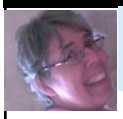
Event Horizon

Volume 18, Number 8
June 2011



From The Editor

Our first Crossword Contest award will be announced at the June general meeting. Mario will be awarding the two volume book set from Apogee Books to the winning entry. You'll also want to hone your competitive edge for the Astronomy Trivia Contest being held at our June meeting. I understand that some of the questions will be drawn from talks at previous meetings. You might want to refresh your memory by re-reading Bob Christmas's excellent meeting summaries in the past few issues of EH.

As the summer approaches and life gets somewhat less hectic and structured, we take a break from general meetings. Instead of talking, planning and dreaming of astronomy, we actually get out and observe!

Although the newsletter takes a hiatus during the summer months, we want to hear about your summer observing and star party experiences. Please send your articles to me for the September 1st issue.

And don't forget to take lots of astrophotos for the club calendar.

See you in September!

Ann Tekatch
Editor@amateurastronomy.org

Chair's Report by John Gauvreau

I am writing on the eve of my first star party of the year. Already, some other members of the HAA are at Cherry Springs State Park, a dark sky site in the Allegheny Mountains of northern Pennsylvania. Star parties are wonderful events where amateur astronomers travel from all over to camp under a dark sky and observe in the company of fellow enthusiasts. Of course there are talks and door prizes, but whether the dark skies or the good company is the best part is often the topic of debate. As the summer goes on you will have many other opportunities to go to star parties and I hope you take advantage of one of them. The cares of the world seem to melt away under such dark, starry skies. Although I like to divide my time between the telescope, binoculars and photography, I also like to take a walk away from the scopes and people at some point during each observing session. Spending some time looking at the sky with the unaided eye is always a reminder of just how amazing the universe really is.

The HAA has one more general meeting before our summer break, and it promises to be a good one. We are reviving a trivia night, an interactive game night in which everybody plays, so bring your thinking caps and have fun! And although after that there are no more general meetings until September (when observational astrophysicist Dr. Laura Parker will be the speaker) there will still be lots of other HAA activities to participate in. Of course summer is the most popular observing season and everyone should try to get out to our dark sky observing site at Binbrook Conservation Area at least once. The Book Discussion Group and the Cosmology Discussion Group continue to meet and all members are welcome. And of course there will be more public observing sessions and sidewalk astronomy. Visitors and volunteers are both *(Continued on page 2)*

IN THIS ISSUE:

Chair's Report (continued)

vital ingredients, so be one or the other! Our May 7th Astronomy Day program was a big hit, with solar observing at McQuesten Park in Hamilton happening during the day and the moon and Saturn highlighting the evening session. There were over 20 club members participate and I thank each and every one for making the day such a memorable one for the 300 public guests that enjoyed views through the scopes and the abundance of information and good company that or members provided.

The Telescope Loaner Program is in action, and the first recipients already have a scope in their possession for use. We have been fortunate to have had even more instruments donated, and as soon as they are prepared for use they will go to the next applicants. If you have never used a scope and would like to try one, consider applying for a loaner scope!

Now, to finish packing and get some sleep before the trip tomorrow. Of course, I could look through some star charts just once more, thinking about all the wonderful things to observe at the star party...

See you out there!

John

chair@amateurastronomy.org

June Treasurer's Report by Don Pullen

(Unaudited)

Cash opening Balance (1 May 2011)		$ 6427.29
Expenses		$ 251.75
Revenue		$ 144.00
Closing Balance	(31 May 2011)	$ 6319.54

Notes:
1. Major revenue sources included: 50/50 ($54), Memberships ($100), Planetarium Show ($40)

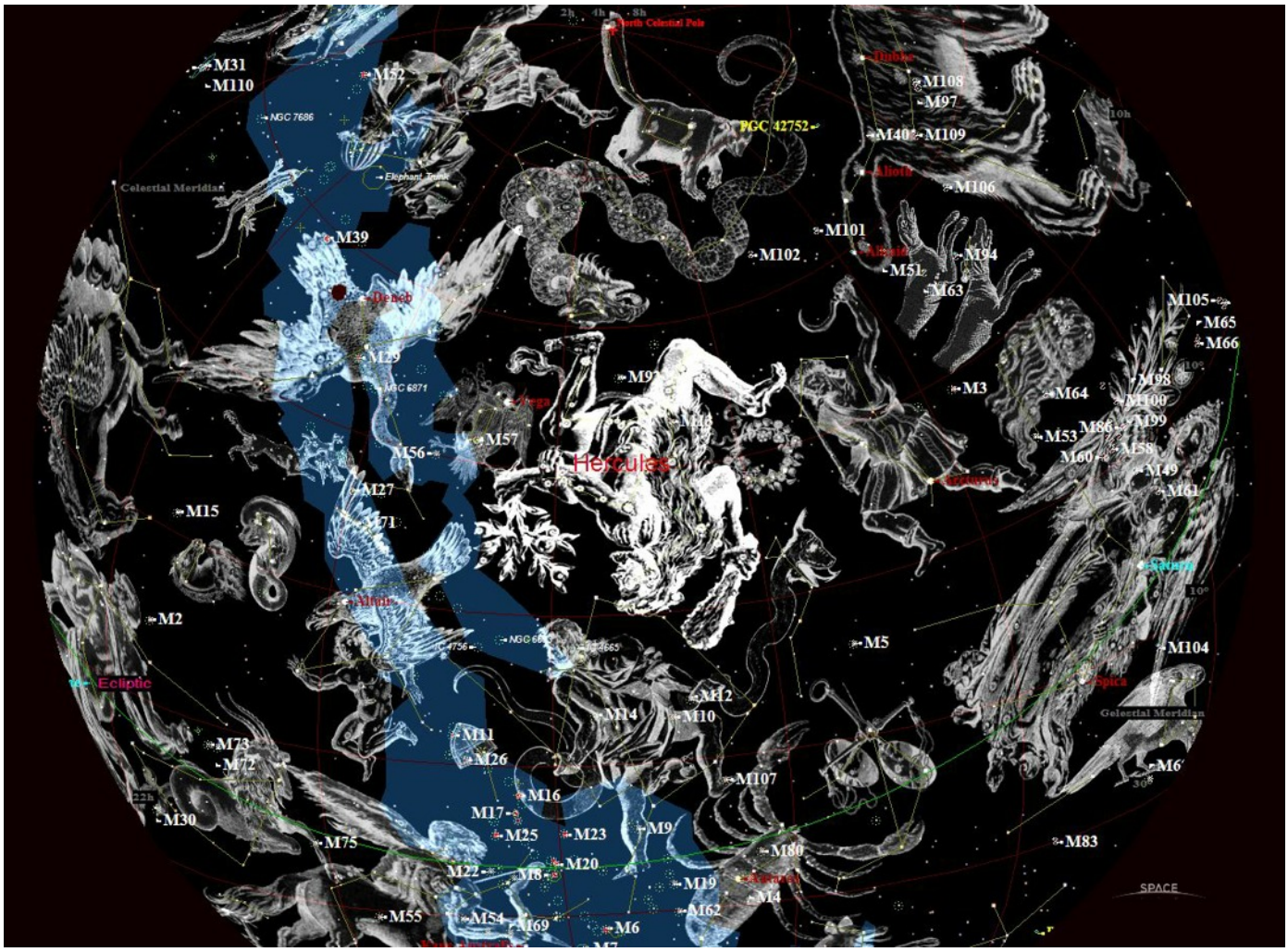
2. Major expenses included: Planetarium Show ($201.00), Office Supplies & Postage ($50.75)

