Hamilton Amateur Astronomers

# Event Horizon

June 1997 Volume 4 Issue 8

## Telescope Haute Couture

When you've been in astronomy for a few years, it's hard not to look back at the way things have evolved. A case in point is telescope styles. Back in the mid-'70s, when I first started getting "serious" about 'scopes, the popular choice for people considering a good, all-around instrument, was the medium to large Newtonian. Several companies made these scopes, usually in the 6 to 12 inch size range, and they offered excellent resolution and light grasp for a reasonable price. Unfortunately, Newtonians tended to be big and bulky, so it was no surprise that compact, catadioptric scopes being offered by Celestron, Meade (and to a lesser extent, Criterion) gained in popularity with the coming of the '80s. It was possible to buy an 8" aperture, full mounted Schmidt-Cassegrain for the same price as a far less portable 8" Newtonian. On top of this, the Schmidt was better suited for a wide range of photographic applications. On the down-side, the SCT (Schmidt-Cassegrain telescope) didn't quite have the image clarity of its hulking Newtonian cousin, but most users were willing to accept this in light of the many other benefits.

***"Some have observed that this growing, 'new age' infatuation with small, high performance scopes is something akin to a 'cult'."***

Then, in the mid-'80s, another 'scope design made a dramatic resurgence. The refractor, long regarded as having wonderful imaging qualities, but expensive and cumbersome in larger (over 4" aperture) sizes, was revitalized by the advent of new and better glass types that allowed manufacturers to offer bigger apertures with better colour correction, in shorter, more manageable focal lengths. These "Apo" (short for apochromatic) refractors were still expensive for their size, but their unobstructed apertures and near colour-error-free performance delivered image quality most amateurs had never experienced before. The apo refractor's inherent light efficiency meant that a 5" example could come surprisingly close in image brightness to an average 8" SCT, but with better contrast and cleaner looking images. Still, very few people gave any serious thought to using smaller (i.e. 70 to 90mm), well corrected instruments for anything other than casual or

*(Continued on page 3)*

## The Orbiting Gourmet

Once again, the summer is nearly upon us. In a few weeks people will be dusting off those electric fans and thinking about packing up the RV. "What about Alaska this year, honey? It's pretty cool this time of year."

To aid you in cooling off this summer, here are a couple of astronomical recipes that are sure to please. Creating a comet in your kitchen is not only an excuse for playing with neat materials, but will draw questions from youngsters like you wouldn't believe.

**Dry Ice Comet**

2 cups of water
2 cups of crushed dry ice*
3 heaping tablespoons of dirt and/or sand
generous `dash' of ammonia (Windex will do)
a tablespoon of dark corn syrup (maple syrup, honey, etc.)
a few drops of vinegar
"Comet" brand cleanser (optional)

large plastic mixing bowl
medium-sized garbage bag or plastic liner
work gloves
large mixing spoon or ladle
paper towels

DIRECTIONS

1. Line bowl with garbage bag.
2. Add water and ammonia.
3. Add dirt.
4. Add corn syrup and vinegar

*(Continued on page 5)*

inside...

# Editorial

It's summer and that means lots of observing at Binbrook and at the various star parties. For those of you who missed the HAA star party you can still make it to the North Bay event (details on page 4) or Starfest. If you have never been to a star party before, you should at least try to go to Starfest even if you don't own a telescope. You can ask anyone on the council for details about this event.

One of the advantages of doing the editorial at the last minute is the opportunity to include late breaking news. The news that I am referring to is the discovery that the near-Earth asteroid 3753 (1986 TO) is a very unusual companion to the Earth. This asteroid shares Earth's orbit around the Sun and its "horseshoe" shaped orbit is stable offering no danger of colliding with us. Its orbit traces out a kidney bean shape once a year and drifts along the Earth's orbit in a spiral which repeats itself after 385 years. The closest this asteroid approaches the earth in its orbit is 15 million kilometres. The asteroid is somewhere between 1 and 10 kilometres in diameter and is the only known companion to the Earth other than the Moon.

You can get far more information than I could possibly squeeze into this small space by checking out the web pages at:
**http://www.asteroid.yorku.ca/companion**

If I receive enough articles by the July 25 deadline there will be a summer issue of EH in time for Starfest.

