Hamilton Amateur Astronomers

Event Horizon

May 2005 Volume 12 Issue 7

A Binbrook Observing Night, *by Glenn Muller*

Driving toward the sunset, on April 9^{th}, we noted how the clouds, the wispy kind formed from windblown jet contrails, seemed to congregate over Munroe Airport. It was a phenomenon we'd seen before and, although our destination lay near that area, we were confident that a light breeze and cooling temperatures would soon chase them off.

Though Gail and I enjoy astronomy together, we still like to share these outings with friends and were happy to see several already set up at the Binbrook Conservation Area. Mike Spicer had chosen an elevated spot for the group and we parked nearby to unload our equipment. Anticipating a good session I'd brought the works: 6" dob-mounted reflector, eyepieces, filters, red lights, 10x50 binoculars and mirror box, stepstool, table, chairs, and computer.

While the optics and furniture take only minutes to assemble, the computer requires hookup to a power adapter connected to an inverter plugged into the car's lighter socket. I then put a red acetate over the screen to dim the display and, after boot up, load in my logging and charting programs. This may take a little while to complete but once initiated is an efficient tool for locating objects and recording observations.

My favourite charting program is Cartes Du Ciel which has a companion logging program, based on Excel spreadsheets, called Astrologex. Both are free for the downloading if you have Internet access. Typing by red light, however, can be a bit challenging so I tend to abbreviate the real-time observations, on-site, then flesh out the details, later, when I get home.

I mention all this because, to get the most out those precious hours, you should prepare an observing plan beforehand. Knowing which targets will be within grasp of your equipment avoids wasting valuable time wondering what to look at next. And logging your impressions, over time, will result in well-rounded descriptions that are specific to your capabilities - I often review my records to see if an object is new to us or, if not, is worth another look. A log is a personal endeavour and, since most objects are generally well-documented in our book collection anyway, my entries reflect more of the sampler than the scientist but, seeing as that's how Gail and I observe, it works well for us.

So, let's take stock. We've got a dark Saturday night, an observing plan, observing companions, clearing skies, tolerable temperature with very little breeze, and no bugs. Overhead, there's a celestial smorgasbord of DSO's, a couple of showpiece planets, and the incredibly thin sliver of a one day old Moon. It rarely gets better than that!

To check out my (expanded) log entries from that productive evening, I invite you to read on:

The Moon: Less than 24 hours old, the Moon was low on the horizon and barely visible when Darrel Maude spotted the thinnest sliver we have ever seen. Even in our scope there was not enough limb to show whole craters, but the rugged nature of the terrain was exemplified. A very engaging sight.

Jupiter: Currently just below Gamma Virginis (the central star of the "y" portion of Virgo) and nearing a close opposition, the planet is big and bright. To reduce glare and enhance the bands I attached a green filter to the 21mm Pentax. When barlowed, the power became 114x making four bands easily visible and the Great Red Spot detectable as a slight blemish on the South Equatorial Band. The four moons and Jupiter made a very symmetrical "t" formation.

cont'd on page 3 ...

Upcoming Events

Event: HAA meeting (last meeting until September)

Date: Friday June 10, 2005 7:30PM

Location: The Hamilton Spectator

Admission: Free. Everyone is welcome!

Email Reminder notice

We send email reminders before each meeting which describes the location, time and topic of the general meeting.
If you're not on the list, make sure that you receive your reminder by sending a note to: publicity@amateurastronomy.org

Subscription Offer for Members

Members of the club are eligible for a discount on Sky & Telescope Magazine subscriptions.
The regular annual rate is $49.95 (U.S.). HAA members pay only $39.95 (U.S.).

Contact Ann Tekatch for information on how to sign up; tekatch@sympatico.ca 905-575-5433

HAMILTON AMATEUR ASTRONOMERS

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PO Box 65578
Dundas, ON
L9H 6Y6
(905) 575-5433

Submissions to the web site or newsletter are welcome. Submissions may be edited for size & content.

... A Binbrook Observing Night cont'd from page 1

Saturn: Though sitting high, just above and to the left of Delta Gemini, moisture in the air prevented the clarity of detail we've enjoyed in the past. In our scope at low power (57x), Titan, Dione Rhea and Tethys were seen arrayed in a wide perimeter of the planet. With his 8" equatorially-mounted reflector, Clyde Miller managed to boost power to nearly 500x for an extra large image that was still quite good.

M 35: Just off the "foot" of Gemini, this open cluster showed 40 or so stars around mag. 8-10 and fit nicely into to 1.1° FOV of the 21mm eyepiece.

M 36: A smaller, fainter, more compact version of M35

M 42: We've seen the Orion Nebula much better than it showed tonight. However, the Trapezium seemed unaffected by the low altitude and mediocre transparency.

M 43: Like M42, this nebula was not at it's best this night.

M 44: Viewed naked eye, with averted vision, the "Beehive Cluster" was just barely detectable.

M 45: Naked eye, I could resolve 6 of the Pleiades

Melotte 111: Sometimes known as the tuft of Leo's tail, Berenice's Hair, like the Beehive Cluster, this was also seen naked eye with averted vision. Those two clusters bracket Leo the Lion like swarms of gnats on the veldt.

M 47: Bob Christmas located this one. At low power, this open cluster appears nicely populated with 3 or 4 dozen mag. 7-10 stars

M 46: Bob also located this one. Fainter and more compact M47, but still quite pretty.

M 97: The Owl nebula used to be a challenge but now we can find this dim grey smudge fairly quickly.

M 108: An edge on galaxy, the brighter core also appears somewhat elongated

M 104: The Sombrero galaxy is about as bright a slash as you'll find for a galaxy. Quite an easy target to spot at low power.

