 31st. Please see Jim Wamsley or Don Pullen to pay your dues. You won't want to miss 2010!!

Ann Tekatch



From the Chair by Steve Germann

The HAA has a busy list of activities, speakers, and events lined up for 2010.

There are still a few calendars left for sale. I am impressed with the brisk sales and the great photos in the calendar. Special thanks to Don for his work to get the colour balance right, and of course, putting the whole thing together. First class job, Don!

January provides a chance to set up scopes and greet families in Burlington on January 22nd, serving the crowds that will visit the Ringette tournament at the Burlington Winter Carnival.

We are fortunate to be able to tie our event in with the other events from the Burlington Winter Carnival, and be featured in the brochure that goes home with all the kids before the Christmas Holidays. This has the makings of an Annual event. It is also our best chance to interest the people who would best benefit from a look through a telescope and the spark of interest in the sky above them.

...continued p.2



IN THIS ISSUE:

- Treasurer's Report
- Through the Looking Glass
- Physics of the Night Sky
- Astronomical Highlights
- Standoff at Science North
- Dwarf Planet of the Month
- Cosmology Discussion Group
- November Meeting WrapUp
- Messier Marathon Fundraiser
- Masthead Photo Credit
- The Sky This Month
- The Maps This Month
- Cartoon Corner
- For Sale

From the Chair (continued)

We will set up in the parking lot at Nelson Recreation Center, with a good view to the first quarter moon, and a peek at Mars. Please drop by for a while, even if you are not setting up, and see the joy on the faces of the people who come to the event. It's worthwhile. The Nelson Recreation Center is on the north side of New street, about 1 km east of Walkers Line. New street is about 2 km south of the QEW. Take the Walkers Line exit south from the QEW and then turn left onto New Street and watch for the Rec Center on your left.

This meeting and next, you will have a chance to buy tickets to visit the McCallion Planetarium, at McMaster. We have 2 different shows lined up, so if you want to stay for both of them, buy early. The show will be on Friday evening, February 26th. The moon will be close to full, so although the sky will be clear, most likely, it won't feel bad being indoors. At 7 PM the show will be, "Seven ways a black hole can kill you" and 8:15 PM: "Eight most bizarre things in the universe"

The EH continues to evolve, with more web-friendly features this month, including links to animations and information.

We are planning to have an Equatorial Platform (EQP) Clinic pretty soon. Dob owners in the club can measure their scope and then plan and build their own equatorial platform at a group session, complete with a digital control unit.

An EQP will make your Dob such a joy to use and share. Setup time for an EQP is just seconds, since you only have to estimate north by eyeball to have excellent tracking for visual use. Tracking your DOB for photography will also be possible, since the controller has a guide port.

Happy New Year to everyone.

2010 HAA Calendars Still Available



A few HAA 2010 Calendars are still available for sale at HAA General meetings. Price is \$20.00 each.

These are perfect for the home or office. The calendar has been improved for 2010 with a lot more celestial events and historical anniversaries. And of course, there are many amazing photos taken by your fellow club members.

To reserve your copies or for more information, please send an email to Don Pullen, treasurer@amateurastronomy.org.



January 2010 Treasurer's Report by Don Pullen

(Unaudited)		
Cash opening Balance (1 Dec 2009)		\$ 3321.80
Expenses		\$ 41.02
Revenue		\$ 794.00
Closing Balance	(31 Dec 2009)	\$ 4074.78

Notes:

1. Major revenue sources included: Memberships (\$340), Calendar Sales (\$420), 50/50 (\$34)
2. Major expenses included: EH Printing (\$41.02)



Through The Looking Glass by Greg Emery

Another New Years has come and gone. By this point in most years I find myself to invariably be the proud owner of shattered resolutions. I still scratch my head as to why we would start the year with January, March or April seem so much more obvious to me - spring, new life, New Year that kind of thing. Regardless of when we start the year, wanting to improve yourself through change is a noble thing. I came up with an extensive list of resolutions, which for various reasons was trimmed down to two.

Some of the resolutions that did not make the cut are: Earn/win (or be given) enough money to retire to somewhere warm enough for my wife (within 20 degrees of the equator); become a more romantic partner/lover for my wife - she said this was too big a job for one year; learn to be saddened by the cacophony of sounds that is created as my chainsaw meets a tree - not going to happen; join a committee at work and not tell the chair that they have their head inserted somewhere that it shouldn't be. So now that you have a taste for the ones that didn't make it - what did?

The key resolution for me in 2010 (and I hate documenting something like this - it will always come back to haunt you) is to be more open to alternative scientific theories. It is much too easy for me, and I am sure some of you, to quickly dismiss things because we "know they could not possibly be true". Several years ago I was speaking to a friend of my wife's, he asked me if I had heard of the Tgunska Impact, which I had. Within seconds I informed him in a loud and passionate voice (because the loudest person in an argument or debate is obviously the right one) that he was wrong for a host of reasons. The problem I had at the time was not so much with what he said, but more with the fact that if he was correct, then I was most likely also wrong about a vast number of other things. This is still a stumbling block for me today. Science and technology is always fighting this. Great discoveries sometimes take much too long to be accepted or utilized because they are so different. The converse of this is also true - bad science is taken as good because it produces the results that we expect.

Nikolai Copernicus put forward the Heliocentric solar system in the mid 1500's. About 50 to 100 years later, Galileo was persecuted for his support of the Heliocentric model. Copernicus had it correct, but it was too far a leap for a lot of people to quickly make.