Stewart Attlesey
**attlesey@interlog.com**

# Chair's Report

It is a special pleasure to write this report during the HAA Summer Star Party at the York Soaring Association field near Arthur, Ontario. True, the weather has been mediocre, but I always enjoy the fun and camaraderie of amateur astronomers and I always enjoy getting to know people better. It is one of the perks of being Chair! Ann Tekatch did a marvelous job of organizing the HAASP and we thank her and will soon forgive her for leaving at the first hint of cloud! (Actually - it had been raining pretty hard...).

When we return to meetings in autumn, it will soon be time to elect a new Chair. I have enjoyed the position immensely, but it is clear to me that my time is now spread too thinly and the HAA is not getting the attention it deserves. Therefore, I reluctantly will not consider being nominated for Chair next year. This will be good for the club in a number of ways, not the least of which is the introduction of new ideas!
I would like to thank all our members and especially the Council members for keeping our group so active in the past year. Rose and Tracy have done a great job with HAJA. Rob has kept our calendars full of observing nights. Barb has kept us afloat financially. Grant has given us 1.5 zillion planetarium shows and has maintained a fantastic web page. Stewart has routinely generated a quality newsletter that is the envy of other groups. Ann has maintained contact with all our existing and potential members. It has truly been a group effort!

Clear skies this summer - see you at Starfest or in the fall!

Doug Welch

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 10 times a year.

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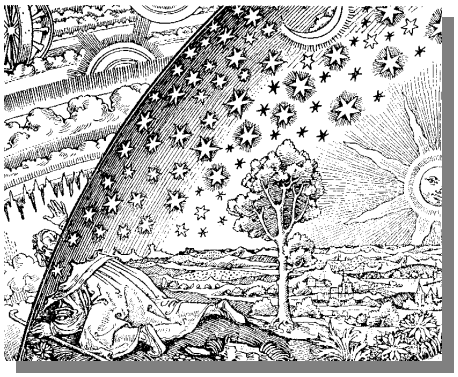

# Telescope Haute Couture ...

*(Continued from page 1)*

"beginner" purposes. It was really the yearning for the tack-sharp imaging of the new apo refractors, but in a cheaper, more portable form, that led to the manufacture, advertising, and ever increasing popularity of today's small refractor and Maksutov market segment.

Some have observed that this growing, "new age" infatuation with small, high performance scopes is something akin to a "cult". While that assessment is certainly contentious, it is true that small telescopes have gained a lot of respect in recent years. The "hottest" scope now on the market is the Meads's ETX, 90mm Maksutov, which is currently back-ordered for up to 10 months. TeleVue's Ranger 70mm ED refractor (along with its more expensive 70mm sibling, the Pronto) are huge sellers, as are just about every small, highly corrected refractor now on the market. It's a much different situation to a decade ago, when I worked in a telescope shop. Then, customers who were looking for a "serious" telescope wouldn't consider anything smaller than a 4" refractor or a 6" Newtonian and often pined for an 8" or larger SCT. We once stocked a beautiful Pentax 70mm semi-apo refractor on a solid equatorial mount, all priced at about $1300. It sat for 3 years, unsold. "Sharp, but too small", was everyone's opinion. Also available were very compact, quite sharp 4" SCT systems from Meade and Bausch &Lomb. They were well built, inexpensive, but slow sellers. The reason? "Nice, but too small", most would say.

All this really illustrates is how the marketplace's priorities can change, for whatever reasons. Smart advertising can account for some of the swings in "telescope fashion", but it's more than that. Sure, a big telescope will gather more light and show you more, but there's much to be said for extreme portability and razor sharp optics, too. A lot of factors need to be considered when choosing a telescope, and because every person has different priorities, there's no such thing as the "best telescope" or the "only real choice" for everyone. On the other hand, it doesn't hurt to think critically about the process, look through as many different types and brands of instruments as possible *before* buying and don't get caught up in a "fad" (i.e. maybe I should buy it, 'cause everyone else is...). One thing's for sure, though. If you buck the trend and shop for something "un-cool" (like a Newtonian, SCT or achromatic refractor), you'll be getting the best deal ever. Just pick up some old back issues of Sky & Telescope, check out the prices in the ads and then adjust for inflation. You'll quickly realize that it's never been a better time to buy a telescope!