M 64: My charting skills must be getting better; I found the Black Eye galaxy fairly quickly, tonight. Though we could only make out the central part of the galaxy we noticed how the dust lane gave it an irregular shape.

M 65: No distinct core detected, but this elongated galaxy is easy to see at low power.

M 66: Wider than M 65, yet fits in the same FOV. Together these galaxies appear similar to M 81 / M 82 but with less detail.

NGC 3628: A little harder to spot than M 65 or 66, this thin slash of a galaxy makes up the "Leo triplet" which forms a triangle in the low power FOV.

M 105: Under the "belly" of Leo, this faint spiral is a small smudge that will lead the way to three other similar smudges.

NGC 3371: Right beside, and similar to, M 105.

M 95: A faint spiral galaxy near NGC 3371

M 96: A short hop from, and similar to, M 95

M 53: A bright, compact globular. Higher power did not resolve individual stars but with more altitude and better transparency, it may be possible with our scope.

M 87: Finding galaxies in Virgo is like shooting fish in a barrel; identifying them, however, can be time-consuming. For this reason I stayed on the line between Epsilon Virginis and Beta Leonis. In our scope, M 87 is quite evident as a small, dark gray, elliptical smudge with a star-like core.

M 86 / 84: Two more small gray smudges with tiny bright cores, these galaxies are just over a degree from M 87 and about 20 apart making their identification simple.

NGC 2392: The Eskimo Nebula. A little help from Mike Spicer was required to locate this. Saturn is currently situated about 1° "North". The nebula sits next to a star in a binary configuration with about 20" of separation. The star is about mag. 8, the nebula mag. 10ish. Averted vision helps.

M 51: Not a good night for M 51. Through our scope this "combination" galaxy appeared as two fuzzy stars connected by a faint and mottled nebula. Dean Randall's 12" Meade reflector provided a larger image but little more detail.

R Coronae Borealis: Mike Spicer showed us how to use it's mag. 7.3 companion to gauge the current brightness of this variable star. For Gail and I, it was our last observation of the night but a nice way to cap off a very interesting and enjoyable session.

by Glenn Muller

Observing Notes

SMOG ALERT ACTIVITY, 8 - 9 May 2005 by Mike Spicer

This year the smog alerts started as soon as the weather warmed up. They last for days and cover all of southern Ontario... is air pollution getting worse? At sunset one can see a thick greyish-purple haze all around at the horizon. Do people realize they are standing in that soup and just can't see it up close or overhead?

Smog is a subtle toxic fog. The elderly have red, burning eyes and cough without ever realizing it's due to the air. Intractable astronomers stay out all night observing when only a dozen stars are visible in the thick greyness overhead. Maybe it's time to stay in when the only star visible in the constellation Lyra, is Vega!

Grey sky can be penetrated by a big telescope. I spent a few hours looking at the Cats Eye planetary nebulae overhead in Draco on Sunday night with the Nexstar 11". A few members drove by to remark on the size of my guidescope (a 5" refractor and a lot of counterweights). I tried imaging but the soupy air caused a lot of problems... problems that expensive UHC and OIII filters could not overcome (more on this during the Filter talk at the meeting on Friday). I could capture stars below magnitude 14 but the background was very poor... and the light pollution in the City doesn't help.

The electronic eyepiece works magnificently in smog. I have been making videotapes of Jupiter using an ND9 filter to decrease the planet's brightness. If you use a 3" refractor and 4x or 5x barlow, you won't need the filter. My images

of Jupiter are large and clear using an inexpensive CMOS, video cord and TV/VCR combination. The various cloud features can be measured accurately and their CM passage timed to the minute! If only it was a colour camera... it is so very easy to use compared with a Toucam Pro CCD imager or even the Meade LPI, an excellent and inexpensive little camera.

SATURDAY NIGHT BINBROOK BASH by Mike Spicer

May 7th was clear and warm for solar observing in the afternoon with great promise for the evening. A half dozen HAA members gathered at Binbrook before dark to set up scopes. We were joined after dark by almost half a dozen more people and a local newspaper columnist. Eight telescopes were available to peek through; three were used for imaging.

It's only early May, so it did get cool after midnight. The tiniest bit of breeze kept dew from forming on any scopes without causing shivers in anyone but Gail. We wore coats after 10:30 pm against the chill that comes from humid air. Water vapour absorbs and scatters light, so the sky looked grey and it was difficult to see stars below magnitude three, near the horizon. There was fog over the ponds.

I set up a TV monitor and electronic camera on the Nexstar 11 to capture an hour of Jupiter images. Imaging gives an accurate measure of seeing conditions. Tonight the seeing was limited to 2.5 arc seconds but a lot of detail was noticeable in the recording of Jupiter. Greg, Glenn, Tony and others bagged a lot of Messier objects and a comet! in their excellent scopes. Darrell persevered in collecting digital images of deep sky objects with his DSI. I say persevered because setting up a telescope, polar aligning it carefully, connecting heavy-duty batteries, computer and DSI, finding objects and collecting the images takes a lot of time and patience.

Darrell obtained the most remarkable images of M3 with his Orion ED80 scope. Starting with multiple 4 second images, he moved to 8 second, then 15, then finally he was persuaded to collect 30 second images. The DSI does not "stack" multiple images... it averages them to eliminate background noise. To get fainter stars (and a bigger M3 globular cluster as a result), you need the longer exposures. After midnight we moved his computer to a new battery, his DSI to a bigger telescope and took some 30 second images of M57 that were quite colourful. I hope Darrell shows some of his images at the June HAA meeting.

