

Event Horizon

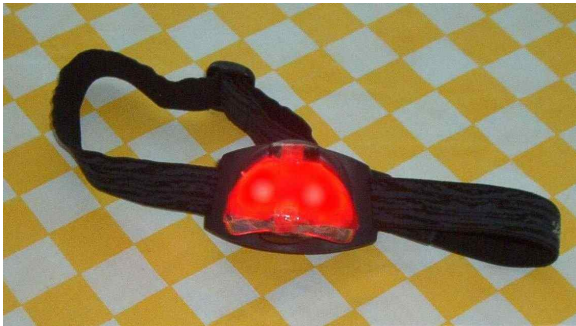
December 2005

Volume 13 Issue 2

The HAA Holiday gift giving guide

Here are a few items that your fellow HAA members thought would be good holiday gifts:

Headband LED Light(\$20 at Zellers)



This hands-free flashlight has one red and two white LEDs (the red preserves your night vision). A switch turns on red or white light. I taped red plastic on my lights to make the white LEDs red as well. Several HAA members use these headbands while observing so they can illuminate their equipment while setting up with both hands.

byHeather Neproszel

Orion XT 10 Intelliscope

Am now the proud owner of an Orion XT 10 Intelliscope. Neat package, computer controlled, very accurate when calibrated, easy to use. Also got a new digital camera with which I am taking some fantastic shots through the eyepiece of the XT 10. Got some great shots of the moon, the sun, Saturn, Venus, Mars.

*By Ollie and Lou Darcie
Astronomaires Extraordinaire*

For some future holiday

I just read in digital photography reviews of a camera that can be refocused after the photo is taken. Now that is different! I want one of these for Christmas. Check it out with this link:

<http://graphics.stanford.edu/papers/lfcamera/>

By Everett Cairns

50mm Right-angle Finder



Most telescopes come with a straight-through finder that puts a crick in your neck when used. Many such finders have small apertures that do not show much. Your ability to use a telescope is often liited to what the finderscope shows. A 50mm finder that shows a right-side-up image through a diagonal prism is well worth the cost!

by Mike Spicer

A Set of Planetary Filters



A set of planetary filters (R G B Y) and a good moon filter will greatly enhance your observing acuity. The planets have an intense brightness that filters selectively dim to enhance particular features: cloud bands, polar caps, etc..

by Mike Spicer

Meeting space for the Hamilton Amateur
Astronomy club provided by
The Hamilton Spectator
thespec.com

Domain Name and Web hosting for the
Hamilton Amateur Astronomy club supplied
by
Axess Communications
Corporate and Residential DSL and Web
Hosting
<http://www.axess.com>
support@axess.com

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.

Upcoming Events

Event: HAA General Meeting
Date: Friday January 13, 2005 7:30pm
Location: Teamsters Local 879, 460 Parkdale Ave. N., Hamilton, (rear entrance)
Details: www.amateurastronomy.org/



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.

The cost of the subscription is included in the \$25 individual or \$30 family membership fee for the year. Event Horizon is published a minimum of 10 times a year.

HAA Council

Hon. Chair.....	Jim Winger
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Councillor.....	Ann Tekatch
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Membership Inquiries:

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Meeting Inquiries:

chair@amateurastronomy.org (905) 945-5050

Public Event Inquiries:

publicity@amateurastronomy.org (905) 945-5050

Binbrook Observing Inquiries:

observing@amateurastronomy.org (519) 647 0036
DeBeneEsse2001@aol.com

Newsletter Inquiries/Submissions:

editor@amateurastronomy.org

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

Chair's Report

by Glenn Muller

When I mentioned Christmas, at the last council meeting, Doug Welch suggested the celebration of "Saturnalia" might be more astronomically correct. This Roman holiday, centered around Saturnus - the God of Sowing, is a time for "*drinking, making-merry, exuberant dancing, and when master shall serve slave*". Since one minute to the next I never know if I'm master or slave I'm left with the bacchanalia aspect which all sounds a lot like New Year's Eve.

So, I'm going further back in time, to 700 BC and the Greek poet Hesiod who's "wisdom verses" read like early commandments interwoven with celestial events. Whether Hesiod actually formulated these edicts or simply recorded previous observations isn't clear but, as an illustration of how life back then followed the cosmic clock, I think they make for interesting reading.