Clive Gibbons

# Astrologic Puzzle

We had a good turnout at a recent star party, so I thought that I would take a few notes and write a short report for Event Horizon. The only problem is that I spilled hot chocolate all over the clipboard and can't read half of what I wrote. There should be enough information left to solve the problem.

I've listed below all I can read, but I HAVE to know who was observing M13 in Hercules and who had the 3-inch refractor. Please help! Complete set of Naglers for the correct answers!

Using five different star atlases, five HAA members were using five different-sized scopes of five different colours to look at five different objects. Last names have been left out to protect the innocent.

1. Doug's telescope was pink.

2. Stewart used a 4-inch refractor.

3. The black scope was pointed at Albireo in Cygnus.

4. To the left of the green scope was the black one.

5. Ann was observing the double-double in Lyra.

6. The owner of the 8-inch scope was using a Cambridge Star Atlas.

7. Norton's Star Atlas was being used at the white instrument.

8. M57 in Lyra, the Ring Nebula, was being observed in the middle scope.

9. Bill was the first one on the left, next to the gray telescope.

10. Next to the 10-inch reflector, a Mag-6 Star Atlas was being used.

11. The owner of Sky Atlas 2000 was star hopping from the double, a-Herculis.

12. The white telescope was next to the 6-inch reflector.

13. Rosa was using Uranometria.

Rob Roy
**royrg@mcmail.cis.mcmaster.ca**

# Gateway to the Universe

We invite you to come and experience an astronomical adventure with fellow stargazers under the dark sky of northern Ontario. The weekend is relaxed, unhurried, and family oriented with plenty of opportunity for dialogue with other people who enjoy the wonders of the night sky.

**Schedule**
Friday, July 4
7:00 PM Bopp This.
Guest speaker: YOU!
You are invited to bring your slides, photos, and stories of the great comet.

Saturday, July 5
11:00 AM Swap Shop.
At the picnic shelter tables.
1:00 PM Tent Talks
5:00 PM Supper break
7:00 PM Tent talks

Speakers

* Steve Dodson
Sudbury, Ontario
Why We Do What We Do

* Wilf Meyer
Sudbury, Ontario
Northern Lights Over the North Pole

* A Tale of Two Tiny Rocks
-- the Lindy Meteor

* The Sudbury Meteor Impact

* Antarctic Meteor Rock

* Alan Ward
Sudbury Astronomy Club
Mirror Coatings

* Jeff Collinson
Sir William Herschel

If interested please copy and fill out the Registration Form.

**How to Find Us**

- The town of Powassan is located about 30 km. south of North Bay, Ontario.
- Take highway 534 west from Powassan.
- Travel about 5 km. and then turn south on Alsace Rd.
- Follow the signs to Munro Park

### Registration Form

Name_____

Address_____

City_____

Province/
State_____

Postal Code/
Zip_____

Phone_____

Car License_____

**Fees**

Weekend Registration
$15 per person_____

Overnight Camping
First 2 people
$11.77 per person _____

Each additional
$2.14 per person_____

Non-Campers
$2.00 per day _____

Total _____

Registration Form To:
North Bay Astronomy Club
c/o Tom Ouellette
221 Mulligan Street
North Bay, Ontario
P1A 3P4

For further information, please contact:
Merlin Clayton (705) 472-1182
Tom Ouellette (705) 474-7666
E-mail: tdb@vianet.on.ca

## AVERTED IMAGINATION- What's that?

That's when you've convinced yourself you can see that galaxy/nebula in the eyepiece when nobody else sees anything.

That's when you've convinced yourself you can see that galaxy/nebula in the camera viewfinder but it didn't appear on your photo.

When you observe what appears to be a faint globular cluster, and after squinting at it for many minutes at high power, you triumphantly announce, "I'm just starting to resolve the outer stars...", only to be told that the object in the scope is actually an elliptical galaxy. (Clive Gibbons)

Rob Roy

## KW Meeting

On June 20, join the members of the RASC - Kitchener Waterloo Center for a general meeting.

Dr. Bob Dony will be addressing us with a full multimedia presentation on digitally enhancing astro images (i.e.. how to properly use all those neat programs we all own but don't use well). We have room for as many as can make it.

John Beingessner,
President RASC - Kitchener Waterloo Center
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*Call Ann Tekatch 905-575-5433 or Stewart Attlesey 905-827-9105 for directions.*

# The Orbiting Gourmet ...

*(Continued from page 1)*
(which represent various organic molecules).

