Hamilton Amateur Astronomers

Event Horizon

May 2006 Volume 13 Issue 7

Chair's Report

by Glenn Muller

Regular EH readers will know of my affinity for asterisms; those unique formations of stars that prompt the imagination with their chance alignments.

Well, at a recent Binbrook session I was pushing the 6" reflector around Corvus, looking for the Sombrero Galaxy, when I chanced across six stars in a cluster no wider than 10' forming two nested triangles. They instantly piqued my interest so, using the common scientific jargon, I alerted the rest of the group. "Hey," I said. "Come take a look at these neat stars!". John and Dianna, a nice couple from Winona who were observing with us for the first time, politely pried themselves from the wonderful views through their 11" Celestron SCT and wandered over. "I've read about this," said John, after peering through my eyepiece. "It's got a name like Star Trek, or Stargate, or something."

He was right.

The next day I Google'd "Stargate cluster" and was rewarded with several links providing the following information: Catalogued as STF 1659, the formation was initially recorded in 1832 by Friedrich Struve who specialized in double star systems. You will need to look closely at the brighter star of the inner two, however, to resolve the double and complete the smaller triangle.

After Struve, though, the group garnered little attention until John Wagoner, founder and former president of the American Association of Amateur Astronomers, came across it in the 1970's. He, too, was on his way to M104 when it slid into view.

"I named this asterism 30 years ago while observing at the Texas Star Party and the name stuck." Wagoner said. "Many people think this is named after the [1994] movie. Wrong." It was actually named after the Stargate used by Buck Rogers to enter hyperspace, in the 1930's. In an e-mail to a friend Wagoner comments that the cluster is "a triangle within a triangle which makes it so unusual. But the star at the apex of the inner triangle is dimming because it is a long period variable, which is screwing up the whole thing. Damn universe changes."

If you'd like to see this interstellar portal for yourself, the coordinates are: RA: 12h 36' 03" Dec: -12" 03' 34", or about a degree East of M104.

And, the fun doesn't end there. In that immediate vicinity is yet another asterism with the ominous moniker of "Jaws". Situated just off the imaginary line connecting Stargate to M104 are four bright stars in a row. They form the head and mouth of a celestial shark, the body of which consists of a string of fainter trailing stars. Both the Stargate and Jaws are mentioned in Phil Harrington's book The Deep Sky: An Introduction. In fact, it was Harrington who gave Jaws its label. Another good source of information for this interesting group is the internet link `www.backyard-astro.com/deepsky/top100/15.html` This fine site has a nice map of the region and a couple of excellent sketches – well worth checking out.

The web also provides several related photos but I'm hoping that, by next month, some of our own members will be posting official HAA pictures of these intriguing targets.

In the meantime, observe with an open mind and you'll "see" more than meets the eye.

Clear Skies!

Glenn invites your comments on these topics or any aspect of the club. He can be reached via:

`chair@amateurastronomy.org`

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

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.

Articles submissions

The HAA welcomes your astronomy related writings for the Event Horizon newsletter. Please send your articles, big or small, to:
editor@amateurastronomy.org
The submission deadline is two days before each general meeting.

HAMILTON AMATEUR ASTRONOMERS

Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA).
The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels.
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Submissions to the web site or newsletter are welcome, and may be edited for size & content.

Astronomy Day, May 7 2006

A marvelous night for astronomy!

by Glenn Muller

Thanks to the many members who shared their equipment and enthusiasm, Astronomy Night at Bayfront was a true community party. Clear skies, a perfect Moon, showpiece planets, and even a bright meteor or two made for an entertaining show as did the wide variety of paraphernalia and free handouts (particularly the mini-scopes). The group support was top-notch, and the public response very gratifying. Throughout the night I heard many intelligent questions, excellent answers, and plenty of laughter. Way to go HAA!

Great turnout for H.A.A. Astronomy Day at Bayfront

by Mike Spicer

Astronomy Day 2006 at Bayfront Park in Hamilton was easily one of our best-attended observing events in years! It was the biggest gathering of HAA members I have ever seen outside of monthly meetings and our 10th anniversary banquet. Two dozen telescopes and almost one-third of our club members were there. A slight breeze died out by 10 pm, the after-rain transparency was excellent and our pre-event advertising was quite successful. We even had two police cruisers stop by!

Things got underway while the sun was still shining in a warm, clear blue sky. A crowd gathered even before our several dobs were focused on the first quarter moon high on the meridian. I set up with several others on the concrete central median of the main parking lot, wary of rollerbladers. An 8" S-N with electronic eyepiece beaming an image to the TV monitor nearby, attracted dozens of onlookers.

Tim Philp and Heather Neproszel had their excellent 5" maks trained on the moon; Don Pullen and Darrell Maude had small refractors set up. Ann Tekatch and Sandy Maude captured digital images of all the scope setups and of the crowd. Hal Mueller had a beautiful Vixen refractor south of me.

Parallel to our lineup, Glenn and Gail had their Dob, the Binns brothers had both telescopes and a binoviewer, Tim Harpur attracted crowds with his very tall 8" SCT and that huge guidescope, and Gary Sutton was showing people sights in his excellent go-to Mak. Bob Christmas was armed with a cute scope-setup backed up with examples of his magnificent photography.

Photo by Ann Tekatch

Several members told me over a hundred came to view the Moon, Saturn, Jupiter, Mars and a few deep sky objects. There were a lot of families with interested children, couples professing their love (of Astronomy), interested out-of-towners and dozens of people who had never before looked in a telescope. They came by "WOWed" and counted Saturn's moons Titan, Tethys, Dione and Rhea, noted Jupiter's four satellites and irregular equatorial belts, the colour of Martian soil and had a tour of lunar craters. Thank goodness for Ray Badgerow, who gave me a lot of help with the TV setup on the moon, surrounded by onlookers amateur and professional.

Small refractors were handed out free of charge to many onlookers (finderscopes really, to start off a career in astronomy with lunar crater-counting), there were charts of the disposition of Saturnian and Jovian moons and maps showing the position of Comet 73P relative to the constellation Lyra, for those with large binoculars and time to go comet-hunting in the next couple of days.

Hamilton Amateur Astronomers provided the public with a great opportunity to learn about astronomy. Several onlookers recounted how they had looked through each and every telescope. There were a lot of questions about telescopes, about celestial objects, and about our great club! Lots of brochures and business cards were handed out tonight! I am sure we will have new faces at the monthly meeting on May 12th. Thanks to all who came out.

April Meeting roundup *by Mike Spicer*

Professional Development Day at H.A.A., 7 April 2006

The auditorium at the Spectator building on Frid Street in Hamilton was nearly filled to capacity by Hamilton Amateur Astronomers, their friends and visitors Friday evening. On the agenda: two well-known local professionals addressing Astronomical issues, and one local amateur updating on new observing targets for the summer. Chairman Glenn took a poll of the 50+ in attendance. Responses indicate that Gail's advertising of the event in local media has been quite worthwhile in reaching the community!

