Event Horizon

Volume 17, Number 6
April 2010

From The Editor

In my opinion, spring and fall are the best seasons for observing. The nights can be crystal clear without the bone-chilling cold of winter or the summer's clouds of mosquitoes. Foggy nights often offer excellent seeing conditions and the fog helps dim the light pollution from Hamilton's lower city. On nights like these, it can be a tough decision whether to set up for astrophotography or make a list of challenge objects to hunt down visually. That's another reason I like observing with others. I know if I'm taking astrophotos that I'll be able to do some visual astronomy by sharing other people's telescopes. In return, I can share my photos of the night with them as a souvenir of an excellent observing session.

It's time to charge up the camera and laptop batteries, clean eyepieces and make lists. Observing season is now open!

Clear skies!

Ann Tekatch

From the Chair by Steve Germann

April is one of the busiest months ever for the HAA. I am grateful to all the councilors and executive members of the club who make the effort, as well as those unsung heroes not on your council who participate at events in a volunteer capacity. They all have something in common: the contagious enthusiasm that comes with astronomy and science outreach.

The month began with excellent chances to see Venus, Mercury and the Pleiades in the western sky. Mercury is fading fast so be sure to look for it soon.

At this month's meeting, our 'The Sky this Month' talk will be delivered by Bob Christmas. I am looking forward to his knowledge and viewpoint.

We have arranged a 'Speaker Exchange' with the Buffalo Amateur Astronomers. Since both clubs meet on the second Friday of the month, we had to do something creative like this in order to keep both clubs happy, especially considering our speaker is the chairman of the BAA. Being able to present on the same night had advantages in terms of our speaker schedule and theirs.

Don Pullen will be presenting his talk, which we will get in May. In return, Alan Friedman will come to Hamilton and present his talk to us in April.

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From the Chair (continued)

Then there's the New Moon, and the Sky this Season presented live at the Binbrook Conservation Area. John will be back with us on Saturday the 17th of April, conducting an outdoor sky tour there.

Even if you have not been to Binbrook Conservation Area for a long time, this is the perfect time to go. There will be someone at the gate to welcome and direct you, as well as plenty of people at the observing area. This particular evening there will be some refreshments to share, and it's exclusively for members and their escorted guests. The conditions are ideal. It's reasonably warm, there's no snow, and the bane of outdoor astronomy, the mosquito, has not yet arrived. Also, there are literally dozens of interesting deep sky objects in the sky.

With the Messier Marathon this month, I anticipate that there will also be a lot more chances to observe with members at the Binbrook Conservation Area and the Alternate Site.

The weekend of the 17th is when we can do our Messier Marathons at the park, and one of the nights with good prospects for a clear sky will be selected, possibly even the same night as John's presentation,and there will be plenty of members available if there are questions.

The week after that, it's time for Astronomy Day. World-wide, it's the day for astronomers, amateur and professional, to demonstrate to everyone how interesting and fun the hobby is, and the amazing things that can be seen in the sky.

There's an interesting pdf file with all the details here: http://www.astroleague.org/files/astroday/FactSheet-2010.pdf

The theme for this Astronomy Day is Solar observing, but HAA members do that every Astronomy Day. A number of HAA volunteers are planning to set up for Solar observing from 1-4 PM on April 24th, and from 8-11 PM for lunar and planetary viewing. Now that Saturn is up, it's a better chance to show it off, but the rings are still razor thin and we will spend a lot of time with the moon, I expect.

Our event will be held at McQueston Park, on Upper Wentworth in Hamilton, just south of the Lincoln Alexander Parkway (the LINC) which connects the 403 to the QEW via the Red Hill Parkway. McQueston park has a lot of visitors who come for a walk, or with their dogs, and they will be pleasantly surprised by our presence.

There will also be plenty of media coverage for the event, and I hope a lot of people will come to the park because of the HAA. There's plenty of parking there, too.

As the month nears its end, the full Moon returns, and once again there's an expedition to photograph it as it rises above the horizon. This is a dusk event, so you don't have to worry about staying up late. Watch the blog for details of the location we will use.

That's not all. At the end of the month it's our annual Imaging Clinic. This time it's at the Hamilton Spectator Auditorium, at 7 PM on Friday, April 30th, for members only. Please RSVP to chair@amateurastronomy.org so we will know how many to expect. Our premiere astrophotographer, Kerry-Ann Lecky-Hepburn, will be sharing tips and tricks with us. Bring your laptop, because you will have a chance to learn some cool techniques.

May begins the busy Summer Star Party season, with much more to say about that next month!

This Month's Masthead Photo: New moon (above and to the left of the "H "in our title) and Venus (below the right side of the "n" in Event) taken at 8:00pm on March 17, 2010 by Joe McArdle about 100m up the road from the parking lot of our observing alternate site. Joe used a Canon PowerShot SX110/S camera, automatic exposure.

April 2010 Treasurer's Report by Don Pullen

(Unaudited)

Cash opening Balance (1 Mar 2010)	$ 4172.33
Expenses	$ 157.17
Revenue	$ 22.00
Closing Balance (31 Mar 2010)	$ 4037.16

Notes:
1. Major revenue sources included: 50/50 ($22)
2. Major expenses included: BASEF Cash award ($100), EH Printing ($43.31), HAA Brochure printing ($13.86)

Member of the Month: John Gauvreau by Kevin Salwach

When asked to choose the HAA's Member of the Month for April 2010, I was sure that I was going to have a very tough task of picking someone. Being a new member of the club, joining only seven months ago, I did not know many of the members well enough to write about them but one person out of all the passionate and intelligent people in this club caught my attention. He is someone you all know, and a man whose knowledge of astronomy is vast. That man would be John Gauvreau.

I first met John at the Binbrook Public Night on September 26 (which, unfortunately, had cloud-covered sky from horizon to horizon) when, after looking at the telescopes that were set up, he came over to me and encouraged me to get a membership at our next meeting so I could become more involved. He also told me that if I had any observations, or any astronomy questions, to come and talk to him. And in case I forgot his name, he told my dad and I to ask for "John the Observer". Since then, John has told me many fascinating tales about his adventures and many interesting facts about galaxies and nebulae that I had never heard about. His monthly talks at our meetings (The Sky This Month) have given many other members and me new insights on historical events and figures, and of course, observing.

His expression, enthusiasm and the manner in which he presents to the club makes listening to him inspirational, educational and very entertaining. Whenever he speaks, I always learn something new and exciting and want to go home and learn more. John also loves to share his stories and information, and I always see entries from him on our website's blog.

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Member of the Month (continued)

Another aspect about John is that he is very friendly. At every meeting, he will always come over and talk to my dad and I, and he will share something new he has learned with us and ask us about our own recent astronomical experiences. At HAA observing nights or other public events, he can always be found talking to newcomers or people who have just pulled aside to see what is going on. Whether he is showing them the meteorite that he has or telling someone a cool fact abut a galaxy millions of light years away, John will always capture their attention and teach them something new about astronomy.

Finally, I want to thank all the other members of the Hamilton Amateur Astronomers for making my dad and I feel very welcome and embracing us as valued members. I intend to be affiliated with the club for many years to come and look forward to many wonderful experiences under the night sky.

Through the Looking Glass by Greg Emery

It is funny how the same statement can invoke completely different responses from groups of people. There are various examples to choose from: “Someone hit your car in the parking lot, but don’t worry there isn’t too much damage”.

The phrase that I am thinking of currently is “the loud scraping sound as you drag across the surface of your mirror”. If you are cleaning or collimating your telescope mirror this is usually not a good thing. However, if you are making a mirror this is a wonderful sound – combined with the feel of abrasive crunching glass, it is also quite therapeutic. I have made a few mirrors, far fewer than I would have liked. I have had a pair of Newtonian binoculars in the half-built stage for about 6 years now. Amateur telescope making is a hobby that allows amateur astronomers to have something to do when it is cloudy. With today’s manufacturing of good quality optics at reasonable prices, there is not always the need to make your own as there once was. This is true in most parts of our life – so why do it? Besides the personal joy of seeing and using my work, I was forced to learn a lot about telescopes, astronomy and observing. I started astronomy by building my first scope – everything was new to me. I learned a lot. This sounds like a Jedi having to build his/her own light saber – but it is partly true. Having a fundamental understanding of the design and function of your optical equipment aids in your observing. Being able to collimate your Newtonian or diagnose potential problems with your optics or mount can not only increase your time at the eyepiece, you will spend better quality time at the eyepiece.