Masthead Photo Credits: This panoramic photo of the evening sky was taken by John Gauvreau at Cherry Springs State Park, Pennsylvania on Friday, May 27th, 2011 at 8:50 pm. John used his Canon Xsi dslr with a wide angle lens and an exposure of 1/13 second at f/8. Conditions were not the greatest at this year's annual Cherry Springs Star Party.

Through the Looking Glass by Greg Emery

With the spring skies visible through fleeting holes in the clouds, I have had more time to contemplate one of the big questions of amateur astronomy, namely, "what were our forefathers (and foremothers) drinking and thinking when they thought that that group of stars looked like a ...?" For many of us, observing from poor skies, the shapes of the constellations are lost - you can't play connect the dots without all of the dots!

My favourite constellations are based on the time of year (try explaining that to a non-astronomer -I tried and failed). This time of year, Hercules is the constellation I am always drawn towards. When I see the shape of Hercules I can imagine a person in the stars. But why Hercules? There are many other mythological figures that deserved to be immortalized in the heavens just as much as Hercules. When I look at this section of sky, the constellation I can most easily visualize is Leo. The constellation Leo is off the map given below (it would be on the upper right hand side).



The constellation Draco, appearing above Hercules in the map, is not as easily seen, but just follow the long line of stars and you'll find the constellation figure. Ahead of Leo (way off the map to the right side) is the constellation Cancer, the crab. How anyone sees that as a crab is a guess to me, but I was never consulted so a crab it is.

The myth of Hercules (Heracles of the Greek version) is that Zeus, the Arnold Schwarzenegger of antiquity, had a son with a mortal, Alcmene the Princess of Thebes. This transgression of Zeus further upset Hera, his vengeful wife. The life of Hercules was marked by many events. The *(Continued on page 4)*

Through the Looking Glass (continued)

stories of Greek, Roman, Indian and Chinese myths would have predated written form and existed as an oral tradition for generations. In the Greco-Roman myth of Hercules the sky was used to record the story and to aid and entertain the listeners.

Hercules as a youngster was strong, agile and interested in the rough and tumble life of hunting, wrestling and fighting as opposed to the pursuit of music and other classical studies. Hercules is claimed to have killed his music teacher, Linus, with his lyre. The constellation Lyra is following Hercules through the sky.

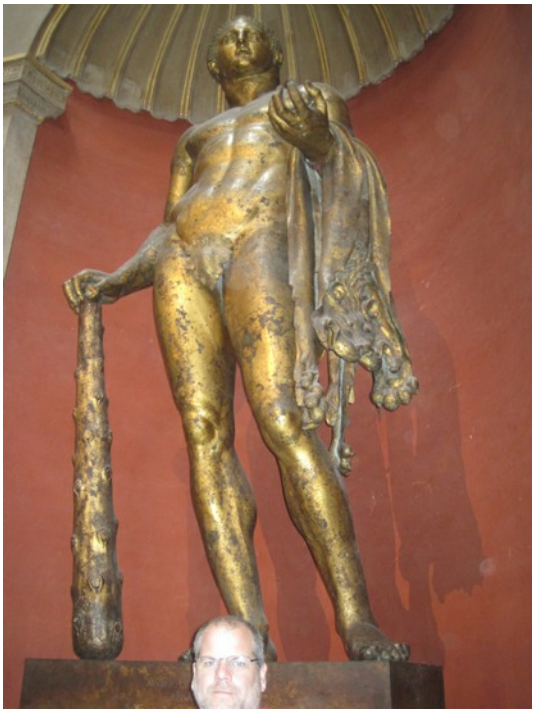
Depending on which of the myth that you follow or read Hercules became indebted to Eurystheus, the High King of Greece, and was tasked to work for 12 years (or 99 months) and to complete 10 (or 12) difficult labours within that time frame.

The first labour was to kill the Nemean Lion which is represented by the constellation Leo. Hercules trapped the lion in its cave. Hercules skinned the lion, using its own claw, as it was impervious to iron, stone or brass. The classic figure of Hercules always has him cloaked in a lion skin.

Another labour of Hercules was to kill the multiple headed monster, Hydra. This hideous creature could grow two new heads each time one was cut off. While battling the monster, Hera sent in a crab to nip and torment Hercules. The monster is represented in the skies by Hydra, and the crab by Cancer.

Not wanting to grow too lazy or complacent Hercules also successfully completed the task (or labour) of retrieving the golden apple of Hesperidus during which, by some accounts, he slayed a dragon. The dragon may be Draco, but there are other mythologies not involving Hercules that explain the presence of Draco in the heavens.

