

# Event Horizon

December 2000

Volume 8 Issue 2

## A Clearing

Day after day, doom and gloom  
Not a clearing in sight  
But wait, is that the moon?  
And Venus to the right!  
Yes, the clouds have parted  
Now I turn to the east  
Excited and light hearted  
And witness a lovely feast.  
Behold Jupiter and Saturn!  
They never cease to amaze  
East and West I turn  
And smile as I gaze.  
All else fades from view  
My footsteps seem lighter  
I look at things anew  
And life seems brighter.

*Barb Wight*

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## Chair's Report

On Thursday, November 30<sup>th</sup>, I had the privilege of travelling to Thorold for the Niagara Peninsula Conservation Authority's Conservation Achievement Awards. These awards are presented to "honour and recognize the efforts and dedication of individuals and groups who have given of their time and energy to help advance and maintain conservation activities". The HAA was presented with an award for the stargazing program at the Binbrook Conservation Area and Rob Roy and I accepted it on behalf of the HAA.

For those of you who have not been out to an observing session at Binbrook, or if you have not been out in some time, please consider attending. You don't

even need to bring a scope. There is usually at least a 20" Obsession there, and everyone with a scope is always eager to share what they are seeing with others. We even have a heated room, to warm your toes when they get cold. A few of us went out on a very clear, cold night on Saturday, December 2<sup>nd</sup>. We had spectacular views of Jupiter, with the red spot front and centre.

Don't forget to schedule your Christmas activities to make room for observing the partial solar eclipse, occurring around lunch time on Christmas Day. Details for this were in the last Event Horizon.

Next month's meeting will feature a talk by Steve Barnes. While we hope to be in the Spectator building, this is still unconfirmed. Please check our web site or call any council member prior to the meeting.

I hope everyone has a great holiday and a safe New Year.

*Margaret Walton*



## 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.

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.

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<http://www.science.mcmaster.ca/HAA/>

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# Looking up in January

Margaret Walton

Last month's feature was a partial solar eclipse. This month we have another treat - a lunar eclipse. If you are lucky enough to be travelling in Europe, Asia or Africa on January 9<sup>th</sup>, you will get to see the entire 5 hour show. Those of us here in Southern Ontario will be able to catch the last phases of the eclipse just as the moon rises, about 4:30 pm. This full moon will also be very bright after it leaves the Earth's shadow. Two factors combine to make this an unusually bright moon - the Earth and Moon are closer to the sun allowing more sunlight to be reflected back to us, and the moon is almost exactly opposite the sun. Check out these web sites for more information [http://www.science.nasa.gov/headlines/y2000/ast24jul\\_1m.htm](http://www.science.nasa.gov/headlines/y2000/ast24jul_1m.htm) or <http://www.geocities.com/CapeCanaveral/7137/lunecl/jan2001.html>

On January 3, just before dawn,



the Quadrantid meteor shower peaks. Average rates for this shower are 90 meteors per hour. This may be a good time to try radio detection of meteors. Tune your FM radio to a band not used by a local station (hard to do in Southern Ontario!), preferably in the lower wavelengths. As a meteor passes, it can reflect the signal, and you will hear very briefly a station broadcast as it is reflected off the meteor. Check out this web site for more information <http://www.odxa.on.ca>

Jupiter and Saturn continue to be great sights, and are visible as soon as the sun sets, staying up all night long. Watch for them to rise in the east in the constellation Taurus. Venus is the brightest object in the sky (next to the moon). It is visible in the westsouthwest for about 4 hours after sunset. Towards the end of January, Mercury can be seen about 45 minutes after sunset. It will appear just to the lower right of Venus. Mars can be seen just before dawn high in the south. In a few months it will be at its best since 1988.

The next meeting of the Hamilton Amateur Astronomers is Friday, January 12th. Steve Barnes will be speaking. The location of January's meeting is still un-

confirmed. Please check our web site (<http://www.science.mcmaster.ca/HAA>), or call any council member prior to the meeting. Everyone is welcome. We also have observing sessions at the Binbrook Conservation Area. This is a great way to get to look through others' scopes and get to know the night sky. Upcoming viewing nights are January 19th, 20th, 26<sup>th</sup>, and 27th. Viewing starts around 8pm. Please call ahead of time to let us know you are coming, so that we can let you in the gate. **Margaret Walton 627-7361, Bret Culver 575-9492, Rob Roy 692-3245.**