The problem with telescope making for me is the resources. I don’t mean money or where to buy the materials, I mean time and space. To grind/polish your mirror you need a minimum amount of space, water, laundry tubs in addition to your materials. Time to do this is a double edged sword – you need the time but you also need to be willing to go slow and be patient with the project – if you rush your mirror you may invariably have to spend more time later on to correct it.

This spring/summer we are moving back into Dundas. I will be moving into a smaller home, and will not have a shop or the like. I therefore have some materials related to mirror making that I want to make available to members of the HAA. I also have an 8” telescope (homemade 8” Dob) with a mirror I made. I will give a brief description of each, for more info, please contact me at Gregory.emery@mohawkcollege.ca .

Telescope:
8” f 5.8 Newtonian on a homemade dob mount. Optics are good, mount could use some work and TLC. Good starter scope for adults - eyepiece position too high for younger kids.

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Through the Looking Glass (continued)

Mirror Kits:
One full 8" Kit (from Newport Glass) with Pyrex blank, abrasives, pitch and 1" tool. All equipment needed to grind and polish an 8" mirror.

Full set of abrasives with pitch and 1" tool.

If you have any questions please email me. I will consider any offer for any or all of the materials listed. I want it to have a good home. If you are starting out in astronomy – I would love for you to have this stuff!

March General Meeting Report by Bob Christmas

The March meeting at the Hamilton Spectator auditorium started off with HAA chair Steve Germann taking the floor at 7:30, then Steve made a few announcements of upcoming events, including the public night at Brantford of Saturday, March 20. Steve then handed off to the HAA's resident eclipse chaser Ray Badgerow, whose talk this night was about... Eclipses.

Ray has been chasing solar eclipses around the world for over ten years, and his talk was focused on the history of his eclipse experiences. His adventures took him to Turkey for the August 11, 1999 total solar eclipse, Zambia for the June 21, 2001 eclipse, Puerto Vallarta, Mexico for the June 10, 2002 eclipse, Iceland for the annular eclipse of May 31, 2003, northern China for the August 1, 2008 eclipse, and, just last summer, to Shanghai, China for the July 22 eclipse, which, unfortunately, due to cloud cover, he was not able to see.

During his talk, he showed an animation of pictures he took of the annular eclipse he witnessed in Iceland in 2003, as well as numerous pictures of his most recent trip to China last summer, especially of the Nanjing area. He also visited a nearby observatory complex, including a museum showcasing many artifacts, instruments and manuscripts from China's long and accomplished history of astronomy.

After Ray was finished, there was the meeting intermission, allowing opportunities for the membership and audience to chat with one another.

After the break, there were the usual ticket draws for this month's door prizes and 50/50 prize. Unfortunately, our usual ticket drawer, Alex Tekatch, was under the weather, and couldn't make it to the March meeting. Therefore, this time, the ticket duties fell to March HAA Member of the Month, Kevin Salwach, who did a marvelous job in Alex's absence. Thank you Kevin!

HAA's Observing Director, John Gauvreau then took the floor to talk about the sky for the month of March 2010. He mostly focused on the late winter sky, and zeroed in on the constellation Canis Major, the Great Dog, which includes Sirius, the brightest star in the sky, the bright open star cluster M41, and little-talked-about Adhara, a 1st-magnitude bright star, and second-brightest in this constellation. He also noted that Venus is back in the evening sky, still low down in the glow of sunset, but getting higher and higher in the west as upcoming weeks go by. Mars was still high up this early spring, and Saturn is rising in the east progressively earlier in the evening.

John also outlined some fascinating history of Galileo's first published observational findings, Per-

March General Meeting Report (continued)

cival Lowell, the "discoverer" of "canals" on Mars, and Clyde Trumbaugh, the discoverer of Pluto.

John checks on some astro-anniversaries

(Thanks to Steve Germann for the photos that accompany this report - ed.)

John showed a couple of interesting images from the SOHO solar observatory, one that showed Venus and Mercury in its solar field of view, and another, taken on this same day, showing both a coronal mass ejection and a sun-grazing comet! Lastly, he showed a stunning, world-class image of the Cone and Fox Fur Nebulas in Monoceros, which is a collaboration of HAA's Kerry-Ann Lecky-Hepburn and Toronto astrophotographer Stefan Cancelli.

After the meeting, about twenty of us reconvened at Boston Pizza on Main Street in Hamilton, near McMaster University, for food, drinks, and watching Steve grab a napkin and a pen, and calculate the mass of our Milky Way Galaxy from our solar system's distance from the galactic core and the velocity of our Sun in its orbit around the galaxy, the result of which made him doubt the existence of "dark matter". Who says physics and beer don't mix?

What is Time? By Bill Tekatch

What is time? That is a good question. There are many definitions. From the physics point of view Albert Einstein made several very descriptive predictions about time. All of his predictions so far have been proven true or have not been disproved. He described how time and space can be warped by gravity or motion, but he never actual stated what time was. And this apparently is where we are now. We have many descriptions of time and how it is intimately woven throughout every aspect of our lives and every part of the universe. But the question remains "What is time?"

Let us start with what we know. Time is that which separates events. Space can separate events too. Einstein linked the two to become space-time. But space can exist without events whilst time cannot. Therefore time is dynamic and space is static. Wait a minute, isn't the universe expanding? Maybe we have our answer. Time is space changing. As the universe or, more correctly, the space in the universe expands, it causes motion, motion is an event, and events cause time.

Now if that was not enough of a twist for you, here is another one. Einstein showed us that gravity and motion can both affect space-time. Now let's twist his equivalence principle. Could the space-time warp caused by motion cause gravity? Perhaps the high velocity of stars away from the core of galaxies produces enough extra gravity to mimic what we propose as dark matter. It is just a thought. What do you think?

The Sequential Messier Marathon by Steve Germann

First, a little background.

Charles Messier lived from 26 June 1730 – 12 April 1817 and was a comet hunter. When he found a comet, he would name it after a rich person and they would usually send him a gift that would have him sitting pretty for some years.

He had a small scope (large for his day) and would sit in his observatory in downtown Paris and look at the sky. Any star that would not focus to a sharp point in the center of the field was a possible comet. At that time, Paris at night was very dark, as it was exclusively candle-lit.

After some time of searching he started coming upon objects which looked promising but were not comets. There's almost 41000 square degrees in the sky, so it is not surprising that it took him a while to come across an annoying number of them.

He published a list of the coordinates of non-comets as an aid to comet hunters who might otherwise get all excited when they came across what we now know as, say, M79.

Hence the numbering. It's just the order he put them on his list. To him, the 'Messier Objects' as we now know them were an annoyance. To us, they are the object of our observations, since they include the closest and brightest galaxies, open and globular star clusters, supernova remnants and planetary nebulae.

Shortly after acquiring my 16 inch DOB, aka the Great White Scope (GWS), it was with me to Starfest. There, in the wee hours of a Saturday morning, (Starfest is a great place to observe to the wee hours), M1 was observed by me for the first time, and I thought, hmmm. M1. I could look for M2 now.

Sure enough M2 was in the sky, quickly found. Thus began my Sequential Messier Marathon, which continues to this day. Alas, M3 was not above the horizon, so that distraction was finished for the night, and my regular observing schedule, which no doubt included several other Messiers as well as fainter objects, real comets, and the Milky Way, continued.

The next night, progress from M3 to M16, was completed, but clouds were coming in from the south and M17 was blocked by then, and that was it for the second night. The night after that was the Perseids night at Binbrook, and although M17 was attempted, the skies were too soupy to find it then.

The chase was on, and with the aid of the excellent free program, Cartes de Ciel, it was possible to compute that it might be a quick process. However, M41 was still next on the list, 5 months later.

When the Sun is near my next target, the target gets lost in the twilight. In the past 2 years, working forward through the list, and missing M68 in June 2008, halting progress has been made. M68 was re-attempted three times in early July, with the help of several HAA members, but alas, it was too low in the evening sky even for star hopping, and too faint to be seen against the background at that altitude. It set before a positive observation could be made.

My skills at star hopping improved, especially through all the Messier Objects from M69 to M82. Without being able to pick up M68, they did not count. Yet.

M68 would next become a morning object; morning faint fuzzies are significantly more trouble to find, since staying set up all night or setting up and travelling in darkness is required. It was not out of the question though, since M45 was attempted at 4 AM back in 2007.

