Volume 14, Issue 8

June 2007

HAMILTON AMATEUR ASTRONOMERS

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Event Horizon

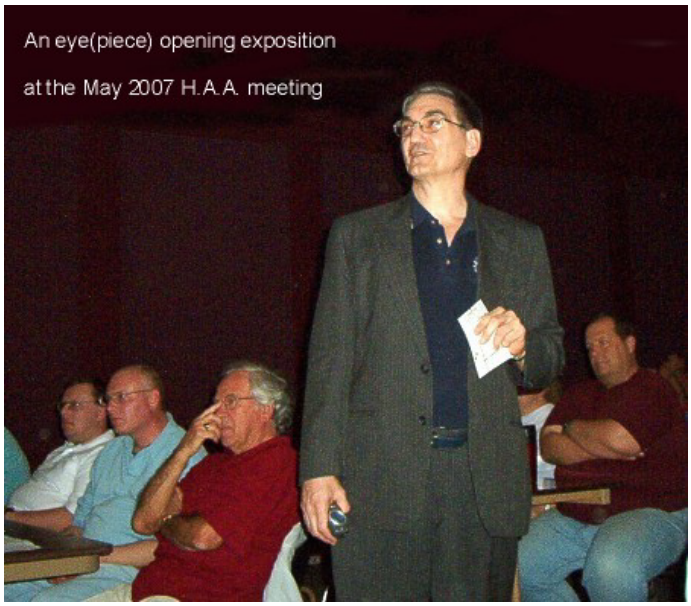
May Meeting—Spotlight on Eyepieces

Hamilton Amateur Astronomers and a number of guests gathered on a warm, clear Friday evening for the club's monthly meeting at the Hamilton Spectator Auditorium.

Tim Philp chaired the meeting with his usual dignified sonority and good-natured aplomb. After updating members with the announcements and thanking those members who raised money in this year's successful Messier Marathon, he introduced himself as the first speaker of the evening, to present The Sky this Month:

It was a 22 minute presentation filled with timely information about the springtime sky with emphasis on Ursa Major. Afterward Alex Tekatch and Jacob Steckner pulled tickets for the evening's door prizes: Starbirth in Serpens poster, won by Stephen

Continued on page 2



Mike Spicer on Eyepieces!

From The Editor's Desk

The sun is shining, the birds are singing, the telescopes are dewing over… Yup, summer's here and astronomy equipment is being dusted off and brought out into the dark for some summer fun under clear, dark skies.

It is easy to forget after baking in the summer heat that the nights can get cold and damp. Make sure that you are bundled up for those late night observing sessions.

While you are waiting for the sun to go down, you can take a look at the exciting features in this issue of the Event Horizon.

Tim Philp, Editor

Inside this issue:

Chair Report	3
Imaging Clinic Report	4
Astronomy in Trinidad	6
The Sky this Month	9–10
Sky This Month	9–13
Member of the Month	15
HAA Marketplace	17

Interested in Buying a POD?

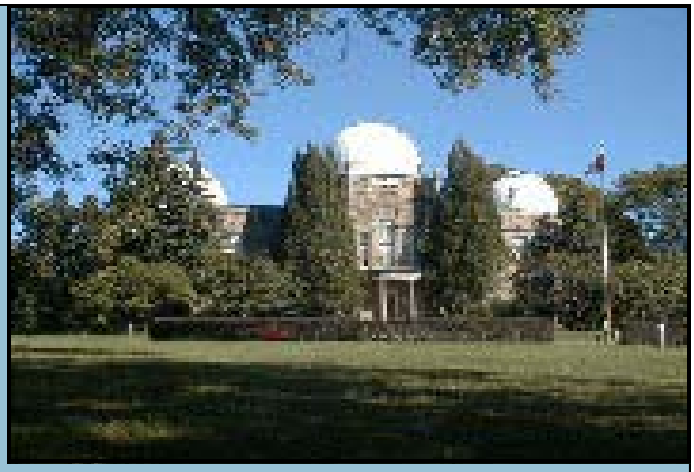
Mike Spicer is organizing a group purchase of PODs. Details at the June Meeting, or you can contact him at: DeBeneEsse2001@aol.com

April Meeting (Continued)

Germann and a new 26mm Meade series 4000 eyepiece and bolt case, won by Charlie Ricketts:
The main speaker of the evening was Mike Spicer on the subject of eyepieces. His 40 minute presentation touched on the various eyepiece designs and their characteristics, plus shared experiences in choosing, purchasing, cleaning, dropping, opening, storing and using eyepieces. His bottom line: look through other people's scopes with their eyepieces.
Many interesting questions both during and after the presentations which ended just before 9 pm. That left time to chat and look at the "free" and "not free" display tables before members left for East Side Mario's and a few hours of camaraderie.

HAA BUS TRIP!

David Dunlap Observatory (DDO)



WHEN: SATURDAY, SEPTEMBER 22, 2007

TIME: 8:00 PM

PRICE: $20.00 each or 2 for $35.00

PRICE IS ADMISSION AND BUS, PAYABLE IN FULL, IN ADVANCE

HAA members, family and guests. (children 12 and up)

Boarding Time: 5:30-6:00pm at Spectator Building Leaving DDO at 11:00pm

Available at the: General Meeting June 8

Contact Jackie Fulton: j.afulton@295.ca

A Proud Grandpa! - by Jim Wamsley

GRATIFYING TIMES - This past year, my time spent involved with the H.A.A has had many enjoyable moments. Attending monthly meetings, observing at Binbrook and the comaradarie of being with people of like mind. Perhaps the most gratifying time was spenT with my young 15 year old grandson at the MacMaster Planetarium, listening the the excellent presentation. He was excited about attending a "grown up" event and talking with the members afterwards at East Side Marios. We then extended our evening by setting up my scope on the roof of our apartment building and observing some of the things we had seen earlier that night in reality. I don't know who had a better time, Timmy or I. He made me a very proud Grandpa.

Jim Wamsley.

Chair's Report by Glenn Muller

This time of year, subtle signs like an unzipped jacket or nimble fingers portend the end of armchair astronomy and the start of prolonged observing sessions. Best of all, it's a time to start planning those road trips in search of truly dark skies.

Lately, I've been fielding questions from newer members about star parties, Starfest in particular, so I'm going devote this month's column to that particular topic.

Terence Dickinson's Sky News magazine provides a quick reference of star parties, and if you have an Internet connection you can save a trip to the newsstand by logging on to skynewsmagazine.com and checking out the star parties/events page. For your convenience, however, a listing of those within a few hours drive of Hamilton can be found in this issue of Event Horizon.

Though it is usually possible to lodge in the vicinity, most astronomers agree that star parties are camping events and, as such, you should prepare for one as you would a camping trip, taking all the bells and whistles you can carry for personal comfort and enjoyment. Pre-registration is recommended for some events and not necessary for others. I have never known Starfest to turn people away but you can save ten bucks by sending in your cheque early. At the time of this writing, the Starfest online registration page wasn't yet up but that can also be an option.

Prime camping spots are taken first so the earlier you arrive the better choice you will have. Starfest officially opens on a Thursday but the park owners will happily accept the fee for camping starting on the Tuesday. Generally, the HAA has a couple of dozen members attending, camped in small groups in different spots, so if you can locate one member chances are you'll soon find out where everyone else is! I feel confident in saying that if there's empty real estate near any one of them, you'll be welcome to set up there.

Apart from the trailer sites, some with full-hook-ups (reserve early) tents are set up wherever there is an open patch of ground. Alcohol is allowed in the park, and the other basic food groups (hamburgers and coffee) can be bought from a vendor. There is a good, but pricey, buffet in the main tent Saturday night and several restaurants within a 10 minute drive.

Pack your swimwear because the on-site pool brings welcome relief during the hot August days. But, also bring your long johns because the Mount Forest night's can be surprisingly cool. Clothing in the way of hats, T's, and sweatshirts, with Starfest logos can be purchased at the registration booth – these must have items are in limited supply so get yours as soon as the registration booth opens.