Mountaintop Giants Battle the Air with Light Sabres

Dr. Doug Welch, McMaster astronomy professor and founding member of the H.A.A., gave a fascinating presentation on the problems large Earthbound telescopes have with atmospheric seeing "speckles". Telescopes larger than 0.5 metres have more seeing problems than smaller amateur telescopes, Doug pointed out. How do large observatories overcome air turbulence and obtain diffraction-limited imaging? They rely on costly adaptive optical systems that measure the turbulence 50x/second and then distort the light received by the telescope to compensate for it. Doug showed detailed animations to distinguish this type of A.O. from the slower "toggle-mirror" type of adaptive optics used by amateur astronomers to overcome seeing problems.

What Factors Determine Whether There's Life "Out There"?

We certainly weren't alone with 50+ members and guests at the April meeting of the H.A.A.

Photo by Mike Spicer

Dr. Cliff Burgess of McMaster took us through the many factors of the "Drake Equation", examining the information needed to estimate the reasonable chance there is intelligent life on other planets in the universe. The factors in this equation have been very clearly determined but many have only speculative quantification at present. With each passing decade, Science refines our knowledge and sharpens some of the input factors... but others are just speculation at this point. The result, as Dr. Burgess admitted, is a big "No one knows yet".

New Observing Targets for the Summer

Mike Spicer gave a brief powerpoint presentation on Comet 73P that will pass by M57 in Lyra as it bisects the Summer Triangle next month. Chairman Glenn challenged members to get a look at the comet before our next monthly meeting May 12th. Following up on H.A.A. member Steve Kinsella's alert notice, Mike presented information on Nova Cygni 2006 and some of the beautiful deep sky objects near it that can be seen in amateur telescopes. His humorous account of the recent BASEF Science Fair event at Mohawk College had the audience laughing.

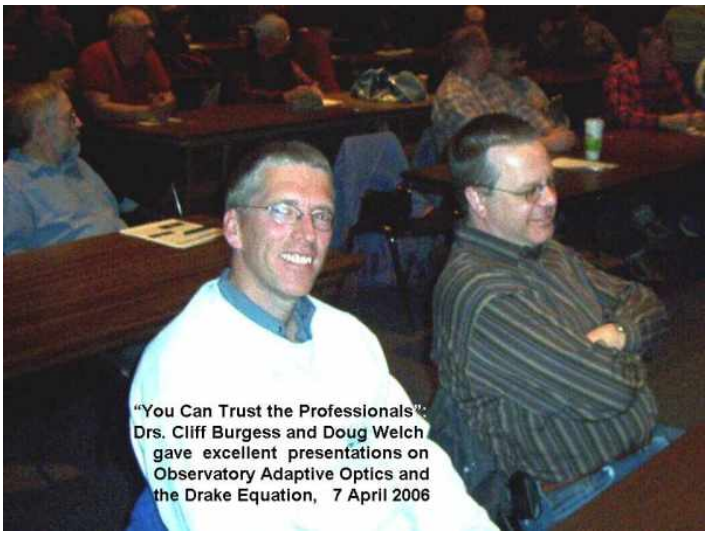
"You Can Trust the Professionals": Drs. Cliff Burgess and Doug Welch gave excellent presentations on Observatory Adaptive Optics and the Drake Equation, 7 April 2006

Photo by Mike Spicer

The chairs were just about filled to watch Glenn's "warmup AV presentation" of recent H.A.A. public outreach activities; the meeting started right on time at 7:30 pm. I attribute the audience's prompt arrival to the door prize draw system (no tickets given out to arrivals after 7:30 pm). This month the prizes were CDs of Starry Night planetarium software. Numerous members and newcomers went home with a door prize, Anthony Tekatch wondering where all the door prizes are coming from.

The meeting ended with an invitation to join H.A.A. members at Binbrook for an observing session Saturday night 8 April. At 9:45 after a lot of friendly exchanges, members removed to East Side Mario's in University Plaza for the usual wrap-up food, drink and discussion. There's no doubt... HAMILTON AMATEUR ASTRONOMERS ARE AN ACTIVE CLUB!

A Comet'S Fantail Lightly Brushing the Face of M57

by Mike Spicer

Hamilton Amateur Astronomers were out at Binbrook Conservation Area on Sunday night at sunset to set up for the big event. The brightest fragment of Comet Swassmann-Wachmann 73P, known as "C" would fly past M57 before midnight - a great observing and/or imaging opportunity. The afternoon forecasted evening clouds and a cloud bank stretched across the southern horizon but like many H.A.A. observers, I am not easily deterred.

Gary Sutton, Heather Neproszel and Don Pullen all brought small Maksutovs for visual observing. Tim Harpur wanted to image with his Rebel through his 8" Celestron SCT; Tim Philp had the most equipment, including a DSI and LPI to set on a 10" Schmidt-Newtonian. I brought an 8" S-N and DSI for imaging. We all set up in the parking lot beside the lake (some closer to water than others), to ensure a clear horizon.

Polar alignment finished, there was time for many to take a peek at the gibbous Moon high in the SW. Heather mentioned that there'd be little need for flashlights with such moonbeams on us all night. There was a slight breeze but with our experience and the lake so close, dew shields of various lengths went on the scopes. Jupiter is up at sunset now, a burning brand in Libra even as Saturn lingers lower in the western sky each passing night.

Vega was hanging over the lake in humid air with poor transparency, slowly rising out of the glow thrown up by the City of Hamilton. We each searched out M57; imagers started collecting data as soon as possible, watching to see the comet pass by the Ring Nebula. Visually, we could see the comet not far from the Ring - Tim Harpur's scope gave an excellent view, and he took digital SLR shots before packing up (starts work early).

Looking at Jupiter and Saturn in Heather's Mak/binoviewer combination brought home to us how good the seeing was. The wind died by 10:30 pm and clouds that had threatened us early on, disappeared (save a low-lying small one - a cotton ball that took half an hour to move across the sky). The air was cool, damp and calm. It gave us some of the best planetary details ever seen in the Maksutovs.

M57 is 9th magnitude; I estimated the comet as 8th magnitude... not very bright. Early images of M57 were dim and didn't show the comet approach, but suddenly at 11:25 pm THERE IT WAS in the same DSI field of view as the Ring. The others came over from time to time to see images collecting, while they waited for Io to emerge from behind the bright disk of Jupiter (it popped out like a white pimple on the disk at 11:38 pm).

As I scrolled through the bitmap images of the comet I was collecting, the comet's rapid motion was very easy to see. Someone please advise me on how to turn BMP images into a short AVU file! After midnight the comet pulled away from M57, a thick mist was rising from the lake, dew overwhelmed some of the telescopes, and I had all the images I wanted. We packed it in after a very successful event!