Once M68 became visible in the evening last winter and spring, progress was again possible. The chance to get M74 last march was missed, (it's very diffuse. you need to aim for it in dark skies to have a chance to see it for the first time. Having sketched it in the previous summer made it easier, but not easy enough. Progress continued to M76 last summer, but did not include M77, which was a morning twilight object at the time, from Cherry Springs.

There the quest rested, since Starfest 2009, waiting for the chance to combine a clear night with my schedule. A trip to Germany, and other factors combined to make the BFSP unavailable to me. Note to self: Mail in the BFSP application early next year. It cannot be done online. The Black Forest Star Party was totally booked last year. I think it

The Sequential Messier Marathon (continued)

would have been fun but there's no registration at the gate.

Realizing that M77 would soon be lost in the twilight, and calculating that my quest could continue at an accelerating rate in April if M77-M79 were bagged,I decided a week ago to pull out all stops (for those who don't play keyboards, that is an organist's term, and it means to let all the pipes of each particular pitch sound in unison, very loudly, when the key is pressed, but in this case it meant, rearranging my schedule), and try for M77 before it's too late.

Wednesday March 17th was the perfect evening for astronomizing. Exactly 3 years since first attempting the Messier Marathon, with 15x70 binoculars, my observing location was again Dave's farm.

The humidity was predicted to be low, the temperature nice, and the sky dark and clear.

The seeing was not grand, but for my plans, that would not matter.

The GWS was ready while the sunset still reddened the western sky.

The first star to come out was near the zenith. It was Capella. Alignment of my Equatorial Platform was done free-hand, eyeballing north based on memory, and positioning my EQP on the driveway beside my car. It would prove sufficient for visual tracking all evening.

There were 2 maple trees right beside me, but a big enough scope can see through trees, so no worries there.

Once Betelgeuse and Rigel were seen, the corners of Orion could be used to begin planning where M77 would be found. At dusk, M77 was still more than 24 degrees above the horizon, and therefore should be free of most transparency effects low down.

My buddy Dave and his neighbor Larry came over to see what all the commotion was about, since the GWS was set up on a driveway in the front yard.

My green astronomy laser was very useful in helping them to see a few bright constellations, and also Mars and Saturn which were well up in the sky, Mars being near the Zenith.

Knowing that M77 is one of the first items needed for a complete one-night Messier Marathon, it was also appropriate to scout out the other objects needed early in the Marathon.

M33 and M31 and M32 and M110 are also in the low western sky as the night progresses, so looking for them was also attempted.

M33 was invisible to me. It's so large that a dark sky is needed, and low magnification. The Big Binoculars (25x100) were brought to bear on it. Still no sighting.

M110 also evaded me, although that's more for lack of a decent star chart plot. M32 and a nearby bright star, closer to M31, point right at it, on the other side of the Andromeda Galaxy. The Pocket Sky Atlas is too vague to pinpoint things for star hopping purposes when the telescope needs to be used for the hopping. Perhaps an eyepiece with an illuminated reticle should be the next thing on my wish list. It could be used to do much more accurate star hopping in soupy skies.

M31 and M32 were easy though. Even looking right through a (leafless) tree.

M74 was worth looking for too.

Although M74 has been sighted by me with the GWS numerous times in the last year, this time there was no detailed star field available, and my memory has faded. It was probably it in the field of view, but it is very faint and there was nothing to spot. Averted vision, jiggling the scope, and shielding my head from stray light did not help.

Back to M77. Several star fields, printed from CDC, with different magnitude limits, were at my disposal. The view could be correlated with an appropriate map depending on the skies.

At 9:21 PM, I made the definitive sighting. The galaxy core stood out beside a nearby star, and all the other stars made sense according to the map. Add one more Sequential Messier Object onto the list. Nearby stars down to a bit beyond 12th magnitude could be seen: not the 16th magnitude visible at Cherry Springs. I made a sketch of M77 and the star field, along with the time and location of the observation.

After admiring M77 for a while, I returned to take another try at M74 and M33, but they were getting lower in the sky, and there's a line of trees on the horizon which also interfered. I am able to use Ares to get to M74 pretty quickly, but seeing the galaxy is another story.

So, it was time to continue with M78, which is just above and left of Orion's belt, and it only took a few minutes to zoom in on it, even though the GWS was pointing right through the tree to see it.

M78 is a bright nebula and shows up quite prominently against the sky, partly thanks to it being at a much higher altitude at that time of night.

M79 had me worried for a while. My previous attempt on March 14th was a washout, as it was much lower in the sky by the time everything was set up, and no star chart was on hand to do the fine navigation.

This time it practically jumped out at me. Using two stars in Lepus as pointers, and extending the line about 1.5 times, the right part of the sky was found, and there it was. Quite comet-like; it's easy to see why good old Charles would have

The Sequential Messier Marathon (continued)

been disappointed to find it not moving.

M80 is next on my list. In mid-March it rises at about 3 AM, but in the direction of downtown Hamilton, so there was no waiting up for it. The GWS was turned to the rest of the sky for my enjoyment.

M42 was high in the sky, and a while spent admiring it was well worth it. My excellent Howie Glatter laser collimator's battery had died, so proper collimation of the GWS was not going to happen this evening. The GWS was constructed without adjustment, (but the trusses are all labelled), and it still performed reasonably well: 4 stars in the Trapezium were visible at low power.

Leo was quite high in the sky, with Saturn still nearby, but moving eastward since last summer.

Observing Saturn was next. One moon was bright, and far and below the ring plane. 3 others were in the line of the rings. The rings are still pretty edge on and razor thin. The shadow of the rings could be seen on the disk of Saturn. Not being properly collimated, it was clear that higher power tonight was not going to reward me so 72x power was my choice.

Mars was near the zenith, and the GWS does not like the zenith much, so it was skipped this time.

The Realm of the Galaxies in Virgo was the next attraction to check out.

Last Summer at Cherry Springs State Park, Ann showed me a star hopping technique for getting to the best part of the sky. Arcturus was visible and the star near it pointed southwards to the eastern tip of Virgo. In the Hamilton-glowing skies, the Y shaped asterism to the west of that star could barely be seen, but the GWS was directed to it. Sure enough the Y was there. Now to remember the rest of the process. Following the stem of the Y for about 3 degrees, and turning west, it was time to look around. Just one galaxy could be seen, not the expected arc of 6 in one field of view. Things were just too washed out to do the area justice.

The sequential Messier Marathon includes them in Sequence not long from now, so practice is in order. To really pin them down, when there are so many, accurate maps are needed. The Pocket Sky Atlas, good as it is, does not have enough stars on it for fine star hopping. My field of view on the atlas page is a bit smaller than my little fingernail, and the pages are big. A laptop running CDC and power just in case were at hand, but not yet deployed, so rather than wade into those murky skies, it was time to pack up.

At least there were some compensations for observing at the farm. The paved driveway meant there was no worry about losing parts. There was no dew last night either, and the wind was reasonable.

I stepped into the house and recounted my story to Steve, and invited him to look at Saturn, but he demurred.

I reminded all my buddies we will be at Brantford on Saturday March 20th, and was packed up and ready to leave by midnight.

It is a relief to have M77 added to my list. Without it, my quest, the Sequential Messier Marathon, would have been delayed by half a year or more. Now, the end is possible in April at the BCA. It will be a busy time.

For Sale:

8” (203 mm) Meade S.C.T. , focal length 2000 mm, yoke mount, clock drive, red dot finder, illuminated setting circles and a dew shield but no tripod. (I can make an adapter to fit most standard tripods and piers.) $600.00 or best offer. Alternatively, I need 3-2" eyepieces, a 2"--2x barlow, a 2” mirror diagonal and 5-2" lunar & planetary filters. I will trade the telescope for items of equal value.
Please contact Harvey Garden at 905-692-4595.

