Hamilton Amateur Astronomers

Event Horizon

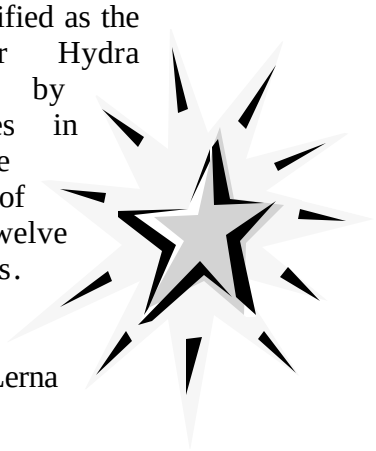
January 2000 Volume 7 Issue 3

Constellation of the Month - Hydra

Margaret Walton

Hydra is the largest constellation in the sky. Its head culminates at midnight at the end of January, and its tail culminates in April. This constellation contains many fine deep sky objects – galaxies, nebulae, open clusters, globular clusters, variable stars and multiple star systems.

In ancient Mesopotamia, it was identified as the watersnake Tiamat, slain by Marduk in the Great War of the Gods. More commonly, it is identified as the monster Hydra slain by Hercules in the second of his twelve labours. The town of Lerna was terrorized by a monstrous Hydra, which inhabited a nearby swamp. It had the body of a dog and nine heads, of which one was immortal. If one of its heads was chopped off, it could grow 2 or 3 more to replace it. Its breath was poisonous and could kill a person.



Hercules brought his nephew Iolaus to assist him in the task of killing the Hydra. They lured it out of its lair by shooting flaming arrows into the cave. As Hercules chopped off its heads, more would grow back. Finally, Hercules held his breath, and as he chopped off the heads, his nephew cauterized the wounds with fire to prevent new heads from growing back. Hercules buried the immortal head under a giant rock and thus defeated the Hydra. He dipped his arrows into the Hydra's blood. These then became poisonous and anyone touched by one of these arrows would be instantly killed.

Stars

Epsilon Hydrae – This is a multiple star system with four stars visible and a fifth known.

R Hydrae – This was the third long period variable to be discovered and was identified in 1704. It reaches magnitude 4 at its maximum and is 250 times fainter at its minimum. It is a red giant and part of a double star system.

Objects to See

M48 (NGC2548). Open cluster. This is a rich, very large cluster of magnitude 5.8. It is easily seen in binoculars and contains about 75 stars.

(Continued on page 5)

inside...

Chair's Report

I hope everybody had a wonderful Christmas and New Year, and that Santa was astronomically good to you! For our part, my wife got a woodstove and I got a cord of wood, and I'm sure that I will enjoy reading *Sky and Telescope* next to it on cloudy nights.

We celebrated New Year's Eve by taking our dogs for a midnight stroll, and we made sure our path led us to the edge of the Niagara Escarpment. We brought a bottle of wine and two glasses in preparation of seeing the extinguishing of the city lights courtesy of Y2K. At the stroke of midnight a din of hoots and hollers rose from the valley below and fireworks from a multitude of towns around the lake filled the sky … but the lights stayed on. Disappointed! We decided to toast the new year anyway.

PAST

For those who missed it, earlier this month **Rob Roy** gave a brilliant workshop on astrophotography to the Latow Camera Guild of Burlington. Rob's talk was very informative, starting at the basics and moving on to more complex issues. The crowd was mesmerized by Rob's ability to make telescope gadgets at will. There was a very good turnout of both HAA and Latow people, and everyone thoroughly enjoyed the evening.

PRESENT

From January 4h to February 13th, the McMaster Museum of Art is presenting a showing entitled *2000 Lux.* Our own **Dianne Bos** is one of the five artists whose talents are being highlighted. You didn't know that Dianne was an artist? She is a world-renowned artist who specializes in pinhole photography, and every once in a while her astronomical interests sneak into her artwork. Those lucky enough to be on our e-mail list have had the opportunity to hear her lecture on January 13. I hope the rest of us will make every effort to see the exhibit, as all are welcome and the admission is free.

FUTURE

The first lunar eclipse of the 21st century will be in January 21st. Well, in fact, it starts on January 20th, but that isn't quite as poetic! If you have ever thought of getting into astrophotography, this is a great starting point. It's easy, painless, and requires no great amount of equipment. Quit whining that you don't know the proper exposures -- with ISO 800 colour print film, the exposure for the full moon is 1/1000 f16; exposure for the penumbra, even with umbra coverage visible, is 1/250 f8. The umbra exposure at totality is 1/2 f2.8. Make sure you bracket these exposures. Remember, over-exposing loses details. You can find further information at ***http://www.nyip.com/tips/tip_break_news0100.html*** Happy clicking, and please bring your images to the next meeting.