Here (in much reduced size and quality) is one of the raw images taken shortly after the comet had passed M57, while its tail was sweeping the Ring:

Observers will no doubt process their images soon, post some into their astro-galleries and bring images to the next H.A.A. meeting (at the Spec building on May 12th) for you to see. Come out for a very informative meeting this coming Friday at 7:30, another demonstration of how active our club is!

Michael Spicer, a Hamilton attorney, and past HAA councilman, is an avid observer/imager who owns various telescopes and also published various "observing projects" on: double stars, variable stars, Saturn, Jupiter, globular clusters and planetary nebulae.

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The Cranky Curmudgeon Wonders about Cosmic Microwave Background Radiation

by Bill Tekatch

The NASA spacecraft known as the Wilkinson Microwave Anisotropy Probe (WMAP) has been mapping the cosmic microwave background radiation in fine detail since 2001. Analysis of the data first raised some questions in early 2005. Why was there a correlation between the map and the solar system? The investigators offered that improbable things happen frequently because there are lots of opportunities for them to occur.

More results came out April 2006. Now with more data and better analysis the same correlation is being found. The newest results include additional data for polarization not released previously. Surprise, this also shows a statistical anomaly. These very oddly line up with the geometry of the solar system. Is this expected? We expect everything to be more or less the same in every direction. Comments? Are those features telling you something physical and important, or are those features just random? That, I think, remains an open question that will be a subject of debate.

My personal point of view is that as a researcher my experience is that when very sensitive instruments look at very small measurements you often end up with unusual results. The only way to be sure is by checking. This means more measurements using different methods plus more space probes.

Should the same result be repeated and confirmed then we have a problem. It may be a small problem that can be explained. Perhaps dust particles surrounding our solar system are partially aligned to a magnetic field and interact with some of the microwaves as they travel to Earth. It may be a very big problem that we can't explain. In that case maybe we don't really understand the universe as well as we think we do. Sometimes it is just a matter of perspective.

Bill Tekatch is a founding member of the HAA, ran the Cosmology Discussion Group for some time, and has written several articles on cosmology.

Please welcome new HAA members:
- Joe Hilliard
- Rob Cockcroft

Activities summary

Observers' Notes, 5 May 05
Just a fragment of an image of a fragment

by Mike Spicer

The weatherman predicted rain yesterday... it didn't rain. The Clear Sky Clock said there'd be a little hazy cloud... there was hazy cloud. I went out after dusk to check the transparency - have you noticed how late it gets "dark" now? Of course, in Hamilton th sky is at best a dark grey. With binoculars, I was able to see down to magnitude 7. Seven, not eleven. I decided to set up a telescope anyway.

Well, you can see quite a bit in an 8" scope even in Hamilton. The little Meade SCT was so easy to set up, and its drive was so accurate, I decided to try imaging with the DSI (someone walked away with my ToUcam, leaving money). And as you can guess, the imaging was so easy and the drive so accurate, I imaged all night. The time flew by. Have you noticed how early the sun comes up in the morning these days?

I imaged with various filters on the DSI: an IR cutoff (of course), a Lumicon UHI (for M57) and a Lumicon Oxygen 3 (for M27). And I tried imaging with no filter at all... that worked well too.

Images of Comet 73P's Fragment C are fairly common now, so I imaged Fragments B and G.

Others have estimated Fragment B to be magnitude 7.5 but you can compare the images of the comet and the brightest star in the photo, which is 10th magnitude. The very faint Fragment G was passing by a bright star in the Keystone of Hercules or I would not have been able to image it. You can compare the images of the comet and the brightest star in the photo on the website, which is 10th magnitude.

Observers' Notes, 3 May
We were somewhat T'd off...

by Mike Spicer

With the big Nexstar scope in storage awaiting new computer controllers from Celestron, I appreciate invitations to use other peoples' scope setups. I visited another HAA member tonight and used a Burlington Mak and equatorial mount.

Maks are just about perfect telescopes. The tube is compact, closed at both ends, seldom needs collimation, and has such a small secondary that the view rivals an apochromat refractor. The long focal length lets you use medium focal length eyepieces to get high power views great on planets, double stars and deep sky objects.

Tonight we looked closely at the nearly first-quarter moon, Saturn, Jupiter, some double stars, globular clusters like M13 and M3...and all of this despite a very hazy sky (although the seeing was good). But with the scope set up beside a building blocking the view to the North, how to get good polar alignment?

Use golf tees and a red laser. Stand some distance away, at a point where Polaris is visible, shine the red laser along 20 yards of dental floss pointing North from behind the telescope. Once the scope is oriented to North, place golf tees in

the ground at the tips of the tripod legs. In future, setting the scope feet on the tees will ensure accurate polar alignment. The scope can now be set up even before dusk - a pretty good "T-off".

Observers' Notes, 2 May
NOT NAKED EYE, NOT EVEN BINOCULARS

by Mike Spicer

Comet 73P is in the news a lot these days as it breaks up into house-sized chunks visible at least in the Hubble Space Telescope (that's what they use the $6 billion scope for now). We've had a chance to observe and image the comet's C and B fragments in amateur telescopes. The comet is moving very rapidly through Hercules now, over 2° per day, sporting a fairly long tail. Mark 10 pm May 8th in your calendar and practise observing M57 in Lyra, where you'll find the comet that night.

But it's not bright. Even tonight, when Hercules is virtually at the zenith, you have to know where to look, to find it using 50mm binoculars in the city. Will it become a naked eye comet? Well, in the next two weeks it will halve its present distance from us. If it heats up close to perihelion and continues to break apart, it could become much brighter and the tail will certainly grow.

Obviously 73P is a less-than-obvious comet to watch, and for now you'll need large binoculars or a telescope to see it!

Observers' Notes, April 30
A visit to the garden observatory

by Mike Spicer

Harvey Garden came to a Binbrook observing session with his new telescope almost two years ago. He had purchased a Celestron 4" Mak and go-to mount and was very happy to observe Saturn and other objects with us, comparing the view in his scope with that of several other telescopes of varying size.

Well, Harvey caught the observing bug that night. He joined the H.A.A. and bought astronomy books to learn about the hobby. Then Harvey built a two-storey observatory in his back yard, just a mile or two south of the Binbrook site. The farming country where he lives has an almost treeless view to the horizon. Harvey pops open the flip-off halves of his observatory roof and has an unobstructed view with his scope mounted on a steel pier.

I visited Harvey this afternoon to bring him a 50mm right angled finder to replace his red-dot finder. When I have imaged the place inside and out, I think you'll be interested in seeing the Garden observatory! Thanks, Harvey... an active member of the H.A.A. !

April 30, The Cigar Galaxy, Bodes Galaxy, Pinwheel Galaxy, Whirlpool Galaxy by Tim Harpur

by Tim Harpur

I went out again last night (Saturday), but there was a heavy mist in the sky - everywhere I aimed the scope - nebulosity! But not the kind I was looking for. I did catch a glimpse of comet 73P before packing up though. All in all it was a good weekend for observing.