For more pre-Starfest orientation, check out the Chair's Report from last June's EH, and the member's summaries found in the September issues of 2005 and 2006. I also have a couple of personal webpages devoted to Starfest – e-mail me at chair@astronomy.org if you'd like the links for those.

Should there be a Summer issue of the EH, before the event, perhaps I'll provide a list of my favourite Starfest targets for your observing plan; otherwise I'll look forward to seeing you, there, under sunny and starlit skies!

July 13-15 *Gateway to the Universe Star Party* Munro Family Campground, 5 km. west of Powassan (20 km. south of North Bay), . Organizer: North Bay Astronomy Club. Contact: Dave Roscoe Tel: 705-497-9018 Fax: 705-494-8831 E-mail: droscoe@cogeco.ca Website: www.gateway-to-the-universe.org	Star	July 13-16 *Stargazing Manitoulin* Gordon's Park (Tehkummah Twnsp., 18777 Hwy. 6), Manitoulin Island, Ontario. Organizer: Gordon's Park. Contact: Rita Gordon, Manager Tel: 705-859-2470 E-mail: rita@gordonspark.com Website: www.gordonspark.com/astronomy.html
August 9-12 *Starfest 2007* River Place Campground, near Mount Forest, Ontario. Organizer: North York Astronomical Association. Contact: Andreas Gada Tel: 416-221-7375 (Cathy McWatters) E-mail: tonyward@rogers.com Website: www.nyaa.ca	Parties	August 10-20 *Manitoulin Star Party* Gordon's Park (Tehkummah Twnsp., 18777 Hwy. 6), Manitoulin Island, Ontario. Organizer: Gordon's Park. Contact: Rita Gordon, Manager Manitoulin Island, ON P0P 2C0. Tel: 705-859-2470 E-mail: rita@gordonspark.com Website: www.gordonspark.com/astronomy.html
September 7-9 *Huronia Star Party* Camp Saulaine, near Barrie, Ontario. Organizer: South Simcoe Amateur Astronomers. Contact: Gord Rife Tel: 905-939-2839 E-mail: ssaa@cois.on.ca (Janine) or ssaa-club@yahoo.ca Website: www.cois.on.ca/~ssaa	September 7-9 *The 10th Annual Algonquin Adventure* Mew Lake Campground, in Algonquin Provincial Park, Ontario. Organizer: Toronto Centre/RASC. Contact: Lillian or Robert Chapman PO Box 67, Sundridge, ON P0A 1Z0. Tel: 705-386-7087 E-mail: astronomers@sympatico.ca Website: www.toronto.rasc.ca	*17th Frozen Banana Star Party* Munro Park, near Powassan, Ontario. Organizer: Greater Sudbury Amateur Astronomers. Contact: Harold Healy Tel: 705-669-7750 E-mail: healyh@gmail.com Website: www.gateway-to-the-universe.org

HAA ANNUAL IMAGING CLINC - WOW! by Mike Spicer

Hamilton Amateur Astronomers put on educational clinics each year. We've had some very successful telescope clinics and our public nights in Hamilton, Dundas, Grimsby and Brantford have attracted people from throughout the region in their dozens and hundreds.

Recent years have seen a dramatic increase in astro-imaging as film photography has given way to digital imaging using inexpensive CCD or CMOS cameras and digital SLR cameras. Attendance at our annual imaging clinics has increased to the point that this year's clinic was moved from the Teamster's Hall to the Spectator Auditorium. Invitations were sent to the local photography clubs as well as to local astronomers, and our most recent clinic was very well attended by members and guests.

Saturday 2 June the main clinic was a 60 minute powerpoint presentation by astro-imager Tim Harpur. Tim concentrated on imaging with a digital SLR camera, the use of filters to improve raw images and a review of software techniques for improving the final images. The main talk was followed by a half-hour hands-on presentation showing how to improve detail in selected raw images, examination of the telescopes and cameras that Tim uses, followed by a question period.

Meanwhile, at tables all around the auditorium, members had set up displays of alternate imaging methods: Jim Wamsley demonstrated how he takes images through his Nexstar 8 SCT using an eyepiece adapter to hold a lightweight digital camera to the telescope for eyepiece-projection imaging. Bob Christmas brought his Canon Rebel and Super Polaris mount to show how he takes the excellent long-exposure wide-field galaxy images that were shown on his computer and in photos displayed on the table nearby.

Jackie Fulton displayed her Nexstar telescope set up with a Meade CMOS electronic eyepiece as the cheapest way to take exceptional images of the Moon and planets; she had two TV/VCR combinations running video taken through her refractor and through a Nexstar 11" SCT (for close-up detail of lunar features). Mike Spicer set up a display of the Meade Deep Sky Imaging cameras with a laptop running the Meade "how to" AV presentations on making the best use of these inexpensive CCD cameras.

It was heartening to notice how many of the interested dozens in attendance were new members to the HAA. The number of telescopes and imaging systems recently purchased by our members underscores how popular astro-imaging has become. The comments of those in attendance highlighted for me, how important the clinic system is. Belonging to an active astronomy club where the more experienced members are willing to take the time to share what they have learned with members just starting out, is the hallmark of a GREAT ASTRONOMY CLUB!

Jim Winger Estate Sale

The family of our late Honourary Chair, Jim Winger, have generously donated all of his astronomy books, telescope making equipment, Sky & Telescope and Scientific American collection (about 50 years' worth!), and homemade telescopes to our club. It has been decided to make this entire estate available to the HAA membership at a giant garage sale/silent auction to be held at the home of Bill, Ann & Alex Tekatch on Saturday, June 9th. from 9:00 am to 12:00 pm.

There are a large number of classic and rare astronomy books as well as some one of a kind optics and astro-doodads!

Proceeds from the sale will benefit the HAA's ongoing public education efforts. Everything must go!

No previews please. All sales are cash.

Please join us at: 19 Pheasant Place, Hamilton on Saturday, June 9 for this once in a lifetime opportunity.

The imaging Clinic was a great success with members sharing their expertise to help newcomers take great pictures.

Astronomy in Trinidad—by Don Pullen

I had the fortune to take another trip to Trinidad in March of this year to visit some of my wife's family. I had been there in Sept of last year. During that visit last year, I took along my binoculars and a star chart in the hopes of doing some observing of more southerly skies. I had the goal to try and see 5 objects: Alpha/Proxima Centauri, Southern Cross, the Large and Small Magellanic clouds, and R Doradus (believed to be the star next to the sun with the largest apparent size visible from the Earth). At 10 degrees north, all of these objects are potentially viewable.

Unfortunately between the family's lack of knowledge of astronomy, events and weather, I was unable to get in the observing I had hoped. I vowed that before my next trip I would plan better. When it became apparent that we were going to travel to Trinidad again this year, I started to investigate astronomy and astronomers in this country. From my internet searches, and eventually some emails I exchanged, I believed that there was a reasonably active group of astronomers on the island, including a professional astronomer at one of the universities. I made arrangements to meet up with some of them in the hopes of getting together with a like-minded group to observe the wonders of the southern skies.

This time, in addition to the bino's and star charts, I had acquired a small 100mm rich-field refractor and a universal camera mount which I also brought along. I was determined to make the most of this trip recognizing that I might not be going back for a few years.

After arrival, I made phone contact with some of the people I had been exchanging emails with and set up some times to meet. I met with Dr Shirin Haque from the University of West Indies (UWI) to find out about her astronomy courses and the research she was doing. She is also the President and co-founder of CARINA (Caribbean Institute of Astronomy).

