

Event Horizon

June 1999

Volume 6 Issue 8

Constellation of the Month - Scutum

by Margaret Walton

Scutum lies on the Milky Way between Aquila and Serpens Cauda. Its midnight culmination is July 1. Scutum was created in honour of King John III Sobieski, the King of Poland who led his own troops and others from Europe to victory against the Ottoman Empire on September 12, 1683. Scutum was included as a new constellation in an atlas published by Johannes Hevelius in 1690.

Objects

M11 (NGC6705). Wild Duck Cluster. This is a very beautiful open cluster. It is a large, bright (mag. 5.8), rich cluster of about 500 stars. It is easily seen with binoculars.

M26 (NGC6694). Open cluster of magnitude 8.0 containing about 30 stars.

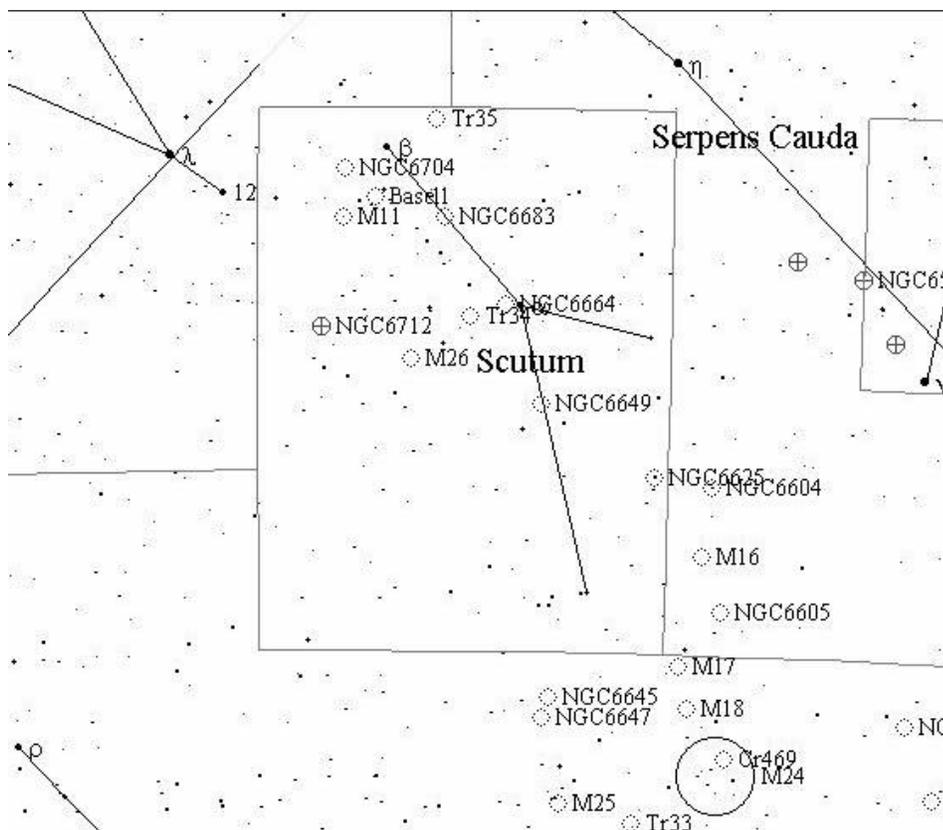
NGC6649. Small, rich open cluster of magnitude 8.9 containing about 50 stars.

NGC6664. Large, rich open cluster of magnitude 7.8 containing about 50 stars.

NGC6704. Open cluster of magnitude 9.2 containing about 30

stars.

Barnard 318. Dark nebula that snakes south and east of M11. Fairly easy to see at low power.



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Chair's Report

The June meeting is the last one before we take a break for the summer. The next few months offer many opportunities for observing, whether at our observing site at Binbrook or at one of the many Star Parties that are available in southern Ontario. It is also a good time to think about joining the council. There are only two fall meetings before a new council takes over. Our club only exists through the efforts of our members and club activities such as the spring and fall star parties are driven by your input. If you have been enjoying the benefits of membership perhaps now is the time to put something back into the club.