The final task of Hercules was to slay the three headed dog, Cerberus. There are no direct references of Cerberus in the constellations. Some representations of Hercules include Cerberus in the illustration. The illustration of Hercules above depicts a club (carved from a wild olive branch) in his right hand and the heads of Cerberus in his left.



So, by depicting the constellation as a person, and by having that person be Hercules we can link the constellations Hercules, Lyra, Draco, Leo and Cancer in one myth. One thing I have not mentioned is the fact that Hercules is pictured upside down - this is so his foot can be seen to be crushing the head of Draco.

At left is a picture taken at the Vatican Museum last May, where you can see Hercules crushing the head of yet another beast.

May 13, 2011 Meeting Summary by Bob Christmas

At 7:33pm, HAA Chair John Gauvreau got the May meeting under way by welcoming all in the audience to the Hamilton Spectator Auditorium, and by informing everybody of the amazing turnout of HAA members and the general public to the HAA's Astronomy Day outreach event at McQuesten Park in Hamilton the previous Saturday. He also informed those in attendance of the HAA's new loaner scope program and the upcoming cosmology discussion.

HAA Publicity director Mario Carr, author of each month's Event Horizon Crossword Puzzle, invited people to submit their answers to 8-down of the April EH puzzle for a chance to win a Mars-missions double-volume set from Apogee Books.

Photo courtesy of Don Pullen

Tim Philp, the main speaker for this meeting, gave his talk, entitled "Triskaidekaphilia", literally, "love of the number 13", in honour of this day, Friday the 13th. In it, Tim described his list of the thirteen most important discoveries in the field of astronomy, in chronological order:

1. The Planets Move --- The Mesopotamians, Greeks, and others, took notice of certain star-like points of light in the sky that moved night-to-night, relative to all the other points of light in the sky. These are the brightest planets visible to the naked eye. Example publications from ancient times include the Mesopotamians' Tablet of Ammisaduqa, which recorded the motions of Venus, and Claudius Ptolomy's Almaqest.
2. The Earth Moves --- In 1543, Nicolaus Copernicus found out that the planets, including the Earth, orbit the Sun, not the Earth.
3. Planetary Orbits are Elliptical --- Johannes Kepler determined that not only do the planets orbit the Sun, their orbits are elliptical, not circular. Kepler devised his 3 laws that describe planetary orbits around the Sun.
4. Jupiter Has Moons --- Galileo Galilei saw them first! He made the first observational sketches ever made at a telescope eyepiece, showing the motion of Jupiter's four brightest moons night-to-night.
5. Comets Move --- Edmund Halley figured out that a certain comet, which today bears his name, has a very eccentric elliptical orbit, and returns to the inner solar system every 76 years.
6. The Milky Way is a Disk of Stars --- The likes of William Herschel determined that the Milky Way was a massive ribbon of billions of stars. It was eventually determined that the Milky Way is itself a "galaxy", an "island universe" like so many of these "spiral nebulae" that were found, and we're living inside it!
7. General Theory of Relativity --- Albert Einstein determined that there are relationships between space, time and gravity. He also predicted the existence of black holes.
8. The Universe is Expanding --- Edwin Hubble, among others, discovered that the Universe is expanding by observing that the farther galaxies were away, the faster they were moving away from us, and from each other.
9. Centre of the Galaxy Emits Radio Waves --- In 1931, Karl Jansky at Bell Labs discovered that the core of our galaxy emits radio waves. This determination would pave the way for the discovery of radio-galaxies, pulsars, quasars and mosars.
10. Cosmic Microwave Radiation --- In 1964, a giant radio antenna detected faint microwave radiation coming from everywhere in the sky, from the farthest reaches of the Universe, a discovery made possible by the removal of the original suspect --- pigeon poop! The removal of the bird crap didn't make any difference in the microwave readings; the microwaves were coming from deep space.
11. Gamma Ray Bursts --- During the Cold War, satellites put in orbit to detect explosions from nuclear weapons on Earth were instead detecting blasts coming not from Earth, but from deep space, from other galaxies. These were determined to be powerful gamma ray bursts coming from massive dying stars in far away galaxies. We're all lucky these were never mistaken by either the Americans or the Soviets for a nuclear attack!
12. Planets Around Other Stars --- Starting in the 1990's, precise observations of the motions of other stars (i.e. slight "wobbles" of *(Continued on page 6)*

May 13, 2011 Meeting Summary (continued)

some stars) led to the discovery of planets orbiting these stars. So far, 531 planets have been discovered orbiting other stars. Discovery of an Earth-like exoplanet may not be far behind!
13. The Universe is Accelerating --- Observational findings in recent years, particularly of "dark matter" and "dark energy", have determined that the Universe is not only expanding, but this expansion is accelerating.

During the question-and-answer session, honourable mention was given to alien life, string theory and the "theory of everything".

Thank you so much Tim for this fascinating and well-structured, well-understood talk!

After the usual intermission, the winning tickets were picked for the door prizes and the 50-50.

HAA member Kevin Salwach was back for the second time in as many months to talk about what happened on this particular day, May 13th, in history:

* 1861 - Great Comet of 1861 observed by John Tebbutt.
* 1942 - Vladimir Dzhanibekov born.
* 1957 - Astronaut Claudie Andre-Deshays born.
* 1960 - Launch of Delta Rocket failed.
* 1982 - Soyuz T-5 launched (145 days in space).
* 1983 - German astronomer Otto Heckman dies.
* 1993 - First triple spacewalk.

Good work once again, Kevin!

HAA Observing Director Steve Germann then took to the floor to talk about The Sky This Month for May 2011.

Steve started out by showing NASA's Astronomy Picture Of the Day (APOD) for May 9, a panoramic view of the area around Chile's Very Large Telescope (VLT) array on the night of last December's total lunar eclipse.

Then he talked about the spring constellations, and mentioned that Saturn is very prominent in the evening sky for the rest of the month (and the rest of this spring). To that end, Steve showed images taken by the Cassini probe around Saturn's moon Enceladus, which was the APOD for May 12. Steve talked about the Virgo Galaxy Cluster, the nearest large cluster of galaxies to our own Local Group of galaxies.