Hesiod - excerpts from the epic poem "Works and Days"

** When Zeus has finished sixty wintry days after the solstice, then the star Arcturus leaves the holy stream of Ocean and first rises brilliant at dusk. After him the shrilly wailing daughter of Pandion, the swallow, appears to men when Spring is just beginning. Before she comes, prune the vines, for it is best so.*

** Fifty days after the solstice, when the season of wearisome heat is come to an end, is the right time for me to go sailing. Then you will not wreck your ship, nor will the sea destroy the sailors, unless Poseidon the Earth-Shaker be set upon it, or Zeus, the king of the deathless gods, wish to slay them; for the issues of good and evil alike are with them. At that time the winds are steady, and the sea is harmless.*

** But if desire for uncomfortable sea-faring seize you; when the Pleiades plunge into the misty sea to escape Orion's rude strength, then truly gales of all kinds rage. Then keep ships no longer on the sparkling sea, but bethink you to till the land as I bid you. Haul up your ship upon the land and pack it closely with stones all round to keep off the power of the winds which blow damply, and draw out the bilge-plug so that the rain of heaven may not rot it.*

** But when the House-carrier (a snail) climbs up the plants from the earth to escape the Pleiades, then it is no longer the season for digging vineyards, but to whet your sickles and rouse up your slaves.*

** Set your slaves to winnow Demeter's holy grain, when strong Orion first appears, on a smooth threshing-floor in an airy place.*

** When the Pleiades, daughters of Atlas, are rising, begin your harvest, and your ploughing when they are going to set. Forty nights and days they are hidden and appear again as the year moves round, when first you sharpen your sickle.*

** Women are most wanton, but men are feeblest, because Sirius parches head and knees and the skin is dry through heat.*

** When the piercing power and sultry heat of the sun abate, and almighty Zeus sends the autumn rains, and men's flesh comes to feel far easier, - for then the star Sirius passes over the heads of men, who are born to misery, only a little while by day and takes greater share of night, - then, when it showers its leaves to the ground and stops sprouting, the wood you cut with your axe is least liable to worm.*

** But when Orion and Sirius are come into mid-heaven, and rosy-fingered Dawn sees Arcturus, then cut off all the grape-clusters, and bring them home. Show them to the sun ten days and ten nights: then cover them over for five, and on the sixth day draw off into vessels the gifts of joyful Dionysus. But when the Pleiades and Hyades and strong Orion begin to set, then remember to plough in season: and so the completed year will fitly pass beneath the earth.*

** Do not stand upright facing the sun when you make water, but remember to do this when he has set towards his rising.*

** The eighth and the ninth, two days at least of the waxing month, are specially good for the works of man. Also the eleventh and twelfth are both excellent, alike for shearing sheep and for reaping the kindly fruits.*

** Avoid the thirteenth of the waxing month for beginning to sow: yet it is the best day for setting plants.*

** On the fourth day open a jar. The fourth of the mid-month is a day holy above all. And again, few men know that the fourth day after the twentieth is best while it is morning: towards evening it is less good.*

Those last three can be hard to keep track of so I suggest you keep this page somewhere handy - maybe use those nice Saturnalia fridge magnets you got at the last festival ;)

Merry, umm, stargazing!

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



Activities summary

December occultations

by Mike Spicer

Here's a "heads up" for some interesting December events:

Sunday, December 4th THE MOON in Sagittarius is a slender crescent in the west after sunset, 3 degrees below Venus. In binoculars at 4:29 pm 4th magnitude Iridium satellite #19 shoots up from the horizon right across the cusps of the moon (that would make a nice picture!).

As dusk deepens that same evening, the Moon is framed by three 4th magnitude stars (omega, 59 and 60 Sag); at 5:38 p.m. the ashen-lit side of the moon, still 16 degrees above the horizon, occults 60 Sag (another great image event!). You can see all of this before Sunday dinner!

Saturday morning 19 December ASTEROID 175 ANDROMACHE occults 10th magnitude star TYC1885-823-1 in Gemini (RA 16h 14m, Dec 27.7) on a track from Hamilton to Oshawa. The star will appear to fade 80% to magnitude 12.9 for about 7 seconds at 4:34 a.m. A small refractor will show the event! If you have a clear western horizon (Alt 31, AZ 272 degrees), a Meade DSI camera and an 80mm refractor you can image the event without perfect polar alignment in a series of 1 second exposures. Info is available at:

http://www.asteroidoccultation.com/2005_12/1219_175_3740_MapNA.gif

I have a 1/4 degree wide photo-negative image of the star field in Gemini centred on this star that may assist imagers:

http://www.amateurastronomy.org/Picts/mikespicer/album.php?mode=picture&image=1219_0cc.jpg

10th Magnitude Asteroid in the Hyades!

by Mike Spicer

Asteroid Boliviana passes through the Hyades

About 5 a.m. EST Wednesday 23 November, according to Sky & Telescope updates, "...the asteroid 712 Boliviana (magnitude 10.6) threads the gap between the wide double star Theta-1 and Theta-2 Tauri near Aldebaran in the Hyades. The two stars are 6 arcminutes apart and Boliviana passes almost midway between them."

Update: -9C at 6 a.m. - that is C-c-c-c-cold !!

I am outside imaging Boliviana as it passes between the two components of the double star Theta Tauri. I set up the DSI imager on an Orion ED80 refractor using a go-to LXD55 mount with good polar alignment. A 15 second exposure with a wide field of view gleaned images of stars to below magnitude 12. The double star's bright components make a good frame for the asteroid, which appears brighter than magnitude 10.