Grant Dixon, Chair
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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 $15 individual or $20 family membership fee for the year. Event Horizon is published a minimum of 10 times a year.

Web Site
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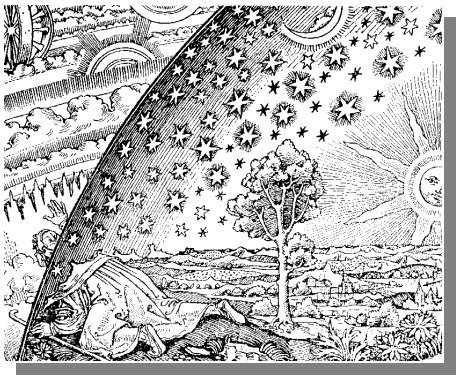


Ask Stella: Our Heroic Moon

Hey you starry-eyed mavens of the lens and mirror. Ever wondered why the moon has any effects on us beyond raising the tides and causing lovers' hearts to beat apace? Well, you're not alone. This month, we have a question from Roc Castricione of Mount Vernon, Ohio. He writes:

> I recently watched a show about the moon. During this they explained how the moon moves farther out every year. I started thinking about how maybe 5 billion years ago the moon would have been very close to earth. Since the far side of the moon is covered with craters, could it have possibly been close enough to shield the earth from a violent meteor shower?

Stella responds:

Your question is an interesting one and you've obviously put some thought into it. The short answer is: yes, the moon does shield the Earth from *some* impacts, either by drawing plunging objects into its gravity well, or just being in the way. This is probably why the far side of the moon (not the "dark side" -- Pink Floyd's unfortunate misnomer) is more heavily cratered than the near side. But the moon doesn't shield the earth from most impacts. If a gargantuan "dinosaur killer" of a comet was streaking towards the Earth, it would be unlikely that the moon would be of much help, either now or in the distant past. Here's why:

Although it's correct that the moon moves further from the Earth every year, the distance it moves is actually minimal compared with the Earth-Moon distance -- about 30 earth diameters. So the moon would not have been appreciably closer to the earth, even billions of years ago. Also, the moon is only one quarter the size of the earth, so even if it was right up close, it could never shield us entirely.

Also, the apparent lack of craters on the earth is not because our planet hasn't been hit in the past. If the earth had no oceans to absorb impacts and hide craters, and if weather and geological processes (volcanoes, earthquakes, shifting of the continental plates) weren't continually wiping out the signs of impacts, the surface of our planet would in fact look just like the surface of the moon.

Finally, one point to clear up: meteor showers (even violent ones) are not what produced the big craters we see on the moon.

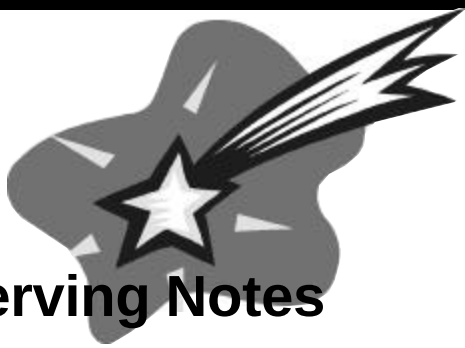
Meteor showers come about when the earth's orbit crosses the path of a bygone comet. Comets leave little chunks of rock behind as the sun's heat melts or sublimates (turns a solid directly into a gas) the ice at the comet's surface. When these grains hit the earth's atmostphere they heat up, causing streaks of light to appear in the sky. The main point is that these chunks of rocks are *small*. They start out about the size of your fist. Most of them burn up completely before they hit the ground. Even though the moon has no atmosphere, these little space rocks wouldn't make a big crater. Those are caused by asteroids, or planetesimals -- chunks of rock that are meters to kilometers in size.

One leading theory about the formation of the moon was that it was created when a giant asteroid or planetesimal (or even a comet) hit the semi-molten earth billions of years ago. This explains why the composition of the moon is so strikingly similar to that of our home planet and also why a small world like Earth could have a such a huge satellite. Think about that for a minute. None of the inner planets except Mars and Earth have moons, and the twin satellites of the Red Planet are actually thought to be captured asteroids. Furhtermore, our moon is so big that it rivals the Galilean satellites of Jupiter.

Keep this stuff about the composition of the moon in the back of your mind, by the way. It'll be important for next month's question on the mysterous absence of the moon's magnetic field. Until then, this is Stella signing off so that she can go look at that picture of Carl Sagan she loves to moon over.