See Tim's other images at `amateurastronomy.org`

April 29, Dark Skies

by Tim Harpur

It was another beautiful night up in Tobermory last night. Sounds like it turned out well at Binbrook too.

I spent most of the night imaging a couple of galaxies again - this time the Whirlpool Galaxy and the Pinwheel Galaxy. These were a little tricky, as they wouldn't start to show in the camera until after a minute or so of exposure - so it took some time to focus and center them. I will post them to my gallery as I get them processed.

This is a 5 minute exposure @ ISO 1600 out across the lake from the vantage point of the telescope. The bright light on the island is a beacon 5km away - the closer smeared bright lights are stars reflecting off the water. The sky was amazingly bright with stars.

Star Party Notebook, April 28
Twenty is a party!

by Mike Spicer

There were some big telescopes at Binbrook for the first Weekend Star Party of the year Friday night. Clear skies beckoned and observers - with a dozen telescopes - filled the parking lot by the lake as well as the E side of the Hill. Hamilton Amateur Astronomers were out in force, some of John Gauvreau's class came out, members of other clubs in the area, and a few interested visitors as well.

There were a lot of Cassegrain telescopes, of course... a big one on a CGE mount, JG's 10" Meade, Darrell's C9.25", Heather's Orion 5" and Gary's C4". An 8" Schmidt-Newtonian, 8" and 6" dob Newtonians, a 6" refractor and an assortment of smaller refractors rounded out the dozen instruments available. You can tell it's a star party when the wives and girl friends attend as well - and there were a lot of them!

We opened the park at 8 pm but JG and some of his party were already setting up by the lake. Saturn was almost overhead and visible even in the failing light of dusk. We were quickly aligned and counting its rings and moons. Heather "teed up" her observing spot for future pre-dusk polar alignment. JG and Mike J pointed out interesting double stars and deep sky objects for new people and old hands to try.

A cool breeze in the early evening kept dew away from Darrell's no-dew-shield SCT. We spent a long time on Saturn but the seeing was poor so our imaging equipment stayed in its cases. Hunters picked out comet fragments, galaxies and globular clusters in short order. Jupiter's Great Red Spot was transiting the planet just after 10:30 pm and we moved from scope to scope to get various views of that.

After 11 pm the wind died and seeing was much improved, though the sky was grey. Humidity affected the transparency, making 5th magnitude stars invisible to the naked eye. Comet 73P fragments "C" and "B" were quite prominent in small scopes but invisible in 50mm binoculars. For many of those present it was their first look at this comet with the wide, prominent tail(s).

Midnight with Jupiter low on the meridian, people remarked how Callisto was hanging below Io W of the planet. As 1 am approached we watched Io pass behind the planet without dimming in the planet's shadow (around opposition, Jupiter does not appear to cast a shadow to the side). The 6" refractor neatly split Epsilon Lyrae (but not Gamma Virginis) and resolved M13 all the way across (but not M92). After 1:30 am we noticed the cold...frost forming on tables, cars and cases, feet got cold and nose-sniffling got louder than telescope slewing (and remember, there were several Meade scopes out tonight).

All in all, a very successful star party and thanks to all who came out. H.A.A., such a friendly group of real observers! Next weekend is our first 2006 Public Night at Bayfront Park in Hamilton and you are all invited!

Observers' Notes, April 28
High spirits, high pressure, high quality

by Mike Spicer

A large, slow-moving high pressure area has moved over us this weekend and the Clear Sky Clock is deep blue for the weekend.. I will be opening Binbrook up tonight at 8 p.m. and welcome you to join me on the hill to make use of the great conditions.

Thursday night while Tim Harpur was imaging from Tobermory, I set up an 8" scope on an LXD-78 mount on the patio at home. Tim Philp joined me until the early hours of the morning. We imaged Comet 73P, now in Hercules, the nearby Hercules Globular M13, and M57 in Lyra. Without using go-to, I'd locate an object in the eyepiece, Tim would look at it for a bit, then I'd replace the eyepiece with a DSI camera and take 30 and 45 second images.

The sky was grey with water vapour and a bit gusty but as night progressed and the temperature fell to 2°C, seeing improved. Here are some images in reduced size and format:

M13 (above): M71, a faint globular cluster in Sagitta (below):

An image of the leading fragment "C" of Comet 73P showing the tail:

April 28, Greetings from Tobermory

by Tim Harpur

It was a cold night - but clear and well worth going out for some observing. I don't think I could have asked for a better weekend to have taken off to my Dad's in Tobermory. For those that don't know where that is - it's on the tip of the Bruce Peninsula - surrounded on 3 sides by Great Lakes and only a narrow path of light polluted civilization leading to it.

I took the opportunity to try a few new items - my new guide scope and illuminated guiding eyepiece (purchased from Mike), and my new dew shield (no dew or frost problems with the main scope last night). I concentrated on Bode's Galaxy and the Cigar Galaxy - and took 5 minute manually guided images (this was my first attempt at guided images).

I have stacked and processed the Bode's Galaxy (M81) sequence and will have others later. The weather is calling for similar conditions all weekend, so I will try different objects over the next few days.

A note on viewing ANY astrophoto's on an LCD monitor - make sure your viewing angle is at least straight on or above or nebulosity will be drastically diminished (or possibly not visible at all). I actually had one person swear I sent them the wrong photo as they couldn't see the object I was describing anywhere on the image - they were correct - their monitor was tilted on an angle that caused poor visibility - when viewed from an angle below the LCD monitor's midpoint an entire galaxy had disappeared! (so fix the angle on your LCD monitors - you don't want to be responsible for wiping out an entire galaxy!)

Tim Harpur, has held an interest in science and astronomy from a young age, and studied science (including courses in astronomy and astrophysics) at the University of Waterloo and holds a BSc. Since joining the HAA last fall, his interest in astrophotography has been rekindled with his new Meade 10" SN LXD75 (GT) and Canon Digital Rebel XT for the imaging. He spends a lot of cold nights alone with his new scope - but enjoys the results!

Observers' Notes, 27 April 06
Comet 73p brightens, continues to break apart

by Mike Spicer

The leading piece of comet 73P - "C" - has brightened considerably over the past week. Piece "C" is now a binocular object about magnitude 7 in Corona Borealis; this weekend the comet will enter the keystone of Hercules as it continues to brighten.

73P "C" has a small, almost bullet-shaped nucleus and a relatively bright, very long tail. Indeed, I have often located the comet visually by spotting the tail and following it to the little nucleus. Observers will remark how 73P "C" is different from Comet Machholz of 2004 fame - that comet had a large bright head and a much fainter tail.

