

Event Horizon

April 2005

Volume 12 Issue 6

Chair's Report

by Glenn Muller

Drum roll. The envelope, please. And the winners of the HAA Student Scope Contest are Lacey Chapman from Dalewood Public School and Michael Colarusso of Cardinal Newman Secondary School. In the Senior section, Michael attained the highest score, but for the Junior category, club members had to break a tie by choosing from four excellent essays. While we wished we could have given all the entrants telescopes, it was finally decided that they each deserved to be given memberships. So, I would like to extend a welcome to all of our brand new members, congratulate our winners, and thank everyone who participated in making this inaugural contest such a success.

This past week the HAA also sponsored an astronomy award in the Bay Area Science and Engineering Fair (BASEF). Michael Jefferson kindly took on the role of judge, for us, and selected Joseph Almonte as our winner for his exhibit titled Mission Mars: Discovery Mars. Once again, Jim Winger provided a book (The Backyard Astronomer's Guide) to add to our list of prizes.

April promises to be yet another busy month with a range of activities. We are still in the prime of Messier hunting season and, at the time of writing, I'm hoping for some clear skies on the next few weekends so we can open Binbrook Conservation Area for some group observing.

April 16th is Astronomy Day and, during the afternoon, the HAA will be taking part in McMaster University's Science In The City For Kids event, then, in the evening we plan to host the Public Viewing Night at Bayfront Park. Not only do we hope to see you at these events, but we are also looking for volunteers to help out. If you can commit to that date, Doug Welch would like to know. You can contact Doug at second-chair@amateurastronomy.org

Please note that for our next meeting, in May, Friday the 13th to be exact, we will once again be at the Teamster's Hall on Parkdale Avenue North. I will send you a reminder closer to that date, and Anthony will post directions on the website, but mark it on your calendars and remember to "come around the back".

Finally, I'd just like to re-iterate that this is your club and if there's anything you like to see, do, discuss, present, or write about, by all means let me know. The council works hard to offer items of interest but your input is important and always appreciated. Hope to hear from you soon. Clear Skies!

Glenn invites your comments on these topics or any aspect of the club. He can be reached via chair@amateurastronomy.org



Meeting space for the Hamilton Amateur Astronomy club provided by
The Hamilton Spectator
thespec.com

Subscription Offer for Members

Members of the club are eligible for a discount on Sky & Telescope Magazine subscriptions. The regular annual rate is \$49.95 (U.S.). HAA members pay only \$39.95 (U.S.).

Contact Ann Tekatch for information on how to sign up; tekatch@sympatico.ca 905-575-5433

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Upcoming Events

Event: Science in the City

Date: Saturday April 16, 2005

Location: McMaster University

Information: secondchair@amateurastronomy.org

Event: Public Observing

Date: Saturday April 16, 2005 evening

Location: Hamilton Bayfront Park

Admission: Free. Everyone is welcome!

Event: HAA meeting

Date: Friday May 13, 2005 7:30PM

Location: The Teamsters Hall.

Admission: Free. Everyone is welcome!

Event: Niagara Centre, RASC Annual Banquet 2005

Speaker: "An Evening with Jay Anderson". Noted solar eclipse expert, astro-photographer and meteorologist.

Date: Saturday, April 23, 2005

Location: Delphi Banquet Hall, 4414 Portage Road, Niagara Falls, ON.

Admission: Banquet tickets \$45.00, Speaker only \$15.00

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HAMILTON AMATEUR ASTRONOMERS

Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA).

The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels.

The cost of the subscription is included in the \$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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Email Reminder notice

We send email reminders before each meeting which describes the location, time and topic of the general meeting.

If you're not on the list, make sure that you receive your reminder by sending a note to: publicity@amateurastronomy.org

Observing Notes

by Mike Spicer and Glenn Muller

OBSERVE IAPETUS APRIL 3rd... by Mike Spicer

Sunday night April 3rd, if it's clear, you will have a splendid opportunity to see Saturn's elusive Iapetus - the half-sooty, half-icy moon that varies in brightness depending on what side of Saturn it is on.