Steve pointed out that the summer constellations Cygnus and Ophiuchus are rising in the east earlier and earlier in the evening now (they rise just before midnight in early May). He then showed my (Bob Christmas') images of the Rho Ophiuchi nebula complex, which is on the Scorpius-Ophiuchus border, and of the globular clusters M10 and M12 (an image that also shows what I believe is a geosynchronous satellite). I took these images on the morning of May 5 from near Barry's Bay, ON.

Steve's constellation of the month was Bootes, variably known as the Herdsman, the Bear Driver, the Bear Keeper, etc. This constellation is just below and to one side of the handle of the famous Big Dipper. The bright star Arcturus is here, as is the globular cluster NGC 5466. Globular cluster M3 is right beside NGC 5466, but just over the border in Canes Venatici. Steve also mentioned that Bootes is full of double-stars. You can follow the link below for information on prominent double stars in Bootes:

http://www.eaglecreekobservatory.org/eco/doubles/boo.html

The early part of May presented one of the best multiple planet conjunctions in years, with Venus, Jupiter, Mercury and Mars lining up close together in the morning sky. A beautiful reprocessed image of Jupiter's Great Red Spot, taken by Voyager 1 in 1979 (APOD for May 2, 2011) was shown to the audience.

Lastly, Steve showed the APOD image of April 28, showing vibration tracks of Mars and Regulus when the red planet was right beside Leo's brightest star. In a vivid demonstration of star "scintillation", Mars' track is steady red-orange, while Regulus' track varies wildly in brightness and colour changes due to the atmospheric distortions of Regulus' starlight.

Thanks once again for your monthly update of the sky, Steve!

After the meeting, about a dozen and a half HAA members reconvened at Crabby Joe's in West Hamilton for food, drinks and further discussion.

Astronomy Day at McQuesten Park by Ann Tekatch

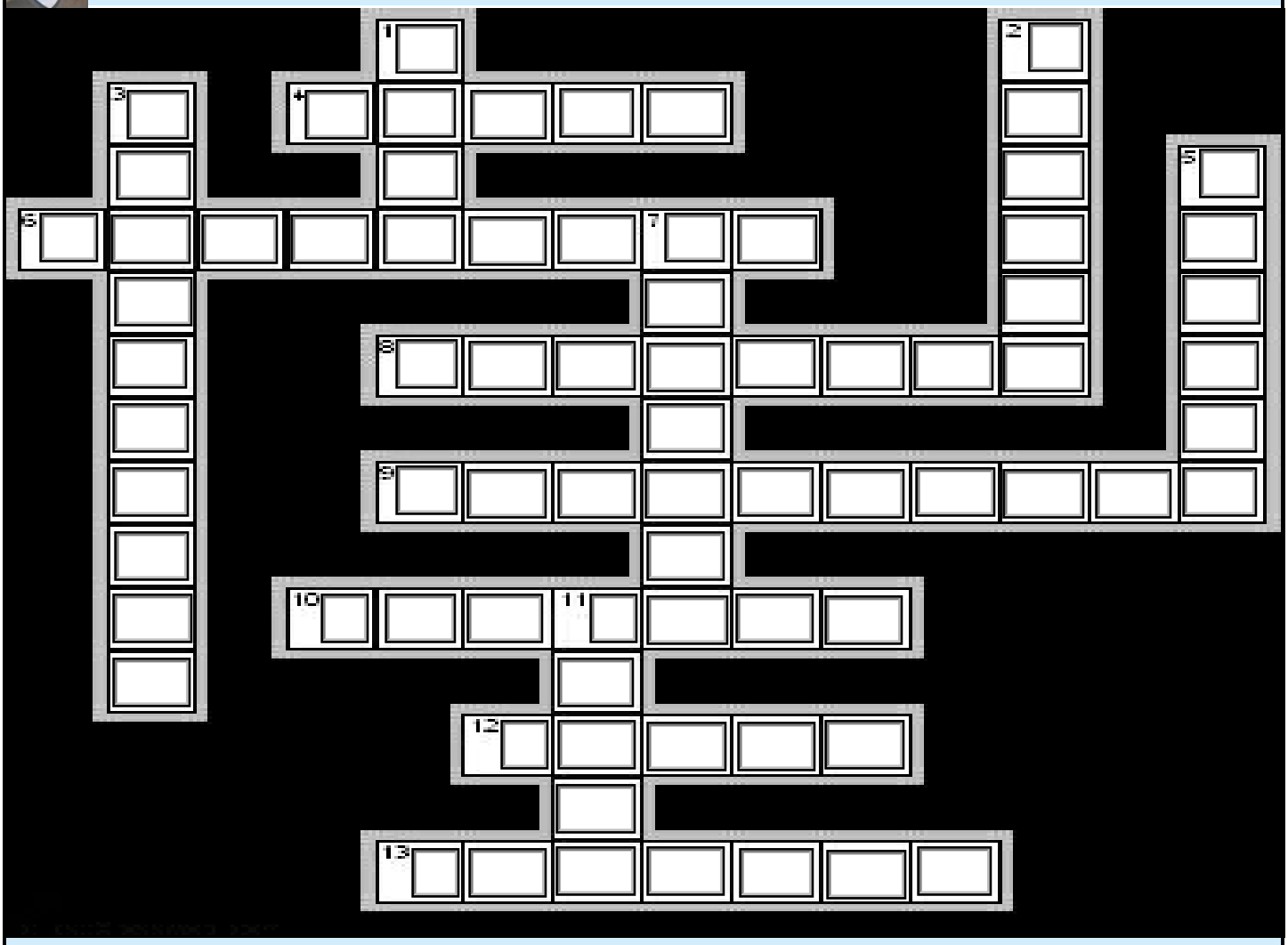
For Astronomy Day on May 7th., the club held an afternoon solar observing event at McQuesten Park. There were various telescopes with solar filters as well as a couple of dedicated PST solar telescopes on hand to provide great views of the sun. Unfortunately, this afternoon event was poorly attended by the public. Many members, young and less young, showed up to make the afternoon a great social gathering.