Meanwhile, 73P "B", not quite one degree behind 73P "C" the leading piece of comet, is much brighter than it was a week ago when I captured it in an image taken through a wide-field finderscope. Observers report "B" is almost as bright as "C" (I don't think so) and sports two tails, because it has broken into two sizeable pieces that are slowly drifting apart (but are still almost touching)... certainly a spectacle worth seeing in a telescope. You can see images of the comet pieces taken from Arkansas by going to:

`http://www.arksky.org/smf/index.php?topic=1004.msg4740#msg4740`

Observers' Notes, April 26
Who said modern technology is great?

by Mike Spicer

Astronomy is one of those endeavours that relies on new technology to get the most out of equipment. The newest technology isn't always a good thing.

I know an astronomer who continually re-programs his Meade 497 Autostar (the hand computer controller for his go-to mounts) with the latest updates from the web. Too often the new updates from Meade have glitches or bugs that cause problems for the telescope. He has called me on occasion to borrow one of my autostars so he can "clone" his back to a previous software setup that works.

I have a Celestron Nexstar 11 GPS telescope, a fantastic instrument that has had problems with the motor control boards. Celestron took a couple of months to fix the problem. New boards required new hand controllers that appeared to work well. They recently quit, and not just my scope but on several others. The latest technology isn't very helpful when the scope won't go... and fixing takes time.

Today I bought an older model Meade 8" SCT in excellent shape. It has no go-to, just manual locks and a clock drive. You have to find the object yourself... the clock drive will keep the object in the eyepiece once you have good polar alignment. The scope is on a fork mount, so you can observe or image while the object travels through and past the meridian - GEM mounts have trouble doing that.

I have some upgrades for the scope: a Tuthill heated dew shield (fits nice, works well), a big RA (right angled) finder to replace the little 6 x 30mm, and LED illuminators for the beautiful and accurate setting circles used to find objects.

The scope is lightweight and portable, quiet in operation and has great optics. I took some images of comet 73P with it tonight using the Meade DSI.

Observers' Notes, April 24
I set my scope up in the cold and damp and my eyes weren't seared by the flash of a neon light

by Mike Spicer

After days of rain, Monday night just before midnight, after two tax returns and before the big Affidavit of Documents, I peered outside into the foggy haze and saw a few stars. I set up an 8" Schmidt Newt scope to capture comet S-W73P close to my favourite star, R Coronae Borealis.

As I polar aligned on one knee, I remembered why I preferred SCTs to any kind of reflector. Once I was aligned and had found my several alignment stars for the Celestron CG-5 go-to mount, I was glad of the wide field of view the S-N offered. I located the comet in a trice just a couple of degrees from R CrB. I exchanged the eyepiece for a Meade DSI with its USB cable training into the office. The DSI now had an Astronomics UV/IR cutoff filter to replace the feeble filter Meade had supplied. I was able to get the comet centred and in excellent focus in the office computer after running out onto the patio (where the scope was) only three times (a record!).

I took some quick shots right away, then dark frames, then many 15 and 30 second exposures to stack. The comet is moving much faster now against the background stars and its movement is noticeable after less than 3 minutes of exposure.

April 19, Imaging at binbrook

by Mike Spicer

A warm and brilliant Wednesday with predictions for deep blue Sky Clock overnight with a minimum temperature of 10°C or better and a dew point of 3°, how could we pass that up?

Tim Harpur, Heather Neproszel and I loaded our cars with equipment for an evening of binoviewing and imaging at Binbrook Conservation Area. H.A.A. is blessed to have such a dark observing site only 10 miles south of the city. With so little humidity, there seemed no need to take dew-busting equipment (boy, were we misled on that!).

We set up on the hill at Binbrook at 8 pm: Tim's 8" Advanced Series SCT, Heather's 5" Mak and my 8" S-N and ED80 refractor. By 9 pm the sky was dark and all three scopes were polar aligned and slewing to targets.

Saturn looked glorious, with Iapetus easy to spot 9' from the planet. In Heather's excellent little Mak you could make out the smaller moons Rhea and Tethys close to the rings, like tiny diamond chips piercing the glow around the planet.

Tim had made a list of the objects he wanted to image, starting with M95 in Leo, high in the SE at dusk. Heather started to bag globular clusters M3, M5 and later on, M10 and M12 in Ophiuchus.. her scope offering resolution of stars around the edges.

Comet 73P has brightened a little this week. It could be seen even in the ED80 about 1°W of Alphecca, the brightest star in the Northern Crown. In the 8" S-N the comet was much more noticeable. Using a DSI, we imaged it in the 8" and also in the Mak... getting some really excellent results, as you can see, the tail is getting brighter although the fragment looks brighter than it is, superimposed on 8th magnitude star HIP75734:

Heatherś Mak showed Comet 73P

Tim's enjoyable imaging was cut short when dew overcame his corrector plate - something we had never considered, given the forecast. He went home at 10:30. Heather and I had no dew trouble and stayed for additional imaging and binoviewing, especially Jupiter. Even though the planet was low on the horizon, her Mak gave superior views using a pair of wide field 19mm eyepieces and a good image in her ToUcam Pro:

The temperature stayed above 12° all evening, with dead calm broken only by birds cackling, fish splashing and coyotes yelping (and the occasional slewing motor).

When we packed up at 1 am there was agreement that the sky had been very transparent and the seeing quite steady. Lots of stars and satellites, a couple of meteors, no moon and lots of friendly company, because Hamilton Amateur Astronomers are a great group to be with!

Observers' Note April 18
The Comet's tail grows

by Mike Spicer

Comet 73P is streaming toward Alphekka (Alpha Coronae Borealis) and will be in the same eyepiece field of view as that 2nd magnitude star in just a couple of days. Meanwhile, as the comet breaks apart you can see a large out-of-round nucleus and a growing and very wide tail. I caught some one-minute images Tuesday night using a DSI on an 8" S-N with very humid skies over Hamilton.

April 18, Comet Schwassmann-Wachmann 73P

by Mike Spicer

IS THAT FRAGMENT 73P-C THAT I SEE?

Reviewing the images obtained late on Easter Sunday, I think I caught a second fragment of the comet trailing the tail of the large leading piece "C".. could it be the fragment "B"? You be the judge after viewing my photo on the website (I have oriented the bottom of the photo to appear parallel with the horizon (the sun is below the horizon). And I have made the photo monochrome to get rid of the red colour.

Observer's Report, April 16 Easter Saturn and a Sunday night comet

by Mike Spicer

After a bright and warm Easter Sunday, the evening gave us clear skies filled with moisture - a hazy sky that absorbed light, making faint stars invisible. The air was unsteady, seeing about 3 arc-seconds at best and a ground breeze was chilling.

Saturn was just past the meridian at dusk. The 11" scope revealed Dione, Tethys and Rhea on one side of the planet, Titan and Iapetus on the other side.

Once darkness had descended, but before the waning Moon rose low in the sky East of Jupiter, I wanted to locate and image the Comet Schwassmann-Wachmann 73P in Serpens. The comet is moving on a line from Arcturus to Alphecca and is still very faint. The field of view in the 11" is narrow, so I attached the DSI camera to my 60mm finderscope (!) to image the comet as it passed a triangle of 8th magnitude stars.