Later update: A composite of the asteroid's motion can be seen at:

http://amateurastronomy.org/Picts/mikespicer/album.php?mode=picture&image=051123_B.jpg

Observing Note Saturday 19 November

by Mike Spicer

Weekend Observing, 19-20 November 2005

After a week of cloud and snow on the ground, Saturday and Sunday night the sky opened up except for some haze. The Moon rose early in the evening to brighten the sky and no doubt many of you admired its terminator. With such a bright moon I considered it foolhardy to image galaxies with my CCD setup; I concentrated on planetary imaging instead.

I took some video of Mars, noticing how the planet has shrunk in size as the Earth leaves it behind in orbit. A 2.5x barlow now will render a image the same size as a 2x barlow did late last month... but alas, the seeing wasn't very good until early Sunday morning.

The HAA can place an order for 2006 Observers Handbooks if enough members want one. The Handbook is virtually a necessity to every observer. Please put in an order with Ann or Cindy at (or before) the December HAA meeting, to get one for \$20 (that's almost 25% off the regular price!). Our group - after discounting the RASC members among us - needs at least a dozen handbooks, don't we?

Imaging Saturn 13 November

by Mike Spicer

A dinner party kept me from joining Glenn, Gail and their observing group at Binbrook on 12 November. After midnight the sky cleared a little and I imaged Saturn. The final (processed) image improves when the AVI file is longer and breaks down into a large number of images for registax to process. Until now I had limited the AVI to 20 seconds (about 150 images) and the final images of Mars I obtained were accordingly not very detailed. Well, this morning I obtained ToUcam AVI files of 2,500+ images of Saturn. I have posted one

barely-processed image in my Astro gallery. Please let me know whether you think I should image Mars the same way.

Binbrook Observing Session - Nov. 12, 2005

by *Glenn Muller*

My prediction of a two-hour observing session was just about right. With 10x50 binoculars, a refractor and a reflector, Brennan, Jesse, Gail and I chased sucker holes in the skies over Binbrook. Still, there were some excellent views of the 12th day Moon and a number of craters were identified using my new copy of Antonin Ruckl's Moon Atlas (see the November EH for a review of this fine book). Mars, of course, was a natural target and we also compared views of the Perseus Double Cluster, and Albireo, as well as identifying constellations with a laser pointer. Most of the time, though, we talked about club activities, choosing eyepieces to suit targets, finderscopes, and filters. Although the clouds succeeded in ending the session by 9pm, we all went home feeling that the effort to come out had been worth it.

11 November Monthly Meeting Report

by *Mike Spicer*

About 50 HAA members and over a dozen new visitors filled the Teamster's Hall to capacity on Remembrance Day for two excellent A-V lectures. The HAA coffers were filled too, since this was the annual membership renewal meeting and Ann Tekatch was writing a lot of receipts. If you haven't yet received a delightful blue Membership Renewal Card, make sure you send in your \$25 (individual) or \$30 (family) fee this month. Our door prize this month, a set of 1.25" planetary filters worth over \$100 donated by a very generous Darrell Maude, was won by Brennan Delaat.

Chairman Glenn Muller presented an A-V review of our very busy past year. Members in attendance were pleased with all of the very successful star parties, public viewing nights and meetings he recalled having attended over the last 12 months. I know this because it took all of three minutes for our club's annual election process to return each and every council member to the same position as last year. Re-election was HAA's way to thank council members for all their work, and we are especially lucky to have Glenn as our Club's Chair for another year!

Tim Philp gave a review of the construction of three great telescopes in the first half of the 20th century - the

60, 100 and 200 inch telescopes with special emphasis on the great Palomar Mountain telescope with photos from his visit to the Corning Museum in the US. There was much discussion afterward about how well Tim revealed the intricate funding and engineering factors affecting the Hooker and Hale telescope projects.

High-energy Physicist Dr. Cliff Burgess of Science in the City fame presented a fascinating lecture on Dark Matter and Dark Energy. He carefully explained the background theories of universe expansion and then input the recent evidence in support of Dark Matter (prevalent although not made of the usual atomic particles), Dark Energy and the "repulsive gravity" that seems to exist in an expanding and accelerating universe.

Several Powerpoint presentations are available at Dr. Cliff's web site: <http://physwww.physics.mcmaster.ca/~cburges/> and I hope he uploads the "Dark Matter and Dark Energy" talk there soon.

After the meeting ended at 9:30 many members drove to Kelsey's for a few hours of dining, but over a dozen stayed in the parking lot of the Teamster's Hall, looking through a binoviewer at Mars and the Moon using Monty Binns' excellent 8" Newtonian. Great equipment for topping off a very nice evening with group observing, thanks Monty!