Ten people at Binbrook with eight scopes made for a great observing occasion. I hope we can do this often during the warm summer months. Next Saturday you are invited to join HAA members at a public display in Brantford, more info at the monthly meeting on Friday the 13th at the Teamster's Hall on Parkdale Ave. Oh, the "bash" part... someone bashed the massive iron front gates at Binbrook recently and carted off one of the 10 foot long gates.

OBSERVERS' NOTES FROM Friday 6 May 2005 by Mike Spicer

Friday we planned to go to Binbrook but at 8 pm another member dropped by to point at the heavy cloudbanks to the west. The air was very heavy with water vapour even before the sun set, which translated to very poor transparency and possibly, poor seeing as well. We decided not to trek out to Binbrook and set up on my patio instead.

Fooled again! The transparency was excellent, and the cloud bank disappeared to permit observing until after midnight. We should have gone to Binbrook, and I hope no one waited to be let in (I didn't hear from anyone after the scheduled 9 pm opening).

My friend and I set up a Meade go-to mount. He remarked on how quiet it was, so I confided that I had programmed it to slew max at 1.5° per second. The Meade LXDs are all very accurate go-to mounts; I had adjusted the polar alignment scope so it was aligned with the mount's declination axis. We interchanged scopes on the mount during the evening: comparing the view of Jupiter through a Meade AR-5" ($400) and a 5" apo scope ($2,000) to see whether the improvement in clarity was worth the extra money. The views in the AR-5" were so good and colour-free that we agreed, for visual observing the apo wasn't worth all the extra money.

Jupiter was really beautiful with the excellent seeing and Ganymede approaching the planet; my friend estimated that the AR-5" scope continued to show a dark sky between the satellite and the planet within 1-2" of separation. He also mentioned how gloriously clear the view was using Antares W70 eyepieces of 14mm and 8.6mm focal length. Khan's in Tororntо is selling the 8.6mm for $79, a real bargain. We also checked out Jupiter with the Orion ED80, an exceptionally fine telescope.

Saturday looks promising for Binbrook, and unless it is raining any visible cloud will not deter me a second time! Please come out if you have the opportunity to observe with us, 9 pm to midnight.

Thursday May 05,8:43pm by Glernn Muller

This weekend is showing some promise for observing. If the weather holds, Mike Spicer plans to open Binbrook from 9pm to Midnight on Friday.

Gail and I will head up on Saturday night for 9pm, and Greg Emery will come later and lock up.

Plan to take advantage of what has been a good Spring so far.

OBSERVING PROJECTS FOR 2005 by Mike Spicer

Each year I try to develop interest in observing projects. In 2005 I have booklets available free of charge for HAA members who would like to take part in either Observing Planetary Nebulae or Observing Globular Clusters.

The 12 page booklets contain lists of 90 Globulars and 100 Planetary objects with their RA and Declination, Designations, size in " or ' of arc, description or concentration class, brightness, and constellation. The objects are listed by RA and each booklet contains photos or drawings of representative examples. Members are encouraged to use the recording sheet included with the Globular Cluster list and

to draw what they see. I would be very interested in the results.

Planetary Nebulae are fascinating to observe under excellent conditions; globulars are bright and large enough to obsrve even under so-so conditions. Both types are relatively bright and suitable for imaging. I hope that members will take one of each booklet at the May Meeting and make an effort to observe these interesting objects during the warm weather of summer and fall. Monday May 02,12:05am by mike

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OBSERVER'S NOTES, Saturday 30 April by Mike Spicer

Another observer and I drove to Toronto for the semi-annual tent sale at Khan's Astro Store. There was nothing under the little blue tent for me this year because threats of rain kept Ray and his boys inside. There were some great bargains to be had on used and new telescopes (but I have too many now), books (I bought the Modern Moon by Wood at a sale price of Cdn $45) and imaging cameras of all kinds.

Khan's sale prices continue for awhile. If you want a new US$299 Meade DSI they are only Cdn$349 at Khan's, a great price and Khan's have the improved third-generation IR filter permanently installed over the chip.

Speaking of books, I have compiled a booklet on Observing Planetary Nebulae. I propose a project for this year - observing and/or imaging planetaries! I put data for 100 planetaries in the booklet, together with some background information on these little deep-sky objects. This summer, be true-blue... catch some green! See some of these colourful objects. Booklet available free of charge to HAA members.

Sky and Telescope's June issue has a lot of information about Meade's new R-C scopes with auto collimation, autostar control, built-in dew heater and electronic focus, all on a great tripod and heavy-duty mount for only US$16,399 delivered to your (Niagara Falls, US) door. There are a few 16" LX-200 SCT scopes for ony US$10,900 - almost half the price they sold for 6 months ago. Your June S&T came with a catalogue of sweet offerings from the S&T store...with free shipping on orders over $50, and of course, no tax (within the US).

OBSERVER'S NOTE, Wednesday 27 April 2005 by Mike Spicer

The sun peeped out for a while today among a string of cool, wet springtime days. I was outfitting my 9 x 50 finderscope with a Baader solar filter by mounting one in a 52mm diameter polarizing filter. The opportunity to look through it at the sun was too good to pass up.

To my surprise, I spotted a very large sunspot group, approximately 2% of the disk. The last time I looked at the sun with a telescope, in February, there were no visible sunspots at all. This one is very large.