Dr Haque was participating in a joint project with Tuorla Observatory in Finland to monitor variable quasars, and had recently begun research into exobiology. Apparently with the discovery of organics on Titan, the pitch lake in Trinidad (also called La Brea like the one in California) has many similar compounds which had sparked interest in the area. Unfortunately she wasn't very involved with observational astronomy, though a graduate student of hers was, whom I also met during the same visit. I did get a chance to tour their facilities, but they were rather spartan. They did have a computer controlled 16" LX200 with a CCD which was used for the quasar monitoring, but it was currently not being used due to weather and nearby construction (too much dust from both). They also had a small building set up on the roof of the university which is used for their all-night sessions to collect data - which hasn't happened for a while.

Most of their studies focus on theoretical astronomy, so observing isn't a strong component. As the only professional astronomer in Trinidad, I did have to give Dr Haque credit for doing as much as she has with limited resources and support. During my visit, we touched on the possibility of collaborating with the Physics and Astronomy program at McMaster, but I understand that so far nothing has transpired.

I also spoke to her about her involvement with CARINA, hoping this was a group of active astronomers. But I found out there is only 3 members, plus some volunteers who run an annual star party and raise funds to help set up astronomy outreach programs at schools in Trinidad and across the Caribbean. Exploring this a little further, I found that once set up, there isn't any follow-up and most programs fade away quickly. Even the star party wasn't being held this year, but not because of a lack of interest.

On another date, I met with Dr Maura Imbert, who's President of the Trinidad and Tobago Astronomical Society(TTAS). She's a retired UWI chemistry professor who's taken an amazing interest in astronomy and is now working on her master's degree in astronomy. I met her and some members of the society at UWI and had a chance to tour their facilities which

included a large DOB and a 12" Schmidt. Most of the equipment is currently not in use, but had been installed at a dedicated observatory in the mountains north of the university. Unfortunately due to personal safety issues (more on this later), the observatory was abandoned and the equipment brought back to the school.

The day before I met with the TTAS, Dr Imbert asked me to make a presentation about our HAA club since they didn't really have anything planned for their meeting. I quickly went to our website and downloaded a few images and webpages onto a USB memory stick so I could show them as part of my presentation (thanks to Anthony, Bob and others for the great content to show off). Most of the group appeared to be students and I felt many were there because of a requirement, not so much because of an interest. There were a few university students and some adults, about 35 in all. I was hoping to find out more about their club and activities, but it appeared there wasn't much activity other than the monthly meetings and the occasional observing night/campout in someone's backyard. Despite that, I spent about 1.5 hours discussing our club and all that we do, plus answering questions. Many were fascinated by the involvement, the amount of observing, our public events and our ability to go observing almost anytime (weather permitting of course). A lot of them asked for details about our club's website.

While it was fun promoting our club, I wasn't successful in finding people or places to go observing. It turns out that there is a very high crime problem in Trinidad, mostly stemming from the increasing drug use and trade problem in the area. And it appears that the current government is in collusion with many of the criminals which makes crime control somewhat of a joke. There are many kidnappings and murders in attempts to raise money for the drugs or arms. This has resulted in a severe curtailing of any activity outdoors at night anywhere except for backyards (which usually have high fences). Since most of those who can afford astronomy equipment (all of it has to be imported, there aren't any local stores) live in cities with their inherent light pollution problems, observing isn't a big priority any more. Even the annual star party which was held in a dark location with lots of security, isn't considered safe enough anymore. The TTAS observatory mentioned earlier was dismantled because a member was attacked by a rogue gang.

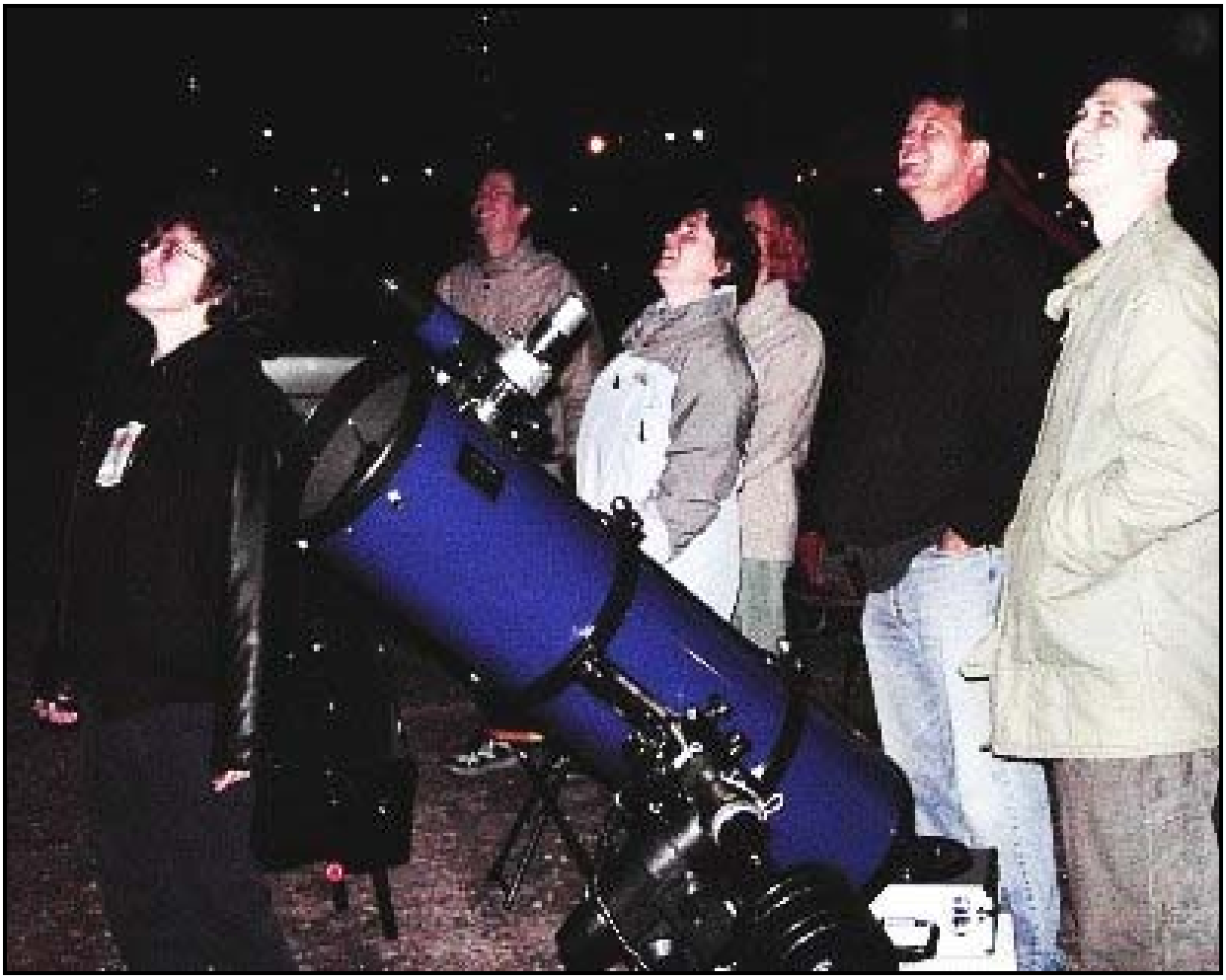
With the family, I was able to venture into rural areas that were very dark, but also heavy tropical forests which made observing impractical except for the zenith. And observing from urban backyards didn't afford me with good skies or views to the south. So all-in-all, it was a very disappointing experience. Unless the crime situation improves, it appears that I won't be able to use Trinidad as a base for observing southern constellations.

The one bright light of the trip was that CARINA and TTAS are interested in setting up programs on some of the other Caribbean islands and had expressed interest if some of our clubs members would like to get involved. They indicated that money could be raised to cover some of our costs to come down, but it would be a working vacation. Many of the smaller islands which rely more on tourism for their economy are much safer, and astronomy programs for the schools and public might be more practical. I haven't pursued this further. It sound like it might be fun, but it could also be frustrating if the follow-up to those newly developed areas is just as bad as it is in Trinidad.