No matter what telescope you use to observe Saturn, the rings and Titan are always visible. The evening of 3 April, 8th magnitude Titan will be 15" of arc south of 11th magnitude Iapetus, making the faint moon easy to locate that night. In fact, if you have a larger telescope, you can catch a glimpse of 12.8 magnitude star GSC1372-1056 as well. It will be directly between Titan and Iapetus (the three make a cute triangle about 15" on a side - like a "triple star", but only the night of April 3rd!).

I do hope while I am away you have clear skies, warm weather and a chance to get out observing! I can always be reached by email: deBeneEsse2001@AOL.com

OBSERVER'S NOTES, 29 March 05 by Mike Spicer

No one can complain that we have not had ample observing opportunities in March! Add to that the remarkable warming trend that has brought us into Spring, and I am sure people soon will be asking to have observing sessions at Binbrook.

Last night the sky was clear of clouds but damp, with low transparency (ie: few stars visible) but excellent seeing (the air was still with little twinkling). An RASC member joined me for some CCD imaging of Jupiter and Saturn using the Meade Deep Sky Imager and Autostar Suite software - what a joy to use! What depth of images in a single 15 second exposure under poor conditions! We imaged with a 3.5" apo refractor using a 5x barlow and got some very good results; of course, the 11" scope with no barlow gave excellent results, too.

Using a binoviewer to split the image into two, we imaged with the DSI on one side, saving the images on computer; simultaneously on the other side we obtained a VCR movie of Saturn using the remarkable monochrome electronic eyepiece. Using the VCR image it was easy to keep the images centred in both the computer and TV screen at the same time. Practice is important to get the routine down, setup, focus, wiring, imaging... waiting for a great night when faint deep sky objects can be collected. From within Hamilton I have CCD-imaged 14th magnitude galaxies on clear nights.

My observing buddy asked, what should one expect from paying an astronomy club membership? Magazines, newsletters, handbooks, observatories and the like are really a minor benefit of joining a club. Far more important are that the club (a) is actively involved in observing, (b) makes members feel informed and welcome, (c) offers public events to make the community aware of our great hobby! I am proud to say that this RASC member and I agreed - Hamilton Amateur Astronomers is an excellent club!

IMAGING THROUGH CLOUDS ON EASTER SUNDAY March 27 by Mike Spicer

I had such great success Friday and Saturday night that I set up before sunset on Sunday under blue skies. I wanted to try out the Meade DSI (the US\$299 Deep Sky Imager) so I will be able to image galaxies with it later on.

The DSI is a small, lightweight but very sensitive CCD imaging system that relays information at USB2 speeds to a computer running Meade Autostar Suite, imaging and processing software. The software collects images, automatically selects the best, stacks and aligns them for you. You don't need a big scope to get great images: great DSI image collections exist using 70 and 80mm refractors! For Saturn I used a 2x TeleVue barlow on the 11" scope to get a very large, detailed image of Saturn showing the crepe ring. I got the telescope aligned just after sunset. The ED80 guidescope can find alignment stars before dark so I won't lose imaging time.

I set the 11" telescope on Saturn and went inside to the computer. Three wires ran out to the scope: the USB cable to the DSI, the Nexstar controller cable and the JMI electronic Smartfocus cable. I sat at the computer, imaged Saturn, kept the planet's image centred and with the JMI control, focused the image.

Well, it clouded over almost right away. I could tell from the poor quality of the images (I went outside to make sure... no Saturn in the ED80 guidescope!). And yet the DSI continued to obtain images of Saturn through the very thick cloud cover. Poor quality images, but unmistakably Saturn down to the Cassini Division. I brought the scope in after 3 hours of overcast sky... and then the cloud started to break up!

OBSERVER'S NOTES, 26 March 2005 by Mike Spicer

Saturday night 26 March was clear though the seeing was not great. Still, Jupiter's Great Red Spot was due to transit (cross the middle of Jupiter's disk) immediately after Io appeared from behind the planet at 9:35 pm EST.

I set up a CMOS camera (the Meade Electronic Eyepiece I have mentioned at HAA meetings) and used a long RCA cord to plug into a TV/VCR instrument inside the house. This is an easy-to-use and inexpensive way to obtain excellent images no matter what size telescope you have. I used an 11" SCT but a similar-sized image can be obtained on the Orion ED80 refractor using the same camera with a 5x barlow.