The sun has been in the quietest period of its 11 year cycle of activity during the last year, yet we have seen quite a bit of activity: the occasional naked-eye sunspots, mammoth solar flares and amgnificent aurorae like that of last November 7th. The sun bears watching. Saturday April 23,08:19am by mike

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A HAZY THURSDAY NIGHT, 21 April 05 by Mike Spicer

Thursday night was clear and cool with gradually increasing haze. The gibbous moon was beautifully placed high in the SE above and to the right of Jupiter. Saturn was falling from overhead into the West even before sunset. Weathermen predict the next week will bring clouds; observe now while you can!

Not-great observing nights provide opportunity to try out new eyepieces, check on polar alignment, practise go-to star alignment, identify stars or constellations with binoculars, observe double stars... in short, all the things that you don't have time for when great observing days present themselves.

I recently enlarged my patio so this was a good night to check polar alignment of my pier. While it was still light I set up the 11" scope and practised the eq-alignment process until the scope went right to alignment stars. Daytime Jupiter and Saturn appear pale but very beautiful. The blue sky looks dark at high magnification and Saturn's rings have a translucent appearance!. I started video recording Jupiter at dusk to capture the little triangle of moons W of it: Io and Europa, moving away from the planet, were nearing apogee while Ganymede was moving closer to Jupiter, catching up with Europa, passing it and inverting the lunar triangle after midnight. A series of 2 minute videos every quarter hour from 00:30 - 4:30 UT captured the movement nicely.

Hazy nights often have periods when the air is quite still. The video of Jupter revealed periods where a remarkable amount of detail was visible, especially in the NEB. Rather than squinting into a telescope and drawing what is seen on the tiny disk visible in the eyepiece, I prefer to video the planet's features for easy replay and measurment of what I see. No pretty colour pictures, but lots of scientifically useful data. By connecting a shortwave radio to the audio input of the VCR it's possible to obtain extremely accurate timings as each feature crosses Jupiter's CM - data that A.L.P.O. greatly desires.

Between "takes" of Jupiter and its moons I took another series of short videos of lunar features. The video eyepiece automatically compensates for brightness to permit the capture of surprisingly good detail (craterlets within Plato, for example). When replaying the videotape later, a lot of details are noticeable that I would not have seen by looking in the eyepiece. The moon looks immense when video-recorded and tiny features noticeably change from one hour to the next as the terminator moves. I wonder if members would like to have a video tour of the lunar features at a meeting? Now that's a thought.

THOSE LAZY, HAZY DAYS OF SUMMER ARE HERE by Mike Spicer

Wow, a low of 17°C on a hazy, windless Tuesday night,19 April. What a change! Only a week ago it was zero at night with a chilling breeze.

What can you observe when the air is saturated with water, the air is so hazy you have to strain to see 2nd magnitude stars and there's a ring around the moon? You know this observer is not giving in to imperfect conditions.

First, pick a telescope. I chose an 8" Maksutov because I wanted to check the collimation and the air was very still (poor transparency but good seeing). The heavy-duty TAL mount for this telescope has a VEGA controller, so the scope can run from house current or a 12V battery. Set-up and polar alignment was quick; the scope's optics were great - Maks don't lose collimation like reflectors and SCTs.

Second, pick bright objects of interest. The Moon was just past first quarter and high in the sky. Haze spread its light, increasing the sky's brightness. Not a night for imaging DSOs, but a great opportunity to take a recorded tour of lunar features with an electronic eyepiece recording onto VHS tape. Conditions were also great for imaging Saturn and Jupiter. The Red Spot rolled past the CM Tuesday evening.

It was a good night to check how sensitive the electronic CMOS eyepiece is. Lunar features are of course easy to record. Bright stars like Arcturus, Spica, Regulus and Polaris appear very bright on tape. Mizar and its 4th magnitude companion Alcor are also very easy. Jupiter's moons are easy to record and in fact, help the camera find perfect focus. Using the 11" Nexstar scope it is possible to split and record all 4 stars of Epsilon Lyrae (and the faintest member looks markedly fainter than the rest). The variable star R Coronae Borealis and its magnitude 7.3 companion can be recorded.

By the way, R CrB seemed fainter than usual Tuesday night at mag 6.5 ... it may drop by several magnitudes any day... check out R CrB with binoculars if you can..

Would the electronic eyepiece capture on VHS tape a relatively bright Messier object, such as the globular cluster M13? No, I couldn't record M13 Tuesday night under poor conditions. It's an attempt to be made on a moonless night from Binbrook where the sky is much darker. Thursday night looks like it will be clear, is anyone interested in going out to Binbrook?

SOME UPCOMING EVENTS by Mike Spicer

Want astronomy stuff at less than retail? Ray Khan's store is located on Dufferin Street in Toronto just south of the 401. Khan's "tent sale" is in two weeks, from 10 a.m. to 4 p.m. on Saturday April 30th. On display are things Ray has collected in the basement, apparently. Discontinued stock, "one of a kind" items and maybe accessories that have fallen out of telescope boxes. Let's go inspect his odds and ends for what you need. Last year I bought a 7" apo refractor for $500 less than Ray's low-low tent sale price! Make Ray an offer; he loves to haggle ("Ten for that? You must be mad!").

Have you heard people wondering "Quo Ducit Urania?" You can become one of Urania's followers at no cost. The little asteroid Urania zooms eastward past Saturn soon, passing just half a degree S of the planet on the evening of 2 May. At magnitude 11 it will be visible in an 80mm telescope. Saturn is declining in the west each day, so take the opportunity to observe! The planet is moving just N of the Eskimo / Clown nebula and returning to pass by open cluster NGC 2420 on May 13-15th.