Last fall Rob Dick gave the HAA a talk titled Life in the Universe. At the meeting he extended an offer to the members of the HAA to visit him at his observatory which is located about a one-hour drive from Ottawa. Some of us took him up on his offer and visited him on the weekend of May 15/16. We were treated to two nights of excellent observing. On the Friday night we "only" observed until 3am due to being tired from the drive up and after a long week at work. When we woke up on Saturday afternoon the sky was totally overcast and remained that way until after dinner. At that time a thin sliver of clear sky where the Sun was setting offered some hope. To pass the time we were treated to some astrophoto slides taken by Paul Boltwood from the Ottawa Centre of the RASC. Anyone who read the May 1999 issue of Sky & Telescope magazine would have seen Paul's image, which set a record for the faintest object ever imaged by an amateur astronomer. He not only

showed us that image but one that went even fainter by using more refined image processing. While he went through his slides some of us made note of the various NGC objects that he had captured with his homemade CCD camera. After the slide show was over we found that the sky was much improved and since some scopes were still set up from the previous night we started observing through the clear patches. Within about ½ hour the sky became totally clear and we were off to another long night of observing. Part of the evening was devoted to observing some of the objects that Paul had showed us just hours before. This proved to be a lot of fun and some of the objects were well worth the effort to find. Anyone who is into observing should make the effort to visit a dark site such as Rob's. If you are reading this in time don't forget the HAA star party at Silent Lake on the weekend of June 18/19. The nights are short but the observing is excellent.

I have a couple of web sites for you to check out this month. The first is titled The Hitchhiker's Guide to the Moon, which can be found at <http://www.shallowsky.com/moon/hitchhiker.html>. Another interesting site is by a Dutch amateur and it all about objects that can be seen with a 6" telescope. Bert's Visual Deep-Sky Astronomy Site can be found at: <http://www.cobweb.nl/bertyvon/Welcome.html>

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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

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Messier Hunt at the Observatory (Part 2)

-by Bert Rhebergen

(continued from May issue)

M 61 Faint round smudge, 1° north of star "16 virginis".

M49 Much brighter than M 61.

M 64 Brighter, much larger than M 49, stellar nucleus visible?

M 53 grainy, globular structure.

stopped search 2:55 a.m. E.D.T.

99/4/13-14 10:20pm E.D.T.
99/4/14 02:20-6:30 U.T.

M 38 two intersecting arcs of faint stars.

M 36 stars fewer in number, brighter, than stars in M38.

M 37 smaller, more crowded than M38, similar brightness.

M 101 large, extremely faint.

M 102 (NGC 5866) smaller, brighter than M101. star close-by hampers observation.

M 63 larger than M 102, similar brightness, elongated east-west.

M 13 large, more diffuse than M3 similar size.

M 92 much smaller than M13, less grainy along edge.

M 5 fainter than M92, noticeably grainy along edge.

M 57 similar to "out of focus star with central obstruction".

M 98 extremely faint smudge of

light.

M 99 small, brighter than M98

M 100 larger than M99, similar brightness.

M 85 small, much brighter than M100.

M 94 small, bright, nucleus similar to M81 nucleus.

stopped search at 2:30am E.D.T.

99/4/14-15 11:00pm E.D.T.
99/4/15 03:00-05:00 U.T.

The following three objects were found with a 6" (150mm) f8 reflecting telescope equipped with a 16mm plossl eye-piece.

M 1 large, faint, elongated.

M 68 large, faint, grainy.

M 83 at limit of detection in 6". not seen in 4.5".

stopped search at 1:00am E.D.T.

M 91, M101, and M83 were verified by other observers.

Some NGC Galaxies in Virgo Cluster

99/4/12 10:45 E.D.T
99/4/13 02:45-03:55 U.T.

NGC 4267 faint, 1° preceding M84. (four minute drift = 1°)

M 84 & M 86 smaller rounder than M88.

NGC 4435 & NGC 4438 easily seen, similar brightness, two



minut drift from M84.

NGC 4461 four minute drift from M84.

NGC 4473 & NGC 4477 bright, small, brighter than NGC 4435/38, snorth of NGC 4461.