My trip certainly gave me a new sense of appreciation for our situation in Canada. We are generally safe from the problems they are having in Trinidad. We think nothing of going off to Binbrook or other places in small groups to do observing. We don't feel a constant sense of fear to be alone or unprotected in rural areas. I was very out of place in Trinidad since I hadn't developed the same fear that most of them now harbour. I guess I was fortunate to have the family around to protect me from wandering into areas I shouldn't but normally would if I was in Canada or in many other countries. At the same time though, I felt rather claustrophobic since I didn't have the freedom I normally have.

A Great Start to Summer Observing - by Mike Spicer

May and June are big months for buying new equipment in anticipation of a summer of observing. I often hear members say they have reservations about buying more equipment. Their decisions are affected by recent weather. There are just not enough clear nights for observing, they say. Getting out only every few weeks, you have to learn and then re-learn how to use new equipment each time!



I am writing this before the month of May has ended, to say it has been a glorious month for observing. 14 good observing days already this month, starting with 5 clear days in a row early in May. The weather has been warm and the air has been calm at night; I've been observing in a T-shirt before 11 pm and in a light jacket after midnight. A couple of nights have drawn me off the patio, to Binbrook.

Your observing targets can be varied depending on the weather. Don't "waste" those rare nights of perfect seeing that may come on weeknights. Nights of great transparency might be set aside for faint galaxies with surface brightness. If the seeing is only "good" then perhaps you'd have more success with globular clusters or planetary nebulas. You can still observe the brighter sky objects on nights when there are only "sucker holes" between those puffy clouds (and of course, a big enough telescope can see through clouds).

Similarly, imaging can be varied to take advantage of the prevailing conditions. Webcamming at high magnification requires excellent seeing with the object at least 45 degrees above the horizon - which is why outstanding images of Jupiter in will be out of the question for the next three years. It's just too low in the sky for any but the very best observing nights! There are nights when digital camera imaging through a small aperture refractor is very rewarding. If the air is unsteady, perhaps it's better to do piggyback imaging instead.

May has been great for observing: many clear nights and a couple with seeing as good as 1.5" of arc. It's a good start to our summer and I wish you as many good nights in the upcoming months as my stint of Observing Director pulls into the end stretch for 2006-07. Clear skies!

The Sky this Month—by Mike Spicer

THE EARLY SUMMER SKY

Summer offers a few hours of warm, dark skies to the Canadian observer each clear night. We can't observe as early in the evening, nor observe as long as during the cold, dry winters. So summer offers us a portion of the sky filled to the brim with observing objects of all kinds. May 2007 had 15 glorious days of great observing weather and I hope the summer continues this trend. Times here are local.

Moon	Phase	Last Quarter	New Moon	First Quarter	Full Moon
	June	8	14	22	30
	July	7	14	21	30
	August	5	12	20	28

Lunar Events:

June 10: Waning Crescent Moon is 6 degrees W of Mars in the morning sky
13: Waning Crescent Moon occults M45 the Pleiades in the dawn sky starting at 6:10 am
18: Waxing Crescent Moon occults Venus on the E horizon: 9:52 am Venus reappears
19: Waxing Crescent Moon passes just 4' S of Regulus at 10 pm
28: Nearly Full Moon is in Scorpius, one degree S of Antares

July 10: Lunar occultation of Pleiades starts at 4 pm, Crescent Moon visible low in the West
16: Waxing Crescent Moon is 1 degree SE of Saturn at dusk
21: First Quarter Moon is in Virgo three degrees S of Spica before sunset

August 17: Waxing Crescent Moon is in Virgo, 2 degrees S of Spica at dusk
21: First Quarter Moon is in Scorpius, 1 degree S of Antares at dusk
28: **TOTAL LUNAR ECLIPSE** Full Moon is in Aquarius, low in the SW
To observe the eclipse from Ontario you will need a clear Western horizon
Moon enters penumbra at 3:53 am, altitude 24 degrees
Moon enters umbra at 4:51 am, altitude 16 degrees
Moon sets while it is deep in the Earth's umbra

Mercury is at inferior conjunction June 28th, entering the morning sky
Greatest Western Elongation is July 20th with Mercury 7" in diameter and mag +0.2
Early August has Mercury at mag. -1.4 start sinking to Superior Conjunction on the 15th

Venus Greatest Eastern Elongation on June 8 has mag -4.2 Venus in Cancer high in the West.
Venus continues to brighten 10 -4.5, its disk diameter increases as it approaches Earth:

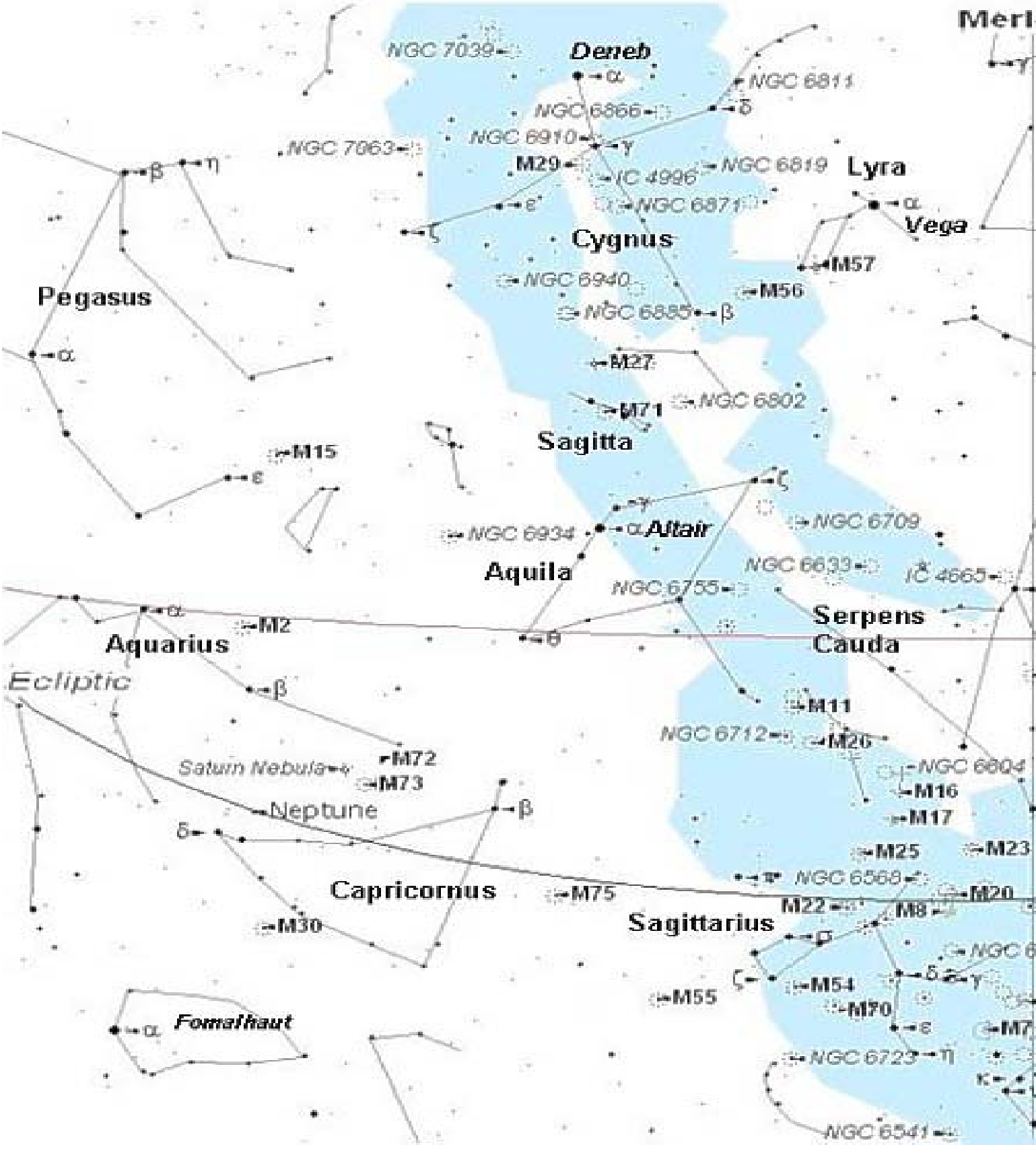
15 June	46% lit	26" diameter	
01 July	35%	32"	
15 July	23%	39"	After 15 July Venus is much lower in the W
01 Aug	08%	51"	Venus reaches Inferior Conjunction 18 August