ASTRONOMY DAY 2005 - we were swamped! by Mike Spicer

A very busy Astronomy Day 2005 across Hamilton on Saturday! At the university, our members helped little scientists and big ones perform a variety of hands-on activities (among them, making comets and craters). McCallion planetarium had set up informative and entertaining shows. In the evening an overflow crowd swarmed our nine telescopes at the Bayfront Park!

So many people of all ages and backgrounds arrived at Pier 4 parking lot in the springtime warmth before sunset! Thank goodness I had brought a TV monitor and electronic eyepiece, to use my 11" SCT telescope for group shows! Crowds gathered even before my scope was set up. A long line looked at the Moon, Jupiter and Saturn in "stereo" through my binoviewer. Each observer in turn stood glued to the sights ("It's like I am floating above the Moon"). Others waited patiently, watching pre-recorded images of Saturn and Jupiter on the TV monitor.

After dark I connected my eyepiece camera to the monitor, for live images. I set up lounge chairs and let whole groups of people see Jupiter, Saturn and the Moon (with the binoviewer, observers could peek through the tandem eyepiece as well, if they wanted to). My Nexstar 11" worked perfectly and withstood the little kids' bumping, etc...a handheld JMI focuser let each observer focus the image to suit.

Youths sure have sharp eyes! Several youngsters remarked without prompting that they could see 4 moons of Saturn, 3 in a triangle surrounding the planet's rings. Many people noticed the Cassini division and Saturn's Equatorial Belt. When the monitor showed Jupiter's disk, a number of people were surprised at the details visible in the equatorial belts. But it was the first quarter moon's spectacular craters, rilles and lava flows that spellbound the public. One young fellow said he could see lunar mountain icecaps!

My thanks to Ray Badgerow for operating my telescope for a while in a panoramic tour of the lunar features while I visited some of the other 8 telescope set-ups in the park. I heard many favourable comments about the "perfect" image quality and rock-steady mounts of the apo scopes, especially Darrell and Sandy Maude's scope set up close by.

Reflectors were also put to good use. Bert and several other members were spaced out in the lot, each scope with a knot of users. Crowds gathered to watch Clyde Miller's CCD setup collect images of Jupiter and process them on-screen while Clyde explained the image-collection process and showed some of his spectacular images of Messier and NGC objects - his shots of M51 drew gasps from the crowd. Clyde makes image-collection look easy but we all noted his power consumption needs.

Chairman Glenn and his lovely wife Gail obviously did an excellent job of advertising the event, plus they had their telescope out from sunset until quite late. The public pe-

tered out about 11 pm but almost two dozen HAA members remained. A number retired to a local restaurant until after 1 a.m. to review the great turnout and to plan future events, contests and meetings for our fine club to host!

Saturday evening was a time for club promotion and a membership drive! I was happy to distribute HAA contact-information cards to the inquisitive and I sold some astronomy equipment on the spot. Mike Jefferson had HAA membership forms available for a number of prospective new members.

This was our largest public turnout since the Mars opposition in August 2003 and the fantastic Perseid Meteor Watch in August 2004. We should have public events throughout the summer months, don't you think? A reporter from Brantford was very excited by the turnout. He requested that our club put on an observing session there, to be advertised in the Expositor. Of course we will do that! Who's up for a display this summer in Brantford?

HAA's Astronomy Day was a success because so many members - too many to name here - got involved! Thank you, thank you. It warmed me through the evening to see such co:operation, fine advance planning and great commitment to the public. For me, HAA is certainly astro-tops in community involvement!

OBSERVERS' NOTE, Friday 15 April '05 by Mike Spicer

Another HAA member made arrangements to come to 25 Redbury Friday night with his Deep Sky Imager. The Sky Clock predicted steady, transparent skies and he wanted to compare planetary images taken with his DSI, the Meade LPI (Lunar and Planetary CMOS Imager) and my own DSI.

I set up two telescopes, an 8" Maksutov and the 11" SCT, each on a guided mount. The Mak gives very sharp, colour-free images but the SCT collects more light. In the end we used the 11" and Darrell used his laptop to collect some very good images of Jupiter. The Sky Clock was wrong about steadiness, because seeing was mostly poor (3-4 arc seconds of scintillation). It was colder than predicted, and I brought my friend inside to do his imaging.

These CCD cameras have small sensitive chips. Images are like looking through a 4 or 5mm eyepiece, so the field of view is tiny in the 11" SCT (about 150" of arc). Jupiter looks quite good with its 4 moons but many objects are too big to fit: Darrell was surprised to see that M13 was about three times too big to image with the SCT. In his 80mm apochromat telescope M13 is very well framed. Lesson: choose objects that are of suitable size for your imaging system (or buy more telescopes). I have often used an ND.9 filter to cut down on Jupiter's surface brightness; we tried one with the DSI with good results, but the Autostar software can obtain equally good images without an ND filter.

Hurdles when imaging: (a) finding the object with the imager, (b) keeping the object in the imager (ie: avoiding image drift), (c) taking and storing dark frames before collecting images(ie: not being rushed), (d) selecting the exposure rate, (e) deciding whether to collect combined images or save all the images you shoot (ie: how big is your hard drive, and will you have time to play with the images later - many of us work full-time...), and oh, yes, (e) for those of you who image while standing beside the scope, c-o-l-d. I have enjoyed imaging from inside for a few years, with the telescope out on its pier on the patio and controls via lengthy wires (USB connections have a limited range).

A binoviewer is handy when imaging. You can use a wide field eyepiece to find objects and on the other side, a crosshair reticle for accurate alignment. After alignment of the scope, replace the eyepieces with one DSI CCD camera and one electronic CMOS eyepiece, and you can watch Jupiter on your TV screen (and VHS record beautiful images for hours on tape, if you wish), making small corrections to its on-screen position to ensure the DSI image is right on the chip. It's a form of autoguiding that ensures two kinds of images! Purists will want to image through a minimum of light-disrupting surfaces.