Photos on this page and the following are courtesy of Don Pullen and Ann Tekatch. *(Continued on page 8)*

Astronomy Day at McQuesten Park (continued)

The evening portion of our Astronomy Day event at McQuesten was very well attended by the public as well as members of the Hamilton Amateur Astronomers. An estimated crowd of 300 joined at least two dozen HAA members and their telescopes to take in views of the Moon, Saturn, double stars and whatever else we could find through the glow of the light polluted parking lot at McQuesten Park. There were many “Galileo Moments” experienced that night by folks having their first telescopic view of the Moon and Saturn.

Astronomy Crossword by Mario Carr



Across

4. This stellar theorist was born June 24, 1915.
6. This Royal Observatory was founded on June 22, 1675.
8. During this summer event there will be more than 15 hours of daylight in the Hamilton area.
9. A summer star party
10. This list builder has a birthday June 26.
12. On June 28 this planet is at opposition
13. On June 12 the moon will be 367,187 km from the Earth or at?

Down

1. On June 28 at 4 a.m. this object passes between the Pleiades and Mars.
2. On June 24 the moon will be 404,274 km form the Earth or at?
3. The full moon in June is known as this moon
5. During June this planet is high in the southern sky during early evening and sets in the west after midnight.
7. He discovered a few moons orbiting Saturn and has a birthday June 8.
11. On June 1, this eclipse will be visible in northern Canada.

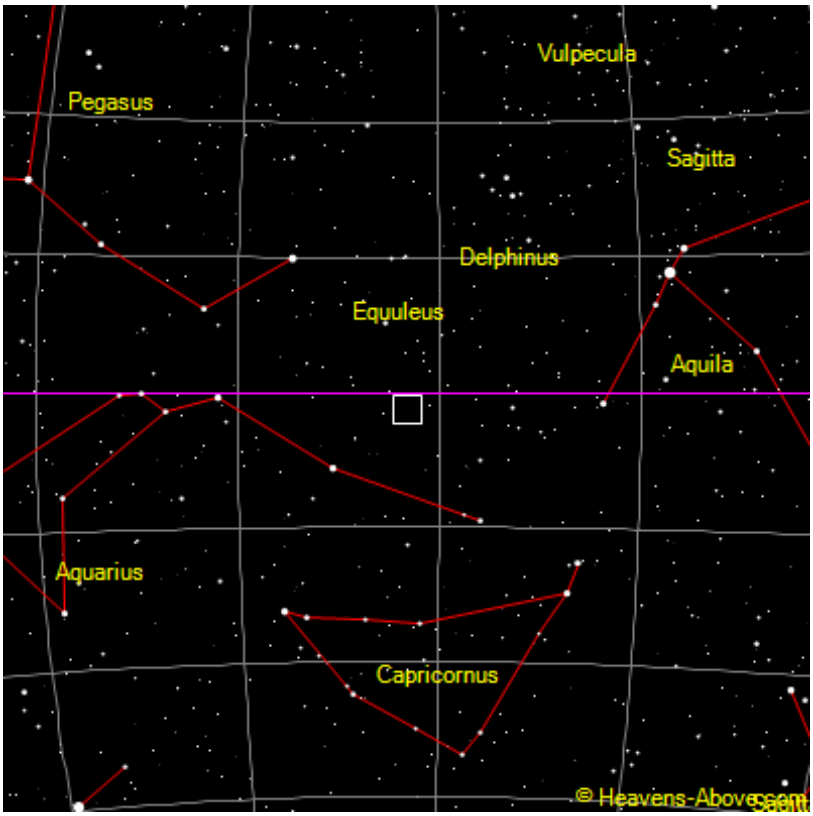
Answers can be found on page 15

The Sky For Summer 2011 by Steve Germann

This month and for the rest of the summer, my theme is 'Seeing the Light'. That means, look up, and realize how great it is to look up. I will make it easy for you to use your telescope no matter where you are, by locating some of the best things in the sky which defy light pollution.

There's so much to see in the sky. The Moon, the stars, the minor planets, Saturn (!), morning planets, and, of course, the deep sky objects we all love. Summer is by far the best time to be looking. Not only do you have warmth, which is nothing to sneeze at, but you also have the southern constellations of Scorpius and Sagittarius, and the great wealth of Messier objects in the direction of our galaxy's center.

The month of June starts out with the New Moon on June 1. They don't call it a 'blue moon' in a month with 2 new moons, but June almost captures that distinction this month, depending on how you want to name your nights. The new moon in July will be in the early morning hours of July 1st. So July is the real month having the distinction of 2 new moons. Every 2 weeks the sky chart is good one hour sooner, or slightly higher in the sky.



This month you have a chance, towards the end of the month, to see 4 Vesta in rising around 11 PM. It is magnitude 7, in easy reach of binoculars. It's near Capricorn, just south of Aquila. Watch the HAA Blog for daily updates on its location, starting in mid-June. *(See the map at left - ed.)*

Saturn is starting to set earlier each month, but because the summer time is going to give way to fall over the next 3 months, the nights will start sooner, to make up for it. Even in September you will still have a good chance to see Saturn. Saturn can be viewed to the south and west any clear night, from wherever you are. I challenge you to get your telescope pointed at Saturn and round up the neighbours for a peek. It will not stray far from Spica (Arc to Arcturus, spike to Spica) this year. Saturn's rings continue to 'open' as viewed from Earth, and that means that for the next 2 years, it's going to get more and more majestic every time you see it. You just might encourage them to put a motion sensor on their porch lights, with a deft mention of light pollution.