4a. Add Comet cleanser (which is meant to represent inorganic molecules).

5. Stir.

6. Add dry ice (which represents methane ice) while stirring vigourously. (Handle with gloves.)

7. Continue to stir until the mixture is half-frozen into a heavy slush.

8. Lift out of bowl with plastic liner and mold into a snowball.

9. Hold tightly until it has frozen into that shape.

10. Unwrap and place in the sun. Little jets of vapour will puff out from the mottled surface of the comet nucleus, creating realistic jets. If it's a cloudy day, a bright (200 W) lightbulb or heat lamp will do.

* Dry ice (or frozen carbon dioxide) is the essential ingredient, which you can get from chemical suppliers and ice cream stores. It's sold in blocks, so once you get some, you'll need a hammer to crush it.

**Liquid Nitrogen Comet**

This is a quicker version of the above recipe. Instead of the two cups of dry ice, you'll need three cups of liquid nitrogen, which can also be bought cheaply from chemical suppliers. It can be stored in an ordinary thermos, but take care to use it in a few hours, or it will evaporate. Use the same ingredients and directions as above and pour in the nitrogen, grabbing the plastic liner and squeezing it at the sides and top. Take care to wear proper clothing and use gloves. The temperature of liquid nitrogen is about - 70 deg. Celsius and will freeze exposed skin cells in a second if you spill some on yourself.

The main advantage to this comet is that it makes a glorious display of hissing and boiling when the nitrogen is poured in. Anybody in the room is sure to be impressed. The nitrogen is only a quick-freeze agent. Very little is left behind once the water is frozen. Still, it's fascinating to poke at the comet with a stick and explore its crusty, dirty surface. It's also good if you don't have time to spend several hours staring at a dirty snowball.

The dry ice comet, on the other hand, will produce the kinds of jets that you see on a real comet and is good for hours of fun. Either way, making a comet is a great opportunity for some hands-on astronomy. So invite your friends. Dazzle those pesky neighbors. Put your kids in awe of you forever and make a comet.

Denise Kaisler
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Dry Ice Comet Recipe by Jaymie Matthews
matthews@astro.ubc.ca

# Ask the "Expert"

*I have been reading about the size and shape of our Milky Way galaxy and our solar system's location within it. I cannot understand how astronomers can know how our galaxy looks, or where we are located in it. It would seem to me to be similar to asking someone to describe the external size and appearance of a house while that person is sitting inside of the house in one of its rooms. How is this determined?*

*Brian Chire*

A better analogy might be standing in a forest and describing its size and shape. The trees don't present a solid wall in all directions offering us glimpses of trees beyond.

Using an optical telescope our view of the Milky Way is restricted by interstellar dust which absorbs the light from stars. Most of this dust is found in the plane of our galaxy. Making observations at radio and infrared wavelengths allows us to penetrate this dust Based on optical observations alone, William Herschel, in 1785, concluded that we were near the centre of the galaxy. He based this conclusion on the fact that he was able to count about the same number of stars in any direction around the Milky Way.

The idea that we were not near the centre of the galaxy came about mainly due to the efforts of Harlow Shapley's investigations into the distribution of globular clusters. Because of their brightness and the fact that they are not confined to the plane of the galaxy, where they would be obscured by dust, globular clusters can be observed optically to very large distances. To determine the distribution of globular clusters it is necessary to measure their distance as well as their position. One technique for this is to measure the apparent brightness of RR Lyrae variable stars within the globular clusters. Since RR Lyrae stars occurring in any particular cluster all have about the same apparent magnitude they must also have about the same absolute magnitude. By measuring their apparent magnitudes in other clusters it is then possible to determine their distance based on the dimming of light due to distance. Using this technique Shapley found that globular clusters formed a spherical shell centered somewhere in the direction of Sagittarius at a distance of 25,000 to 30,000 light years.

Recent near-infrared images taken by the COBE satellite show our galaxy has the shape of a typical spiral galaxy. (See page 10)

# Summer's Finest Sights

The following descriptive list is the second installment of a 3-part series which first appeared in Sky and Telescope from Nov/1965 to Jan/1966. The authors, James Mullaney and Wallace McCall, had spent five years carrying out a visual survey of every conceivable object down to -40 degrees declination.