## Links of the Month

Stewart Attlesey

The theme for this month is eclipses since we will be treated to a partial solar eclipse on December 25 and a total lunar eclipse on January 9. I did some searching on the internet for information on these events and quickly came to the conclusion that the best site is at <http://sun-earth.gsfc.nasa.gov/eclipse/eclipse.html>. To quote from the web page: "This web site is continually expanding and strives to be the ultimate resource for on-line information about eclipses." That's quite a claim and it does have excellent "technical" information. There is extensive information about eclipses, including solar and lunar eclipse predictions and history; geometric representations of eclipses; observing and photographic tips; and image galleries. Be sure to

check out the page on eye safety. To quote from this page "The Sun can be viewed safely with the naked eye only during the few brief seconds or minutes of a total solar eclipse. Partial eclipses, annular eclipses, and the partial phases of total eclipses are never safe to watch without taking special precautions. Even when 99% of the Sun's surface is obscured during the partial phases of a total eclipse, the remaining photospheric crescent is intensely bright and cannot be viewed safely without eye protection [Chou, 1981; Marsh, 1982]. Do not attempt to observe the partial or annular phases of any eclipse with the naked eye. Failure to use appropriate filtration may result in permanent eye damage or blindness!"

If you want some anecdotal

information about eclipses then check out the page "Eclipse History: From Fear to Fascination" located at <http://nauticom.net/www/planet/files/EclipseHistory-FearToFascination.html>.

[stewart.attlesey@home.com](mailto:stewart.attlesey@home.com)



## Ask Stella: A Pointed Question

Greetings, all of you vacuum virtuosos. Looking forward to the cloudy skies afforded by December nights? I thought not. But take heart! If your longing for the mysteries of the night sky becomes nigh-intolerable, you can always reduce it a little by dreaming and pondering and... hey... *asking* about things unknown.

This month's question will be near and dear to you all, I'm sure. Not only does it concern that much-beloved topic: black holes, but it also comes from within the HAA itself. Our question of the moment is:

*Some people say that a black hole is round, or spherical, but sometimes you see it pictured as a funnel kind of shape. Can you tell me the real shape of a black hole?*

And the answer of the moment is:

A black hole doesn't have any shape at all.

But that's getting ahead of myself. Let me first tell you a bit



about the anatomy of these strange creatures.

A black hole is a point of infinite density that arises from the collapse of a supermassive star. What happens is that the force holding up the star vanishes when the star's fuel runs out. When that occurs, gravity squeezes the star from all sides, causing a Type II supernova explosion when the upper layers of the star bounce off the superdense core.

The ensuing physics is pretty dicey and not well-understood, but astronomers believe that if the star core has a mass greater than 8 times that of the Sun, no force in the universe is sufficient to keep it from collapsing all the way to a point. In high-falutin' math jargon, this is known as a singularity -- a point with a finite mass, but zero volume.

And density is mass divided by its volume. But when you divide by zero, you get infinity. Infinite density. That's the core of a black hole - a zero-dimensional point with no length or breadth or height. A point is a point, as the sages say. It's impossible for humans to even picture a point. It's not a dot on a piece of paper because that has dimensions - the area of the dot and the thickness of the lead or ink you used to make it. It's not an atom or a quark because even though those objects are small, they're not without dimension.

But singularities don't just sit around in space all by themselves. In the case of a black hole, the singularity is surrounded by a sphere called the

event horizon. This is the region around a black hole from beyond which nothing, not even light, can escape.

Which raises an interesting question: a brain-teaser from Stella to you.

***If evil aliens came along and somehow turned the sun into a black hole, would the Earth get sucked in? How about Mercury, or Pluto?***

Please send your answers to the usual address.

Clear Skies,

*Stella*



Do you have a question that's keeping you up nights? Then send e-mail to [ask\\_stella@earthling.net](mailto:ask_stella@earthling.net).

Ask Stella: your source for astro-facts.

## MAGAZINES FOR SALE

### MEETING LOCATION

As we are having difficulty with our room booking at the Hamilton Spectator, some or all of our meetings may have to be held elsewhere. Please check the web, or your email, or the HAA discussion group, or phone any council member before each meeting to confirm its location. If anyone knows of a suitable room (for free!) could you please contact Margaret Walton at 627-7361 or [margw@icom.ca](mailto:margw@icom.ca).