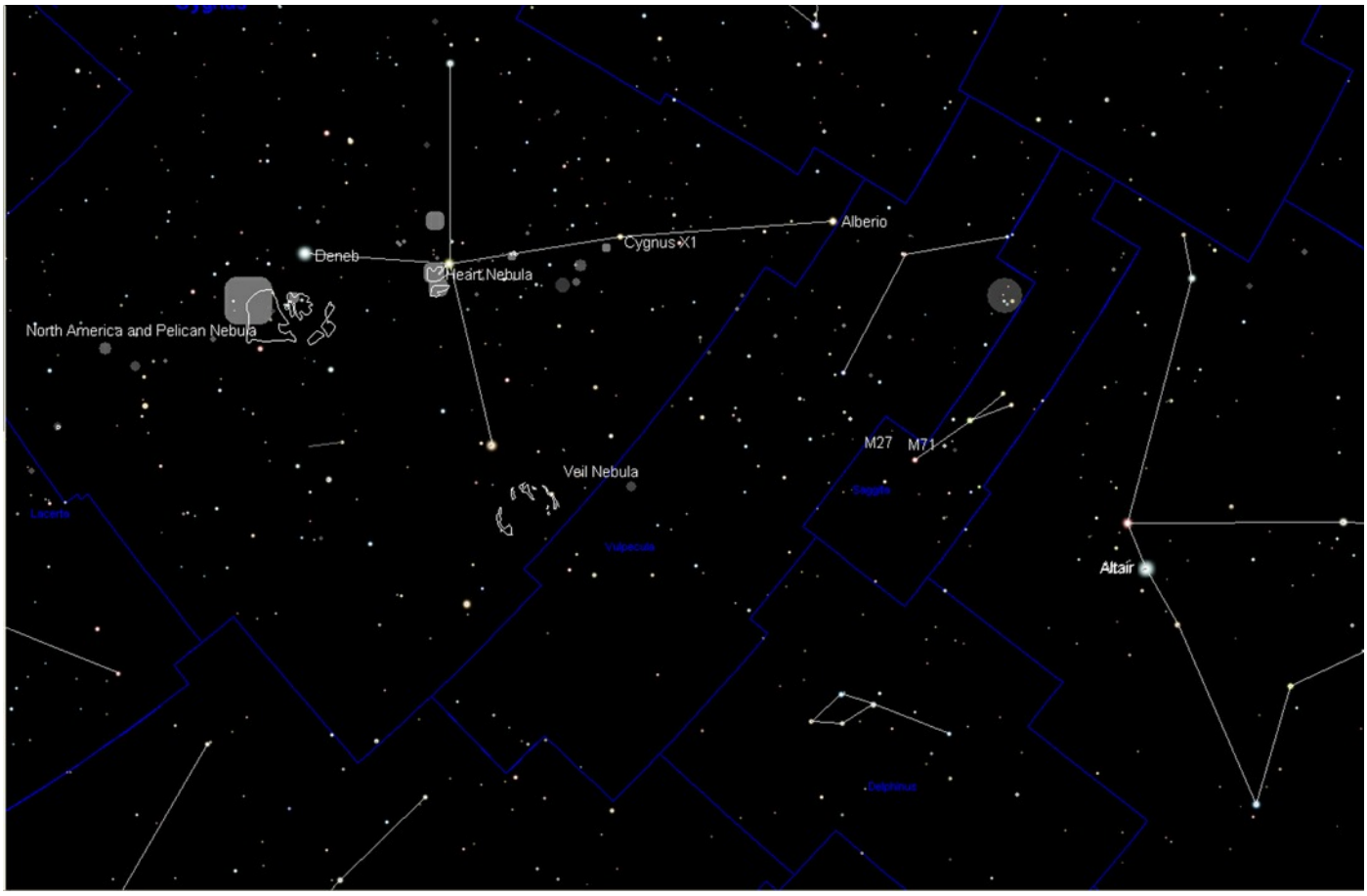
This month, let's look at the Summer Triangle. It's the most easily recognized asterism in the summer sky. You will be able to see it in town, because the stars are so bright. Clockwise the 3 stars are Vega, Altair, and Deneb. Altair is the apex of the triangle. How soon can you see the Summer Triangle? Go check for it tonight, Altair will be 6 degrees above your eastern horizon at 10:30 PM.

The Summer Triangle will take us to my next article in September, but more importantly, the Summer Triangle will offer you a wealth of celestial sights.

Let's consider Deneb first. Deneb means 'tail' in Arabic, and like Denebola in Leo, Deneb is the tail star in the constellation. The Swan has a long neck, and a short tail. Deneb is the closest bright star to the Earth, shining at about 60,000 times the brightness of the Sun, and about 1500 light years away. It's the brightest 'white' star known, and if it were in our solar system, it would extend to the orbit of the Earth. Deneb is near the North America Nebula and the Pelican Nebula, and they can be seen in dark, dark skies, with a good refractor.

(Continued on page 11)

The Sky For Summer 2011 (continued)



Near the central star of Cygnus (where wings and swan's neck cross) lies the heart nebula, also a treat in dark skies. The Swan's wings even have a degree of symmetry. 5 stars in a zigzag. Can you find the wing-tip stars in Cygnus? They add greatly to its appearance, even if the star map does not draw the lines.

The first black hole was found circling a star very close to halfway along the swan's neck. If it were not for dust between Cygnus X1 and our solar system, it would be visible without optical aid.

Not far from Cygnus is the Veil Nebula, discovered on September 5 1784 by William Herschel. It is a giant supernova remnant, where shocked gases are glowing thousands of years after the supernova last shone in our skies. The Veil is comparatively close. It is 4 times closer than M1, the Crab Nebula. The supernova that made the Veil Nebula would have been at least 16 times brighter than the one we saw in 1056. It would have been visible in the daytime for months. Cave men who saw the light would have been impressed.

In photographs, the Veil Nebula takes on the appearance of thin threads. It's really a continuous shell, but it's wrinkly. The shell is so thin, less than one part in 50,000 of the Veil Nebula's radius, that we see it only when viewed exactly edge-on, giving the shell the appearance of a set of filaments. Wrinkles in the surface of the shell mean multiple filaments, which can appear to be intertwined. You will need an O III (Oh 3) filter to view the Veil Nebula. Almost all of its light is from shocked ionized oxygen, glowing green. Don't forget M27, M57 and M71. All are majestic deep sky objects within the Summer Triangle. M71 is a globular cluster that looks like an open cluster. Can you see its wealth of tiny stars, adding up to about the luminosity of 13,000 of our suns. It's a relatively young globular cluster, only about 9 billion years old.