***"Get out your star atlases and your Greek alphabet and plan your summer star***

Although the main instrument was a 13-inch refractor, the 100 or so star clusters, red stars, nebulae, galaxies and multiple stars in the list were examined in instruments ranging from 3-inch to 30-inch. They are listed in increasing R.A., from 17 to 23 hours using Epoch 1950 co-ordinates which are only approximate for 1997.

***Description of Objects***

33. Alpha Herculis consists of an intensely coloured orange and blue-green pair, 4.5 seconds apart.
34. Delta Herculis, colours white and purple, is an optical 9-second pair.
35. M92 is a globular with a bright center. Often overlooked because of its neighbour, M13. Easily seen in a 3-inch.
36. Rho Herculis, a 4-second double, is attractive even in small scopes.
37. Nu Draconis. A pair of perfectly matched white stars of equal brightness separated by 62 seconds.
38. M6 is a large, bright cluster of scattered stars. This and the next two objects need a low-power, wide-field view of at least 0.5 degrees to be appreciated.
39. M7, a large, very bright open cluster, is easily resolved in a 3-inch at 45x.
40. M23 is a large, uniform, and fairly rich open cluster, striking in an 8/10-inch at 150x.
41. NGC 6543, a bright blue-green ring, has an 11th-magnitude central star, just visible in a 3-inch. A fine object in an 8-inch or larger scope.
42. 95 Herculis is a 6-second pair of bright stars, pale red and pale green in colour.
43. M8, the Lagoon nebula, appears as a nebulous patch traversed by a large dark lane and a scattered open cluster to one side. A 3-inch shows all but the dark lane, for which a larger scope is needed.
44. 70 Ophiuchi has a present separation of 3 seconds. The colours, yellow and red, are strong at 150x in any size scope.
45. NGC 6572, a small, bright, blue planetary, looks like a star in a 4-inch. Colour is intense in larger scopes.
46. M17, the Swan or Omega nebula, can been easily seen in a 3-inch. The Milky Way background is quite rich here.
47. M22 is rated by the authors as the finest globular cluster in the northern hemisphere after M13. It is easily resolved to the center in a 10-inch.
48. Vega is a dazzling blue-white diamond. About 1 minute of arc to the south lies a faint companion, difficult to see in less than a 6-inch.
49. Epsilon Lyrae, the famous double-double, is the finest multiple star in this list. Both close pairs, 2.3 and 2.6

*(Continued on page 7)*

| | Object/ Constellation | Right Ascension | Declination | Magnitude | Type of Object |
|---|---|---|---|---|---|
| 33 | Alpha Her | 17:12 | 14.4 | 3, 5 | Double star |
| 34 | Delta Her | 17:13 | 24.9 | 3, 9 | Double star |
| 35 | M92 Her | 17:16 | 43.2 | 6 | Globular cluster |
| 36 | Rho Her | 17:22 | 37.2 | 5, 5 | Double star |
| 37 | Nu Dra | 17:31 | 55.2 | 5, 5 | Double star |
| 38 | M6 Sco | 17:37 | -32.2 | 5 | Open cluster |
| 39 | M7 Sco | 17:51 | -34.8 | 3 | Open cluster |
| 40 | M23 Sgr | 17:54 | -19.0 | 7 | Open cluster |
| 41 | NGC 6543 Dra | 17:59 | 66.6 | 9 | Planetary nebula |
| 42 | 95 Her | 17:59 | 21.6 | 5, 5 | Double star |
| 43 | M8 Sgr | 18:02 | -24.3 | ? | Diffuse nebula |
| 44 | 70 Oph | 18:03 | 02.5 | 4, 6 | Double star |
| 45 | NGC 6572 Oph | 18:10 | 06.8 | 10 | Planetary nebula |
| 46 | M17 Sgr | 18:18 | -16.2 | ? | Diffuse nebula |
| 47 | M22 Sgr | 18:33 | -24.0 | 6 | Globular cluster |
| 48 | Alpha Lyr | 18:35 | 38.7 | 0, 10? | Double star |
| 49 | Epsilon Lyr | 18:43 | 39.6 | 5, 5, 5, 6 | Quadruple star |

# Summer's Finest Sights ...

*(Continued from page 6)*

seconds apart, can just be resolved in a 3-inch.

50. M11, the Wild Duck cluster, is the finest open cluster north of -40 degrees for large instruments, yet easily resolved in a 4-inch. Very rich and compact, it has a bright star near its center.