I hope to see you all out at Mac in the afternoon, and at Bayfront Park in Hamilton on Saturday evening for the HAA's first public night of 2005. Looks like great weather, let's enjoy our Astronomy Day!

Friday April 15,11:05am by greg The moon was a little brighter than I anticipated, however the observing from Binbrook on Thursday night was good.

I started with M104, the Sombrero Galaxy, in Virgo. The image wasn't too bad. The dust lane was visible, although not conspicuos. Other galaxies in Virgo and Leo offered nice views as did Jupiter and Saturn. The seeing was such that Saturn under high magnification would have moments of sharpness.

See you at Bayfront

OBSERVER'S NOTE, 14 Apr 05 by Mike Spicer

Thursday the 14th was another great night of clear skies for observing! How long a stretch of dark blue can we expect from the Sky Clock? Well, for sure it will be clear on Saturday, International Astronomy Day! Make plans to join us at the Bayfront Park's paved parking lot starting at 8 pm.

The Moon was showing a beautiful crescent as it passed almost overhead Thursday evening. The lava flows on several seas by the terminator were a spectacular sight to behold. Our well-publicized Astronomy Day Public Event on Saturday evening will show people the first quarter moon. I am thinking of setting up a viewing screen in case we have large crowds...

Jupiter is cruising by a beautiful little galaxy this week. Thursday night it was only 7' of arc south of 11th magnitude NGC 4691. If you put the bright planet just outside the field of view you can see the galaxy with its very tight spiral arms. Of course most eyes were on the pretty little triangle made up by Io, Ganymede and Europa just south of the galaxy. Io managed to start its transit of Jupiter before sunrise. On Jupiter itself, the Great Red Spot paraded across the disk, followed by a huge dark "barge" in the NEB that I was able to image.

Speaking of images, I collected some of the most popular double stars on Thursday night, as the transparency of the

sky was not good enough to image galaxies very well from the city. I might have to start imaging from Binbrook Conservation Area, where the skies are very dark indeed.

Hamilton amateur astronomers have a dark observing site available anytime, so close at hand, complete with washrooms and an almost treeless horizon (especially to the south where most of the observing takes place)! We at the HAA sure are fortunate to have Binbrook! There's no other place like it within an hour's drive of the city!

OBSERVERS' NOTES, 10-11-12 April 2005 by Mike Spicer

Spring weather, with warm sunny days and clear, cool nights. Three of us have been trying our hand at imaging with the Meade Deep Sky Imager, a compact, lightweight and inexpensive CCD camera that is quite sensitive to faint objects, hence the name.

After our very successful HAA Star Party at Binbrook on Saturday, clear skies have permitted some additional imaging. The seeing has not been all that great, with air turbulence limiting the length of exposures, but some pretty good images have been obtained of several globular clusters, planetary nebulae and galaxies. I have no idea how to post photos to the HAA site at this time. For imaging, the Nexstar 11's mount is much more accurate than the Meade LXD-55 that a number of HAA members use, but the latter is also quite sufficient for imaging.

Celestron has been bought by Synta, the Chinese optics company. Alas, while the Celestron refractor line will continue, those beautiful 14" SCTs and the 11" Nexstars with the fastar f/1.9 imaging capabilities, may no longer be made. Future amateurs will have to buy a used Celestron on Astromart, or be satisfied with a Meade SCT, though the manufacture of 16" Meades has also ceased. The last few 16" Meade SCTs are being sold off at greatly reduced prices, if you are interested...

An Offer

Thinking of buying your first telescope but wondering what kind to get? Before you buy, consider this offer from Mike Spicer: a "loaner" 5 inch telescope with electronic alt-az controls. The scopes are lightweight, easy to set up and very easy to use. Mike is offering newer members of our club one of these telescopes to try out for a month or so. Interested? You can reach Mike by email at `deBeneEsse2001@AOL.com` or by phone at (905) 388-0602.

Chair's Report *by Glenn Muller*

Has this been a great Spring, so far, or what! The first half of April gave us over ten days of clear nights around the new moon, and Astronomy Day was big success both at McMaster, where members entertained seventy-five guests with solar viewing and hands-on activities, and at Bayfront Park where just as many showed up for a night session with our telescopes.

May looks to continue the trend with another excellent session, already, at Binbrook (see the Activities reports) and a public night planned for the 14^{th}, in Brantford. This event, a joint venture between HAA members and the Brantford Expositor, is being organized by Clyde Miller and Mike Spicer. At the time of writing, the location had not been set but details can be found on the Club website. If you can help with this function all you need to do is show up.

Another media outlet, SkyNews Magazine, also contacted us about information on the Club and, last month, I sent them an overview and three pictures from our activities. Although I did receive a thank-you, I wasn't given a date for publication so, if you happen to notice anything about the HAA in an upcoming issue, please let us know.

As far as I know, next month's meeting (June) will be back at the Spectator Building, but it will also be the last one until September so plan to attend if you can. No doubt there'll be some activities throughout the Summer, and Binbrook will be open whenever possible, so keep the "Activities" page bookmarked.

Speaking of Binbrook; getting in got a little more interesting last week. It appears that someody has bashed through the gate, twisting the connecting bolt and completely removing one of the long, tube-steel, bars! The missing bar has temporarily been replaced with a cable and the lock that we can open is now located near the left-hand post however you do need to watch out for grease.

Well, that's it for me for this month but, as always, if a meteorite lands in your backyard remember to call me first! Clear Skies!