Astronomy Crossword Puzzle by Mario Carr

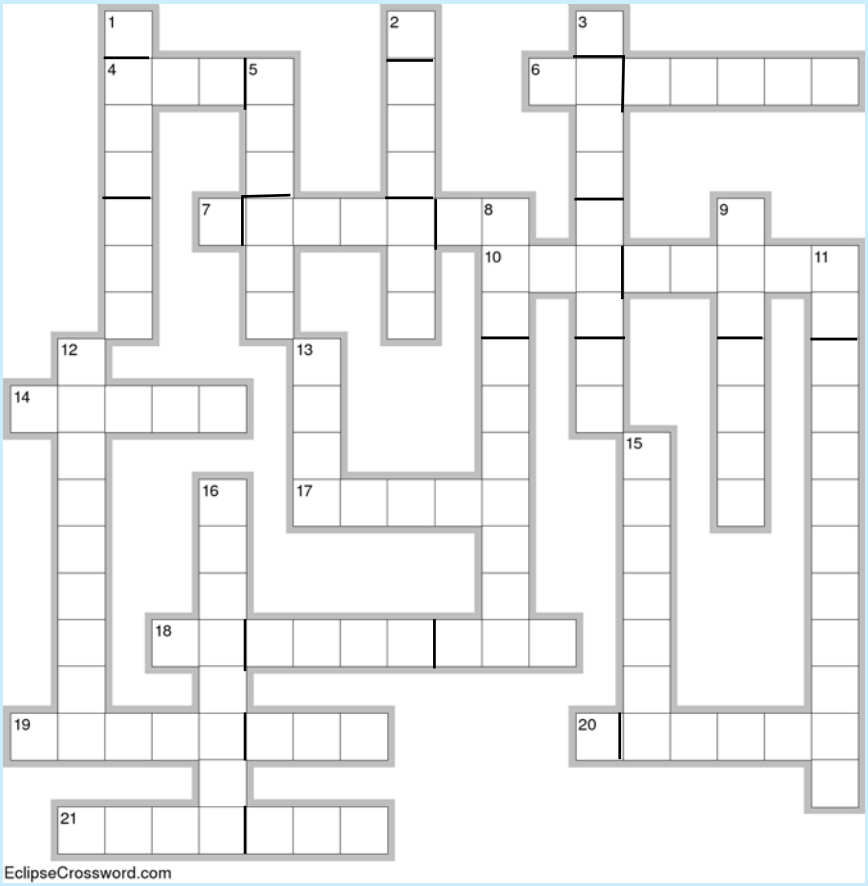
Across

4. A dwarf planet
6. Brightest star in Scorpius
7. Second word of a famous Galileo book
10. Discovered Pluto
14. 15 degrees above the horizon at the end of March 2010
17. A type of eclipse
18. This day occurs on April 24, 2010
19. Most massive
20. The twins
21. This constellation houses a few galaxies

Down

1. Venus will pass this object during the first week of April 2010
2. Catalogue of 110 deep sky objects
3. A galaxy known as M31
5. Opposition on March 22, 2010
8. Free planetarium software
9. Appears in the April morning sky
11. Third word in SOHO
12. A type of telescope
13. High in the sky throughout March
15. Cluster in Cancer
16. Moon phase on March 17, 2010

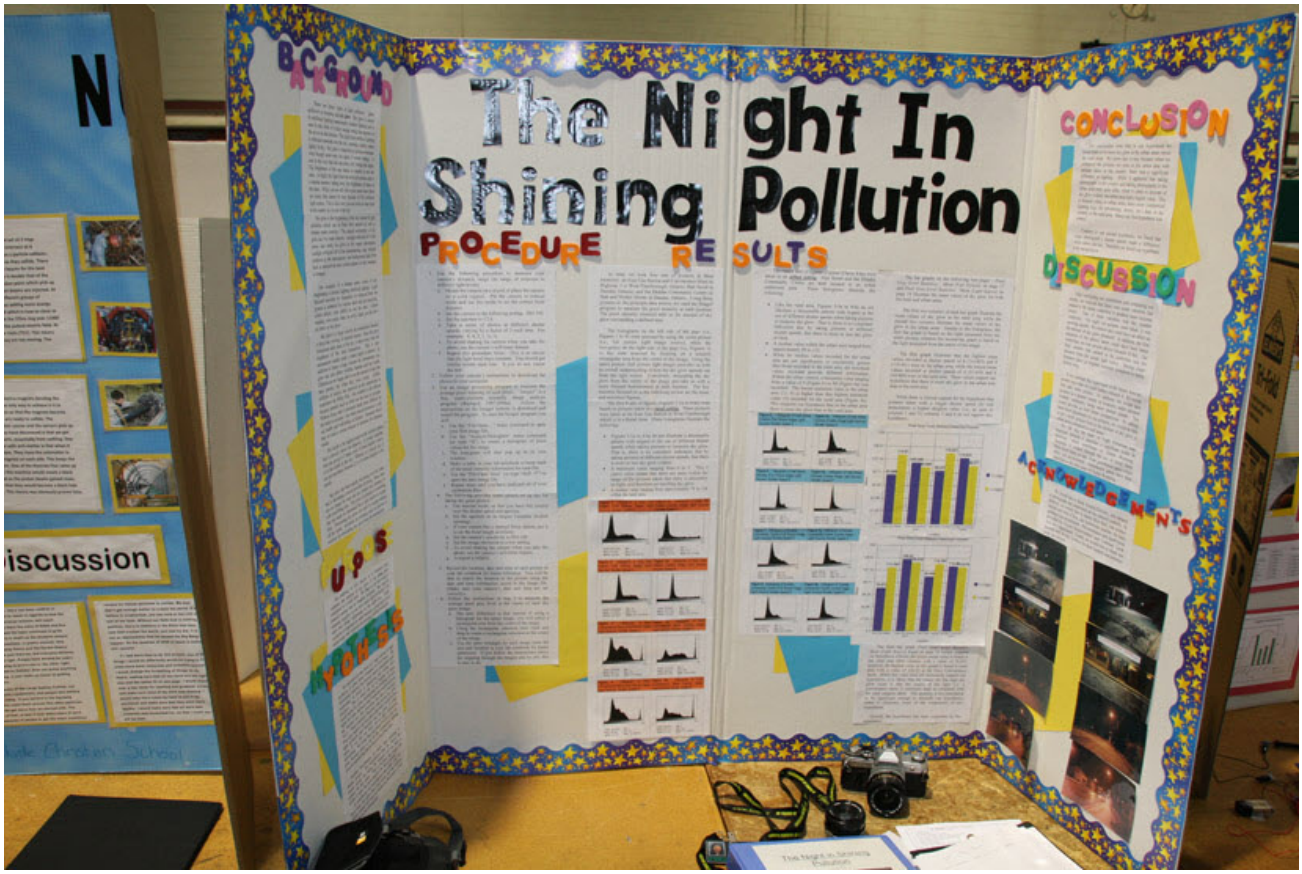
(Answers on p. 19)



BASEF - James A. Winger Award Winners by Bill Tekatch

On March 25, Don Pullen and I attended the Bay Area Science and Engineering Fair (BASEF) at McMaster University on behalf of the Hamilton Amateur Astronomers to judge the students' exhibits and present the James A. Winger Award for best astronomy or physics project. This was the 50th consecutive year of operation for BASEF and there were over 250 exhibits with 350 students participating.

After lengthy deliberation, Don and I decided to award the James A. Winger Award to "The Night In Shining Pollution", a project by Meg Sharpley and Deanna Khes-Grabiec. Meg and Deanna are grade 8 students at St. Augustine Elementary School in Dundas. (Incidentally, their school, St. Augustine, was given an award, the BASEF Committee Award for Top Elementary School, at the science fair.) Meg and Deanna used photography of rural and urban skies at night to demonstrate light pollution. Copies of the book, "Nightwatch", and a cheque for $100 was given to the girls by Don Pullen at the award ceremony on Saturday, March 27.