51. M57, the famous Ring nebula, rates as the authors' finest planetary. Its central hole is seen at 100x in a 3-inch. The faint central star needs a large scope to be seen.

52. Theta Serpentis is an easy pair of white stars, separated by 23 seconds.

53. Alberio is a beautiful 35-second pair, orange and blue. These colours are much more vivid in smaller scopes.

54. M55 is a large, rich globular, but so far south that it requires a first-class night for a good view. To be seen as more than a hazy patch needs a larger scope.

55. NGC 6818 appears as a bright, uniform, blue disk in a 13-inch. In common with other planetaries, it is starlike in small scopes at low power.

56. Delta Cygni offers a close (2-second) binary which needs a 6-inch in good seeing to be split. The primary is white, the comp anion blue-white.

57. NGC 6826 is sometimes called the "blinking planetary." It consists of a pale blue disk with an 11th magnitude central star. Looking exactly at the star, the nebula disappears; while looking with averted vision causes the star to disappear in the nebulosity. Alternating rapidly between averted and direct vision gives a blinking effect. This can been seen in a 6-inch at 150x.

58. M27, the Dumbbell nebula, is large and bright, pinched near the middle in 4-inch at 40x.

59. Gamma Delphini, a 10-second pair, appears delicately coloured yellow and pale green.

60. NGC 7009, the Saturn nebula, is a very bright, blue-green, featureless elliptical disk. The appendages that give rise to the name are not visible even in a 30-inch reflector.

61. 61 Cygni, a famous long-period binary star, has orange components 28 seconds apart.

62. M15. This bright and very compact globular is not completely resolved in a 13-inch refractor at 190x.

63. Beta Cephei offers an unequal 14-second double of blue-white stars.

64. M2, a very rich swarm, appears as a hazy patch in a 3-inch.

65. Mu Cephei, long-famed as Herschel's garnet star, is a semi-regular, variable super giant. It is almost red in a 3-inch, deep orange in an 8-inch, and yellow-orange in a 13-inch.

66. Zeta Aquarii is a fine, 1.4-second binary. Both stars are white.

67. Delta Cephei, a 41-second pair, is easily split in a 3-inch. The colours are pale orange and white.

68. NGC 7662 is a small blue dot in a 6-inch and a bright blue perforated disk with a 13-inch.

69. 19 (TX) Piscium has a very red colour, apparent in all apertures.

| | Object/ Constellation | Right Ascension | Declination | Magnitude | Type of Object |
|---|---|---|---|---|---|
| 50 | M11 Sct | 18:48 | -06.3 | 6 | Open cluster |
| 51 | M57 Lyr | 18:52 | 33.0 | 9 | Planetary nebula |
| 52 | Theta Ser | 18:54 | 04.1 | 4, 5 | Double star |
| 53 | Beta Cyg | 19:29 | 27.9 | 3, 5 | Double star |
| 54 | M55 Sgr | 19:37 | -31.0 | 6? | Globular cluster |
| 55 | NGC 6818 Sgr | 19:41 | -14.3 | 10 | Planetary nebula |
| 56 | Delta Cyg | 19:43 | 45.0 | 3, 6 | Double star |
| 57 | NGC 6826 Cyg | 19:43 | 50.4 | 9 | Planetary nebula |
| 58 | M27 Vul | 19:57 | 22.6 | 8 | Planetary nebula |
| 59 | Gamma Del | 20:44 | 16.0 | 4, 5 | Double star |
| 60 | NGC 7009 Aqr | 21:01 | -11.6 | 8 | Planetary nebula |
| 61 | 61 Cyg | 21:05 | 38.5 | 6, 6 | Double star |
| 62 | M15 Peg | 21:28 | 12.0 | 6 | Globular cluster |
| 63 | Beta Cep | 21:28 | 70.4 | 3, 8 | Double star |
| 64 | M2 Aqr | 21:31 | -01.0 | 6 | Globular cluster |
| 65 | Mu Cep | 21:42 | 58.6 | 4-5 | Red star |
| 66 | Zeta Aqr | 22:26 | -00.3 | 4, 5 | Double star |
| 67 | Delta Cep | 22:27 | 58.2 | 4, 8 | Double star |
| 68 | NGC 7662 And | 23:24 | 42.2 | 9 | Planetary nebula |
| 69 | 19 (TX) Psc | 23:44 | 03.2 | 5 | Red star |