HAA Guelph volunteer story

On November 2, I was invited out to a local school in Guelph, to give a talk and show some slides on the subject of astronomy. There were 23 students there and 6 adults. A nice grouping. Apparently science is on the curriculum in the schools this month. After the slide show, which stimulated tremendous interest, there were umpteen questions. Really thoughtful questions. Quite amazing for grade sixes. Had my 10 inch dob there, which also stimulated a lot of interest. For most of those present, it was the very first time they had ever seen a telescope of any consequence, let alone touch it and see how it works. The night sky was not the best, but we were able to see Mars, M13 and M31, M81 and 82. All in all, the evening was a great success. I was invited again for a future event of sky watching when Saturn and Jupiter are prominent. As it was only 2000 hours, it was really too early to see those two planets. Just thought we would share this with you.

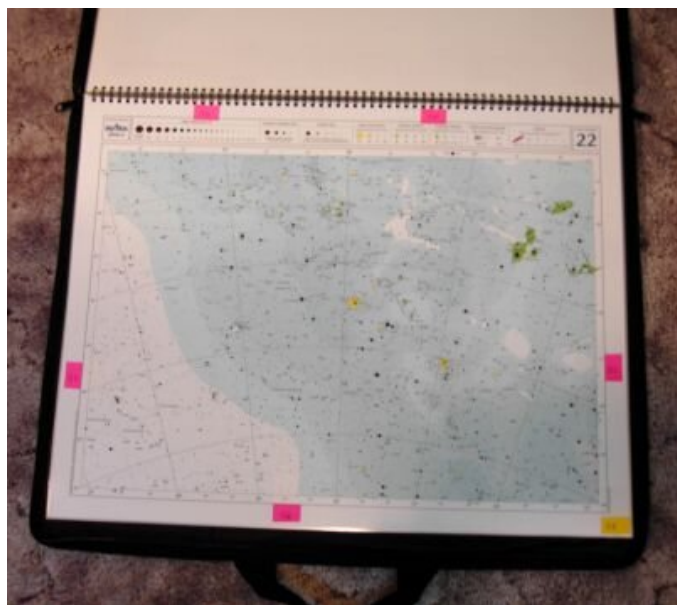
Ollie and Lou Darcie
Astronomaires Extraordinaire

Sky Atlas 2000.00 2nd Edition

Review by Glenn Muller

When observing, I like to keep things simple; no astrophotography, Goto electronics, or polar aligning equatorial mounts. All great features but that's the compromise I make for more eyepiece time. Though I might take my computer to the field, it is for that very same reason. With just a few mouse clicks and keyboard strokes I can make entries in a log, access an observing plan, or have star charts with information on thousands of objects accessible in seconds.

Yet, there are times when even a laptop is too much gadgetry and for those nights I turn to my Sky Atlas 2000.00 Deluxe Edition. As inherent explorers, astronomers love maps, and treasure hunting on the twenty-eight laminated pages of this 16.5" x 21.5" field version is a treat whether you're under clear dark skies or sitting at home waiting out the clouds.



The background is white, the stars are black and sized according to apparent magnitude, and the Milky Way is depicted with shades of light blue. Galaxies are red ellipses, clusters are yellow circles, and the nebulae are green shapes indicative of their actual outline. To aid in locating objects, each page has equatorial grid-lines for each hour of right ascension and every ten degrees of declination. For finer increments, a plastic overlay is included that also has scaled Telrad circles - the inner two of which work well for those with Rigel Quickfinders.

81,000 stars, to magnitude 8.5 have been accurately plotted using the ESA's Hipparcos catalogue, and many

have their magnitude labeled. Also labeled are 2,700 deep sky objects (DSO's) including all 110 Messier objects. Handy index pages aid in finding the Messiers as well as the constellations and many named stars. There is also a companion book available which I would have bought had I not already owned "The Night Sky Observer's Guide" set.

But that does bring me to the first of the few places where this atlas falls short. While detailed descriptions are best kept in a separate book, it would only have taken one more page to list where each DSO was located. There is an overview of how all the maps connect but, for some reason, my particular version doesn't identify connecting pages to a map in the corresponding margins. Also, the page numbers are listed up near the spiral binding instead of at the bottom corner for easier access. These small gripes tend to get amplified in the dark, especially when you have gloves on, but there is a solution in the form of 3M plastic Post-it® flags. These little stick-ons make great marker tabs, and you can even use them to pinpoint transient objects like planets, asteroids, or comets.



Sky Atlas 2000 comes in five versions, and while the laminated set is good to have on dewy nights the compromise is a bit of glare when using your red light. And the map's small print can be an eye test, as well. My solution, there, is a domed magnifier about the size of a paperweight that you can slide over the targets - and those do work well with red lights! Glass domes can be found at Lee Valley tools, though there are acrylic ones on the market that may be less expensive - here's a couple of links:

<http://www.leevalley.com/wood/page.aspx?c=1&p=52923&cat=51&ap=1>

<http://www.widgetsupply.com/page/WS/PROD/magnifier-dome/SFE4-UL-DM2BX>

One final accessory I'll recommend is the available carry bag. It will protect your investment, make it easy to transport, and has pockets for pens, pencils, and small sketching pads.