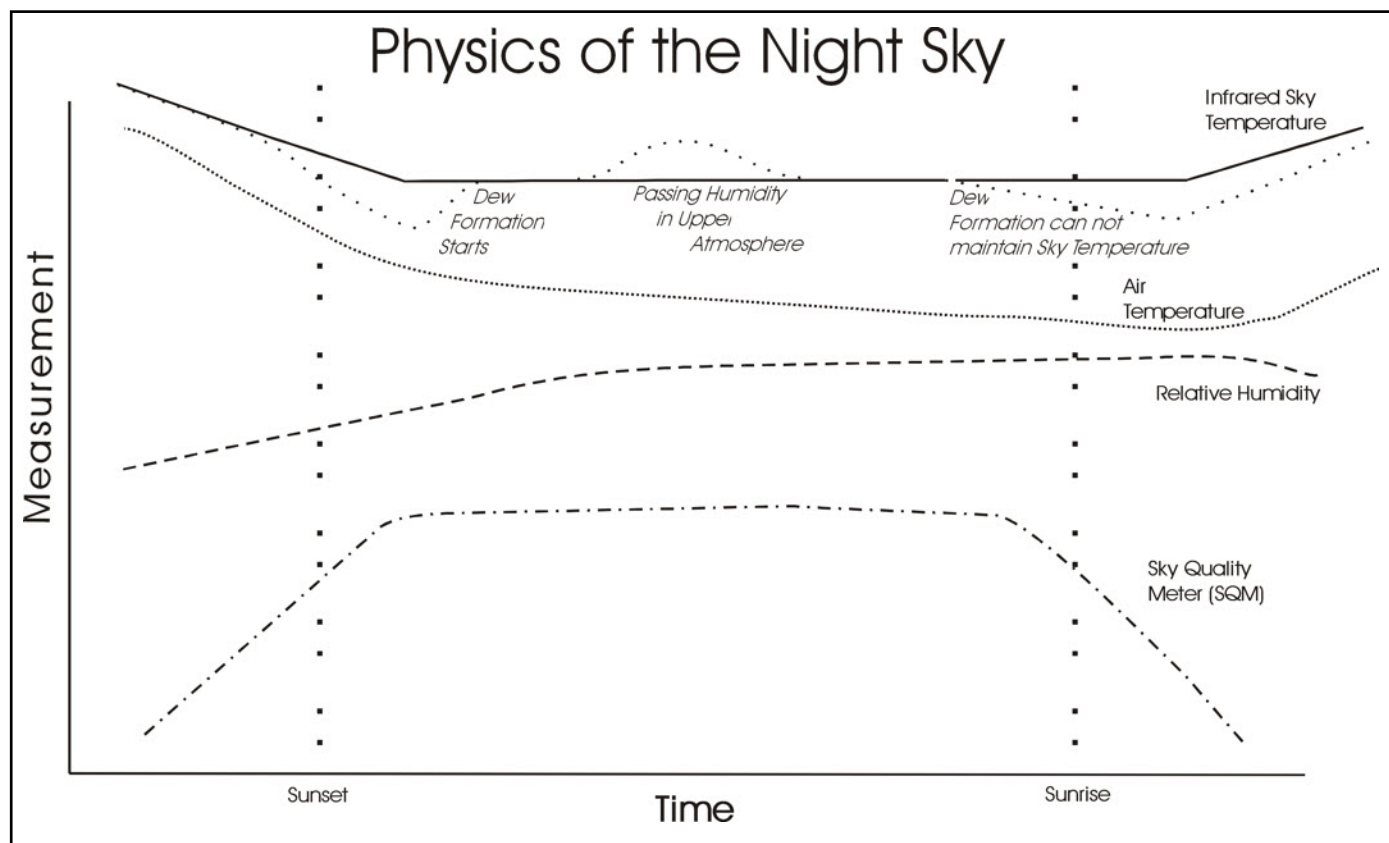
Ever met or heard of someone who believes the earth is flat? Thought that argument was put to bed a long time ago? These examples may seem ridiculous to you, but to others they are serious beliefs. I want to make sure that I don't miss the boat on the next big theory/discovery or what have you. This does not mean that I will blatantly believe any and all theories I hear about. I will not be investing any money, anytime soon, in perpetual motion machines. By a similar token, however, I will endeavour to listen and attempt to analyze with an open mind those things which sound too far out or too strange. The next time that my friend Mike mentions Tgunska to me, I will view the discussion/evidence in a different light. I cannot say that I will change my mind or opinions, but I can say that I will consider it.



Physics of the Night Sky by Bill Tekatch

We have been keeping a log of our observing and imaging sessions at our urban light polluted site for four years. The Lucky Penny Observatory has slowly become a night sky physics lab as well as an astronomical observatory. As time passed and our access to nifty instruments increased, we took more readings during the night. Comparing weather satellite images to the readings I was getting began to reveal that some interesting things, dynamics, more than just weather was going on. It was the physics of the night sky.

The clear sky clock is a great tool, but is not always correct. Taking readings hourly for temperature, relative humidity, infrared sky temperature, and the Sky Quality Meter (SQM) reading helped to get a better understanding of what was happening. What follows is typical of what I have found, and my speculations about what it means. The graph titled Physics of the Night Sky illustrates sky conditions discussed in the text.



Late Afternoon

It is a clear afternoon, and as the sun goes down the air temperature starts dropping. Relative humidity increases as the temperature drops. The SQM readings go up as the sky darkens.

Sunset

At sunset the sky quickly faded to black. The infrared sky temperature drops and usually holds at the same temperature for most of the night, but not always. I was surprised the first time I saw the IR sky temp jump. I thought I was mistaken, it must be a bad reading. Because this phenomenon only occurs some times and it is quite fast, it was difficult to interpret. When I noticed that dew started to form at the same time that the IR sky-temperature jumped, it made sense. The sky cools when the sun does not warm it. It is warmed somewhat by infrared radiation from the ground. But as the ground cools, the amount of infrared energy going to the sky will also fall off. Then when dew starts to form, heat is released that radiates to the sky and usually holds the sky temperature steady. Some nights the dew can actually slowly warm the sky, and some nights it just can't produce enough heat and the sky temperature will slowly fall. There have been nights when, hours before sunrise the dew formation just slowed or stopped and the sky temperature began to fall.

Passing Night Travelers

One night I watched a 1000-km long band of cloud disappear from the infrared satellite image. By watching the image sequence I could see that the now invisible cloud would be passing overhead. I found that when I monitored

Physics of the Night Sky (continued)

the infrared sky temperature, that I could detect it pass overhead due to an increase in sky temperature as it passed. All during this time the sky was clear and the SQM readings did not change. Therefore a body of humid air aloft can travel thousands of kilometers intact.

Change is in the Air

Often the wind is a clue that a weather-front or cloud is approaching. Even if there is no wind, the infrared sky temperature sometimes will warm before cloud appears.

Sunrise is Coming

Far before sunrise (I never accurately measured this phenomenon) it is not unusual for the seeing to suddenly become rock solid. This temporary calm may last anywhere from only a few minutes up to over 15 minutes. The only other indication that sunrise is coming is the brightness on the eastern horizon. I don't point the SQM at the horizon because I really don't have an eastern horizon below 40 degrees. The instruments indicate that temperatures in the sky and at ground level usually level out or continue dropping for some time after morning has very obviously arrived.