Submitted by Rob Roy
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# A "BARGAIN" Compact Refractor

One of the most popular types of telescope, nowadays, is the compact refractor. These portable li'l scopes can deliver surprisingly bright and sharp images, fit easily on a photo tripod and travel virtually anywhere with a minimum of fuss. Apochromatic versions offer the sharpest, most contrasty views, but they aren't cheap! The new Brandon 80mm lists for $1295 (US) and even the Teleview Ranger 70mm, which isn't apochromatic (but is better corrected than an regular achromat) sells for about $600 (US). In the category of "conventional" achromats, several companies advertise compact scopes, most in the 80mm aperture f/5 size, selling for $250 to $300 US. These scopes are super-compact, but their colour correction isn't good enough to allow sharp views at high magnifications (i.e. over 100X). Also, consider that such compact achromats will end up costing $400 to $500 Canadian and you might wonder if there's another solution.

If you're thinking about a compact refractor for lower power observing, the answer might be closer than you imagined. Take a trip to your friendly, neighborhood camera shop and check out what's available in big ol', used, telephoto lenses! Not "mirror lenses", but the long, unfashionable (in the photographic sense), all-refractive lenses that were popular in the 1960's and early 70's. If you see a 400mm f/5.6 lens, consider that you're looking at a 71mm aperture, well corrected lens system. A 500mm f/6.3 translates into an 80mm aperture. Such elderly "relics" of a bygone photographic era can be had for less than $200 and sometimes less than $100, Canadian! They don't need to have fancy features, like autofocus, multicoatings, or automatic diaphragm. In fact, the simpler, the better. Preset or completely manual diaphragm, T-adaptable lenses are easiest to convert to telescopic use.

Next, hunt around for a telephoto lens "telescope adapter". This accessory fits on the back of the telephoto and usually consists of a 90-degree erecting prism and an eyepiece. The one I have has a wide-field Erfle ocular (16.5mm focal length), so the magnification with my 500mm f/6.3 lens works out to about 30X, with a 2-degree true field. If you can't find a "telescope adapter" or want to use a wider range of eyepieces, you can cook up your own adapter by cobbling a T-ring to a suitable diagonal prism.

So, a little bit of hunting around and a small dose of improvisation can result in a compact refractor that'll deliver bright, sharp images for less money than you might have imagined. And, that "big ol' " telephoto lens can take some darn nice pictures, to boot!

Clive Gibbons

# For Sale

Bausch and Lomb 8" Schmidt-Cassegrain Criterion reflector telescope with tripod and clock drive. I have adapters/ extension tube for astrophotography and 4 eyepieces - 30mm., 18mm., 50 mm. and 7mm., as well as the manuals. It was purchased about 8 years ago for around $2,000. I'm asking $900 or best offer.

David Klooz,
573 Glenridge Avenue
St. Catharines, ON L2T 4C2
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dklooz@regional.niagara.on.ca

# Moth Story

*The following recently appeared on the AAVSO discussion list:*

**aavso-discussion@physics.mcmaster.ca**

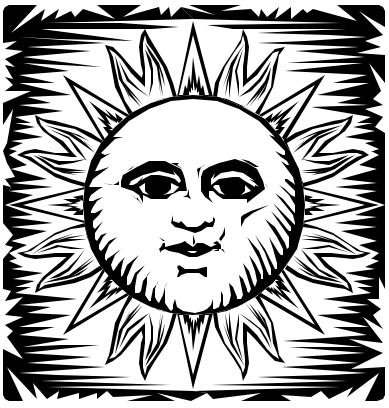
From: Tim Hager <thager@pcnet.com>
To: Davesw5@aol.com
Cc: aavso-discussion@physics.mcmaster.ca
Subject: Re: Moth Invasion

Hi Dave,

You sound as though you feel you deserve combat pay! :-) Your story reminds me of one that the late Walter Scott Houston told at one of our club meetings once (or was it Stellafane?). He said that they used to silver their own mirrors when he was young and they would never observe the moon during the summer. This was because moths would fly into the moon's image reflected in the primary mirror and smash themselves on the delicate silver coating. Apparently moth guts are not good for silver coatings.