No tour of the evening sky would be complete without some double stars. Double stars are by far the easiest things to see from your own yard, no matter how much light pollution you have from the neighbours, streetlights, and businesses.

(Continued on page 12)

The Sky For Summer 2011 (continued)

The light of double stars pierces the skyglow and in your telescope or binoculars will reward you. You picked a good time to get interested in double stars, because this is the best time of the year to observe Alberio at the beak of the Swan. Catch it with binoculars while it's still reasonably low in the eastern sky, before you need to crane your neck, so to speak.

That's just one of the summer triangle's famous doubles. Look near Vega and you will find the sparkling Epsilon Lyrae, which is also known as the 'double double'. I am not sure if it's with milk or cream, but it's a good star to look for this time of the year. With a sharp focus, each of the stars can be resolved to a double star. Even if in your telescopic view, the stars themselves don't resolve, you can see 2 sets of spikes coming from them. Look for Epsilon Lyrae by heading from Vega in the direction of Deneb; about 4 degrees away from Vega.

You've got to see Altair! It's the twelfth brightest star in the sky: eleven times brighter than the Sun. It's only about double the distance of Sirius, the brightest star we can see.

When you point your telescope at Altair you will see 3 dimmer companions within 200 seconds of arc. The dimmest 2 of the 3 companions are associated with Altair, but the brightest of those is actually more distant, but close by luck of alignment.

So, there you have it, the Summer Triangle will be your guide to the sky's wonders for the best time of the year to be outdoors with your telescope or binoculars. There's a wealth of other things in the sky too. Our website observing blog will keep you up to date.

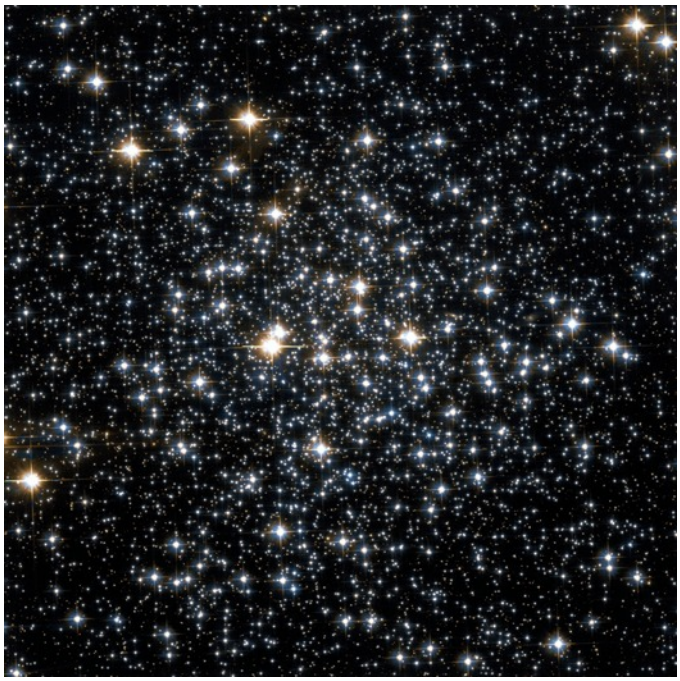
If you have a clear northern horizon and reasonably dark skies where you live, you should be looking around midnight to the north each night on the watch for Aurora Borealis. You will see it this summer for sure, if you look. Don't trust the computers. Aurora don't read the predictions.

The Auroral oval covers the top of the world, (there's another one in Antarctica), and is 100 km up in the sky, but at 10 ergs per square centimeter per second, and 10 million square kilometers, that's 50 gigawatts of light, comparable to all the street lights and car headlights in the world, put together. But the Aurora is not light pollution, it's something to look for!

Once you have had your fill of observing at home, fire off an email to keyholders@amateurastronomy.org and let them know your ready for a trip to Binbrook. We'll be happy to have a reason to be there too!

So, let's all see the light this summer.

"M71 is a globular cluster that looks like an open cluster." (Hubble Photo from WikiSky- ed.)



FOR SALE

8 in. (200 mm) collapsible Sky-Watcher Dobsonian, as new, with accessories, – $400.00

Crayford Focuser 2 in. with 1.25 in. adapter.
8 x 50 right angle Finderscope
Rigel Quikfinder
2 in. Meade QX wide angle 30 mm eyepiece
1.25 in. Super Plossl 25 mm & 10 mm eyepieces.
Antares Laser Collimator

SOLD

Focal length is 1200 mm, F/ratio is F/6

The scope does not need to be disassembled between uses. It transports as two compact pieces that can be assembled and ready to use in seconds. It is easy to collimate and holds its collimation throughout the evening. It has tension adjustment control on the altitude bearings.

Contact Keith McColl at 905-648-6830 or dkmccoll@cogeco.ca

Summer Star Parties

We are fortunate to live close to a number of excellent annual star parties. Here is a list of summer star parties within a day's drive of Hamilton:

July 1 - 4 Stargazing Manitoulin. Details at www.gordonspark.com

July 28 - 31 Gateway to the Universe. Details at www.gateway-to-the-universe.org

July 28 - 31 Stellafane. Springfield, Vermont. Details at http://stellafane.org/convention/

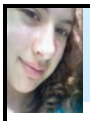
Aug. 5 - 8 Manitoulin Star Party. Details at www.gordonspark.com Greg Emery, EH columnist extraordinaire, will be a featured speaker at this star party!