Award- Winning Science Fair Project by Meg Sharpley and Deanna Khes-Grabiec
Photo by Don Pullen

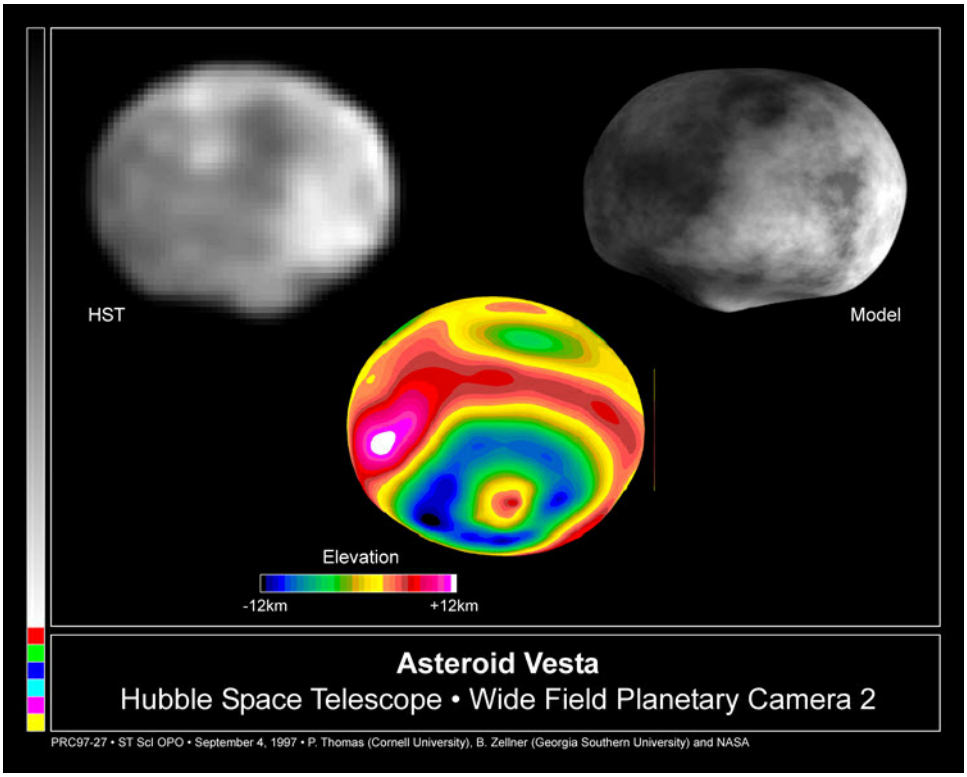
Dwarf Planet of the Month: Vesta by Steve Germann

And all things Vestian.

Well, now called 4 Vesta, since it was the 4th asteroid discovered, back on March 29, 1807, by Heinrich Wilhelm Olbers, who was a German Astronomer at the time. Vesta is named after the Roman Virgin Goddess of the Hearth and Home.

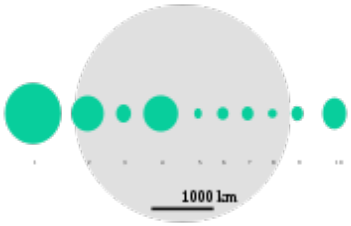
Contrary to a recent suggestion that those who have not observed Vesta in the night sky are 'Vestal Virgins', (groan appropriate), here's the real definition of one: http://en.wikipedia.org/wiki/Vestal_Virgin. In short, they kept a central fire burning in Rome and any Roman could light a torch from it and use it to light their stoves and candles at home with it. Sort of the keeper of the flame. Actually a highly honoured job.

As the case may be, we can see Vesta and eliminate all doubt, this month, because it's in the constellation of Leo and just past opposition. It is about 2 degrees away from the top star in Leo's mane, and about 12 degrees north of Regulus, shining at about 6th Magnitude. It is an easy target in Binoculars. Check it out while you can: the next opposition of Vesta is in August 2011.



Vesta is the largest planet in the Asteroid belt, and is so large that it has had volcanism and has a differentiated core. This is likely due to radioactive decay shortly after it was formed, which heated it into a molten ball over the period of a few million years. With a diameter of about 530 km, it's big. It's made mostly of rock with no detectable water.

Here's an image showing Vesta in comparision to the other first 10 Asteroids discovered.



Once the radioactive isotopes of aluminum stopped heating the core, the planet slowly cooled. Things remained that way for billions of years, but about a billion years ago, it was struck near its south pole so violently that a 285 mile diameter crater was blasted out of it, and many fragments of Vesta turned into asteroids. Some of these fragments have come to earth as meteorites.

Because the crater is so deep, the mantle of Vesta is exposed, and some meteorites that hit the Earth are inferred to be fragments of this mantle. It's

Dwarf Planet of the Month: Vesta (continued)

rare that a body so large has such a deep crater in it, and rarer still for it to be broken to bits. Comet Wild 2 was visited and samples returned by the Stardust mission. We don't need a sample return mission to Vesta because Meteorite Hunters have already done the job.

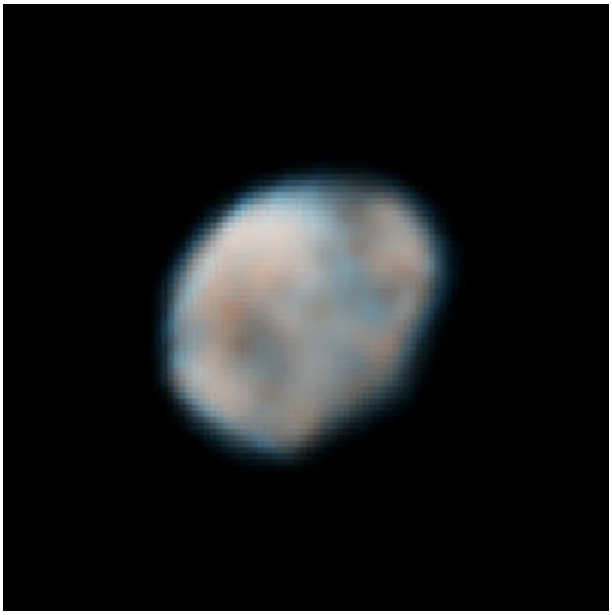
Some meteorites from Vesta are minerals associated with volcanism, crust and differentiation. Their isotope abundances show they are not of Earthly origin. Most famously, a meteorite from a fireball over Australia in 1960, found 10 years later, was determined to be of Vestian origin.

There is an excellent page about meteorites and how we know that some of them are probably from Vesta, at this page: http://www.solarviews.com/eng/vesta.htm

The Hubble Space Telescope took images of Vesta in 1994, and also spectra. From these the match with meteorites was pinned down.

Vesta's orbit, although its maximum distance can exceed Ceres' minimum distance, is oriented such that Vesta's orbit is within Ceres' orbit.

When the Hubble photographed Vesta, enough images were made to get an altitude map, which can be seen as the rainbow-hued image in the large mosaic on p. 12. A decent low resolution view of the planet's appearance was also obtained and is shown below.



Web resources: Wiki page http://en.wikipedia.org/wiki/4_Vesta

Charles Messier

Don't Forget our Messier Marathon Fundraiser!

Sponsor sheets can be found at the back of this newsletter. If you can't participate in the observing marathon, please consider sponsoring a club member. All donations of $10 or more receive a tax receipt.

The Sky This Month April 2010 by John Gauvreau

Perhaps because they are so consistent, Jupiter and Saturn are always great telescopic objects. They're big and show good disks in a small scope, and with plenty of moons and surface detail that are sure to please everyone from a passing member of the public to a novice amateur to an experienced observer. Uranus and Neptune are just as consistent, but are so far away that they don't offer much more to look at than a small blue disk. Mars is much more inconsistent, usually residing so far from Earth that it appears as a small, though vividly coloured, orb. Now is a good example of this. Mars is well up and easy to locate, but doesn't show much more than a small disk with a smaller polar cap. Sometimes though, Mars can pass closer to Earth than any other planet, and when these close encounters occur then Mars can show a wealth of surface detail that can spark the imagination and leave you counting the days (or years) until the next close conjunction. Remember though, that years pass between such apparitions. Venus falls somewhere in between for the casual observer. Each year brings an opportunity to see Venus, and although very bright (outshining all other celestial objects other than the Sun and Moon) its surface is featureless. Indeed, coupled with the fact that Venus is so bright that glare makes observing a challenge and its perpetual proximity to the horizon, this makes constant cover of cloud makes Venus an easy, but often unappealing, target. Finally there is Mercury. Fleet of foot and elusive, Mercury is often the last of the major planets to be observed by an amateur. Such was the case in my youth. I caught only fleeting glimpses of the innermost planet, and to tell the truth, I'm not absolutely positive that those early sightings were accurate. Maybe they were planes. Odd that for many amateur astronomers, years can go by without seeing one of the naked-eye planets!