The Meade DSI software stacked a rough JPG file out of a dozen 2 minute TIFF exposures to show a faint ruddy comet (magnitude 10 or 11, I'd say) passing a triangle of 8th magnitude stars in Serpens, so the comet is fainter than predicted...but there's no doubt the comet is located where Starry Night Pro predicted:

73P at Easter

Great observing Saturday night April 15

by Mike Spicer

The hill at Binbrook was crowded with telescopes Saturday night: Mike's Nexstar 11" and ED80 apo refractor; Steve's 5" reflector; Tim's brand-spankin'-new C8 and 80mm guidescope; Brad's 8" dob and 125mm Mak; Gary's 4" Mak... and Harvey and Heather were there to look through all of them!

The sky was clear all night but a breeze disturbed the scopes and hampered imaging. Saturn was the big draw of the evening and we had an opportunity to compare the images in a variety of scopes and eyepieces. The shorter focal length scopes (Steve's reflector and the ED80) threw up small but very sharp images of Saturn and Titan. Brad's 125mm Skywatcher Mak gave a remarkably sharp view of Saturn in a Widescan70 5.7mm eyepiece; Tim's C8 had a crisp, sharp image in a 10mm Excel eyepiece showing Tethys, Dione and Rhea as well as Titan; the Nexstar 11 showed Enceladus and Heather also saw Mimas.

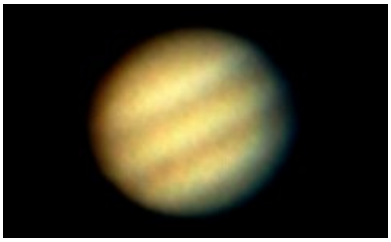
Tim and Mike did some imaging using digital camera, Toucam pro and a Meade electronic eyepiece. The Eskimo Nebula in Gemini was captured with a Toucam Pro, though not very well. Binoviewing of galaxies in Leo and Virgo was very interesting until the Moon rose above the horizon to wash out the sky.

Jupiter gave an interesting show, the belts revealing a lot of detail with four dark barges visible in the NEB; Heather noted the very dark appearance of the NP cap. Ganymede suddenly disappeared into the cone of darkness beside Jupiter, fading to 1/64th its usual brightness. After five hours of observing, it was time to pack up but tomorrow is also looking good for clear skies!

Saturn at Binbrook, 15 April

April 09 Moon rise over Jupiter

by Tim Harpur



Well, the clouds rolled in just after we arrived - then after about 1/2 hr the wind did a 180 and the clouds rolled back out the way they came - and suddenly it was so bright I thought I should have brought a book to read by the moonlight.

I stayed with viewing planets, the moon, and star clusters - sky was too washed out for anything else. We got a chance to watch a moon rising from behind Jupiter (at first I thought it was just distortion - but it was too consistent and growing, so I called Mike over to look) and the rings of Saturn were reasonably clear too. Looking through Mike's bino viewer at the craters and mountain ranges on the moon was also a treat - there were some interesting sites along the shadow line.

I only took a few images - mainly of Saturn and Jupiter. I have processed the Jupiter sequence and will get to the others later. Unfortunately I don't have the mount for attaching my camera to a barlow yet so my images of planets tend to be lacking detail.

Moonshine and a dirty snowball

by Ann Tekatch

Taking Tim Harpur's advice on focussing resulted in the best digital photos I've taken yet! It took some practice, but I managed to get decent images of the moon and Comet 73P last night from our backyard. I used my Canon G3 camera (an oldie but a goodie!) attached to a Scopetronix maxview adapter/eyepiece. For the comet, I used the camera's longest shutter speed: 15 secs at f/2.0 and an ISO rating of 100 (my 400 rating causes too much noise in the images). Although

the image is tiny, it isn't bad for a first effort. (At least, that's what I keep telling myself!) Because I took the image through the telescope's star diagonal, the image is mirror-reversed.

I also took an image of the gibbous moon. I used the photo editing software to un-mirror-reverse the image and crop it, but that's the only processing I've done.

These are not nearly as good as the images Tim Harpur has been taking with his Digital Rebel XT, but, hey, I gotta start somewhere!

Ann Tekatch is a founding member of the HAA. She lives way up on top of Hamilton mountain with her astronomer husband, Bill, and their daughter, Alexandra.

Saturday evening April 8, Plenilune Observing at Binbrook

by Mike Spicer

It was almost overcast at 8 pm but the Clear Sky Clock predicted 100% clear sky by 10 pm, so I packed the Nexstar 11 into the car and headed to Binbrook. There were cars waiting in line as I opened the gate at 9:02 pm and in half an hour, four CATs were prowling the hill. Tim had his C8 on the advanced series GEM, Darrell a C9.25 on his GEMs (he brought Sandy and daughter Stacey with him), and Heather's 5" Mak was set on an LXD-55 go-to. There were difficulties and frustrations in getting all the telescopes aligned and observing.

The Nexstar has GPS and was aligned right away; the other scopes were on GEMs and had to wait until the cloud cleared off about 10 pm to reveal Polaris. Tim mounted his camera on the C8 but with a gibbous Moon overhead the sky was too grey to image more than the lunar surface, Saturn and some brighter star clusters.

Darrell and I were observing the Moon for a while. The Appennines and Plato were highlighted. ("Do you have a second lunar filter? The Moon is still blindingly bright..."). Everyone liked the views in all telescopes, and the binoviewers on Heather's scope and on mine were popular ("like floating above the Moon, looking down on it from space").

Saturn high on the meridian was exceptionally beautiful in the moments of very steady air and every telescope was used to see Titan, Rhea, Tethys and Dione. The larger scopes captured a bright honey colour in the disk, contrasted with the equatorial bands and polar cap. The Cassini Division was visible even where the rings seemed thin. In contrast, Jupiter was just rising in the East, and caught in branches of the park's low hardwood trees. The air was thick and roiling at times, but the prominent banding and three moons were visible.

My first view of the evening was the Eskimo Nebula in Gemini... beautifully detailed even in a 35mm eyepiece at low power. A few open clusters and globulars like M3 were part of the evening's feast before the wind and below-freezing temperatures slowed things up. I noted that M3 was resolved in Tim's C8 and that the C9.25 was putting up excellent images after recent recollimation. The 5" Mak put up perfect stellar images, as one would expect.

Tim was first to notice a bright pimple on Jupiter... Ganymede emerging from behind the planet's northern limb and slowly moving away from it as midnight approached, the darkness pooling between the satellite and its parent. It was a satisfactory end to an evening we thought would be limited to tanning by the light of the moon. Tim wondered why only six observers had come out to watch the clouds blow away. When observing sessions are windless and above freezing, be assured H.A.A. HAS WELL-ATTENDED STAR PARTIES!