Closing Comments

Light pollution is very bad at my observing site. I have found the orange glow to be the most damaging. While I can image successfully on transparent nights (SQM 18.0- 18.6), it takes much longer than a good dark site to get a nice image if at all. But the very poor horizon, airplanes, helicopters, search lights, poor seeing, barking dogs, patio lights, skunks, et cetera make it more challenging.



Left - Sky Quality Meter (SQM)

Right - infrared thermometer used for sky temperature readings

Below - temperature readings are taken from both of these thermometers. The thermometer on the left also measures humidity.





Astronomical Highlights of 2010 by Ray Badgerow

The following astronomical events happen this year as based upon Astronomical Calendar 2010:

Jan. 15: Long Annular eclipse (11m08s) visible from Africa, India, China
Jan. 29: Mars at opposition (mag. -1.3)
Jan. 30: Closest full moon of the year (356,600km/221,600mi)
Feb. 16: Venus-Jupiter conjunction (low)
Feb. 18: Vesta at very favorable opposition
Mar. 22: Saturn at opposition
Apr. 22: Lyrid meteor shower favourable
Jun. 6: Jupiter begins triple conjunction with Uranus
Jun. 25: Pluto at opposition
July 11: Total Solar eclipse (5m20s) visible from the South Pacific
Aug. 8: Venus, Mars and Saturn form a close "trio"
Aug. 12: Perseid meteors favourable
Aug. 20: Neptune at opposition
Sept. 21: Jupiter at opposition (best in 12 yrs)
Uranus at opposition
Sept. 22: Jupiter-Uranus conjunction
Oct. 29: Venus at inferior conjunction
Nov. 17: Leonid meteors favourable
Dec. 21: Total Lunar eclipse visible from the Americas!

This year Jupiter and Uranus begin a set of triple conjunctions, the first since 1983 and the last until 2037-38. The 3 conjunctions occur on June 6/10, Sept. 22/10 and Jan. 2/11.

There will also be 2 potentially naked eye comets this year, C/2009 O2 Catalina in March and 103P/Hartley2 in October.



Standoff at Science North by Jackie Fulton

Mid summer signaled a trip north for a gathering of the clan. Tempted by the expectation of clear skies, the astro-gear was the first thing to be packed. The entire family decided to attend the reunion, making a six vehicle convoy heading for Hearst, Ontario. The plan was to return via Sudbury and Science North at the end of the week.

The weather was for the most part disappointing. The sky not clearing until we reached the Queen's Hotel in Sudbury, on our return trip. Seizing the opportunity, I decided to set up in the parking lot for a little Sidewalk Astronomy. It was quite dark with very little ambient light. Nieces and nephews as well as hotel patrons came in force to have a look. The moon's terminator was perfect and there were wonderful views of Jupiter too. It was on this occasion my nephew Andrew had his Galileo Moment.

Andrew, age seven now, began by studying Jupiter, fascinated by the "balls" that surrounded it. Next he wanted to see the Moon. Pretty boring, he'd seen that before. Time passed as others took their turn at the eyepiece. Then Andrew wanted to see Jupiter once again. Andrew noticed the "balls" were not in the same place they had been before. The "balls" have moved!! he ex-

Standoff at Science North (continued)

claimed. With that, he ran off down the hotel corridor to share his discovery.....that the night sky is really very active indeed!

The next afternoon we all headed over to Science North. After my ticket purchase, I noticed Andrew had wandered over to the doors of the planetarium and had struck up a conversation with the attendant. Arriving, I was an observer to a conversation already in progress. Andrew, looking up at the attendant, was saying how he didn't need to see the universe, he'd already done that. With the tone of one with an inside track, he added, he'd seen the "balls " move, and just last night. I reminded him they were "Moons, Jupiter's Moons".

Then Andrew continued "And my Aunt has a laser too! Do you have one? " "No" was the reply " but we have a telescope". Andrew straightened, feeling the need to defend my honor (and his) said "Ya, my Aunt has two!"

The attendant, with a good natured smile, looked across at me saying "Well then, does your aunt have a neutrino observatory ?"

Andrew spun around, not knowing what it was, but knowing it must be big, looked to me to up the ante. I could only shrug. In the agony of defeat, he marched off in a huff to join the others.

I looked back at the attendant, as we both began to laugh, "Guess I win!" was all he said.

THE SCOPE STORE
at CAMTECH
588 Concession St
Hamilton, ON L8V 1B1

**The Largest Selection Of Scopes
in the Golden Horseshoe.**

Dealers for Orion, Celestron,
Bushnell, Pentax, Nikon, Swift
and Zeiss.

Telescopes, Spotting Scopes, Microscopes,
Binoculars and Accessories. Starry Night
Software.

905-389-8545
www.camtechphoto.com



Dwarf Planet of the Month: Cruithne by Steve Germann

Earth's second moon? No, it's a Dwarf Planet!

Picking up my monthly crusade for 'equal time' for Dwarf Planets, this month I am featuring 3753 Cruithne, "Earth's second Moon".

First off, let's get the pronunciation right... CREW-eeen-ya is how it's done. One of the earliest Celtic tribes in Britain and Ireland was named Cruithne, and that's where the name comes from. I don't know what that has to do with a moon, but the discoverer gets to name it. The spelling is a bit bizarre, but not nearly as bizarre as its orbit.

It has been called a second moon of Earth, but it's really a Dwarf Planet, and true to this column, hereafter a Planet, with an orbital period around the Sun that is within one percent of an Earth year. Due to resonance with Earth, it cannot collide with Earth, but keeps a respectful distance.

It's no more a 'moon' of Earth than Pluto is a 'moon' of Neptune, but, if you look at it in the sky, it's orbit is eerily related to Earth's orbit. Cruithne is a bit smaller than Mars' smallest moon. But enough of mentioning other planets, back to Cruithne.

Cruithne was discovered in October 1986, by the British astronomer, Duncan Waldron, while he was working at Siding Spring Observatory, in Australia.