NGC 4474 north of NGC 4477, faint, small.

NGC 4459 south preceding NGC 4474, brighter than NGC 4474.

M 88 large, oriented N.W. - S.E. (north preceding, south following)

M 91 (NGC 4548) much fainter, smaller, than M88.

NGC 4571 (sometimes called M 91)

I could not find the object. I'm quite certain I had the right field.

Stopped search 11:55 pm E.D.T.

Cosmology Discussion Group

Yesterday (before 1950) we knew a lot. We will focus on what Bertrand Russell had to say about our universe. We can also look at a lot of other great thinkers from this period.

READING MATERIAL

Bertrand Russell writes on the universe in his

- Human Knowledge Its Scope and Limits Part 1, Chapter 2 and Part 4, Chapter 7 BD 161.R77 6th Floor Mills Library, McMaster
- The Scientific Outlook Chapter 5 Q158.R96, 4th Floor Mills Library, McMaster
- reviews of Sir Arthur Eddington in Vol. 10 of the Collected Papers B1649.R91, 6th Floor Mills Library, McMaster (we have been unable to find volume 10 in the 6th floor stacks, however it is available for reading in the basement Russell Archives)

Saturday, September 25th, 1999. 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.



A photograph of the asteroid Gaspra.

Gaspra Facts

•951 Gaspra orbits the Sun near the inner edge of the main asteroid belt between Mars and Jupiter:

•average distance from the Sun: 205,000,000 km •size: 19x12x11 km

•Gaspra was named by its discoverer Neujmin for a resort on the Crimean peninsula. Consequently, many of the asteroid's craters have been named for resorts and spas worldwide.

•Like 243 Ida, Gaspra is an S-type asteroid, believed to be composed of a mixture of rocky and metallic minerals.

•The first of only two asteroids so far observed close-up, Gaspra was encountered Oct 29, 1991 by the Galileo spacecraft on its way to Jupiter (Galileo later visited 243 Ida).

•Gaspra is a member of the Flora family of asteroids.

•Gaspra's surface is covered with impact craters. From the number of

It's a Girl!

David Fleming is pleased to announce the birth of his daughter Amelia Laura, on May 29 at 11:12 pm. Amelia tipped the scales at 7 lbs, 8 ounces. Mother and daughter are doing well. Bailey now seems very big and is enjoying having a baby sister.

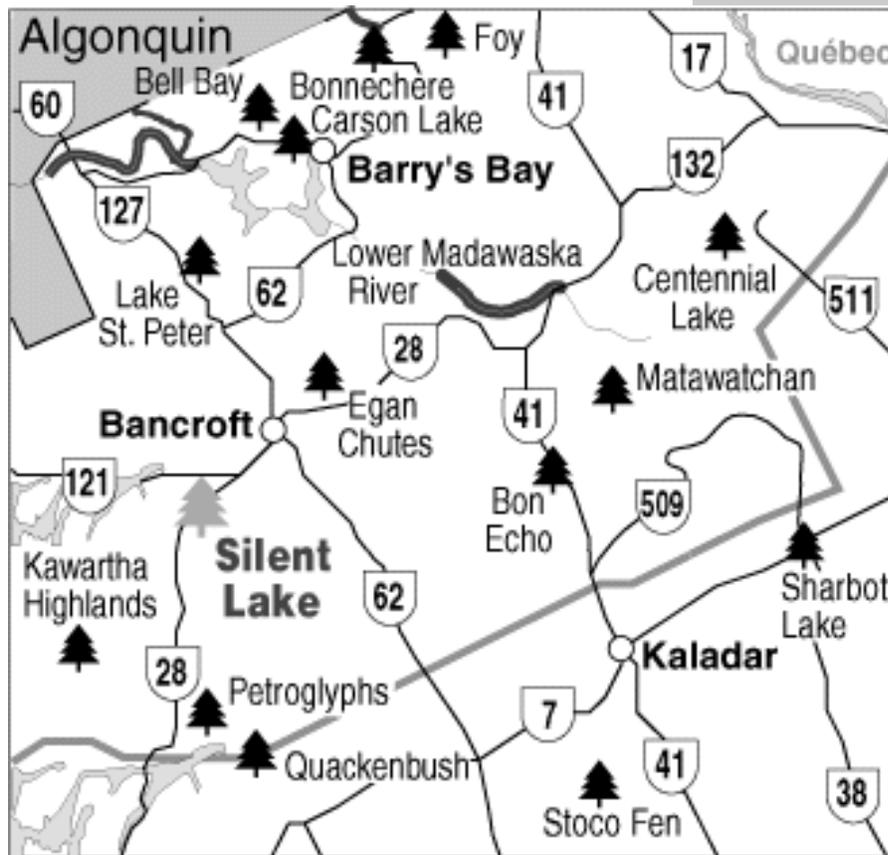
small craters on its surface, we can estimate that Gaspra is about 200 million years old.