Glenn invites your comments on these topics or any aspect of the club. He can be reached via `chair@amateurastronomy.org`

The Great Bear

by Greg Emery

Growing up in the Northern Hemisphere we all are introduced to the constellation Ursa Major. The Big Dipper is without a doubt the most famous asterism in the northern skies. Those of us who grew up in families with little to no interest or knowledge in astronomy still knew the Big Dipper. When I was young that was about the limit my family could show me of the skies.

Assuming that I am now knowledgeable in astronomy and the Northern Skies, I still see the Big Dipper, and usually pass right over it on my way to other constellations and targets. I find that Ursa Major is "always there" and I don't spend the time looking at it and all of the deep sky objects that are within it's boundaries.

Ursa Major is a large constellation with many deep sky objects. There are six real Messier Objects on the list (M81, 82, 97, 101, 108 and 109) as well as an amazing number of other objects. The Hubble Deep Field pictures are from a very small piece of sky located in Ursa Major.

There is only one planetary nebula of note in Ursa Major, M97 the "Owl Nebula". This planetary nebula spans roughly 3" of arc and is magnitude 10.1 and resides just off of the bottom of the bowl of the dipper, closest to β-Ursae Majoris (Merak). Close by is M108 a spiral galaxy, nearly edge-on. M109 resides at the inside bottom corner of the Dipper's bowl.

A beautiful face on spiral, M101, is unfortunately a low surface brightness object. Much of the photographic detail is lost through modest size scopes. Two more interesting galaxies are the combination M81, M82 which can be found by drawing a diagonal across the bowl of the dipper, and extending it the same distance again. Messier 81 is a beautiful face on spiral, while M82 is an Irregular galaxy located very close to M81. This pair of galaxies are the first two galaxies which I found on my own with my own telescope. It was easy to do and may in fact be the second and third easiest galaxies to find in the Northern Skies (Andromeda being the easiest).

There is much more, however, to the constellation than these Messier objects. The bend or crook in the handle of the Dipper is a historical double star. The Arabian and Native North American cultures apparently used this star as a test of visual acuity. Being able to discern the double star visually was a passing visual grade – wonder how many people just said "Yes, I see two stars there!". When viewed with a telescope or binoculars, 4 stars are actually seen. The two naked eye stars of the system are Mizar and Alcor and are an optical pair. They only appear close to one another, there is actually a large distance between them. Mizar however is a true binary star. The companion (Mizar B) is 4^{th} magnitude with a separation of about 14" from Mizar.

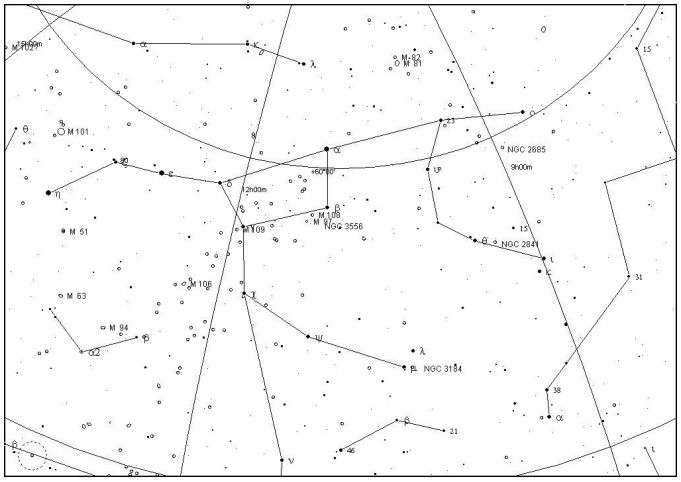
There are too many NGC and UGC objects to list in this short article, however a few of the NGC objects you may want to peruse are NGC 2841, NGC 3184, NGC 3356 and NGC 2685. All of these are galaxies. NGC 2841 is a 9^{th} magnitude spiral galaxy measuring about 3' by 7'. The galaxy is at an oblique angle and not truly face-on. NGC 3356 is an almost edge-on spiral of magnitude 10.8. Can you see the dust lanes?

The galaxy NGC 2685 is an odd- shaped spiral galaxy of magnitude 11.3. The galaxy is more or less being viewed from the edge, but photographical rings or lobes can be seen 90 degrees from the equatorial plane – nice project for the CCD imagers in the club. The last NGC object (3184) is a magnitude 9.8 spiral galaxy.

If playing with the faint fuzzies doesn't amuse you, how about some variables?

W Ursae Majoris, located about 2 degrees NNW of Phi Ursae Majoris is a dwarf eclipsing binary. This binary will dim from magnitude 7.9 to 8.6. The dimming is caused by the eclipsing of one component by the other. Our close to edge on view provides near total eclipses. The two components are so similar that we see essentially the same amount of dimming of the system regardless of which component is eclipsing which. The period of the system is 0.334 days, a little over 8 hours. The eclipse takes about 2 hours, with totality of the eclipse lasting on the average of 15 to 20 minutes.

The image below shows the Messier and NGC Objects discussed for Ursa Major.



Web Watch

Title: Astro-wapsite

Description: Derek Prince has recently started an astronomical wapsite, dealing with our Solar System. You can access this from your for use by WAP (Wireless Application Protocol) enabled mobile phones.