June 12-13: bright Venus passes through M44 the Praesepe in Cancer
18: Venus and the Crescent Moon make a nice pairing with Saturn nearby after dusk
30 – July 1st Venus and Saturn are less than 1 degree apart in the evening sky
July 13-14: Venus in Leo comes within 2' of Regulus, passing just S of the star

Mars: The Red Planet is following the Sun eastward during the summer: in June it is in Pisces; in July, Aries and in August it enters Taurus. Mars is in the morning sky about 20 degrees above the E horizon at dawn, slowly moving closer to Opposition on December 24th:

June	15	mag.	+0.8	diameter	6.0"
July	01		+0.7		6.3"
July	15		+0.6		6.7"
Aug	01		+0.5		7.1"
Aug	15		+0.4		7.5"
Aug	31		+0.3		8.1"

The Early Su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NGC 6940
M56
Pegasus
NGC 6885
M27
M71
NGC 6802
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Altair
NGC 6709
Aquila
NGC 6633
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Serpens
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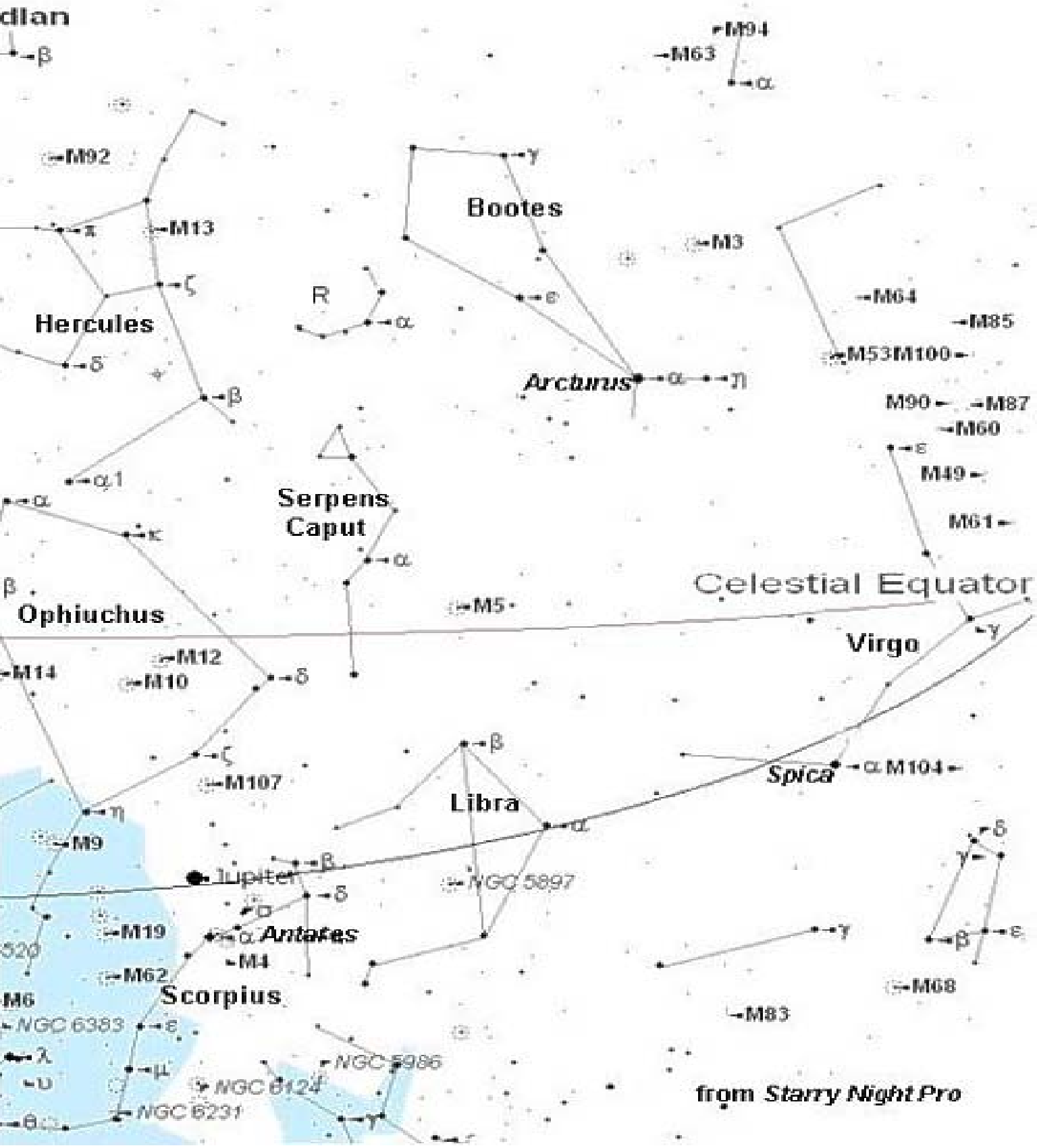
ummer Sky

by Mike Spicer



The Sky this Month (Continued)

Jupiter Jupiter, at opposition on June 5th, continues in Ophiuchus through the summer and fall, rising before sunset and visible low in the S. It is not favourably placed for imaging but 2007 has seen some remarkable changes in the cloud bands, well worth watching.

	Magnitude	Diameter	Distance (AU)
June 15	-2.6	46”	4.31
July 01	-2.5	45”	4.38
July 15	-2.4	43”	4.50
Aug 01	-2.4	42”	4.70
Aug 15	-2.3	40”	5.00
Aug 31	-2.2	38”	5.20

Jovian Moons The four great Jovian Moons Io, Europa, Ganymede and Callisto are visible in any telescope. Their orbits are parallel to Jupiter’s equator, which is tilted only 3 degrees. Thus the moons seem to move from one side of Jupiter to the other in almost straight lines which bring them into eclipse behind the planet, or transit (passing across the face of Jupiter). The exception this year is Callisto, which is so distant from Jupiter that it passes above or below the planet’s disk as it orbits.

Transits and Eclipses Jupiter at opposition means that for the rest of June, as a moon transits the planet it will cast a shadow on the cloud bands of Jupiter very close to the moon itself; as Jupiter moves to quadrature in July, the shadows will appear to follow the moon at an increasing distance. Often the shadow is more noticeable than the moon itself during a transit.

There are some transit event start times well worth watching (transits last two hours):

June 9th 03:45 am – a double transit before Jupiter sets – see Ganymede at least!
June 10th 11:40 pm – Io and its shadow
June 18th 01:35 am – Io and its shadow
June 19th 08:30 pm – Io and its shadow
June 26th 09:45 pm – Io and its shadow
June 29th 01:10 am – Europa and its shadow
Canada Day after dusk the 4 moons will be lined up E to W in order of distance: I, E, G, C
July 4th 11:20 pm – Io and its shadow
July 6th 11:20 pm – Europa’s shadow (now trailing the moon by 35”)
July 11th 01:00 am – Io and its shadow (racing the GRS across Jupiter’s disk)
July 12th 07:40 pm – Io and its shadow
July 26th 11:15 pm – Io and its shadow

The GRS: The Great Red Spot has become darker and easier to see this year. The GRS can be observed crossing the Central Meridian of Jupiter at the following times:

June	10	00:20hr	July 01	02:40 and 22:40	20	23:40 hr	
	12	22:00	04	00:10 and 20:00	21	23:45	
	14	23.30	06	02:00	23	00:45 and 20:45	
	17	01:30	08	23:30	25	22:25	
	19	22:45	09	19:30	26	18:15	
	22	00:20 and 20:20	11	01:00 and 20:50	28	00:15 and 20:00	
	24	02:00 and 21:45	13	22:25	30	21:30	
	26	23:20	16	19:45			
	29	01:10 and 21:45	18	01:30 and 21:30			

The Sky this Month (Continued)

Saturn: The most beautiful object in the sky is slowly moving westward to meet Regulus in the constellation Leo. Alas, the Sun will spoil this meeting as it catches up with both star and planet before the end of August. The moons of Saturn are a sight not to be missed and of course the great ring system is especially "3 dimensional" now that shadows of the rings on the planet, and of the planet on the rings, are especially pronounced. On July 16th the thin crescent Moon will be 1 degree S of Saturn, an imaging opportunity.