It can be found on a photographic plate from 1983, but this was only determined after the orbit, which took until 1997 to puzzle out, was pinned down. The work to compute its orbit was done by Paul Wiegert and Kimmo Innanen, at York University in Toronto, and Seppo Mikkola, at the University of Turku in Finland.

It's orbit comes as close as .3 AU to the earth these years; it can come as close as 15 million km at certain times in its 770 year oscillation as its orbit morphs. First faster than Earth, then slower, Cruithne does an interesting dance in the sky, following a kidney-bean-shaped orbit as viewed from Earth.

Here's an image of Cruithne orbiting the sun but from the perspective of the earth. This picture and others can be found on the Wiki page for Cruithne, [here](https://en.wikipedia.org/wiki/3753_Cruithne). You can see that it appears to be buzzing near the earth like a slow-motion house-fly.

http://upload.wikimedia.org/wikipedia/commons/c/c7/Horseshoe_orbit_of_Cruithne_from_the_perspective_of_Earth.gif

Being only 5 km in diameter, it cannot be seen naked eye. It has a low surface gravity, with an escape velocity of 2.6 meters per second. That means if you stood on Cruithne, you could probably jump off and stay off. On the other hand, a well tossed baseball would go into orbit, and take about 2 hours and 22 minutes to orbit the planet. The day on Cruithne is 27 hours long, so there's no danger of being thrown into space due to rapid spinning of the planet.

When it's closest to Earth, and brightest, Cruithne has a magnitude of 15.8, which is about the limit for my telescope in visual mode.

...continued p.9

Cruithne (continued)

To find Cruithne, and perhaps snap a photo of it, it's necessary to use Cartes Du Ciel. You would need the 'Asteroides' catalog.

In the process of looking for it, I came across an excellent feature of CDC, which allows you, if you have internet access at the time, to get updates for a small region of the map, from a 526 million star catalog. This allows showing objects to magnitude 20 on your chart, making it possible to distinguish wanderers from the boring stars which populate the sky.

Here's the best image of Cruithne we have:



In trying to determine where Cruithne is, I have had to learn more about how asteroid elements are downloaded into astronomy sky chart programs. It's fascinating how many asteroids there are, and how a single line of text can define where they will be seen at future or past times. With Kerry's help, I was able to get the orbital elements for Cruithne into my copy of CDC, and I see that it's in Ophiuchus, not far from M24, which is near the Sun this time of year.

For sure we will hunt it down in a few months as it wanders out of there. For instance in June of 2010, it will be rising at 3 AM, but by August, it's going to be near Orion and Taurus.

Chalk up another Dwarf Planet for our admiration. Next month, 433 Eros.

COSMOLOGY DISCUSSION GROUP

The Hamilton Amateur Astronomers is pleased to announce a meeting of the HAA Cosmology Discussion Group.

This in-club event is open to anyone interested in exploring the grandness of the universe from the coziness of a comfortable chair. Not a formal presentation, this is fun, round-table discussion in which everyone is encouraged to participate. No level of expertise is necessary; everyone is welcome. There is, however, limited space in the room, so please RSVP to observing@amateurastronomy.org if you wish to participate.

First meeting: January 30th, 2010. 7:30pm

Topic: An Introduction to Cosmology Using the Scale of the Universe

"Astronomy is the study of the stars, the planets and everything in the universe. Cosmology is the exploration of the Universe itself."



November General Meeting Wrap Up by Heather Neproszel

At the November general meeting of the HAA, Chairperson Steve Germann welcomed University of Toronto astronomer Roberto Abraham. Roberto made his presentation in the first half of the evening because he was off to do make some science observations with a colleague later on that night.

I always look forward to talks by professional astronomers, and Mr. Abraham did not disappoint. Roberto's "Cosmic Dawn and the Origin of Complexity" is a wide-ranging presentation intertwining cosmological concepts, particle physics research of the last century, the presenter's own findings and excellent descriptions of current and planned astronomical observatories.

So what are the origins of the universe? What is the "Big Bang"?

Roberto started out by stating that all it takes to understand the origins of the universe is Einstein's famous theorem $E=MC^2$, where energy is equal to mass times the speed of light squared. Roberto directed us to look at footage of atomic bomb explosions to try to understand the mechanism of the origins of the universe. Roberto mentioned J. Robert Oppenheimer, the "father of the atomic bomb" and his famous quote from the Bhagavad Gita "I am become Death", the destroyer of worlds": that both destruction and creation are manifest in this Hindu God, and that this describes the essence of particle physics research today.

The Big Bang created hydrogen and helium, supernovae of stars creates iron, and stars themselves create calcium and lithium. Roberto also quoted Carl Sagan: "You are star stuff".

However, Dr. Abraham says astronomers are still trying to piece together how the first stars were made, and how the first galaxies came into existence. Gravity alone is not enough to explain how these objects came into being. The key is plasma, an ionized gas, is electrically conductive. Plasma therefore has properties quite unlike solids, liquids or gases. Roberto says research indicates that hydrogen in a plasma state naturally collapses on scales about the size of galaxies.

And what did happen after the big bang? For a while there was a cosmic "Dark Age". Capturing the "First Light" is the "Holy Grail" of cosmology. That is why NASA is building the James Webb Space Telescope. This large space telescope will be able to detect infrared wavelengths of light. It will have the ability to detect and study interesting stars and black holes. The JWST may be able to detect the "first" galaxies and "first" stars.

Roberto then described how ground-based telescopes will compete with the JWST through the use of refined adaptive optics, a mechanism that counteracts the blurring effects of the earth's atmosphere. Very large telescopes are being planned and built that will also take advantage of gravitational lensing. It was interesting to hear Roberto mention that there is Canadian input in this area on the JWST.

Thank you Roberto for a lively and very informative presentation from mysterious cosmological concepts to the "nuts and bolts" of the hardware to be used on the JWST.



Messier Marathon as a Fundraiser by Jim Wamsley

Many of us are familiar with the concept of the Messier Marathon, "The observing of all 110 Messier Catalogue objects in one night." Few of us are aware of the great opportunity to use this event to inspire others to donate their money to a good cause. My job with this article is to try and inspire you, the reader, to help the H.A.A. raise money to swell our coffers, so we will be able to continue the good works of public outreach, and pay the many expenses it takes to fund, and maintain an organization such as ours.