Venus & Mercury photographed last month by John Gauvreau

Right now we are in the midst of one of the best chances to see **Mercury** that you will ever have. Spring is a favourable time to see Mercury, since the angle of the ecliptic at sunset brings the planet to its highest possible position above the horizon (likewise, the autumn is a good time to see it in the morning sky). We are further assisted by Venus, whose magnitude of -4 acts as a beacon, guiding us to its planetary neighbour. Through the telescope Mercury currently shows a half moon style phase, and over the next two weeks it will become more and more crescent shaped. What colour does it look to you? Pictures show it to be slightly brown. Can you see that through your telescope? And what about surface features? It's very difficult through the light of dusk and the low atmosphere, but look for that exceptional evening when you get a steady sky that allows you to see variations in tone on the surface. And finally, don't forget that two weeks is all the time you have! Mercury moves so fast in its orbit that these apparitions pass very quickly. On the night of Thursday April 15th, the **36-hour old Moon** will reside just to the right of Mercury. Use Venus to find Mercu-

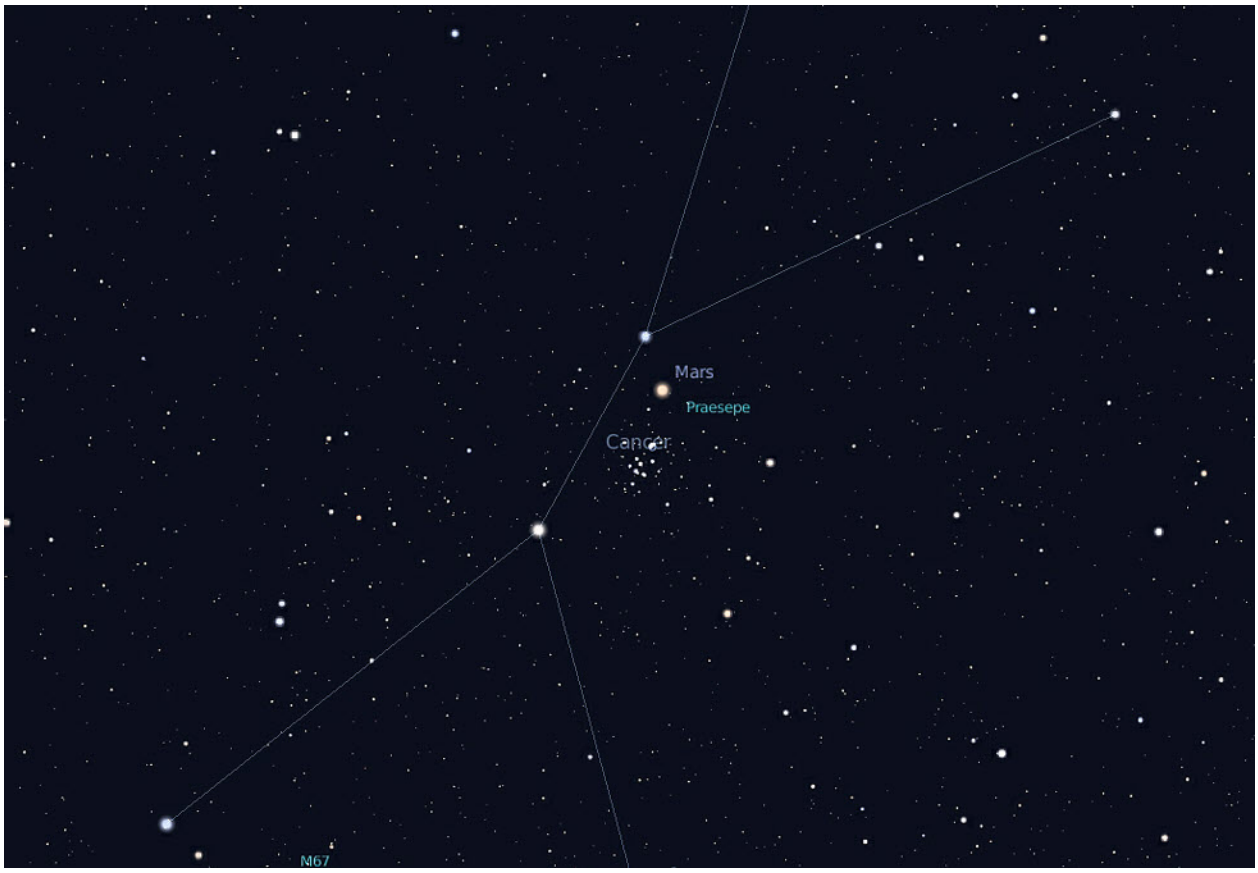
The Sky This Month: April (continued)

ry, and then Mercury to find the super slim crescent of the Moon. The next night the Moon will have moved up above Venus, and filled out enough to be much easier to see. Who can bring a picture of this trio to the next meeting to show everyone?

The **Moon** is at first quarter on Wednesday April 21st, and a week later it is full on the 28th. **Full Moon** rise is at 9 pm, so there is plenty of time after dinner to get to a spot with a good eastern horizon and watch the always spectacular phenomenon of the moon coming up.

Of course, as we mentioned, **Mars** is up high as the sky darkens, having passed form Gemini to Cancer. Indeed, from the 13th to the 19th of the month you can watch Mars glide past **M44**, the Beehive cluster. It's at its closest on the 15th, 16th and 17th, and this pairing would make a spectacular image for the May meeting. Who's up for the challenge of shooting a planet and a deep sky object at the same time?

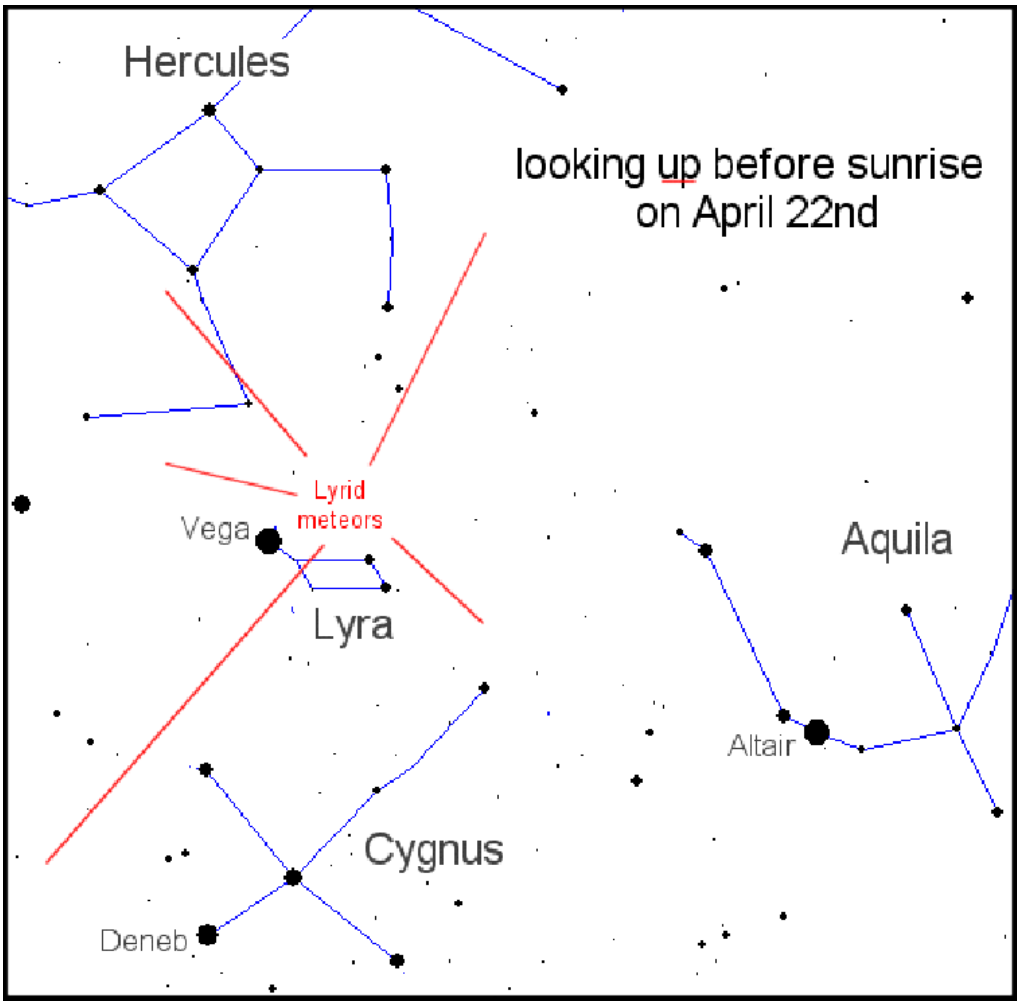
Truly though, the month belongs to **Saturn**. Just past opposition, Saturn is up for the whole night and by midmonth is high in the south by 11pm. With the rings open only a few degrees it is a spectacular sight. Remember that with the rings so narrow, this is the best time for years to come to see as many Saturnian moons as possible. How big a list can you make? Titan is easy, at magnitude 8, but can still be fascinating. Titan orbits Saturn in about two weeks. With a stretch of good weather, you just might be able to make enough back to back observations to follow it around its entire orbit. Can you do a quick drawing each night to mark its position and determine its orbital period for yourself? (Use the same template of Saturn each time and plot all the different positions on one page if you like.) Continued on p.16