With the exception of the magnifier, all items mentioned are available through Sky & Telescope at <http://www.shopatsky.com/index.asp>. I've always found ordering there hassle free, and shipping reasonably timely. With the Canadian dollar trading strongly, you may find that now is a good time to shop. After all, 'Tis the Season!

Hamilton Amateur Astronomers Annual Meeting Minutes

November 11, 2005

Teamsters Hall, 460 Parkdale N., Hamilton, ON

Glenn Muller, Chair, began the meeting at 7:33 p.m. by welcoming everyone in attendance. He made announcements about recent events and the possibility of an observing session at Binbrook Conservation Area tomorrow night. Glenn showed slides of the year's highlights:

November 2004: Moon Madness Public Viewing at Bayfront Park

February – March 2005: Student Scope Contest

April 2005: Science in the City; at McMaster University and Bayfront Park

June 2005: Astronomy Night in Brantford

August 2005: Starfest

September 2005: HAA Picnic and Observing Session at BCA

Various community presentations by Glenn Muller, Greg Emery and John Gauvreau including library presentations and a talk at Macassa Lodge

October 2005: Mars Public Viewing in Grimsby

November 2005: Mars Public Viewing at Bayfront Park

Glenn then presented a slide with the names and positions of the 2005-2006 HAA Council:

- Honorary Chair – Jim Winger
- Chair – Glenn Muller

- Second Chair – Doug Welch
- Secretary – Margaret Walton
- Treasurer – Cindy Bingham
- Membership Director – Stewart Attlesey
- Publicity Director – Gail Muller
- Observing Director – Greg Emery
- Webmaster/EH Editor – Anthony Tekatch
- Councillor – Bob Christmas
- Councillor – John Gauvreau
- Councillor – Ann Tekatch
- Councillor – Cathy Tekatch

Tim Philp made a motion to accept the 2005-2006 Council. Seconded by Gail Muller.

The motion was accepted by the members present with no one voting against.

Glenn then introduced Tim Philp who gave a review of the construction of three great telescopes in the first half of the 20th century - the 60, 100 and 200 inch telescopes with special emphasis on the great Palomar Mountain telescope with photos from his visit to the Corning Museum in the US.

After Tim's excellent talk, raffle tickets were distributed by Stewart Attlesey and Alexandra Tekatch to everyone in attendance. Jim Winger, our Honourary Chair, drew the lucky ticket and Brennan Delaat, a guest, won the set of eyepiece filters which were generously donated by Darrell & Sandy Maude.

Glenn introduced Dr. Cliff Burgess from McMaster University. Dr. Burgess gave a fascinating insight into the evidence for Dark Matter and Dark Energy.

Glenn thanked Dr. Burgess and reminded everyone there would be observing outside in the parking lot if it is clear (it was!) and that we had reservations at Kelsey's on Centennial at Barton for socializing after the meeting.

Meeting was adjourned at 9:35 p.m.

Respectfully submitted by Ann Tekatch

December observing

by Greg Emery

December heralds thoughts of Christmas, Holidays and winter sports. Winter will officially be here by the end of the month. Those of us who are not inclined to look forward to the snow, ice and howling winds can take solace in the fact that the long winter nights provide the opportunity to spend more time at the eyepiece.

In the early evenings of mid-month we have the constellations Pegasus and Andromeda overhead. Lacerta, Cassiopeia, Cepheus and Perseus are to the North. Pisces, Cetus and Aquarius to the South. As the evening turns to night we have Taurus, Orion, Cancer and Gemini rising in the East.