At the next couple of club meetings, we will have people speak of the Messier Marathon and gives us ideas on where and when we can perform the marathon itself. We will also make available an information sheet with a list of the Messier Objects in the order of appearance and brightness etc. On the backside of this sheet is a donation sign-up sheet that you can use to help you to organize your donations. These will be available at the greeting table.

I have found in the past that the people that are easily approachable, are family, co-workers, neighbours etc. Once you have explained your purpose to them, they are willing to give you a small donation and receive a "tax receipt" for \$15.00 or more. Trust me, they will still be your friends after you have hit them up for money. LOL. I have also found that hitting up professional people for larger donations can be very beneficial (i.e. Dentist, Doctor, and Insurance Broker etc.), Use your imagination. These folks are often looking for worthy causes to give their money to and receive a tax break.

As stated before, I hope this little epistle has inspired you to broaden your astronomical horizons as well as open your friends' and neighbours' pocketbooks. If you have any questions on the subject, don't hesitate to contact me: membership@amateurastronomy.org.

Masthead Photo Credit: Andrew Bruce



This month's masthead photo is by Andrew Bruce. He sends along the image at left which identifies the buildings in his photo.

Andrew took these photos from atop Mount Haleakala while on a recent visit to Maui. Regrettably, neither the observatory nor the domes are open to the public.



The Sky This Month January 2010 by John Gauvreau

As we begin a new year and a new decade, we are reminded that the sky turns in its cycle and brings us back to the same starting point each year, with our favourite winter constellations high in the cold, crisp night. But think how much the sky changes for us too. This time last year, as 2009 began, Jupiter was setting in the west along with Mercury, and Venus was high in the dusky sky. Jupiter is with us again, but neither Mercury nor Venus are to be seen this new year. Venus is in conjunction with the sun and so is Mercury, and although early morning risers can see Mercury before the month is out as this speedy planet appears in the east before sunrise, we will have to wait until February for our first glimpse of Venus. But all this just serves to make us appreciate what we do have this month, and what we have is pretty good!



January 2010 is what Mars observers have been waiting two long years for. You have probably already noticed **Mars** high in the eastern sky, appearing as a rich, rusty star in the constellation Cancer. It has been growing in brightness to its current magnitude of -1 because it is approaching opposition, which means it is getting closer to Earth and growing brighter in the sky and bigger in the telescope. Mars comes to opposition every two years, appearing in our sky directly opposite the sun. It rises at sunset and sets at sunrise, and so is visible all night. This is the time when it is closest to the Earth, and that puts Mars at its best this month and next. This year Mars will appear as a disk only 14" (arc seconds) across, which is very small for a Mars opposition (remember 2003? Mars was 25" across that year!). For comparison, Jupiter is 34" across. Even so, there is a wealth of detail that can be seen on Mars in even a moderate scope at this time. The polar ice cap, and dark markings are

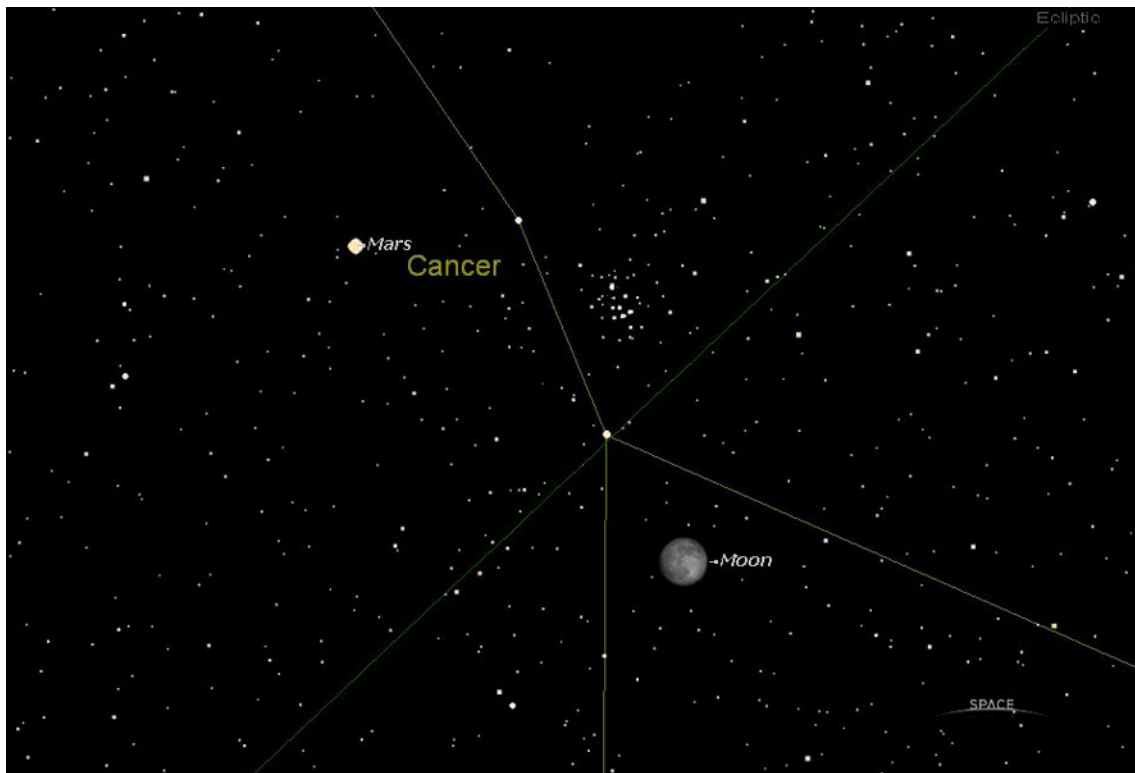
easily visible on the planet's surface, and experienced observers can look for clouds that appear milky white or blue. Try drawing what you see so you can share your observations with the rest of the club. And one more thing to remember; as small as Mars appears in a telescope, it won't get any better than this for many years to come. So now is the time. Allow yourself to be drawn up into the allure of the Red Planet. Think back on its history and the impact it has had on our common consciousness. Think of Percival Lowell and his 'canals', H.G. Wells and "*The War of the Worlds*", Edgar Rice Burroughs and John Carter, and then think of the many real robotic craft that have traveled the distance only to be lost, and the sweetness of the reward when success finally comes, as it has with the Spirit and Opportunity rovers that are even now exploring the surface of this alien planet. Then finally, step outside and let the red light of this neighbouring world cross the mere 99 million kilometres of interplanetary space and fall on your eyes, allowing you to step from the books of the past to the reality of the present, and experience Mars for yourself.