HAA Summer Star Party - June 18-20

We've decided to have another HAA star party at Silent Lake Provincial Park. There is plenty to do at this park, including hiking, canoeing and swimming, even bike riding seems popular there. You can also explore abandoned mines in the area, and the town of Bancroft, "gem capital of Ontario", is about ten or so minutes up the road. The campsites are set within the woods which means you can sleep in in the mornings after a night of observing without the sun blazing down on your tent. This means, however, that to do astronomy we have to go to the parking lot of the day-use area near the front gate, so be prepared to put your telescope up and take it down again each night.

Silent Lake Provincial Park is located on Highway 28, north of Peterborough. It takes about 3 1/2 to 4 hours to drive there. From Toronto, take Highway 401 east, past Bowmanville, to Highway 115. Then take Highway 115 north to Peterborough. Driving through Peterborough you want to pick up route 29 north (previously called Highway 28), but the city is poorly signed for this, and you can easily get lost here. You might just have to stop and ask for directions as necessary. I think almost all of us got lost in Peterborough last time, but, as far as I know, we all made it eventually to the star party! North of Peterborough, route 29 eventually becomes Highway 28 again. Follow Highway 28 past Lakefield and past Apsley till you come to Silent Lake. The best plan is to have an Ontario road map which is as up-to-date as you can find, one which shows Route 29 going north out of Peterborough.

The regular campsites in the loop containing sites 49-58 where some of us camped last time were very



nice, and this area has a full service washroom facility with free showers close by. There is also an area for trailers which has electrical hookups in a different part of the park.

If you would like to reserve your campsite call 1-888-ONT-PARK. Also, look at the web site <http://ontarioparks.com> for more information about Silent Lake. The fee is close to \$20/night, plus a \$9.00 reservation fee. You'll need to provide your credit card number, but you can pay by cash at the park when you arrive. For more information about Silent Lake, call the Ministry of Natural Resources at (416) 314-2000.

Remember that you don't need a telescope to attend the star party. Other members are always willing to let others experience the

awesomeness of the night sky as seen through their equipment and to share their expertise and experiences. And don't forget, as Terence Dickinson always reminds us, binoculars are an excellent and recommended tool for learning about the night sky. Hope to see you there.



Ask Stella!

Last month Stella had a question about Seyfert galaxies and how it would affect a planet like Earth if our galaxy suddenly "went Seyfert". In keeping with the active galaxies theme, Stella responds to a question from the other side of the planet. Isn't the internet terrific?

L.P. Ping, a graduate student at the City University of Hong Kong writes:

The recently discovered pink black holes sound like nonsense. Can you tell me more about them?

Stella responds:

Based on what information I've been able to gather, I think you should forget the name "pink black hole" and substitute "pink quasar". Also, you might want to view the "discovery" of these objects with skepticism until more information is available.

I put "discovery" in quotations because I'm not convinced that Drs. Paul Francis, Rachel Webster, and Michael Drinkwater have found anything new. What they have found is a quasar that appears pinkish, rather than the usual blue. But what does that mean?