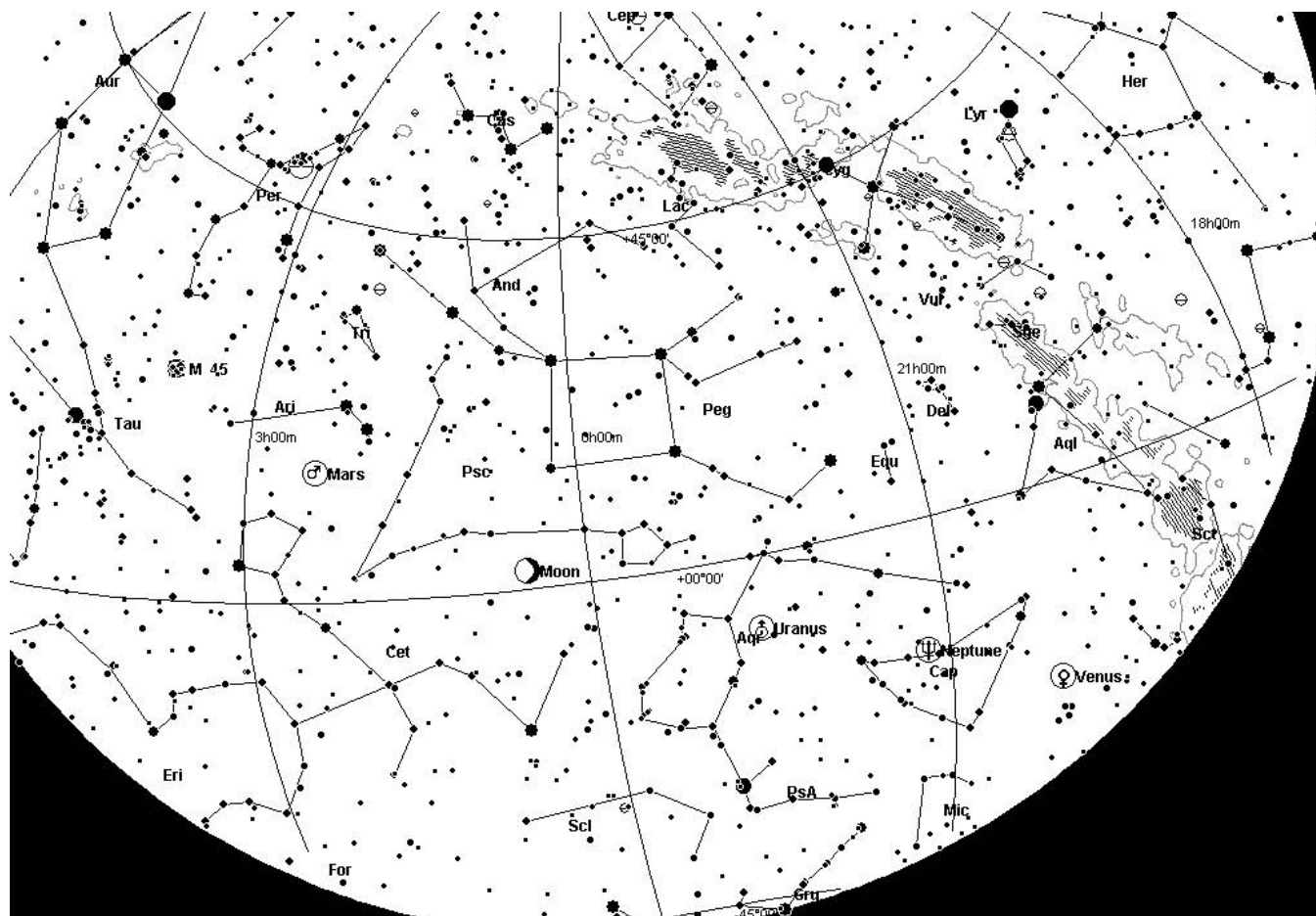
Mars is drawing away from us, yet remains in good viewing position. The sky to the West of Mars contains 3 more planets to view. Venus, which is hard to miss is a bright star in the early evening. Situated between Mars and Venus is Neptune (in Capricorn) and Uranus (in Pisces). While Venus and Mars are Binocular accessible Neptune and Uranus require a telescope.