Observers' Report, April 6 Behold the Moon in Her Glory! *by Mike Spicer*

First Thursday of the month and Easter only a week off, we enjoyed a balmy spring day of brilliant sunshine (three sunspot groups on Sol's limb) and an evening of wonderful clarity.

With the change to EDT the sky didn't darken until after 8 pm. Patrick dropped by to return the loaner scope and reported what he had seen in it. I set it up on the patio and sure enough, the Moon just past quarter was crisp and colourless at 25mm with a great view of a sunrise highlighting the Straight Wall and crater Birt. Saturn just below the Moon showed Titan and the rings very well in a 13.8mm eyepiece. For $200 the electronic-control Meade alt-az is easy to set up and has great optics.

The ancients got the idea of "divine glory" from looking at that splendid splash of light we see around the Moon (they didn't have achromat telescopes or they would have seen the same splash around planets, too).

Heather came over to finalize the equipment she is buying to replace what was stolen from her car 6 weeks ago - she really likes the 5" Maksutov you have seen her using this winter, but she might want wide-field images through a digital SLR camera. I attached my Nikon to a Nexstar 80 on a AS-5GT mount to take pictures of the Moon and Saturn at 400 mm, giving her a chance to see how that little telescope set-up works.

After imaging I put eyepieces on the Nexstar 80 and Heather watched the Moon and Saturn through the little scope. It gave very nice images with a little false colour around the Moon. A good beginner's refractor, very portable, great for wide-sky images. Alas, the view of Saturn in a Nagler 4.8mm showed the planet and Titan but didn't please either of us, Saturn still looked tiny at 90x.

Clouds came in about 9:30... the kind of cloud that blocks out stars but looks like gauze drawn over the Moon, rendering beautiful images through telescope or binoculars. Heather compared the views through three pairs of binoculars and concluded she prefers the crisp optics, perfect collimation and lighter weight of the Fotar 7 x 50 to the more costly Bushnell 10 x 50.

Tim Harpur dropped by before 10 pm, returning from Binbrook where he had taken digital photos through his new C8 SCT (I took off the dew cap and we smelled the "new optics" smell... aah! and no dust on the corrector plate yet). Heather was impressed with the OTA's low weight and the ease with which it is balanced on the advanced series go-to mount. Tim left 30 pounds of Meade counterweights in my office, now no longer needed! He is very pleased with the C8 - another convert to Celestron! H.A.A., a club where people can drop by knowing other members are actively interested in Astronomy. It's not an armchair hobby! (not with all the money we have tied up in equipment!!)

April 6, Possible Nova in Cygnus *by Stephen Kinsella*

There is a report of a possible nova in Cygnus. Previously 12th magnitude, this star has outburst to 8th magnitude in recent days. The good news is that you should be able to see it in binoculars; the bad news is there is no shortage of 8th magnitude stars in Cygnus. Still for the adventurous the relevant links are below.

AAVSO Special Notice: `http://www.aavso.org/publications/specialnotice/10.shtml`

Provisional map: `http://www.aavso.org/cgi-bin/searchcharts3.pl?name=n\%20cyg\%2006`

Stephen Kinsella, although a relative newcomer to the HAA, has had a life long interest in astronomy and cosmology. Having recently taken early retirement, he is currently taking time off to pursue interests in astronomy and computers. He can be contacted at `skinse@hotmail.com`

Upcoming Events

Astrophotography Clinic on Saturday, May 13, 2006 from 7:30pm - 9:30pm at the Teamsters Hall.
An informal evening of show and tell where all aspects of astrophotography will be discussed and demonstrated. Come out to learn or share your experiences. Admission is free - visitors are most welcome. Demonstrators are Tim Harpur, Mike Jefferson, Darrell & Sandy Maude, Mike Spicer, Ann & Bill Tekatch.

The next HAA General Meeting will be held at the Hamilton Spectator Building on Friday June 9, 2005 7:30pm. More details here:
`www.amateurastronomy.org` Be there before 7:30pm for a door prize ticket.

Guest speaker will be Paul Mortfield

RASC's 2006 General Assembly on May18th-22nd in Ottawa. Many speakers! More details at `www.rasc.ca:8080/rasc/main.jsp`

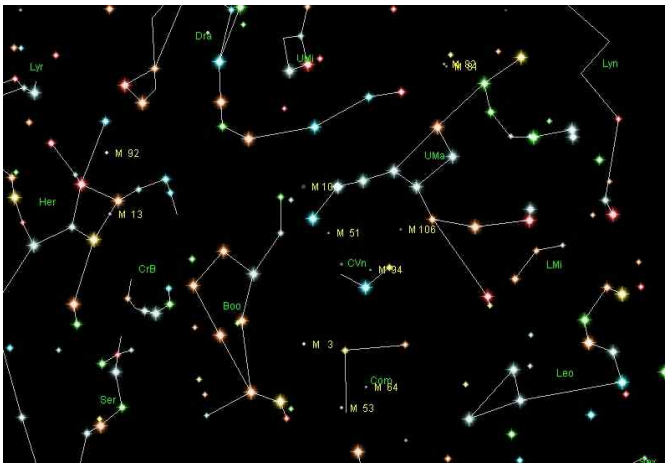
May Skies *by Greg Emery*

The month of May brings warmer temperatures and longer days. The warmer weather is fine for some, but the ever shrinking night turns observing into a late night activity. Hopefully I will break my streak of not being able to get out observing and spend some time at the eyepiece.

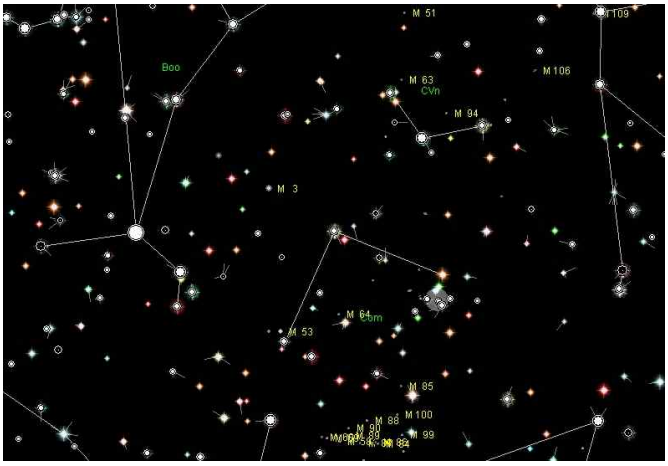
I personally think of May as the time when the summer constellations begin to appear – Hercules, Lyre, Cygnus, and Aquila. The reality is that the Constellations which are dominant, and in good viewing position are Canes Venatici, Coma Berenices, Virgo, Leo and Ursa Major. All of these constellations are noted for the swarms of galaxies that can be seen. There are some beautiful sites in these faint fuzzies. Seeing these galaxies with your own eyes is awe inspiring.