Clear skies,
Stella

Do you have a question that's keeping you up at night? Then email ***ask_stella@earthling.net***



Bret's Observing Notes

The next Binbrook observing nights are January 28th and 29th, plus February 4th and 5th. Call Bret Culver at 575-9492 or Marg Walton at 627-7361 or Rob Roy at 692-3245. Call at 7pm to confirm. The park will be opened up at 8pm. Also try me on my cell phone at 518-5297 after 8pm on observing nights only please.

There will be a total eclipse of the moon on the night of January 20-21. The eclipse will start at 9:03pm with the moon entering totality at 11:05pm. All times are local. I will open the park at 8pm for those who want to observe and photograph away from the city lights. Dress warm and bring hot refreshments.

Cosmology Discussion Group

Mike Jefferson will present "Powers of Ten - The Cosmology of Ray and Charles Eames." Animating the presentation will be the National Film Board vignette, "Cosmic Zoom." Following the film will be an illustrated presentation of the Eames view of the cosmological realm, from the ultra-macro to the ultra micro. Plenty of room for questions, comments and discussion as our topic unfolds.

Saturday, February 19th, 2000 8pm. McMaster's Burke Science Building room B148.

Free Coffee, Ginger Ale, and Timbits.

Informal discussion, everyone welcome.

For further information call Larry at 529-1037.

Links of the Month

The first page is actually just a compilation of links to weather information. These are not just your typical weather forecasts. The majority of these links are up to date satellite images in visible light and infrared. In addition, there are more unusual images such as for water vapour, which is a good indicator of transparency. So if you are planning an observing session check out these pages. I have placed these links onto the following page: ***http://www.interlog.com/~attlesey/weather.html.***

With the upcoming Lunar eclipse on January 20/21 it seemed appropriate to provide a couple of links about the Moon. Sky and Telescope has some excellent information about the eclipse at ***http://www.skypub.com/sights/eclipses/lunar/0001preview.html***. The last page for this month is actually a promotion for the book "Full Moon". If you see this book you will be very tempted to buy it. It is a compilation of spectacular images from the Apollo Lunar landings. The web site has about a 10 minute multimedia presentation that is well worth checking out and can be found at ***http://www.projectfullmoon.com/***.

Stewart Attlesey

Hydra ...

(Continued from page 1)

M68 (NGC4590). Globular cluster. This is a large, bright, very rich cluster of magnitude 8.2. It contains about 38 known variable stars.

M83 (NGC5236). Barred Spiral Galaxy. This is one of the 25 brightest galaxies in the sky. It is a face-on barred spiral with an obvious central bar and spiral arms. It is located in the tail of Hydra and is very bright (8.5), large and elongated.

NGC3242. Planetary Nebula. Ghost of Jupiter. This is a very bright, elongated nebula of magnitude 7.7. It is a blue-green colour and is very lovely.