Mars and the Beehive Cluster

The Sky This Month April 2010 (continued)

The weak meteor shower known as the **Lyrids** (not to be confused with November's strong and popular Leonids) peaks on April 22nd. After the Moon sets and the radiant point in Lyra rises (where all the shooting stars seem to be shooting from) on the night of Wednesday the 21st, you may be able to see 10 or 20 meteors an hour from a dark site. The Lyrids are known for being bright and fast (they hit the atmosphere at 50 kilometres per second!), even if there aren't very many of them. Rarely, the shower can burst forth with an unexpected burst of meteors. Back in 1982 observers saw 90 meteors per hour and in the 1803 someone wrote that they seemed to fall from the sky like rockets (keep in mind that in the early 1800's rockets referred to what we would call fireworks). According to his report a lot of people were quite alarmed! What will happen this year? Nobody knows, as this shower that originates with Comet Thatcher is quite unpredictable, but whether you see just a few shooting stars or are treated to that once a century show of shows. I assure you that there will be no cause for concern, just a good cause to get out under the warm skies of spring.



As always, I am happy to hear of any reports or observations, or see any images that you would like to share with the club. Email observing@amateurastronomy.org .

Hamilton Amateur Astronomers are on Facebook. Members and friends of the Hamilton Amateur Astronomers club are welcome to join our group: a common location to share events, activities, photos, reports and "whatever" related to the club. All content is public.