Date	Magnitude	Disk diameter	Distance	Ring tilt
Jun 15	+0.5	17.5"	9.7 AU	14.0 degrees
July 01	+0.6	16.8"	9.9	13.5
July 15	+0.6	16.5"	10.1	12.8
Aug 01	+0.6	16.3"	10.2	12.0

Uranus: in Aquarius all year, shining at magnitude +5.8 with a lovely greenish-blue disk 3.6" wide. In mid-June Uranus is in the same high-power eyepiece field of view as star 96 Aquarii, a double star (magnitudes 5.5 & 10.3, separation 10") over 110 light years away. Uranus then moves West through July and August, ending up just 15' NW of 4th magnitude Phi Aquarii. Uranus reaches opposition on September 9th.

The Moons: Uranus is tilted more than 90 degrees to our view, so the moons appear to move in a line up and down, parallel to the planet's equator. The major moons, little Miranda and the larger four: Ariel, Umbriel, Titania and Oberon (in order of distance) are easily imaged using a 80mm or larger refractor at high power. The moons will appear like a row of tiny 15th magnitude diamonds strung out in a line as far from the planet as 40".

Neptune: in Capricornus all year, declination -14.5 degrees and much lower in the sky than Uranus, Neptune appears as a 7th magnitude blue star; larger telescopes reveal the planet as a blue disk almost 2.5" in diameter. Neptune has one moon visible in small telescopes with imaging equipment: 13th magnitude Triton 2,700 km in diameter, in a tight almost circular orbit 12" away from the planet.

Minor Planets: Two of the largest asteroids are easily visible this summer:

Vesta is a naked-eye yellowish object in Ophiuchus. In early June it passed within one degree of the globular cluster M107; it will be less than one degree W of 5th magnitude 49 Librae by mid-July (they will appear to be the same brightness and colour), half a degree from 4th magnitude Nu Scorpii in the first week of August and just 1.3 of a degree N of Jupiter at the end of August. There's a map showing the curved apparent motion of Ceres this summer, in the *Sky this Month* PDF file in **TOOLS** on our web site.

Juno is 10th magnitude, 100x fainter than Vesta but easy to see in a small telescope, following a straight line course in the constellation Virgo this summer. It is 1 degree NW of 3rd magnitude Delta Virginis on 10 June and moving slowly east. It will be in the same eyepiece field of view as 3rd magnitude Zeta Virginis by 12 August, having moved 10 degrees in 2 months.

Meteors: This is the year to watch the great **Perseid Meteor Shower** because the peak days occur during the weekend of August 11-12 so you can sit up late to watch (the best time is after midnight) and unlike last year, there will be **no Moon** to interfere. You don't need any astronomy equipment, just a lounge chair. Check for green meteor trails and bolides (meteors that explode before they burn up).

Practical Considerations for a New Scope User—by Steve Germann

On May 18th I took my 4.5 inch Newtonian loaner scope (generously lent by Mike, but it feels like mine own now) out to Binbrook for a romp in the sky. It provided me with plenty of low stress opportunities for getting to know how to work with a scope.

First, i had to collimate the viewfinder. I first considered some red lights on radio towers near the horizon but turned out i could not get more than one in the scope at a time, so i was unsure which i was looking at. So instead i found a street light about a mile away and used that.

I am spoiled by my binoculars. Their ease of positioning makes them a breeze to point. I am definitely going to mount my laser on the scope body so i can use that for aiming, and consider getting a quickfinder or other wide angle finderscope. The first real test of the viewfinder was Mercury, low on the western horizon. I could see it in the sky without a scope and eventually brought it in with the scope.

Which brings me to the second problem: In my excitement, I neglected to bring some of my supplies, including my star atlas and red flashlight. (The red flashlight turned out to be in my glove compartment but i did not see it)

I think i am going to outfit a carrying case for all the stuff so i won't just jump in the car half ready next time.

The finderscope was out of focus but one of the advantages of taking a scope out to Binbrook is the availability of knowledgable people who can help. After learning how to adjust the focus, I was off to the races.

Of course, I had to collimate it again. However, I was able to see Saturn at last. The scope and eyepieces do it justice. I could not see the cassini division, but part of that was due to unsteady air. Confident in my collimation, i pressed on towards more challenging finds...

I saw the Moon, Venus, Mercury, Saturn, M44, M13, Antares, and Jupiter. I looked for comet lovejoy near Ursa Minor but could not find it.

I had a chart for Vesta in my pocket but without the star atlas i could not fish up the right part of Opiuchus to look in.

Things began to dew over at about midnight, and i was packed up and on my way home by 12.30 am.

It was nice to have dark adapted eyes. I could almost read by the skyglow from Hamilton.

Wearing 2 jackets kept me pretty warm. I got a few eyecup smudges on my glasses. I think my reading glasses might be a better choice next time.

I had some problems with this particular scope. There's a lot of play and backlash in the drive mechanism, so touching the focuser causes the scope to move.

Which would not be a problem except i am pretty sure i have to refocus when i change eyepieces. I have to verify that later when there's no dew.

I was impressed by how hard it is to change to a different eyepiece for more magnification and then find the object again at higher power.

I think i will try setting the tripod lower so i can sit. I want to spend more time looking at things.

A folding table of some kind will also be of help.

So for next time: I want to hunt down some of the more finicky telescopic objects; The Sky This Month provides a bunch of good targets to try.

My new list of essentials includes star charts, reading glasses, a red flashlight, and spare batteries.

My plan is to get there early enough to do all the setup an collimation in daylight, back the car in so it can be driven straight out (and not shine too much light in the process), park closer to where i want to put the scope to simplify setup, ensure rock solid collimation of the finderscope, and to set up the tripod lower and try to sit while observing. I plan to set the crosshairs on the finderscope to match the motors on the drive, and to have an audio recorder handy to allow me to keep notes. My digital camera has a record-audio mode that is pretty easy to use.

I became aware of some things i need to learn that will make it easier to navigate in the stars. A good idea of the size of the scope view at various magnifications is very helpful, and to have a good idea of the brightness of various chart-stars in the scope will make navigation in star charts much easier (or possible).

All in all it has been a fine adventure. I hope some of my observations will prove helpful to those who follow. I know for sure i learned a lot.

There's No Such Thing as the Moon!—by Jackie Fulton

I had just discovered astronomy, and as most new astronomers eager to share their new-found passion with anyone who would listen. My family thought it 'odd' but would listen to my 'revelations' with polite interest. My most ardent followers seemed to be my nieces and nephews. They would listen quietly and then ask questions after I described my latest (and greatest) night of observing.

Late last Fall I was asked to spend some time with my brothers three children so he and his wife could attend a special event.

I had been promising Gregory, Katie, and Andrew a night of observing.

Tonight was the night. We would look at the Moon. My Little Nexstar, poised and ready.

We were at Grandmas, so after dinner we went out on the front steps to check the sky, anticipating the Moon's arrival.

As luck would have it, with most observing nights of late, the clouds had started to roll in. Soon the sky was a sea of white fluff.