Why record on VHS tapes? It is inexpensive and easily done.. CMOS cameras are easy to obtain (just ask me to try one out). The camera is lightweight, runs on a 9V battery and fits into the scope just like an eyepiece. The 1.25" barrel can be removed for use in a 0.965 eyepiece holder if necessary. Focusing the image is done quickly in real time. Everyone has a TV and VCR; the VCR tapes will hold up to 2 hours of images and cost about \$1.50 each. Jupiter is bright enough to magnify in any telescope. Indeed, larger telescopes need an ND.9 or moon filter to dim the image.

Making a video record enables accurate transit timings of the various cloud features to be made. The use of a monochrome camera does not diminish the scientific value

of the recording. The images obtained are real, not manufactured “pretty pictures” and they require no processing. The video shows how Jupiter’s image changes with changes in seeing - at times incredibly detailed and at other times quite fuzzy (don’t change focus for this!). Video will also indicate incorrect polar alignment... the disk of the planet will slowly drift up or down if polar alignment is off, requiring declination adjustment.

I obtained some really good video of the GRS transit and Io peeping out from behind the planet. The number of prominent white spots in the South Equatorial Belt, and the very large dark “barge” in the NEB were well worth studying. I find that replaying the videotape permits one to study the features in comfort and in detail that is not available when sitting at the eyepiece of a telescope outside.

The A.L.P.O. (Association of Lunar and Planetary Observers) Jupiter Section has been discussing movement of the GRS and various spots. I wonder if HAA members would welcome a presentation on Jupiter observing and the results of transit timings of the various features on the Jovian planet. Perhaps you’d email me if you are interested in such having such a talk at an upcoming HAA meeting: deBeneEsse2001@AOL.com

OBSERVER’S NOTES, 25 March 2005 by Mike Spicer

Clear skies for Good Friday with an orange full moon rising a little after sunset and a Transit of Io across the face of a much-changed Jupiter, around midnight.

I set up the 11” SCT on an equatorial wedge just before sunset so the scope would be cooled down by dark. The sky stays blue for quite a while after sunset in March. It was my intention to make a movie of the transit of Io if weather permitted.

I observed the moon while it was still near the tree-line. A lot of birds and a few aircraft swiftly crossed the Moon’s face while it was low. I watched Saturn for an hour, 68° above the Southern horizon. Titan and Rhea were on opposite sides of the planet; Dione and Tethys formed a pair racing together ’round the planet; Enceladus and Mimas another pair making a symmetrical “V” pattern spreading out from Saturn like a flock of ducks. This may be my last opportunity to see Mimas, now almost 13th magnitude as Saturn and the Earth move apart. The little Death Star moon was favourably placed beyond the rings; with Saturn so high in the sky I glimpsed the Encke division in the A ring and the dusky Crepe ring was visible right around the planet.

Jupiter was only 6° east of the Moon, largely unaffected by Lunar washout and by 9 pm, no longer dogged by smog. Io and Europa were moving in opposite directions, Europa headed away from Jupiter, Io about to transit across the planet. After 8:30 pm Io was closer to Jupiter than Europa and the Jovian moons were strung out in order of their distance: Io, Europa, Ganymede and Callisto.

A transit across Jupiter takes about two hours, ample opportunity to try imaging with a variety of cameras. In the end the simple monochrome CMOS camera and a TV/VHS recorder proved quite satisfactory. It was surprising to see

the changes in seeing during the filming; at times the detail on Jupiter was breathtaking! Of course there was no trouble seeing Io itself, trailing behind its shadow.

I do hope we can start observing at Binbrook soon (have we seen the end of snowfalls?)

STAR ATLASES, 21 March 2005 by Mike Spicer

The sky clock predicts clear skies for tonight, anyone have plans to observe?

Every serious observer needs an atlas of the night sky on paper or on computer. My little note (below) about the upcoming occultation mentioned Right Ascension and Declination of the star but to find it one needs an atlas or planetarium software. Is a paper star atlas better than a computer atlas? Some excellent computer atlases are freeware; others cost US\$250...and are “upgraded” often ...are they worth the cost?