Aug. 25- 28 Starfest. Canada's largest star party. Details at www.nyaa.ca/starfest.htm

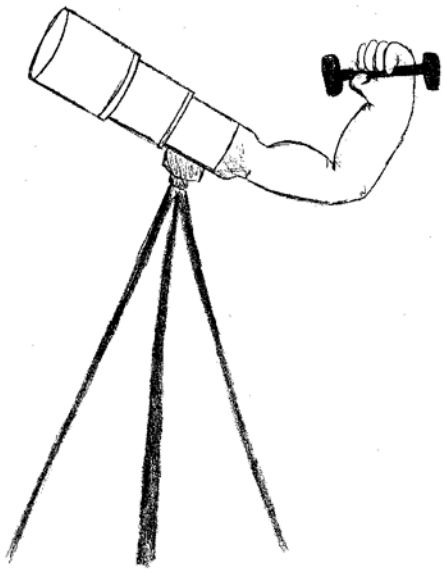
Aug. 26 - 28 Black Forest Star Party. Cherry Springs State Park, Pennsylvania. Details at http://www.bfsp.org/starparty/index.cfm?CFID=2143011&CFTOKEN=30499628

Sept. 1 - 4 Huronia Star Party. Details at www.hsp-ssaa.ca

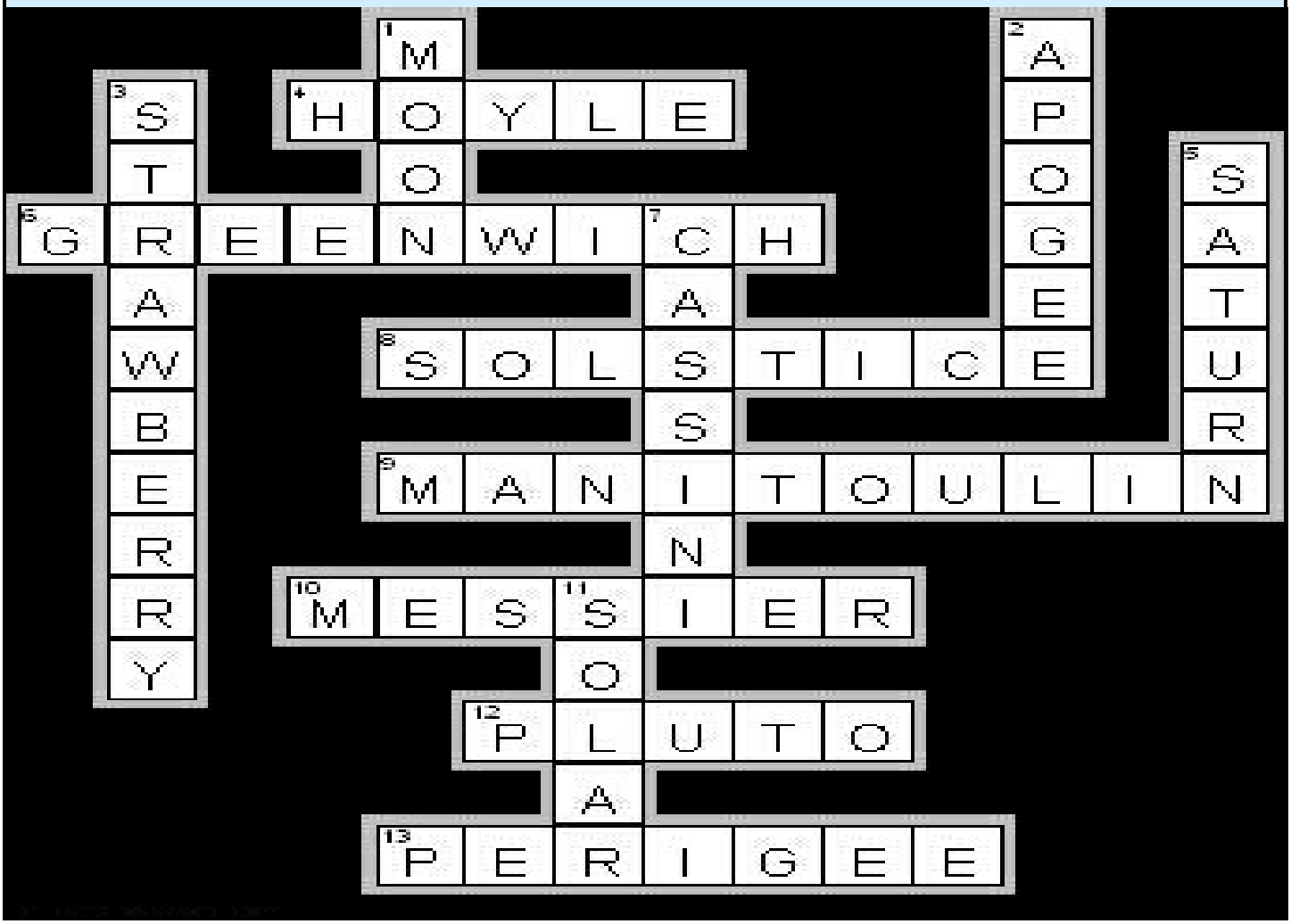
Let's hope that this summer's star parties feature vistas of the Milky Way overhead rather than these ominous clouds! May 2011 photo by John Gauvreau at the Cherry Springs Star Party in Pennsylvania. - Ed.



Cartoon Corner by Alexandra Tekatch



Answers to Astronomy Crossword on Page 9



UPCOMING EVENTS

June 10, 2011 - General Meeting in the auditorium of the Hamilton Spectator Building. Our chair, John Gauvreau, will be hosting an Astronomy Trivia night.
June 11, 2011 - Book Club Meeting, 7:30 pm. Tonight's book: Contact by Carl Sagan. Contact Mario Carr for details/directions: mariocarr@cogeco.ca
July 16, 2011 - Cosmology Discussion Group meeting. 7:30 pm. Contact John Gauvreau for details (chair@amateurastronomy.org).
August 12, 2011 - Public Perseid Meteor Night at Binbrook Conservation Area. Watch our website for details.
Sept. 9, 2011 - General Meeting in the auditorium of the Hamilton Spectator Building - 7:30pm

2010-2011 Council

Chair	John Gauvreau
Second Chair	Jackie Fulton
Treasurer	Don Pullen
Membership Director	Matthew Mannering
Observing Director	Steve Germann
Event Horizon Editor	Ann Tekatch
Webmaster	Bob Christmas
Recorder	Mike Jefferson
Secretary	Jim Wamsley
Public Education	Mario Carr
Councillors at Large	Brenda Frederick Harvey Garden Andrew Bruce Wayne Stansfield 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.
http://www.npca.ca/conservation-areas/binbrook/
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