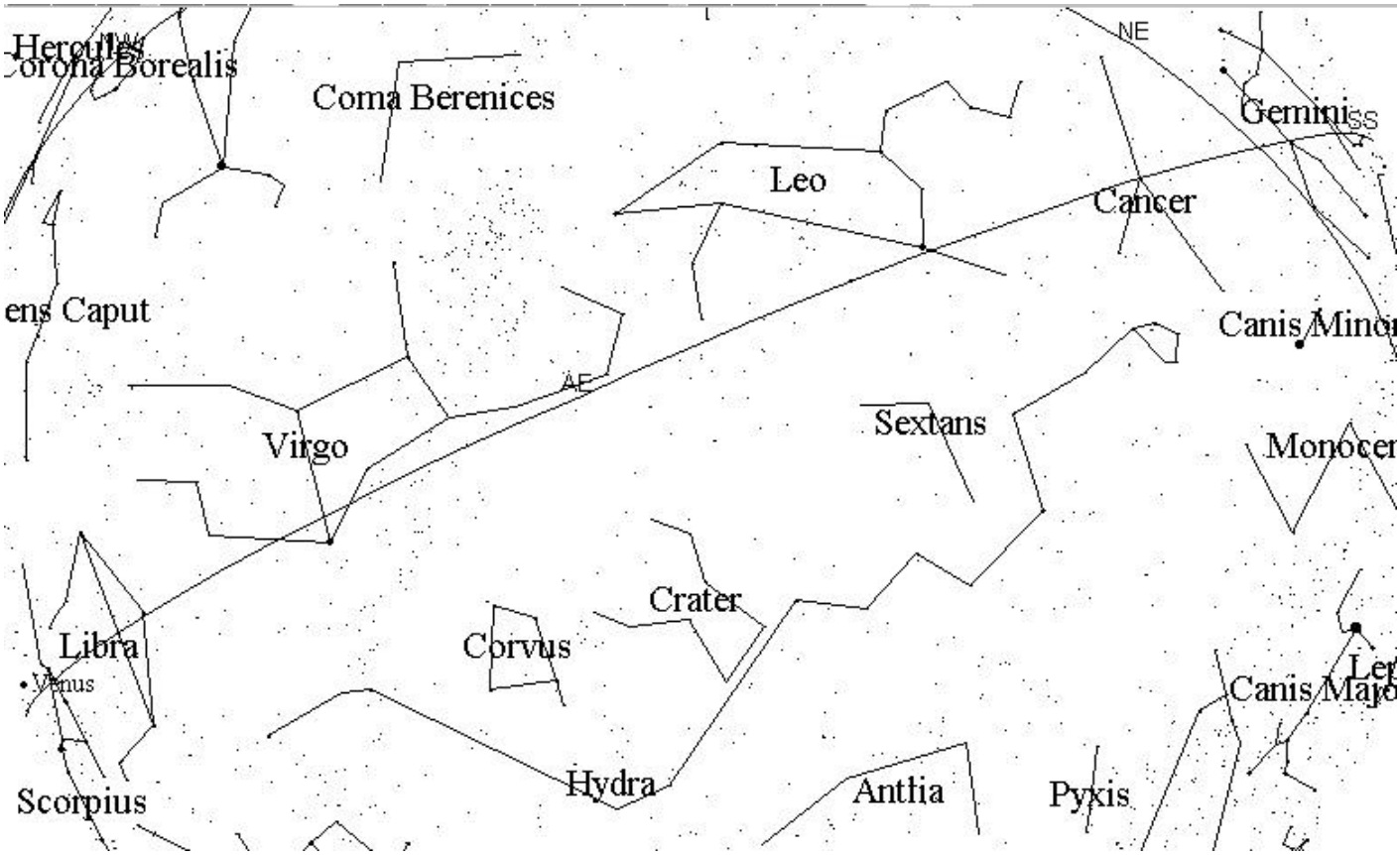
NGC3621. Spiral Galaxy. This is a bright, very large, elongated galaxy of magnitude 8.9 and sits in a trapezium of four stars.

NGC3923. Galaxy. This is a bright, large, slightly elongated galaxy of magnitude 10.5. It is in the same field as **NGC3904**, a small, round galaxy of magnitude 11.8.

NGC5061. Galaxy. This is a bright, small, round galaxy of magnitude 10.2. Two other fainter galaxies are nearby.

NGC5078. Galaxy. This is a bright, small, elongated, nearly edge-on galaxy of magnitude 11.5. It is paired with galaxy IC879.

NGC5101. Galaxy. This is a bright, small, slightly elongated galaxy of



Editor's Report

Thank you to everyone who submitted articles for this edition of *Event Horizon.*

The next deadline for submitting articles for *Event Horizon* is Friday, February 4th, 2000. Please send your articles in as soon as you can so that I can start preparing the newsletter.

Rosa Assalone
al965@hwcn.org

Did you know that...

Perseid meteors are separated from each other by over 160 Km, average less than 1 gram in mass and fill over 25 million cubic Km of space. Their total mass of 500 million tonnes would make a layer nearly 25mm thick over the cities and towns surrounding the eastern end of Lake Ontario.

Rob Roy

CALENDAR OF EVENTS

- Tuesday, January 18, 7pm — **HAJA -** We will meet at McMaster University, in the Burke Science Building, room B148. For more information contact Rosa Assalone 540-8793
- Thursday, January 20-21 — **TOTAL LUNAR ECLIPSE** - See Bret's Observing Notes on page 4.
- January 28, 29 ~ 8pm
February 4, 5 ~ 8pm — **BINBROOK OBSERVING NIGHTS** - For confirmation or directions call Bret Culver 575-9492, Marg Walton 627-7361, Rob Roy 692-3245
- Friday, February 11, 2000 7:30pm — **HAA GENERAL MEETING** - At the Spectator Building auditorium.

Tuesday, February 15, 2000 7pm **HAJA -** We will meet at McMaster University, in the Burke Science Building, room B148. For more information contact Rosa Assalone 540-8793

Membership Renewal
November 1, 1999 - October 31, 2000

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Type of membership:	Individual	$15.00/year
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