There are so many paper atlases, would it be useful to have a presentation on the different kinds, what they look like, particulars of what they offer and what they cost? I am thinking of a small booklet with “samples” of different atlases and information about them... a comparison that may assist making a purchase, if you don’t have an atlas already. Is that something of interest to the club? Let me know by emailing deBeneEsse2001@AOL.com

Saturday March 19 by Glenn Muller

Tonight’s Public Viewing at Bayfront Park is Cancelled - which is too bad because, all this week, the Moon has been around the highest elevation of its 18.6 year orbit cycle. High elevation = less atmospheric disturbance = steady seeing.

Last night, for example, I was able to bump power up to my maximum 342X with no hint of shimmer. Sunlit rims, lunar rays, craterlets, and domes could all be seen in fine detail. Highlights such as Rupes Recta (the Straight Wall), Vallis Alpes (the Alpine Valley), the Apennine Mountains, and 7300 ft Mons Pico (a monolith in Mare Imbrium - Sea of Rains) stood out in sharp relief.

We will try to schedule another Public Tour of the Moon, and the moons of Saturn and Jupiter, in April. By then, Jupiter will be better placed earlier in the evening and near opposition which should be a real treat!

Keep your eye on this board for future announcements.

OBSERVER’S NOTE, 20 March 2005 by Mike Spicer

Upcoming Good News! An Asteroid occultation (eclipse) of a star! A very favourable event occurs Saturday night April 2nd (well, early Sunday morning: 07h 38m UT) high in the Southern sky! It’s on the weekend, with a last quarter moon, great timing! The star is located just North of Jupiter, great location!

Star TYC 4957-0428-1 (magnitude 10.4) in the constellation Virgo, RA 13h 04m 30s, Dec -0° 06’ 02” will be eclipsed by Asteroid 86 Semele (magnitude 13.8). The star is visible in small scopes / large binoculars and is easily located between two 7th magnitude stars. The occultation will last almost 8 seconds starting 2:38 a.m. EST on Sunday April

3rd (if clocks adjust forward before Apr 2nd, then 3:38 a.m. EDT).

The occultation can be seen (if it's clear) on a line from Toronto to Simcoe. More detailed information is available at www.asteroidoccultation.com. I can mail information to interested parties who send their address.

You have never observed an occultation? Locate and watch the star; note the exact time it disappears/fades, and the exact time it reappears. Ideally you have a tape recorder running to record the beep beep of a short wave radio... and your excited "OFF!" and then "ON!" to record the event. Observers spaced on a N-S line from Toronto to Simcoe would collate their information and...remarkably, a cross-section of the asteroid appears! Anyone interested in timing this one? You don't have to be a member of the HAA to take part, we welcome any interested observer!

OBSERVER'S NOTE, 19 March 2005 by Mike Spicer

The clear sky clock for Friday evening indicated poor transparency with good seeing. If you can't have both, I think good seeing is more important. Transparency measures the amount of water vapour in the air and resulting light absorption that dims stars so you don't see fainter ones. Telescopes compensate for that by collecting more light to see fainter stars. But bad seeing... there's not much that can compensate for scintillating stars and "wavy water" planets.

Tonight's moon was right overhead after dark, reminding me how much easier on the neck and back it is to observe through a reflector rather than through a refractor. After all, the best view is overhead, through the least amount of atmosphere.

OBSERVER'S NOTE, 18 March 2005 by Mike Spicer

First Quarter Moon high (very high!) overhead at sunset marks the beginning of a 10 day period when imaging or even observing faint objects is suspended and we must focus on the Moon, planets, double stars and such. Fortunately we have several very interesting bright objects to look at while we wait for the Moon's brightness to diminish.

I set up a refractor to look at Jupiter early in the evening but clouds covered the sky before I could get good data with higher powers. After I brought the scope back inside, the sky cleared, so I hope you had better timing.

This week a number of HAA members (also members of the RASC) made the annual springtime tour of three well known Toronto astronomy stores: Kendrick's at 2920 Dundas Street, Efston Science (with the giant refractor on the roof, a big scope that does not work) and Khan's, the latter two stores on Dufferin Street near the 401. It's amazing how much astronomy stuff can be displayed in the small floor space at Kendrick's and Khan's! And of course Efston Science has about the most spacious store in Canada for scope stuff.