Mars is at opposition on January 29th, which is also the night of the full **Moon**. If you think about it, the full phase of the moon means that it is also at opposition (opposite the sun), so it should be no surprise that the Moon and Mars are in the same part of the sky that night. Mars and the Moon are only 6° apart on this night, so a low power binocular with a wide field could fit them both in. This is the best way to take in the Beehive cluster as well. Keep in mind though, that the cluster will not be at its best with the full moon right beside it. For the best view of the Moon and Mars, I think that the unaided eye should do.

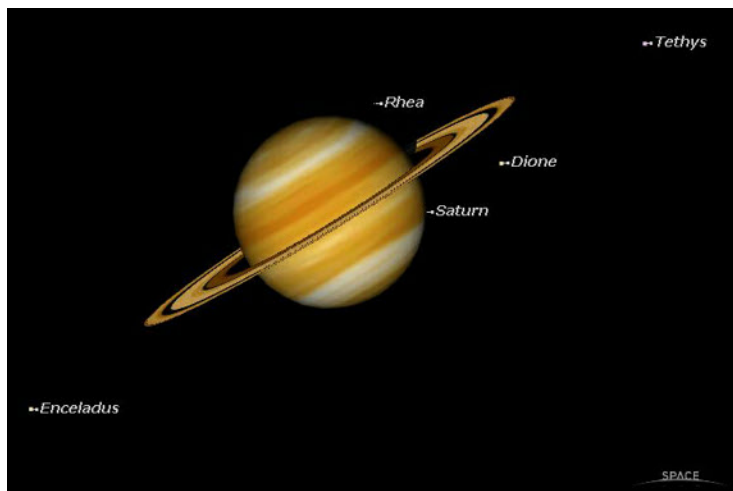
...continued p.13

The Sky This Month January 2010 (continued)

Just go out and look. And for all you **Full Moon** observers, the moon is also at apogee on the 29th, meaning that it is at the point in its orbit that is closest to Earth, so the full moon of January will be the largest of the year. Moonrise is at 5:05pm, so don't miss it!



Returning to **Jupiter** we must say our goodbyes, as we have only an hour or so after sunset to see it before it sets, too. When we meet again next month it will be lost in the light of the setting sun. Keep in mind though, that each month brings **Saturn** up in the east earlier and earlier. This month it rises around 11 pm. Look for it on the night of February 1st, when the Moon appears only 10° to the west of Saturn. For telescope observers the rings are still tilted less than 5° from edge on, but even this small number will shrink over the next few months. How much detail can you see in the rings now, and as they shrink how much detail will they lose?

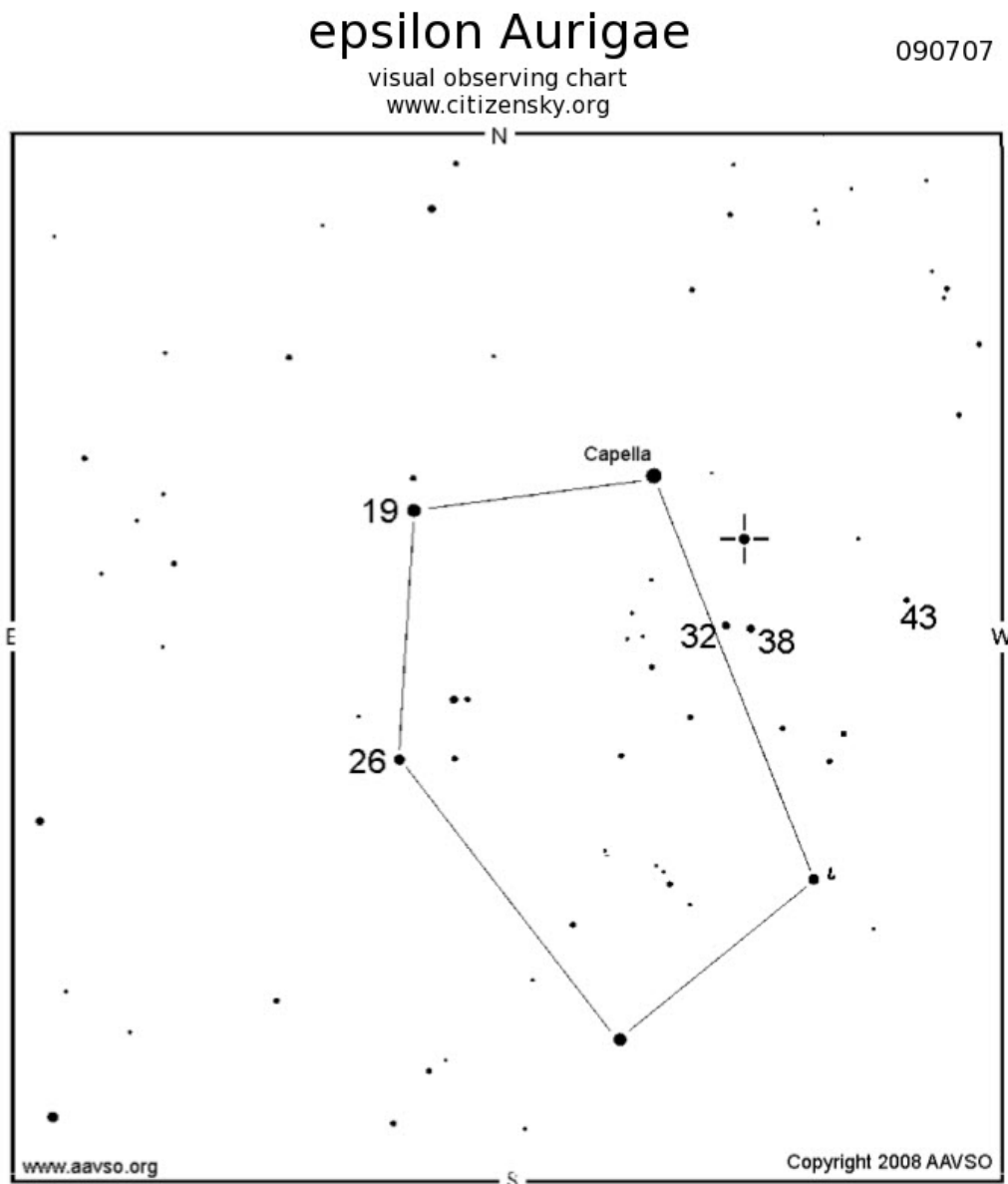


... continued p.14

The Sky This Month January 2010 (continued)