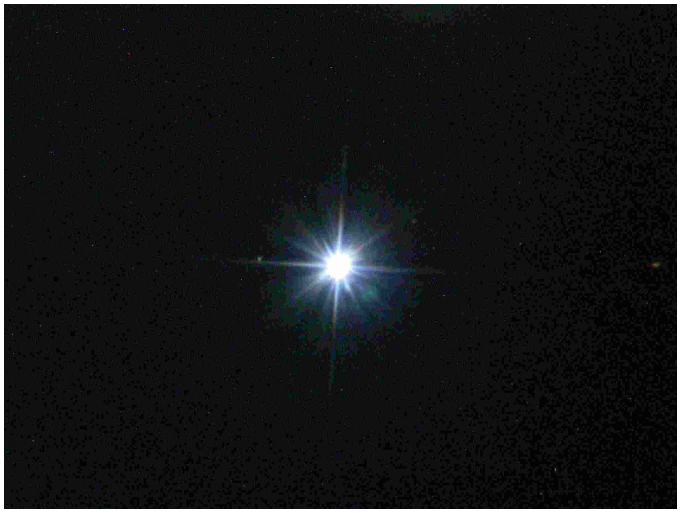
Mobile Phone: `winksite.com/astronomer/syzygy`

Web Site: Goto `www.winksite.com/` then in the "Direct Access" box enter 7138.

EyeCandy

The Moon and Mercury by John Gauvreau

M51 by Clyde Miller



Vega by Clyde Miller

Science In The City For Kids.

Telescope contest winners

The Mullerscope. Photo by Doug Welch

NASA's Space Place

Asian Tsunami Seen from Space *by Patrick L. Barry*

When JPL research scientist Michael Garay first heard the news that a tsunami had struck southern Asia, he felt the same shock and sadness over the tremendous loss of human life that most people certainly felt. Later, though, he began to wonder: were these waves big enough to see from space?

So he decided to check. At JPL, Garay analyzes data from MISR—the Multi-angle Imaging SpectroRadiometer instrument aboard NASA's Terra satellite. He scoured MISR images from the day of the tsunami, looking for signs of the waves near the coasts of India, Sri Lanka, Indonesia, and Thailand.

Looking at an image of the southern tip of Sri Lanka taken by one of MISR's angled cameras, he spotted the distinct shape of waves made visible by the glint of reflected sunlight. They look a bit like normal waves, except for their scale: These waves were more than a kilometer wide!

Most satellites have cameras that point straight down. From that angle, waves are hard to see. But MISR is unique in having nine cameras, each viewing Earth at a different angle. "We could see the waves because MISR's forward-looking camera caught the reflected sunlight just right," Garay explains.

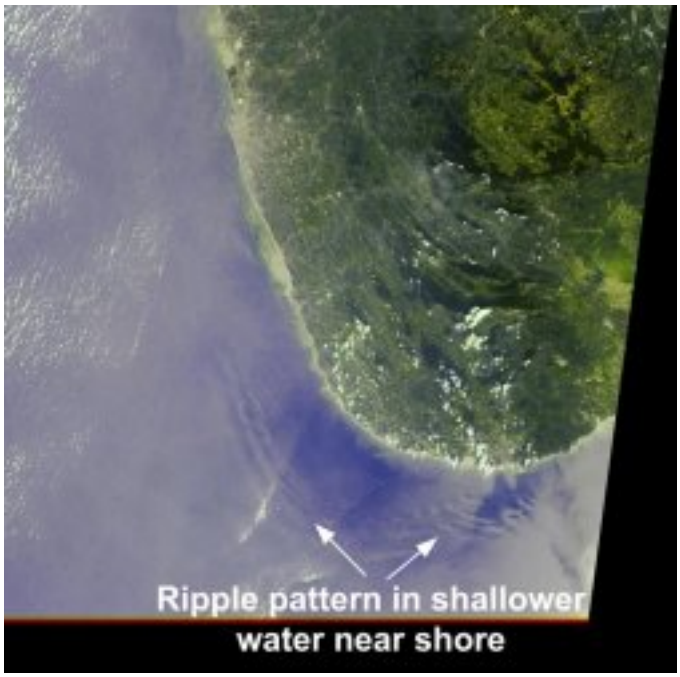
In another set of images, MISR's cameras caught the white foam of tsunami waves breaking off the coast of India. By looking at various angles as the Terra satellite passed over the area, MISR's cameras snapped seven shots of the breaking waves, each about a minute apart. This gave scientists a unique time-lapse view of the motion of the waves, providing valuable data such as the location, speed, and direction of the breaking waves.

Realizing the importance of the find, Garay contacted Vasily Titov at the National Oceanic and Atmospheric Administration's Pacific Marine Environmental Laboratory in Seattle, Washington. Titov is a tsunami expert who had made a computer simulation of the Asian tsunami.

"Because the Indian Ocean doesn't have a tsunami warning system, hardly any scientific measurements of the tsunami's propagation exist, making it hard for Dr. Titov to check his simulations against reality," Garay explains. "Our images provide some important data points to help make his simulations more accurate. By predicting where a tsunami will hit hardest, those simulations may someday help authorities issue more effective warnings next time a tsunami strikes."

Find out more about MISR and see the latest images at `www-misr.jpl.nasa.gov`. Kids can read their own version of the MISR tsunami story at `spaceplace.nasa.gov/en/kids/misr\_tsunami` .

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



This December 26, 2004, MISR image of the southern tip of Sri Lanka was taken several hours after the first tsunami wave hit the island. It was taken with MISR's 46° forward-looking camera.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Council meetings

All club members are welcome to attend the council meetings. Contact `info@amateurastronomy.org` for details.

June 2005

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10 HAA General Meeting at the Hamilton Spectator.	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		
			For observing info, Rob Roy 692-3245, Greg Emery greg.emery@mohawkcollege.ca, http://amateurastronomy.org/events.php			

May 2005

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July 2005

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