Kendrick's web site advertised discounts on eyepieces and stuff before we left, but when we got there, the eyepiece sale was over. There were still some Williams Optics 2" diagonals for \$139... a great price and no waiting. Efston Science had

some remarkable sales on telescopes (dobs, go-to setups and some other models). In fact, the very same DS80 electronic refractors our club is giving away next month as prizes, were for sale at \$399.00 each! And of course there is always a lot to check out at Khan's. The staff at each store was very helpful and eager to answer questions. Always good to visit the big three stores to the East. We had time to visit Sky Optics in Burlington on the way home, but I was reminded that it wasn't open. Perhaps another day.

OBSERVING NOTE, St. Patrick's Day March 17 by Mike Spicer

Last night (Wednesday) I set up before sunset because cloud was expected in the late evening (and it arrived earlier than expected!). I decided to set up a 5" apo refractor held by a go-to LXD-750 mount sitting on a Meade Giant tripod. The moon was almost directly overhead but I was able to sit and observe it comfortably. A good apo refractor will show little or no "false colour" even on the edge of the moon; a telescope with poorer optics will show a yellowish or purple "fringe" to the moon and the brightest stars. I'm not a lunar observer, so I was amazed to see the clarity of lunar features under high power in an apo refractor.

Another HAA member came over to observe Saturn and Jupiter with me. He brought clouds with him. Now, if you have a Large telescope, you can see through some cloud (a really big scope can see through thick cloud and even trees... well, thin trees). Saturn looked dim through the cloud but Titan was visible...until the clouds got thicker. We went inside and reviewed the .tiff images I had taken the night before. Thanks for your comments about the pictures, D. Please come again (leave the clouds at home).

OBSERVING NOTE, 16 March by Mike Spicer

Tuesday night was clear and fairly steady for observing. Just at sunset the Moon was high in the SSW and a beautiful crescent well worth observing. I recently bought John Westfall's photographic Atlas of the Lunar Terminator; it's a helpful reference for watching the changes as dawn rolls across the lunar landscape.

Saturn was particularly interesting with Titan and Tethys on one side of the planet and Dione and Rhea on the other, almost in a straight line. Enceladus was easy to spot. I thought I caught a glimpse of Mimas midway between Tethys and the outer rings. Mimas is faint and easiest to see when it is east or west of the ring system rather than above or below. Of course, seeing or imaging the fainter moons of Saturn requires your telescope to be in excellent collimation or the planet's glare becomes a "splash" of light that drowns the little diamonds out.

I spent an hour imaging Jupiter using a Meade colour DSI CCD on the Nexstar 11, saving images as .tiff files. A.L.P.O. is asking for observational reports of the remarkable changes taking place on the planet: (a) the southern portion of the Great Red Spot has darkened considerably - best visible with a blue filter; (b) the peculiar drifting of the Temperate Belt toward the polar region and a new Temperate Belt develop-

ing out of a large white spot...(c) a very large dark “barge” forming on the edge of the N Equatorial Belt. You should have a look!

OBSERVING NOTE 15 March by Mike Spicer

At last! Monday night was a rare chance to observe in excellent “seeing” conditions. The air was very still and the Orion ED 80 at very high powers showed two very faint perfectly circular diffraction rings around stars, just as a refractor should. I took this opportunity to “tweak” the Nexstar 11’s collimation until I could see perfect diffraction rings as well.

How does a 4” apo refractor compare to an 11” SCT? With great seeing, a 2.3mm eyepiece on the little refractor (260x or 80x per inch) showed a very large clear (though a little dim) Saturn, Rings A, B and C, the shadow of the planet on the rings, and the Cassini division right around the planet. A great eyepiece on a great little telescope with optics as good as a TeleVue 85. The Nexstar with a 4.7mm UWA = 600x showed a much brighter Saturn and a lot more of the fainter moons, but the refractor’s view was quite pleasing.

It was a night to go to town on deep sky objects. Hello, M57...off the NNE horizon at last; the Leo Galaxy Triplet of M65, M66 and larger, fainter NGC 3628... things most small refractors can see in detail from Binbrook Conservation area were visible as faint ghosts from my Hamilton backyard. Steady seeing lets you test your scope’s optics... for example, Epsilon Lyrae was split into 2 pair, a faint star visible between the pairs and a noticeable difference in brightness of the components of Epsilon 2, the southern pair. All in all the best observing night of the year so far. I hope you didn’t miss out!