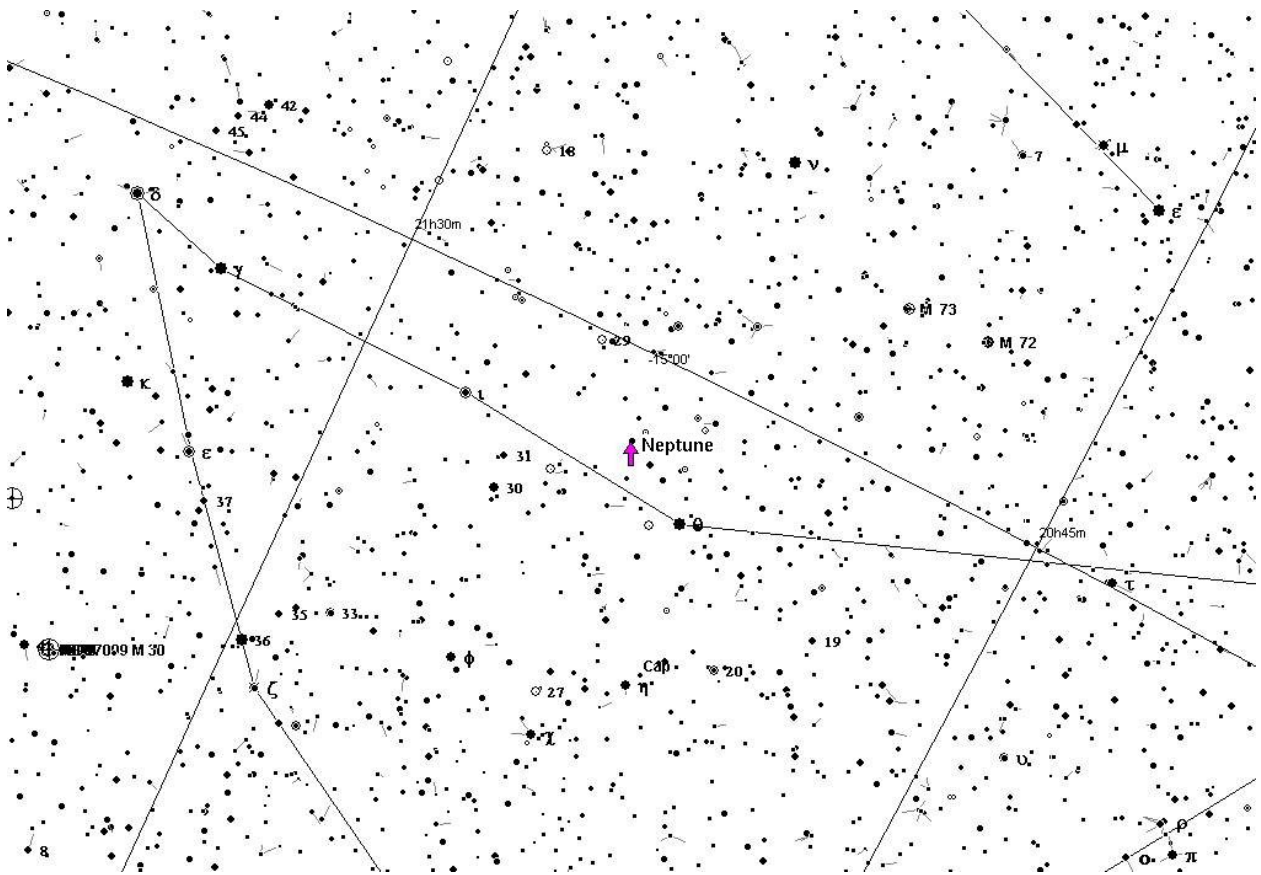
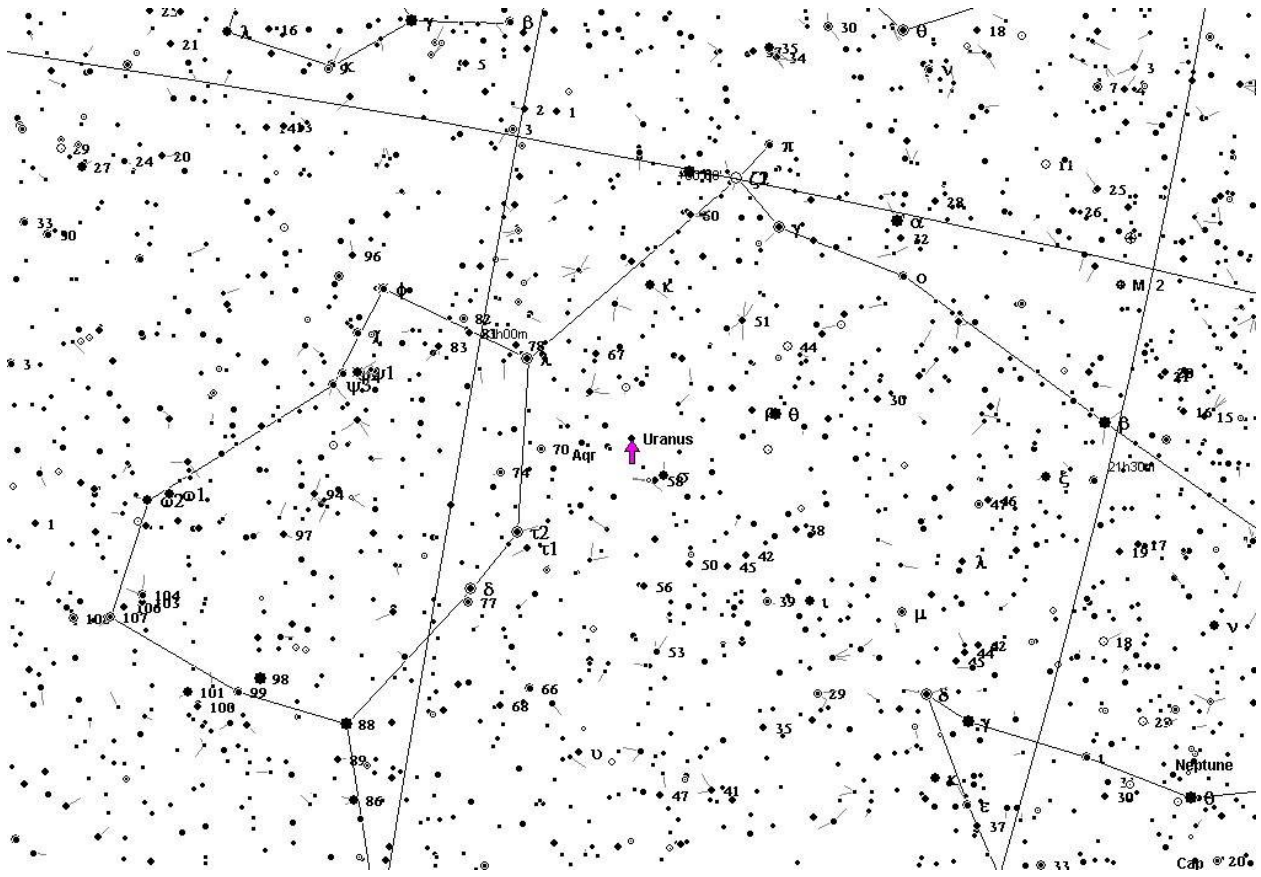
Planet	Magnitude	Size	RA (J2000)	Dec (J2000)
Mars	-1.3	15.4"	2h21m42s	15 13'08"
Uranus	5.9	3.4"	22h36m03s	-9 38' 53"
Neptune	7.9	3.4"	21h11m08s	-16 24'07"
Venus	-2.5	41.7"	20h00m20s	-22 38'59"