....Tim (HTY)

Tim Hager thager@pcnet.com
New Milford, CT
USA

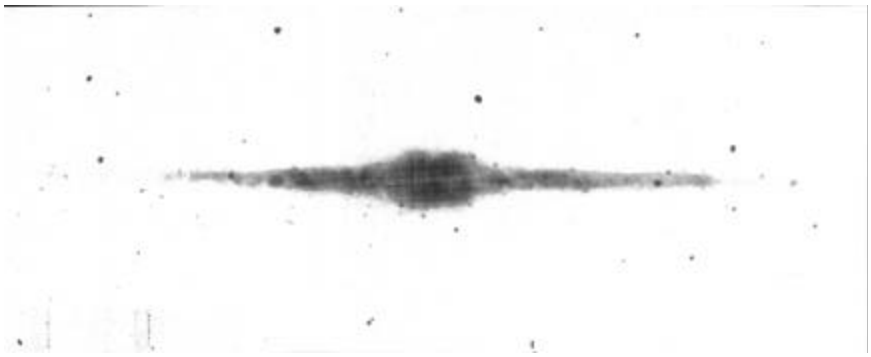


# *July Night Skies*

# Letter to the Editor

The article, "Baffling Newtonians", by Rich Combs, in the May '97 issue of Event Horizon, raises some interesting points. While the whole question of whether a Newtonian really benefits from extensive baffling is arguable, there is one major drawback to internal baffling that the author neglects to mention. When constructing a Newtonian, it is important to use a tube that is "oversized" with respect to the size of the primary mirror. This allows for air currents to flow along the inside of the tube as the scope cools down, without impinging significantly on the light path of the system. However, a baffle system, as described by Mr. Combs, would significantly disrupt this necessary air flow in the tube of the 'scope and result in "poor seeing" for an extended period of time. Therefore, such a baffle system could significantly degrade the performance of a Newtonian under typical observing conditions.

Clive Gibbons.



The Milky Way in near-infrared.

# Doug's Stuff Fer Sale

Bell and Howell LUMINA 10x50 binoculars 8 degree field $175

(2) 8" blanks $65 each

(3) 6" blanks (400 grit ground 2 sides) $45 each

6" Pyrex blank + ceramic tool $75

4 1/4" Pyrex blank $25

4" Optical flat $125

Metal detector $75

Super 8mm Canon camera $50

300mm f/4.5 Telephoto, Canon mount $75

Keychains $6 each

FAX/Phone line-splitter $40

Don't see what you'd like? Ask me!

Doug Welch
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(905) 524-0848 (home)
**welch@physics.mcmaster.ca**

## *CALENDAR OF EVENTS*

| | |
|---|---|
| ♦ July 4,5 August 1,2 8:00PM | **BINBROOK OBSERVING SESSIONS** - Proposed observing nights. For confirmation or directions call Rob Roy (692-3245) or Ann Tekatch (575-5433) |
| ♦ Friday, June 27, 7:30 PM | **COUNCIL MEETING** - Location to be announced. Call Doug at 525-9140 Extension 23186 if you are interested in attending. |
| ♦ Friday, July 25, 11:59 PM | **EVENT HORIZON DEADLINE** - Please submit your articles and pictures to Stewart Attlesey, **attlesey@interlog.com** or modem (905)827-9105 or snail mail to 1317 Mapleridge Cres., Oakville, L6M 2G8 |
| ♦ July 4, 5 | **NORTH BAY STAR PARTY** - See page 4 for details. |
| ♦ August 7, 8, 9, 10 | **STARFEST** - River Place. North of Mount Forest, Ontario. You cannot miss this one it is THE Canadian star party of the year. |
| ♦ Thursday, September 4, 8:00 PM | **ROYAL ASTRONOMICAL SOCIETY OF CANADA Hamilton Centre** - General Meeting - McMaster University Medical Building Room 1A6. |
| ♦ Friday, September 12, 7:30 PM | **HAA GENERAL MEETING** - at the Spectator Building auditorium. Speaker to be announced. Parking lot observing, weather permitting. |
| ♦ Saturday, September 29, 8:00 PM | **COSMOLOGY DISCUSSION GROUP** - Room B148 (next to the Planetarium) Burke Science Building, McMaster University. Topic will be "Introduction to Cosmo logy". For more information contact Bill Tekatch at 575-5433 or **tekatcba@mcmail.cis.mcmaster.ca** |