OBSERVING NOTE 14 March 05 by Mike Spicer

Clouds in the late afternoon and threats of -14°C overnight ended hopes for a Sunday evening at Binbrook. After 9 pm the skies were clear and cold (with a little wind for discomfort). I set up two telescopes on the patio. One was a pretty Meade 80mm DS refractor - a prize in our club’s school writing contest that ends March 31st.

The telescope prizes will be presented at our April meeting at the Spectator auditorium I assembled two telescopes, powered them up with their Autostar controllers, then tested the optics of an 80mm against a 90mm using the same eyepieces. An 80mm achromat pointed at Saturn might reveal the Cassini division in the rings, Titan and one or more other moons under very good conditions.

Meade DS scopes with powered alt-az mounts are easy to use. Plunk the scope down and use the Autostar to move the tube without touching after you focus. I didn’t wait for the scope to cool down after aligning the 6 x 30 finder. With a 26mm eyepiece I could see Titan on one side of Saturn and Rhea on the other. The Cassini division and the planet’s equatorial belt was visible with a 4.7mm SWA even though the air was turbulent and the scope was still warm! The wide field of view in a 26mm eyepiece showed the greenish-blue star-like Eskimo Nebula one degree S of the planet (blinking

“on” as you looked away, like many planetary nebulae do).

Later when the scopes had cooled down, I observed Jupiter, two moons evenly spaced on either side. I was pleased the 80mm showed detailed and coloured cloud banding in the 4.7mm eyepiece (180x) and a 10th magnitude star just SW of Europa was plain to see despite bright city lights. I declared the prize “astronomically fit for service” with images almost as good as in a 90mm telescope I used for comparison purposes.

Contest results

March 31st was the closing date for entries in the Hamilton Amateur Astronomers Student Scope Contest. First conceived by Mike Spicer, who donated two Meade DS80 Refractors with electronic mounts, the contest elements were devised by Glenn Muller with suggestions from members of the HAA council. Anthony Tekatch translated it all onto the website and Gail Muller contacted the Hamilton school boards and sent out promotional flyers. There was even had some radio time on Hometown Radio 900 CHML.

The entries came from ten different schools and all scored high. In fact, to determine the winner in the Junior section, HAA members had to choose from four essays to break the tie for first place. A very tough decision.

Here are the two winners and their essays:

Junior Winner

Lacy Chapman, Age 12, Grade 7, Dalewood Public School

It would be really exciting to win a telescope from your organization. I have only had one opportunity to use a telescope in my life. Last spring I was at Onadaga farms and they had a really large telescope there. I was able to see the moon, some stars, and Jupiter. I only got to use it once unfortunately but I did observe that the moon was surrounded by a red ring. If I had my own telescope, I could observe the sky over and over again to see how it changes over time. Maybe an eclipse will happen soon. I watched a lunar eclipse before and it was really cool when the moon was completely dark. It would have been even more electrifying to have been able to see it close up with a telescope.

I have some books with space maps in it and I would enjoy seeing the constellations through a telescope. It sure would help me identify them better.

I would like to learn more about astronomy and how the Earth is part of an amazing universe. My interest in space ignited in grade 3 when I did an elaborate project

on the CanadaArm. I even wrote to the company that manufactured it for engineering specs.

Since then, I have often wondered if there is life on other planets, or on moons etc, like Jupiter's moon Europa. I did a project in Grade 6 about Jupiter and its' moons. In an experiment, I re-created the red spot with some milk and food colouring. The teacher really liked making the red spot and gave me a great mark, an A+. As you might have guessed, I am really interested in Jupiter and would like to be able to see it and its moons in more detail. I really hope I win this intriguing looking telescope that I am sure my whole family and friends would die to have the chance to look through too.

Senior Winner

Michael Colarusso, Age 16, Grade 10, Cardinal Newman High School

I would like to win a telescope because I enjoy viewing the night sky. I am beginning to express an interest in astronomy as I get older and I think that if I had a telescope it would further increase this interest. I am looking into the profession of astronomy, the telescope would help me decide whether I will pursue astronomy as a profession or just take it up as a hobby. It will help me achieve this because I will be able to view the heavenly bodies in the sky for myself rather than looking at pictures. I will begin to learn what the job requires me to do.