The image regardless of your eyes and equipment pales in comparison to the images available from Hubble and the big earth based scopes. However, I find that being able to capture the photons with your own eyes after their extraordinary long journey to be a form of gratification.

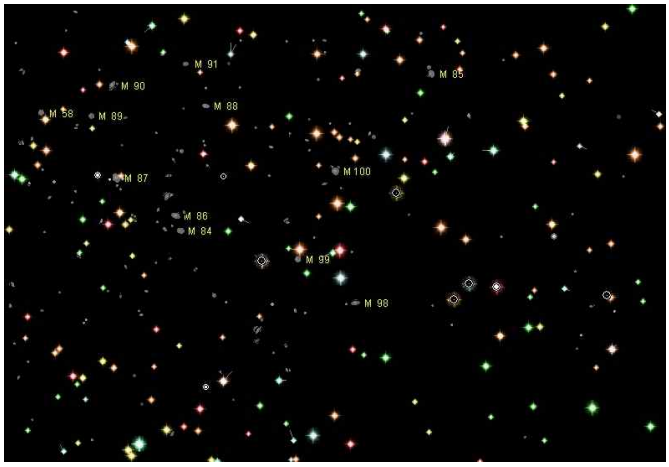
The picture below is set for Binbrook Observatory at 2230 on May 15. Polaris is just off the top of the picture.



The region at the bottom center of the first picture is Coma Berenices. The nice globular cluster M3 is to the North East. The second picture or chart shows a zoomed in view of the region.



Notice the swarm of galaxies to the south, some are nice views some are "Yeah, I guess that is it, looks like a smudge on the eyepiece" type views. You will never know which is which until you look at them.



Greg Emery has been an amateur astronomer for a few years. Besides being optimistically ambitious, Greg enjoys observing deep sky objects. He can be reached for comment by email at `Greg.Emery@MohawkCollege.ca`

Observing Certificate

In the ongoing quest to cater to all levels of astronomy, the Hamilton Amateur Astronomers are proud to unveil a new observing certificate. Members may use this copy or download one from the website to use as a worksheet. When the required targets have been logged (include date viewed and equipment used) submit your log to the Observing Director and you will be presented with an "official certificate" suitable for framing.

For Sale

PCI Video Capture Cards For Sale

KWorld NTSC BT878 Video Tuner/Capture PCI Cards plus software	$60
4-port BT878 NTSC Conextant Video Capture PCI Card	$75

All these card play well with Linux!
Contact Doug Welch (dougwelch@dougwelch.org)

HAMILTON AMATEUR ASTRONOMERS

This Rising Star Observing Certificate is presented to:

_____

for the successful observation of the following astronomical objects:

The Moon	Mercury	Saturn	Venus	Mars	Jupiter	Pleiades

The recipient has also observed at least one item from each of the following groups:

Polaris	Leo	An Aurora	Alberio	The Perseus Double Cluster
Sirius	Orion	A Meteor	Gamma Andromedae	Andromeda Galaxy
Vega	Sagittarius	The ISS	Coat Hanger	M13
Betelgeuse	Big Dipper	A Satellite	E.T. Cluster	M57

Image of the Moon by HAA member Clyde Miller

NASA's Space Place

Observers' Notes, 27 April 06
COMET 73P BRIGHTENS, CONTINUES TO BREAK APART

By Patrick L. Barry and Dr. Tony Phillips

When exploring space, NASA naturally wants to use all the newest and coolest technologies—artificial intelligence, solar sails, onboard supercomputers, exotic materials.

But "new" also means unproven and risky, and that could be a problem. Remember HAL in the movie "2001: A Space Odyssey"? The rebellious computer clearly needed some pre-flight testing.

Testing advanced technologies in space is the mission of the New Millennium Program (NMP), created by NASA's Science Mission Directorate in 1995 and run by JPL. Like the daredevil test pilots of the 1950s who would fly the latest jet technology, NMP flies new technologies in space to see if they're ready for prime time. That way, future missions can use the technologies with much less risk.

Example: In 1999, the program's Deep Space 1 probe tested a system called "AutoNav," short for *Autonomous Navigation.* AutoNav used artificial intelligence to steer the spacecraft without human intervention. It worked so well that elements of AutoNav were installed on a real mission, Deep Impact, which famously blasted a crater in Comet Tempel 1 on July 4, 2005. Without AutoNav, the projectile would have completely missed the comet.

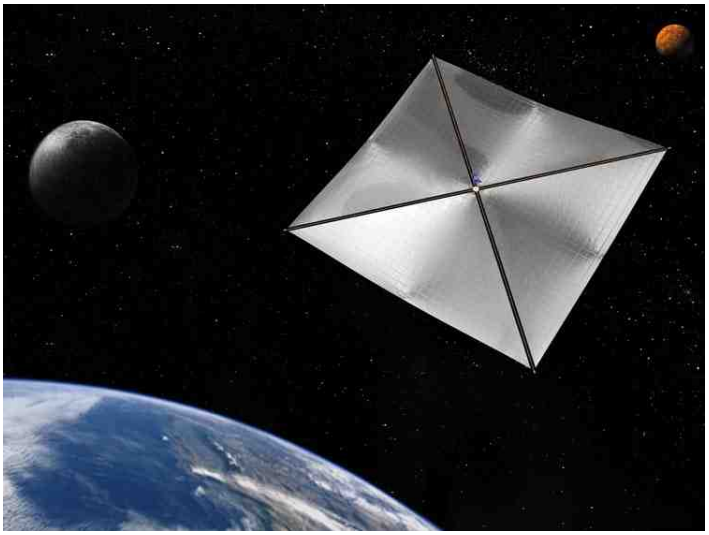
Some NMP technologies "allow us to do things that we literally could not do before," says Jack Stocky, Chief Technologist for NMP. Dozens of innovative technologies tested by NMP will lead to satellites and space probes that are smaller, lighter, more capable and even cheaper than those of today.

Another example: An NMP test mission called Space Technology 9, which is still in the planning phase, may test-fly a solar sail. Solar sails use the slight pressure of sunlight itself, instead of heavy fuels, to propel a spacecraft. Two proposed NASA missions would be possible only with dependable solar sails—L1 Diamond and Solar Polar Imager—both of which would use solar sails to fly spacecraft that would study the Sun.

"The technologies that we validate have future missions that need them," Stocky says. "We try to target [missions] that are about 15 to 20 years out."

A menagerie of other cool NMP technologies include ion thrusters, hyperspectral imagers, and miniaturized electronics for spacecraft navigation and control. NMP focuses on technologies that have been proven in the laboratory but must be tested in the extreme cold, vacuum, and high radiation environment of space, which can't be fully recreated in the lab.

New NMP missions fly every year and one-half to two years, taking tomorrow's space technology for a daredevil test drive.



Artist's rendering of a four-quadrant solar sail propulsion system, with payload. NASA is designing and developing such concepts, a sub-scale model of which may be tested on a future NMP mission.

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.