To understand this we should first look at what a quasar is. For several years now, astronomers have known that a quasar is a distant galaxy with a massive, central black hole. The hole typically has the mass of a billion suns. It is surrounded by dust and gas that accretes onto a disk as it falls inward. Material within the disk is heated by friction and gives off tremendous amounts of radiation. Since the infalling matter is not actually inside the event horizon of a black hole, it can still escape and hence be seen by us. Quasars are really high-Watt bulbs. The luminosity (energy per unit time) of a quasar can be as much as a thousand times that of the Milky Way galaxy.

There is ample evidence for massive black holes in the centers of many galaxies including our own. In fact, a popular modern theory is that all galaxies have massive central black holes and that the major difference between quasars and nearby galaxies is that the black holes in nearby galaxies are no longer getting much "food" (gas and dust) and are therefore unable to pump out as much radiation as their better-fed cousins.

Normally, quasars put out more light at blue wavelengths, which means they're bluish-white in color. In order for a quasar to be pink, it would have to

- i) be much cooler than a normal quasar
- ii) be shrouded in a cloud of dust that absorbs and then re-emits the radiation at longer wavelengths
- iii) exist in some exotic region of the universe where physics is weird.

Occam's Razor dictates that we ignore the last idea in favor of the first two. Of those, the second one seems far more likely. Unfortunately, this is where I really suffer from a lack of information. No technical papers about this research have been published yet and so I don't understand why the discovery team has ruled out that explanation.

Some quasars are embedded in dust clouds. The dust changes their color from blue-white to yellow. A pink cloud would, to me, suggest a superabundance of dust. But then again, quasars are not my area of expertise.

However, Dr. Lynn Cominsky of California State University has an alternate idea. She suggests that a pink quasar is related type of active galaxy (a blazar) from the side. This ties in with the the unified model of active galaxies, which states that blazars, quasars, Seyfert galaxies, and radio galaxies are all similar types of object seen from different angles. Radio galaxies are currently assigned to the edge-on view that Cominsky ascribed to the new pink objects. But the unified model has several problems and is by no means etched in stone, so perhaps pink quasars will aid in refining the model.

Another explanation, proposed by Dr. Francis and colleagues, is that the swirling gas and dust is "acting as a vast natural radio transmitter". Again, the physics of accretion disks is a very new and challenging field, and one that I don't know that much about.

However, one thing is quite clear. The terms "pink black

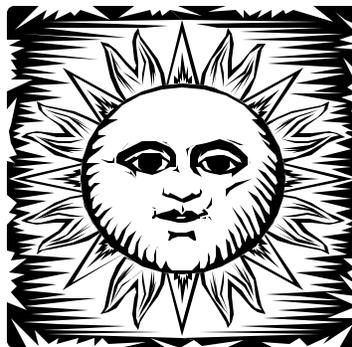


Did you know that...

the totality of the 1973 African eclipse was extended to an unprecedented 74 minutes by the use for the first time of a supersonic Concorde jet flying at an altitude of 53,000ft (16,200m.)

Rob Roy

June 23, at 8pm, noted **Canadian observer, Alan Whitman** of Okanagan, B.C. will be speaking on deep sky and mountain top observing, at the Hamilton Steam & Technology Museum on Woodward Street.



Ask Stella
(continued)

(Continued from page 6)

hole" and (heaven help us) "pink hole" are really quite misleading. By definition, no light can escape from a black hole. So we can never actually see one, much less tell what color it is. The only way that a black hole can be detected is through indirect means, such as observations of accretion disks or the gravitational influence of a hole on neighbouring stars. So if people are going to think pink, they should think "pink quasar" instead.

Thanks for asking this interesting



question! I'll be back next month, when the universe is a bit bigger.

Astronomically yours,

Stella

CALENDAR OF EVENTS

- June 18-20
- check your observing calendar 4359.
- Friday, September , 7:30pm
- Saturday, September 25th 8pm

HAA STAR PARTY - At Silent Lake Provincial Park. See page 5 for more details.

BINBROOK OBSERVING NIGHTS - For confirmation or directions call Rob Roy at 692-3245 or Bret Culver 575-9492 or John McCloy 523-

HAA GENERAL MEETING - At the Spectator Building auditorium.
COSMOLOGY DISCUSSION GROUP - McMaster Burke Science