The telescope will help me with my studies as I plan to take as many astronomy courses as I can as I continue my education. The telescope will help me do the hands on work in the courses and this will have a large impact on my final mark.

There are many objects in the night sky, the telescope will help me to get a closer look at them. I would use the telescope to view Mars and the moon as they are the closest objects to earth I would like to view some of the features on these heavenly bodies such as the polar ice caps of mars and the sea of Serenity on the moon.

As well as awarding the telescopes to the winners, it was decided that all entrants would receive family memberships. The Club is also considering the feasibility of running similar contests in the future.

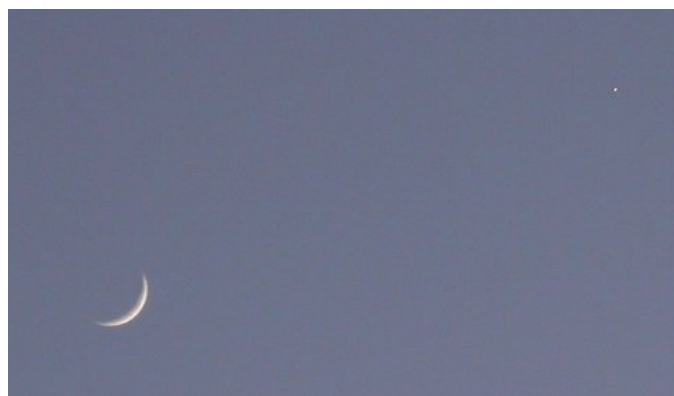
EyeCandy Photos by Clyde Miller



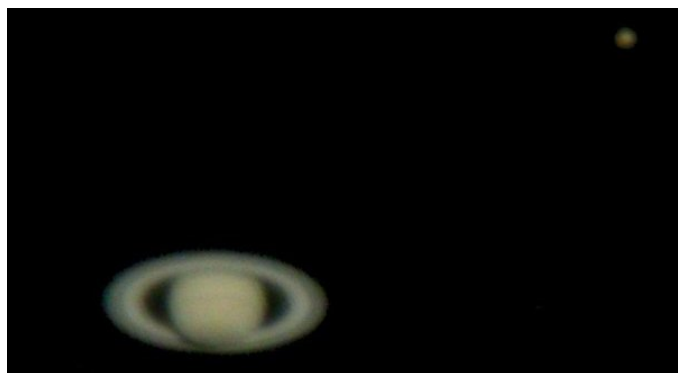
Saturn Mag -0.2 Ring incl 26.2deg 2004-02-15 2323h