facebook

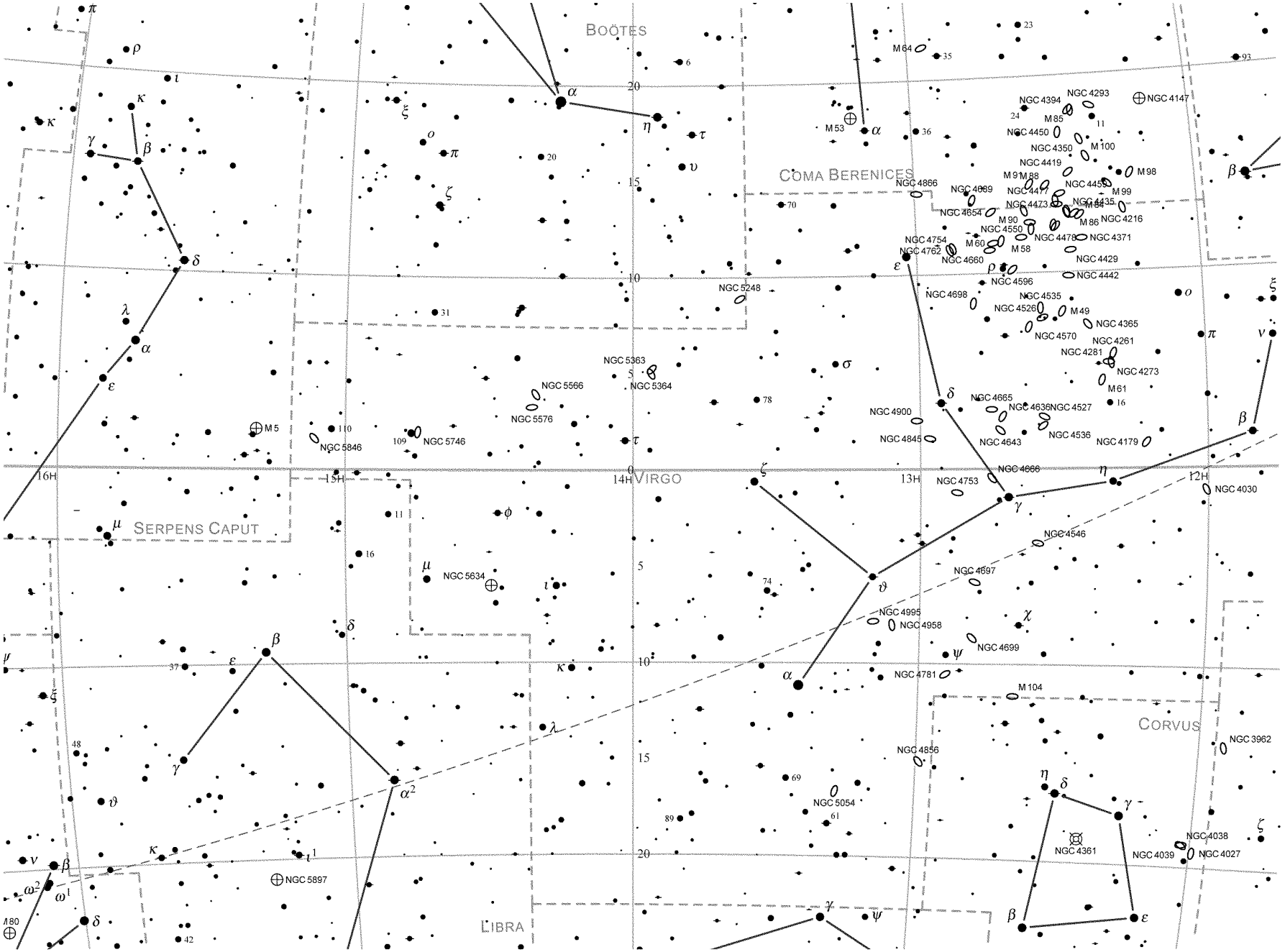


Chart 11: *RA* 12^h *to* 16^h, *Declination* $+20^o$ *to* -20^o

Mag-7 Star Atlas Project *(version 2.0)*

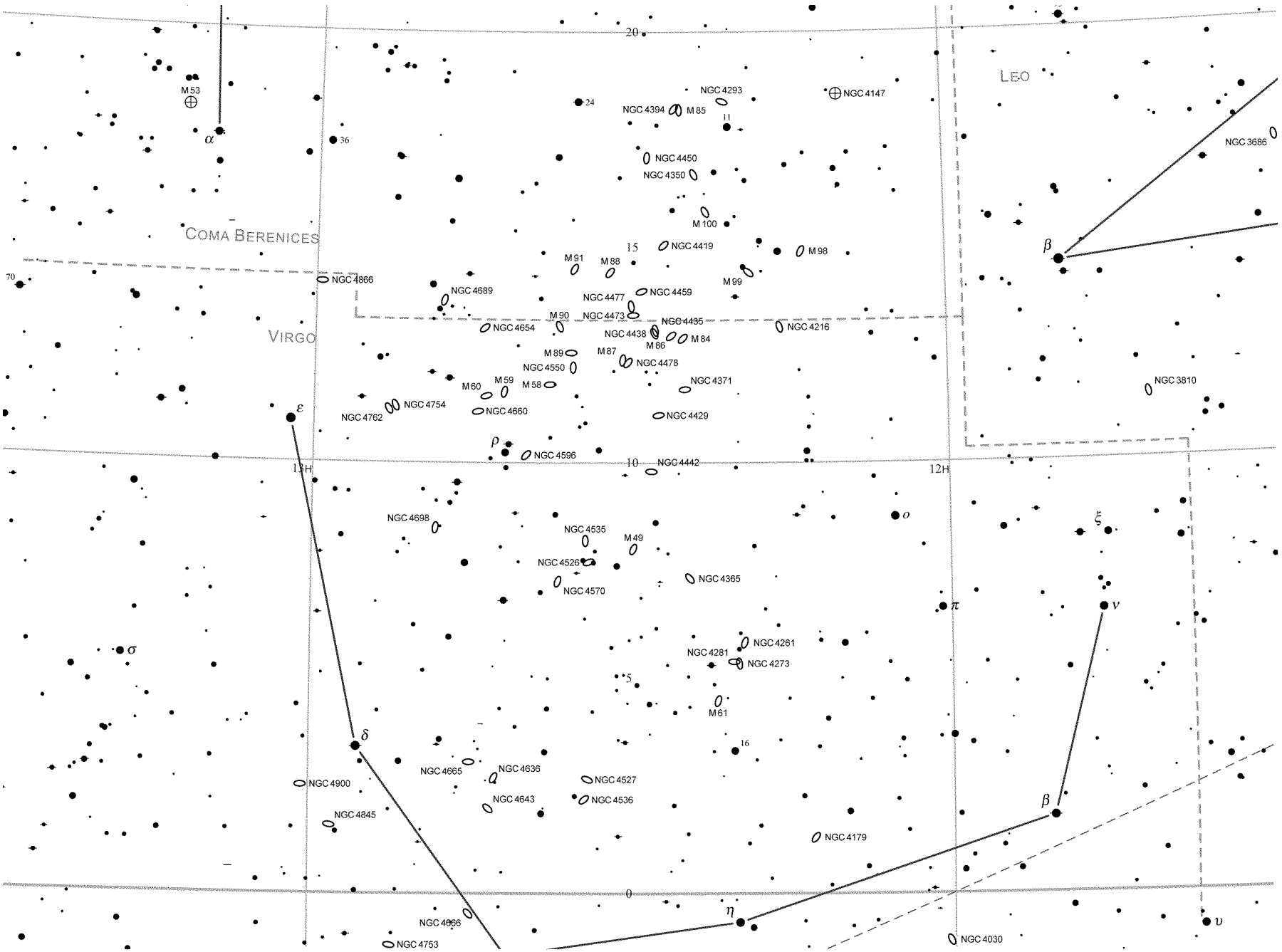


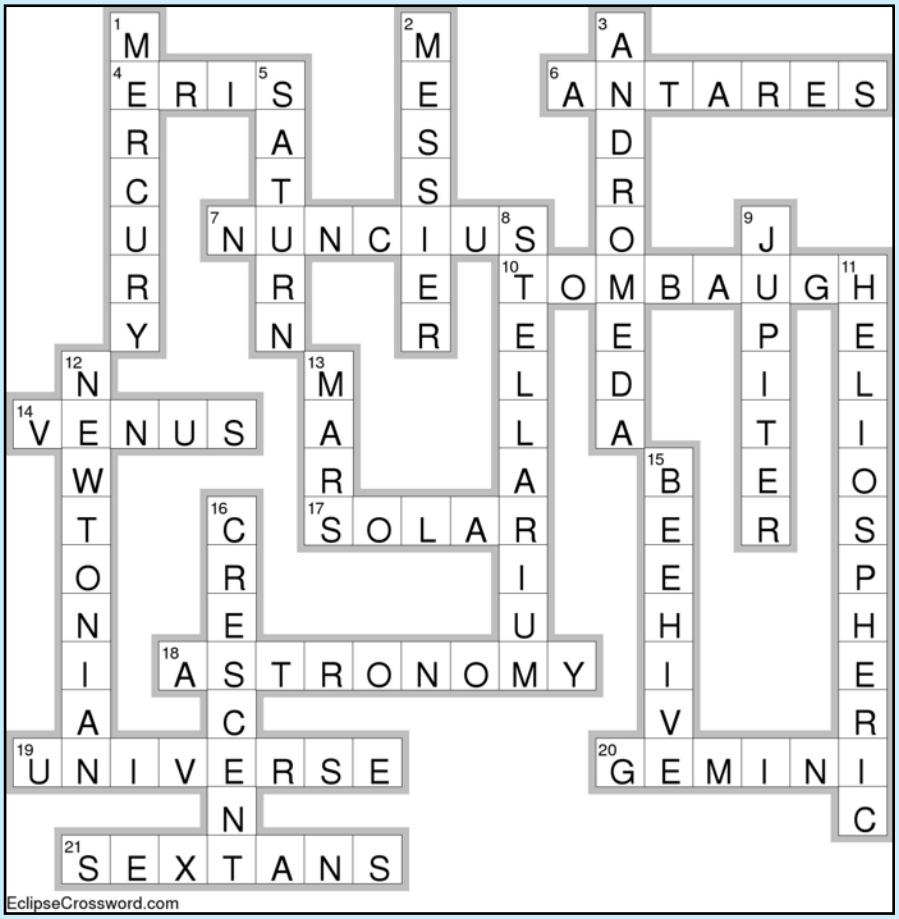
Chart 11a (supplement): *RA* 11.5^h *to* 13.5^h, *Declination* $+20^o$ *to* 0^o Magnitude: 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0

Mag-7 Star Atlas Project *(version 2.0)*

Cartoon Corner by Alexandra Tekatch

Spring Observing

Astronomy Crossword Puzzle (page 10) - Answers:



UPCOMING EVENTS

April 17 - The Sky This Season Live at Binbrook Conservation Area & HAA Annual Messier Marathon fundraiser
April 24 - Astronomy Day at McQueston Park (Upper Wentworth, just south of the Lincoln Alexander Parkway, Hamilton, ON). See our website for details.
April 28- (Wednesday)- Astronomy Book Club meeting. Please contact Mario Carr: mariocarr@cogeco.ca if you wish to attend. This month's book: Seeing In The Dark.
April 30 - Imaging Clinic at the Hamilton Spectator Building, 7:00 pm
May 14 - General Meeting, Hamilton Spectator Building, 7:30 pm

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
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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.
http://www.npca.ca/conservation-areas/binbrook/
905-692-3228

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HAMILTON AMATEUR ASTRONOMERS

HAMILTON AMATEUR ASTRONOMERS

MESSIER MARATHON

The Messier Catalogue is a list of 110 deep sky objects (galaxies, nebulae, star clusters, etc.) that are visible in backyard telescopes. Each year, during early spring, it is possible for an observer to see all 110 objects in a single night. This is a challenge that few have mastered! The person you are sponsoring has accepted the challenge to find as many Messier objects as they can in a single night sometime in March or April. On the back of this sheet, they will record the objects they found, the date they attempted the marathon, and the equipment (telescope, binoculars, naked eye) they used.

The Hamilton Amateur Astronomers is a registered charitable organization. The money raised by this marathon will enable us to continue our work in public awareness and astronomy education. Donations of $10 and more will receive a tax receipt. Thanks for your support!

Name	Address	Phone	Pledge per Object	Flat Donation	Paid?

Cheques should be made payable to: **Hamilton Amateur Astronomers**
P.O. Box 65578, Dundas, ON L9H 6Y6

HAMILTON AMATEUR ASTRONOMERS' MESSIER MARATHON

Participant's Name:	Location of Marathon:
Date of Marathon:	Equipment Used:

MESSIER OBJECTS OBSERVED:

(Listed in order of appearance from west to east. Objects visible in binoculars are marked * and those visible to the naked eye are marked **.)
PLEASE RETURN COMPLETED FORMS/DONATIONS TO TREASURER.

Object	Seen?	Object	Seen?	Object	Seen?	Object	Seen?
M77		M95		M87		M62*	
M74		M96		M89		M6* Butterfly Cluster	
M33*		M105		M90		M7*	
M31**Andromeda Galaxy		M65		M88		M11* Wild Duck Clstr	
M32		M66		M91		M26	
M110		M81*		M58		M16* Eagle Neb	
M52*		M82*		M59		M17* Swan Neb	
M103*		M97 Owl Neb		M60		M18*	
M76 Little Dumbbell Neb		M108		M49*		M24*	
M34*		M109		M61		M25*	
M45** Pleiades		M40*		M104 Sombrero Glxy		M23*	
M79*		M106		M5*		M21	
M42** Orion Neb		M94*		M13** Hercules Clstr		M20 Trifid Neb	
M43		M63*		M92*		M8* Lagoon Neb	
M78*		M51Whirlpool Galaxy		M57 Ring Neb		M28*	
M1 Crab Neb		M101 Pinwheel Glxy		M56		M22*	
M35*		M102		M29*		M69	
M37*		M53*		M39*		M70	
M36*		M64*BlackEye Glxy		M27*Dumbbell Neb		M54	
M38*		M3*		M71		M55*	
M41*		M68		M107		M75	
M93*		M83*		M12*		M15*	
M47*		M98		M10*		M2*	
M46*		M99		M14*		M72	
M50*		M100		M9		M73	
M48*		M85		M4*		M30*	
M44* Beehive Cluster		M84		M80*		M67*	
M86		M19*				Event Horizon	