I stood at the bottom of the steps looking upward for a sign ....any sign.

Six year old Katie-belle sat on the top step. Her hair was wild from standing on her head, her little glasses crooked on her nose, arms nestling her chin. She began to figit with frustration.

"But WHERE IS the Moon Aunt Jackie? I can't see it. WHEN is it coming?"

"We'll just have to wait and see", I reassured her.

Four year old Andrew, small for his age, jumped and bounced around us.

"You're making it up! You're making it up! Its not true, Aunt Jackie.

There's NO such thing as the Moon."

Andrew appeared just then, stood beside me, and joined the search skyward.

With all the self assurance and confidence of any eight year old boy, he replied, "Don't pay any attention to HIM Aunt Jackie. He's just never seen the Moon.....'cause he's to short."

Member of the Month—Doug Welch—by Jacob Steckner

I'm going to let Dad write this article since I'm pretty new to the club and don't know too many people at the HAA other than Alexa. But it's hard to write about her since she wrote about me last month and apparently "no touch backs" applies to both the game of "it" and this column too...

He said something about wanting to write about Doug Welch. I've met him a couple of times and he's always saying funny things and laughing - about physics and astronomy. Man if they'd only teach science that way at school. Last time I saw him he had this weird box that was plugged into his computer and measured the spectrum of different lights he had.

He then showed my Dad this planetarium program on his laptop that Dad then went and downloaded that night when he got home.

Next day we were zipping around the sky, showing constellation pictures, making the Sun go across the sky really fast, and stuff like that.

That's the thing about Doug it seems he's always doing interesting stuff like that and then shares it.

One time he even had Dad be a "slave" or something like that. He showed me how he ended up typing in piles of numbers to help him study stars that change in brightness.

Dad told me about those, but I thought he had to observe them with his telescope. But somehow Doug has him helping others use old observations that someone one wrote down a long time ago, before they had digital cameras. Leave it to Doug to figure out something interesting like that, Dad said.

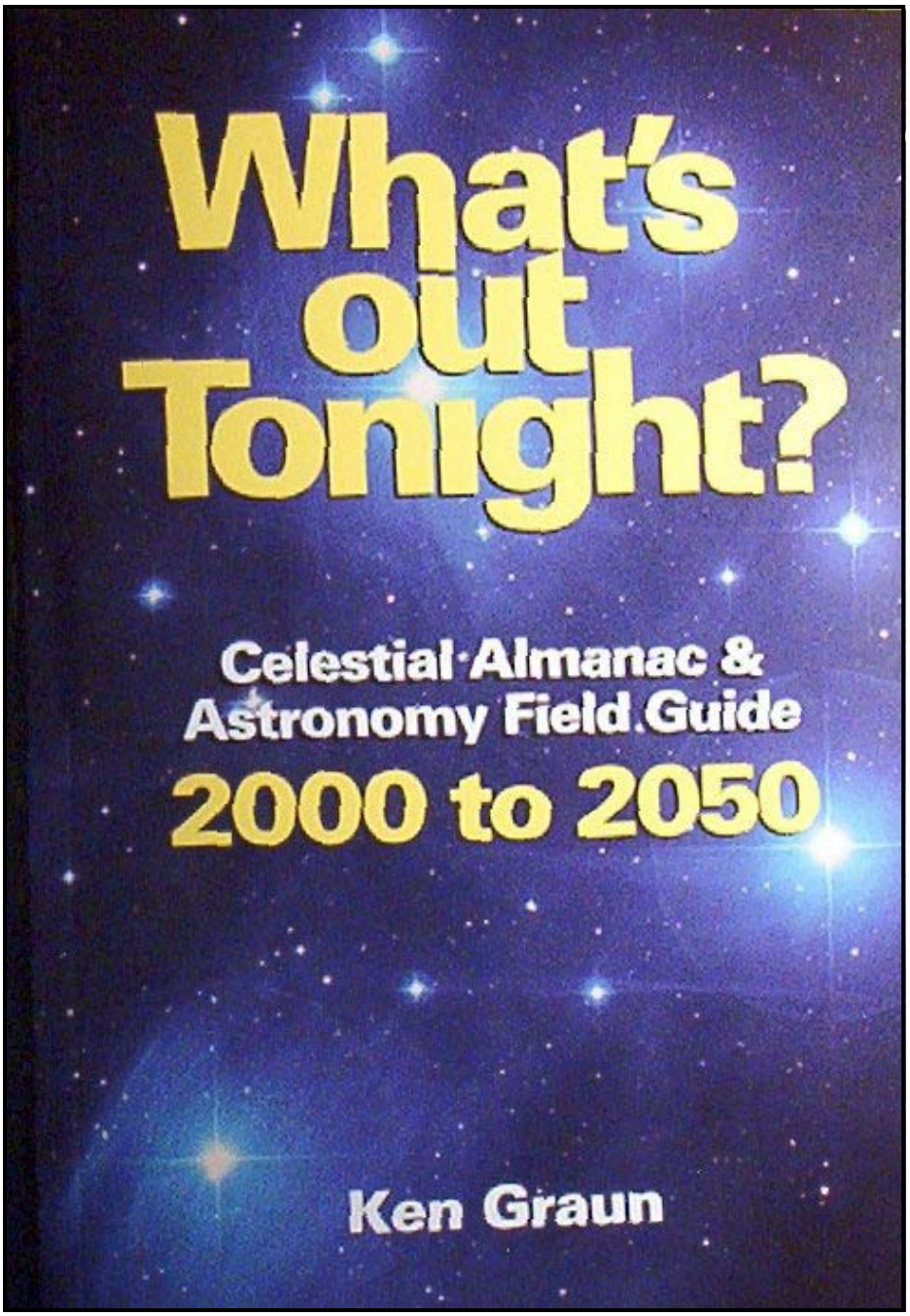
He actually seems to want to do more stuff like that with Doug, but he's often too busy for that.

Dad said that Doug also often gets really good speakers for the meetings and that he's been doing it for a long time. (Apparently Doug helped start the HAA before I was even born and so was one of the first members.)

I think the meetings are pretty good because I've been lucky enough to win some door prizes - Dad hardly ever gets any. Anyway, he says these speakers always talk about the latest in astronomy including their own work and answer his questions. I think it's good they do that and help us understand too.

Oh, Dad, you were supposed to write this. I guess I took up all your space. Get it, took up all your "space"... Hmm. Dad says Doug's astronomy jokes are better than mine and that I better stop now.

What's Out Tonight—Book Review by Mike Spicer



This new publication from Ken Press is billed as a Celestial Almanac and Astronomy Field Guide with information accurate to 2050 AD. That's a rather unique approach to a star-gazer's needs at a time when the annual RASC Observer's Handbook provides for only a sliver of the time and a few of the matters covered by this book. Ken Graun's book is 400 shiny 6.5" x 8.5" magazine-style pages with a soft, water-repellant cover - roughly the same size as the Pocket Sky Atlas but a bit heavy to put into a coat pocket.

The content is divided into the following colour-coded sections:

1. **Overview of the Universe;**
2. **Tables (designed for observers with data on only the 16 largest asteroids, for example);**
3. **Celestial Atlas of all 88 constellations in 12 pages with stars to mag. 4+ named;**
4. **Star Atlas Tirion-style showing the sky month by month with details of objects to view;**
5. **Intro to Astronomical equipment: telescopes, mounts and eyepieces;**
6. **The Moon: 40 pages of colourful maps, pictures and information;**
7. **The Planets: 80 pages of tables and data on observing the planets; (for example, showing the planets at sunrise / sunset for each year from 2000 - 2050);**
8. **Meteors and Comets;**
9. **The Sun, including tables for all solar and lunar eclipses to 2050;**
10. **DSO's, starting with Messier's Catalogue, a list of Double Stars and Variable Stars, proceeding to over 30 of the most spectacular DSO's with full-page photographs, finder charts and informative**
11. **Tables (eg: times of sunrise and sunset) and an extensive astronomical glossary.**

This is a very helpful source for those who like information looking ahead several years. The book has gathered together in one place, charts, spectacular photographs and background information available on the web that will be of interest to the observer. It's an aid I keep on my desk when preparing "The Sky this Month" - I'd recommend it if it didn't cost C$60.00

HAA Marketplace!