At the last meeting, Heather reminded us of the continuing eclipse of the variable star Epsilon Aurigae. This strange star dims every 27 years, and stays dim for a year and a half to two years. It is in eclipse now, but the interesting thing is that although we can predict *when* it will happen, we don't know *why*. Most believe that there is a cloud of material that surrounds the star and passes in front of it, thus obscuring the light of the star. By keeping track of the light of the star perhaps we will be able to calculate the materials mass and size, and better our understanding of what is happening in this fascinating system. You can go outside and observe it yourself. Use the accompanying chart to compare the brightness of Epsilon to some nearby stars. Their magnitudes are given as numbers without decimals (because the decimals would look like stars). So a star that has a number 32 beside it means that the star's magnitude is 3.2, and 19 means magnitude 1.9. How does Epsilon, which is the star in the centre of the cross, compare to these other stars? Can you estimate what the magnitude of Epsilon is? Have a look every now and then, and perhaps you will notice the brightness of this star change. Perhaps you will see the evidence of this cloud passing in front of this distant star.

As always, please feel free to share any observations, stories, photos or drawings with the rest of the club. Email them to observing@amateurastronomy.org



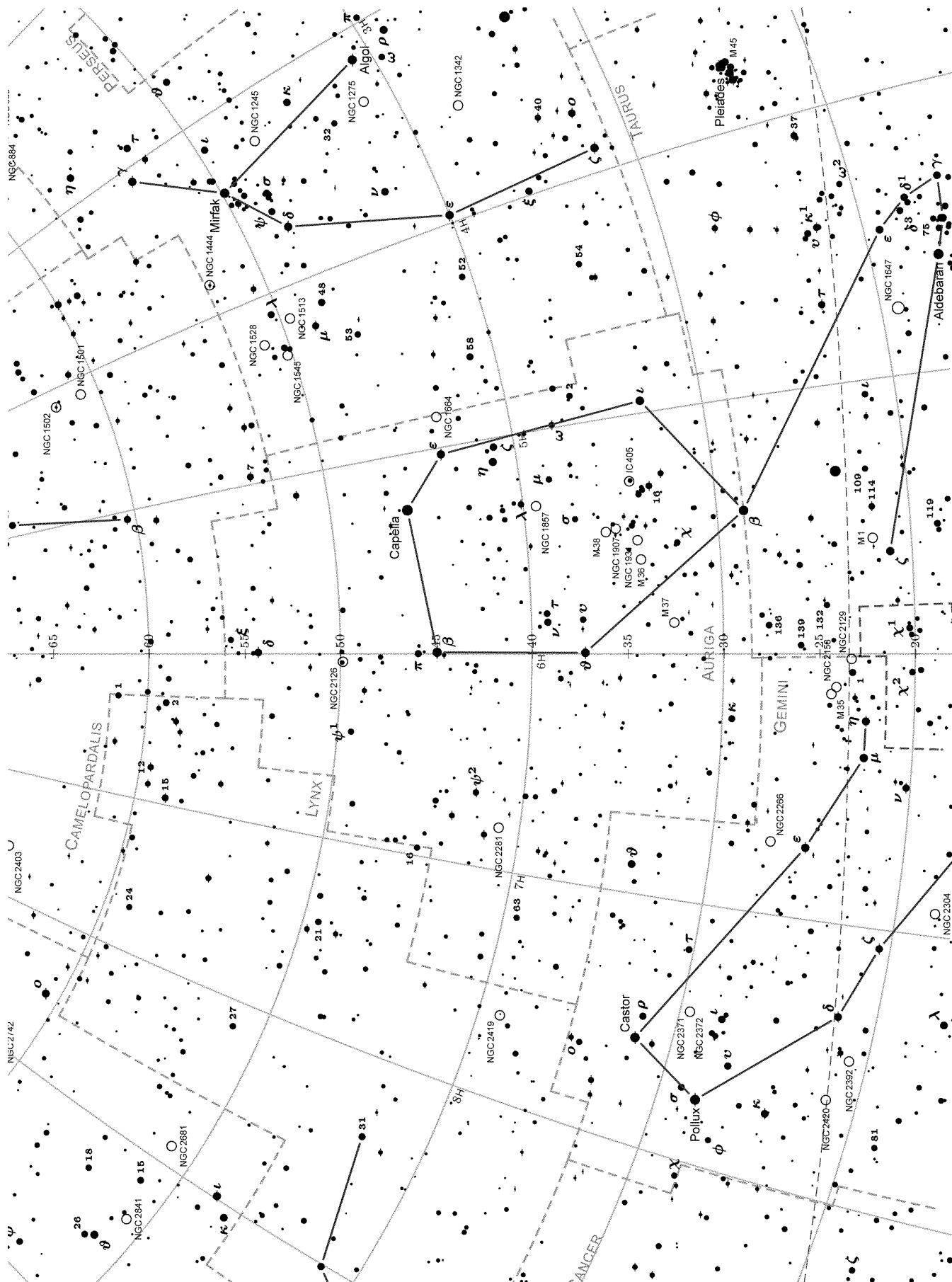


Chart 3: RA 4^h to 8^h, Declination + 65° to + 20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