For the binocular enthusiast or those spending their first winter shivering at the eyepiece, Mars and Venus are nice targets. Venus is 25.4% illuminated on December 9th. Venus has phases just like our moon. An illumination of 25% is like a young or old crescent moon (waxing crescent and waning crescent). The brightest object in the Western sky just after sunset is Venus. Mars is overhead as Venus is setting. If you are trying to find Neptune or Uranus, the finder charts below may help.

While Uranus is bright enough to be seen with binoculars, it is too small. With an apparent diameter of 3.4" it is roughly 500 times smaller than the full moon. If you are able to locate one or both of the outer planets, notice the colour of each disk. Neptune is a cool blue while Uranus is a washed out green. Of course with the decreased ability of the human eye to see colours at night, a lot of objects look washed out and green.

Saturn rises later in the evening and is in good position by midnight or so.





**HAMILTON AMATEUR ASTRONOMERS
BALANCE SHEET
AS AT OCTOBER 31, 2005
(Unaudited)**

	Oct 31 2005	Oct 31 2004
ASSETS		
Bank	212	1684
Cash	744	0
Inventory	0	190
Prepaid P.O. Box Rental	111	105
Prepaid Banquet Expenses	<u>0</u>	<u>0</u>
Total Current Assets	1067	1979
Fixed Assets - Equipment	<u>3059</u>	<u>3059</u>
TOTAL ASSETS	<u>3059</u>	<u>5038</u>
LIABILITIES		
Accounts Payable	0	0
Deferred Membership Revenue	974	540
Deferred Banquet Revenue	<u>0</u>	<u>0</u>
TOTAL LIABILITIES	<u>974</u>	<u>540</u>
EQUITY		
Opening Balance	5038	5902
Current Year	<u>-1350</u>	<u>-1404</u>
EQUITY CLOSING BALANCE	<u>3688</u>	<u>4498</u>
TOTAL LIABILITIES AND EQUITY	<u>4662</u>	<u>5038</u>

Prepared by Cindy Bingham, Treasurer

HAMILTON AMATEUR ASTRONOMERS
INCOME STATEMENT
AS AT OCTOBER 31, 2005

(Unaudited)

	Oct 31	Oct 31
	2005	2004
INCOME		
Banquet Revenue	0	2085
Membership Fees	2155	1540
Observers Handbook/Calendar Sales	188	410
Investment Income	0	41
Interest Income	0	0
	<u>0</u>	<u>0</u>
INCOME	<u>2343</u>	<u>4076</u>
EXPENSES		
Banquet Expenses	0	2640
Bank Charges	0	0
Donation Expense	150 1	102
Handbooks/Calendar Cost of Sale:	179	369
Insurance	2160 1	1080
Meeting/Observing Expense	81 1	194
Office Supplies	13 1	30
Printing Expense	591	686
Post Office Box Rental	105 1	105
Mailing Expenses	414 1	269
Promotion	0	31
TOTAL EXPENSES	<u>3693</u>	<u>5506</u>
SURPLUS/DEFICIT	<u>-1350</u>	<u>-1430</u>

Prepared by Cindy Bingham, Treasurer

Hamilton Amateur Astronomers Membership Renewal November 1, 2005 - October 31, 2006

Name:	
Address:	
City:	
Postal Code:	
Phone:	
E-mail:	
Do you want the newsletter emailed?:	

Type of Membership:

Individual (\$25 Cdn/year)	
Family (\$30 Cdn/year)	
Royal (\$50 Cdn/year)*	
Friend (\$100 Cdn/year)*	
Patron (\$250 Cdn/year)*	
Voluntary Donation \$	

* These levels of membership confer the same rights and privileges as a Family membership. We greatly appreciate the additional financial support our members provide by signing up as a Royal, Friend or Patron.

All membership dues are eligible for tax receipts.

Total:	\$
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Please make cheque payable to:

Hamilton Amateur Astronomers
P.O. Box 65578
Dundas, Ontario
L9H 6Y6
CANADA

Membership renewals are due November 1.