Velbon Sherpa 250n Semi-Pro Tripod - $60.00

Optex T-25 Table Pod - $20.00

Homemade DewHeat Straps - $12.00ea

5watt and 7watt version available

for 80mm OTA If interested contact Tim Harpur – (905) 870-3862

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More great deals on telescopes and eyepieces by Mike Spicer. If you need equipment, chances are Mike can help you with good deals and great advice. — DeBeneEsse2001@aol.com

Event Horizon— Ten Years ago

Telescope Haute Couture by Clive Gibbons

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-Cassegra! in t elescope) 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.

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 “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.

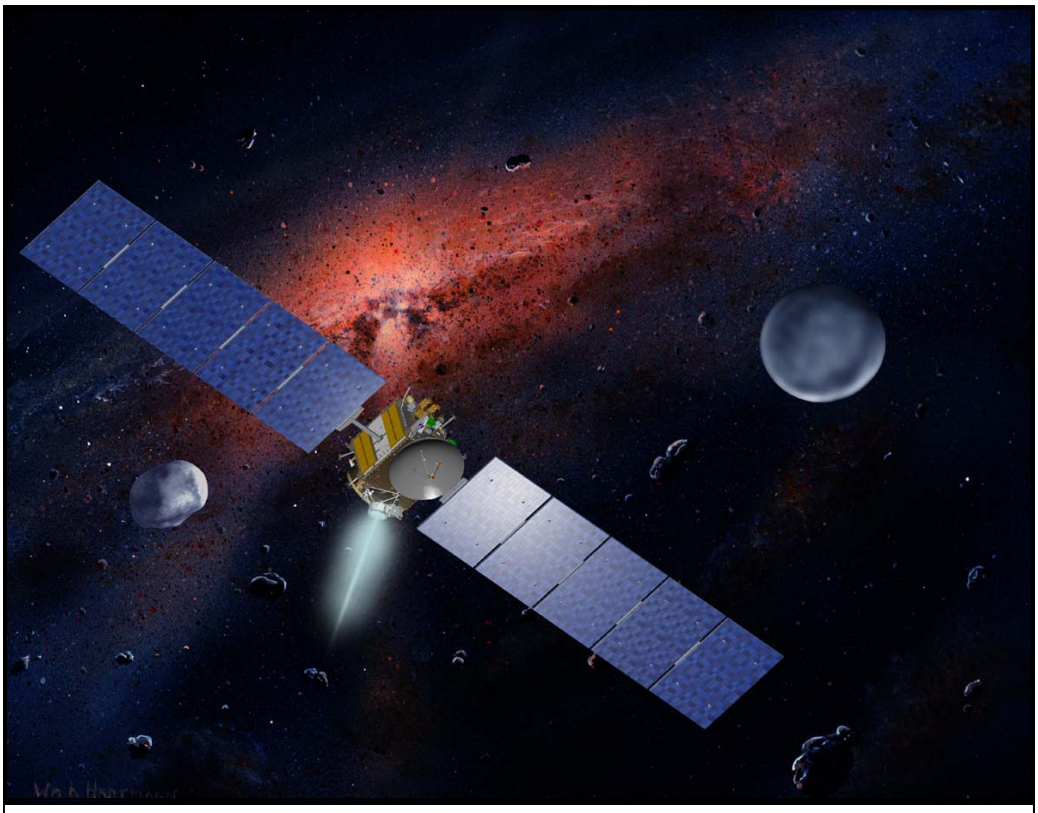
All this really illustrates is how the marketplace's priorities can change, for whatever reasons. Smart advertising can account for some of the swings in “telescope fashion", but it's more than that. Sure, a big telescope will gather more light and show you more, but there's much to be said for extreme 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 ge! tting 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!

The Ions of Dawn by Patrick L. Barry

This summer, NASA will launch a probe bound for two unexplored worlds in our solar system's asteroid belt—giant asteroids Ceres and Vesta. The probe, called Dawn, will orbit first one body and then the other in a never-before-attempted maneuver.

It has never been attempted, in part, because this mission would be virtually impossible with conventional propulsion. "Even if we were just going to go to Vesta, we would need one of the largest rockets that the U.S. has to carry all that propellant," says Marc Rayman, Project System Engineer for Dawn at JPL. Traveling to both worlds in one mission would require an even bigger rocket.

This is a trip that calls for the *un*conventional. "We're using ion propulsion," says Rayman.



Artist's rendering of Dawn spacecraft, with asteroids. Largest are Vesta and Ceres. Credits: Dawn spacecraft—Orbital Sciences Corporation; background art—William K. Hartmann, courtesy UCLA.

The ion engines for the Dawn spacecraft proved themselves aboard an earlier, experimental mission known as Deep Space 1 (DS1). Because ion propulsion is a relatively new technology that's very different from conventional rockets, it was a perfect candidate for DS1, a part of NASA's New Millennium Program, which flight-tests new technologies so that missions such as Dawn can use those technologies reliably.
"The fact that those same engines are now making the Dawn mission possible shows that New Millennium accomplished what it set out to," Rayman says.

Ion engines work on a principle different from conventional rockets. A normal rocket engine burns a chemical fuel to produce thrust. An ion engine doesn't burn anything; a strong electric field in the engine propels charged atoms such as xenon to very high speed. The thrust produced is tiny—roughly equivalent to the weight of a piece of paper—but over time, it can generate as much speed as a conventional rocket while using only about 1/10 as much propellant.

And Dawn will need lots of propulsion. It must first climb into Vesta's orbit, which is tilted about 7 degrees from the plane of the solar system. After studying Vesta, it will have to escape its gravity and maneuver to insert itself in an orbit around Ceres—the first spacecraft to orbit two distant bodies. Dawn's up-close views of these worlds will help scientists understand the early solar system.

"They're remnants from the time the planets were being formed," Rayman says. "They have preserved a record of the conditions at the dawn of the solar system."

Find out about other New Millennium Program validated technologies and how they are being used in science missions at http://nmp/TECHNOLOGY/infusion.html . While you're there, you can also download "Professor Starr's Dream Trip," a storybook for grown-ups about how ion propulsion enabled a scientist's dream of visiting the asteroids come true. A simpler children's version is available at http://spaceplace.nasa.gov/en/kids/nmp/starr.

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Special Notice

As you may have noticed from our latest financial report, we need to curb our club's expenses. One of our largest expenditures is the club newsletter, Event Horizon. The cost to print and mail the newsletter is almost $1500 annually! At a recent council meeting, it was recommended that the newsletter no longer be mailed to members. Anyone with Internet access can download the latest newsletter (and any previous ones) from the club's website: www.amateurastronomy.org. Having the newsletter available online also allows us to publish it in full colour.
If you do not have Internet access, **you will still be able to pick up a paper copy at each meeting.** Copies of the newsletter will also be available to any newcomers at our meetings. **If you do not have Internet access, and cannot attend the meetings, please call Ann Tekatch at 905-575-5433 and she will place you on the special mailings list.**

The Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA) The HAA is an amateur astronomy club, for people of all ages and experience levels, dedicated to the promotion and enjoyment of astronomy . 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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Next Meeting of the HAA is September 14th, 2007
7:30 PM @
The Hamilton Spectator

Meeting space for the Hamilton Amateur Astronomy Club provided by
Teamsters Local 879
and
The Hamilton Spectator

Article Submissions

The HAA welcomes your astronomy related writings for the Event Horizon newsletter. Please send your articles, big or small, to:

editor@amateurastronomy.org

The submission deadline is two weeks before each general meeting.