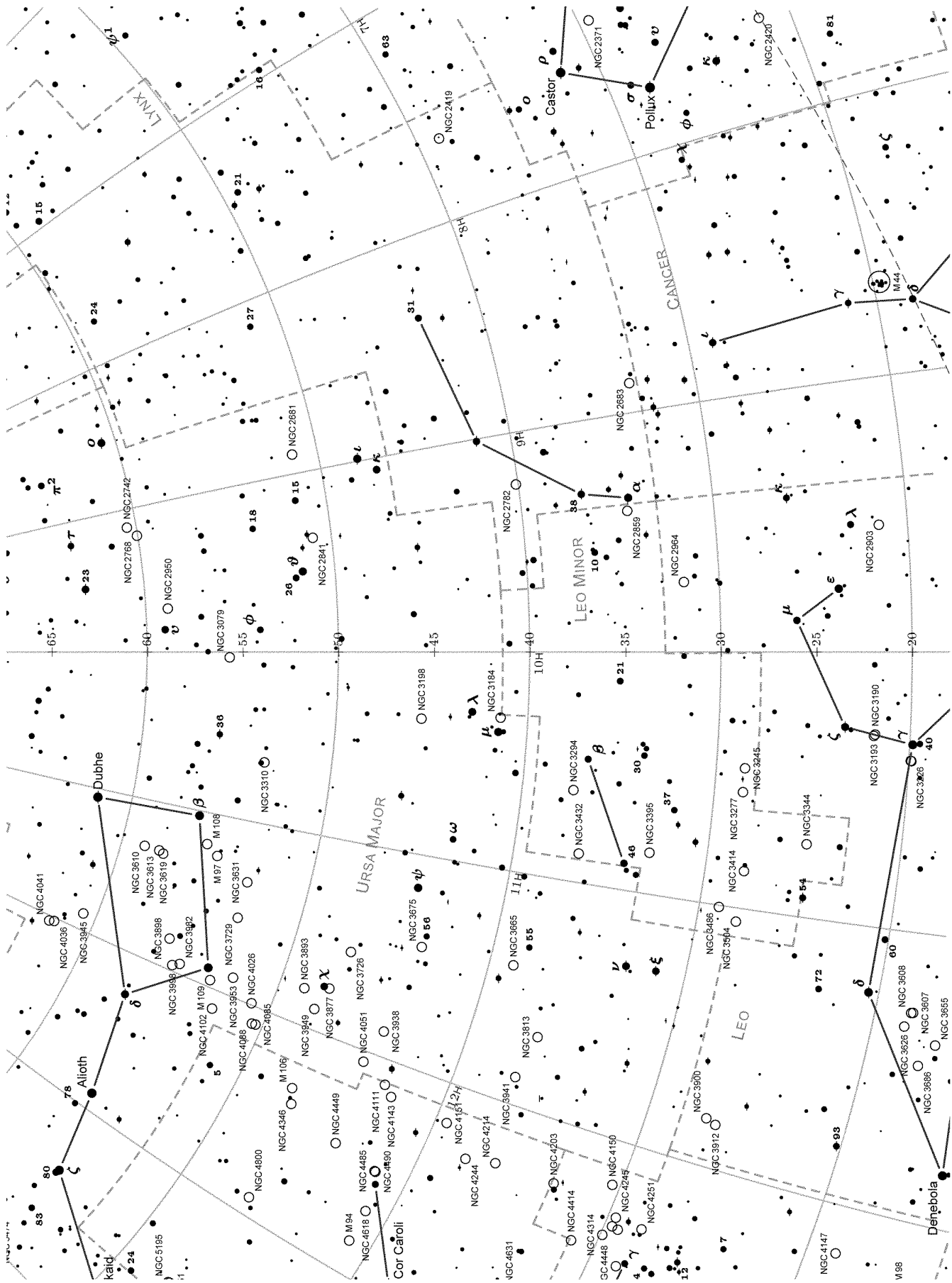
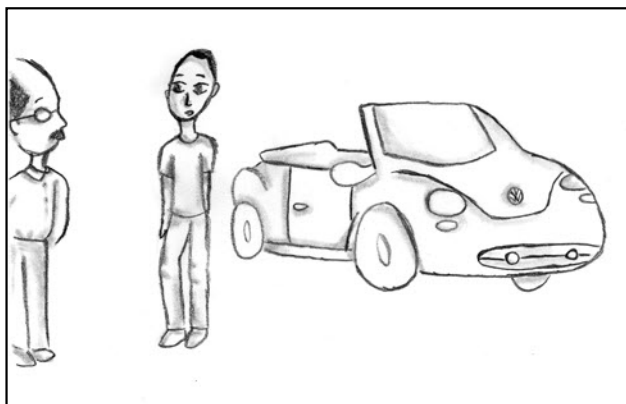


Chart 4: RA 8^h to 12^h, Declination +65° to +20°

Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0



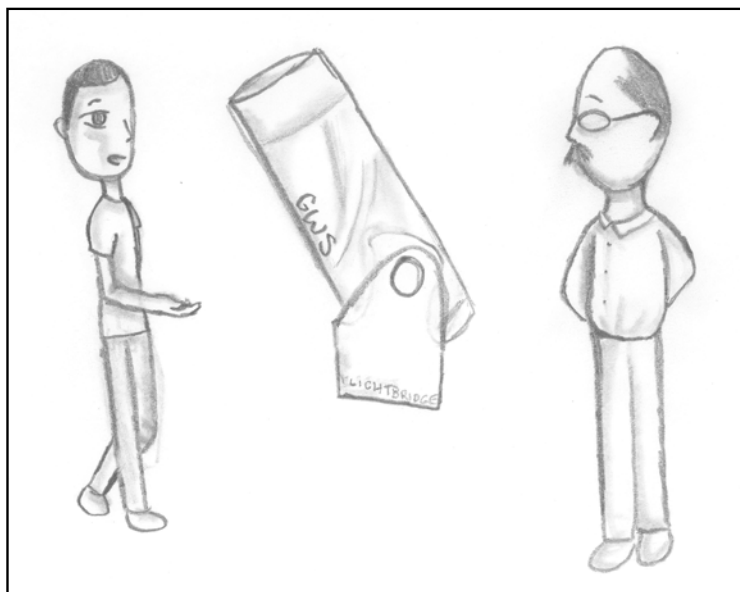
Cartoon Corner by Alexandra Tekatch



Boy: "So how do you do it, Steve?"

Steve: "Do what?"

Boy: "Fit such a great, big telescope into such a tiny car...?"



Steve: "Quite easily, actually!"



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. Please contact Harvey Garden at 905-692-4595.

UPCOMING EVENTS

January 22 - Public Observing event at Burlington Winter Carnival

January 30 - 7:30 pm Cosmology Discussion Group. Email John Gauvreau: observing@amateurastronomy.org for details and to reserve a spot.

February 12 - 7:30 pm HAA General Meeting at the Hamilton Spectator Building

February 26 - HAA trip to McMaster's McCallion Planetarium

2009-2010 Council

Chair	Steve Germann
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 Heather Neproszel 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.

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

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

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