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[rroy@idirect.com](mailto:rroy@idirect.com)

## CALENDAR OF EVENTS

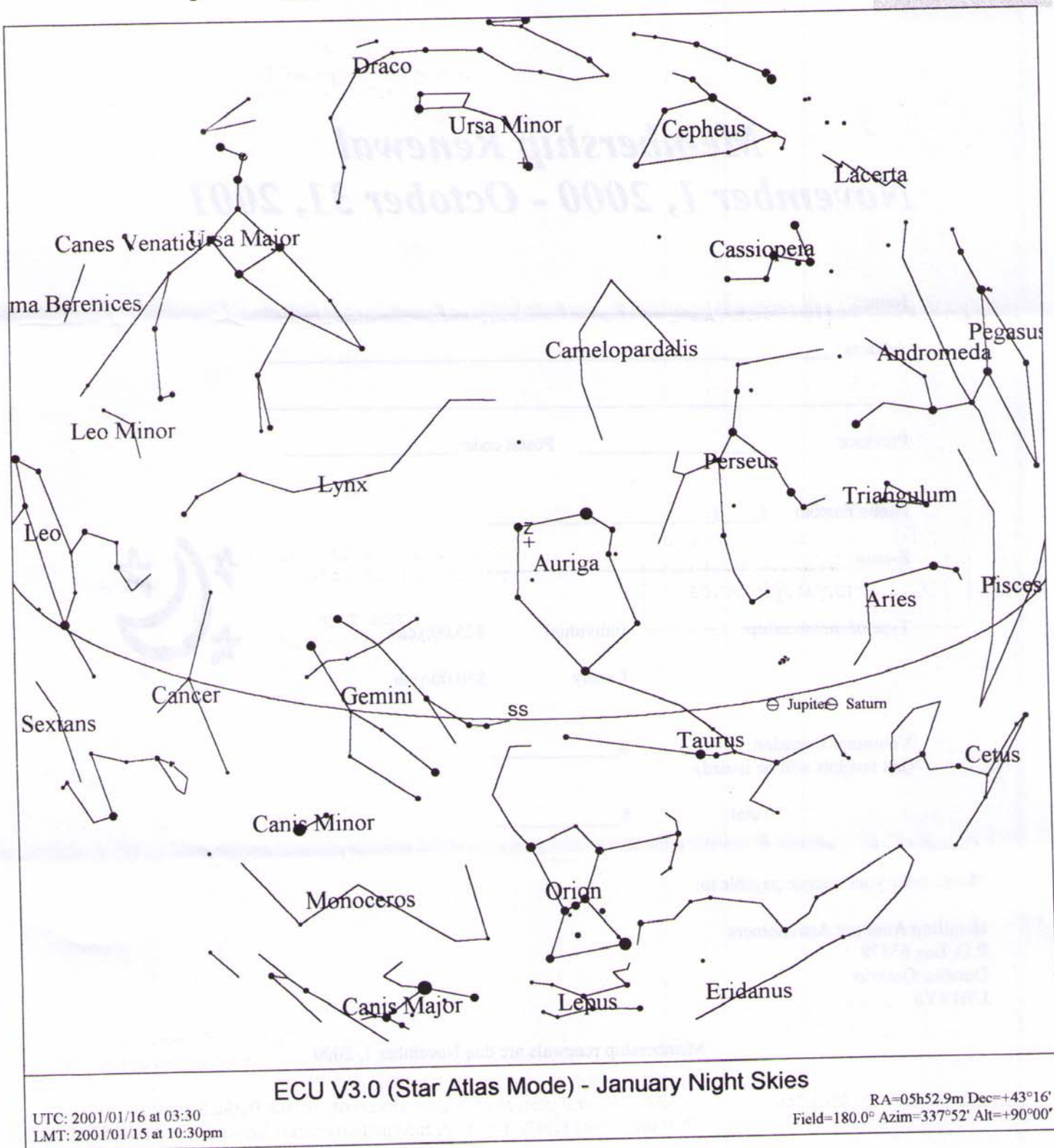
- December 22, 23 ~ 8pm  
January 19, 20, 26, 27 ~ 8pm
- Friday, January 12, 2001 7:30pm
- Tuesday, January 15, 2001 7pm

**BINBROOK OBSERVING NIGHTS** - For confirmation or directions call Bret Culver 575-9492, Marg Walton 627-7361, Rob Roy 692-3245

**HAA GENERAL MEETING** - The speaker will be **Steve Barnes**. The meeting will possibly be at the Spectator Building auditorium. Call any council member to confirm the location.

**HAAJ** - We will meet at McMaster University, in the Burke Science Building, room B148. For more information contact Rosa Assalone 540-8793

# January Night Skies



## ***Membership Renewal***

### ***November 1, 2000 - October 31, 2001***

Name: \_\_\_\_\_

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Voluntary Donation: \$ \_\_\_\_\_  
(tax receipts will be issued)

Total: \$ \_\_\_\_\_



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Membership renewals are due November 1, 2000