1.6 Day Moon and Mercury Illumination 48 Mag -0.4



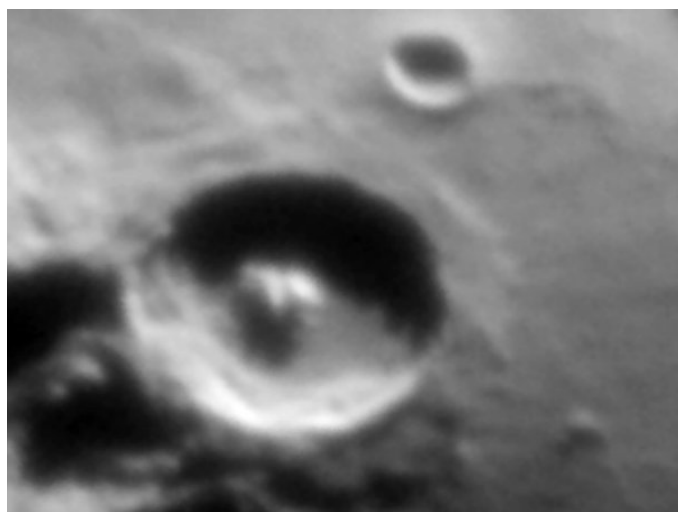
3 Day Moon and Venus 2004-01-29 1829h



Saturn and titan 2004-02-15 2323h b



M5 GCL NGC 5904 Mag 7 2004-06-20 2211h



THEOPHILUS



Venus Illumination 19 Mag -4.5 2004-05-11 2035h



Venus Illumination 70 mag -4.1 2004-02-15 1843h

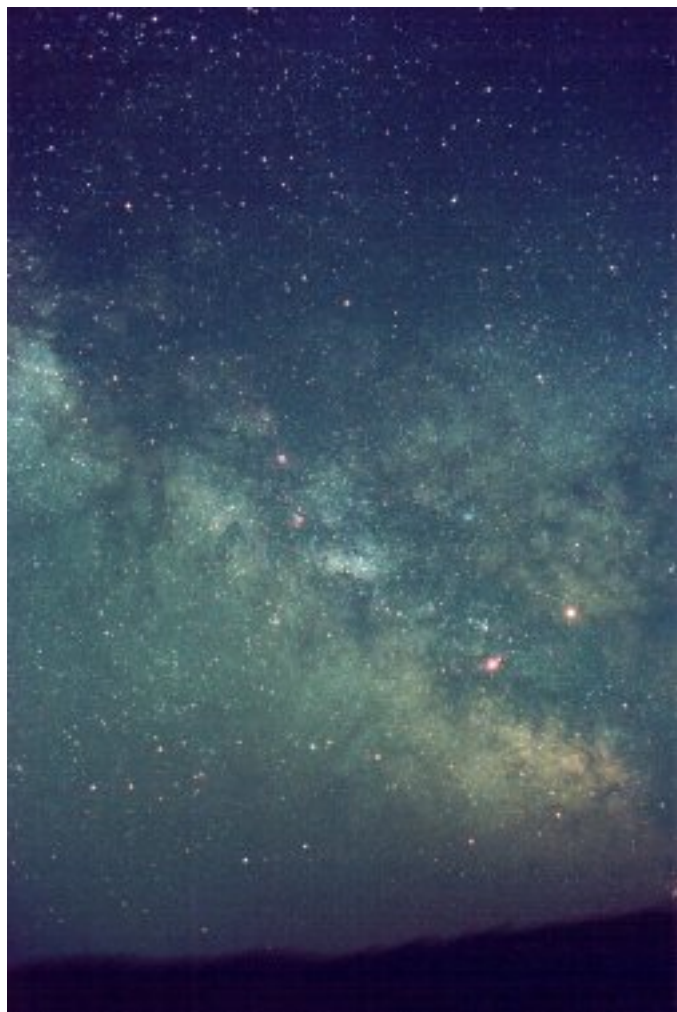
Web Watch



Title: Women Working on Mars: Get Involved in Robotics!

Description: View the archive of this webcast (RealPlayer required). Aimed at students that want to see and hear from a diverse group of girls and women involved in science and engineering.

Site: marsrovers.jpl.nasa.gov/gallery/video/webcast.html



Title: Bob Christmas' Astrophoto Web Page

Description: Here are updated night-sky photos from last fall, and in 2003.

Site: <http://home.interlynx.net/~bxmas/rpcmages.htm>

Star Spectrum

by Mike Jefferson

The equipment used:

- HIE B&W infrared film - 35 mm.
- Badura Rainbow Optics spectroscope.
- 35mm Olympus OM-2.
- 135 mm lens.

These are NOT good spectra. I forgot to use the IR focus, so they could be sharper, It was a cold night and I do not work well in those conditions. The film was $1\frac{1}{2}$ months old at room temperature and I wanted to get it used up before it spoiled. The spectral angles are poor (too sharp) and I did not form rectangles. The exposure times are often too short to get through 36 frames while the clear weather held. The light pollution problems could have been much diminished by waiting until a later hour, but there was time constraints. Spectropes have the annoying characteristic of finding light out of the field of view and placing it in the middle of your hard-won spectrogram!!!!

HOWEVER, despite the shortcomings, the bandwidth in these photos, allowing for glass lenses and varying magnitudes is about 3900 to 8700 Angstroms. They show the strength of radiation of each object in all parts of the visual and near-visual spectrum and make it possible to place an approximate classification on each one. Some of the most rewarding work is the annotation which comes afterward. This can be an educating experience on its own. The Orion Nebula was a surprise. I never would have guessed that I would capture it under suburban conditions. Such is the power of HIE film.



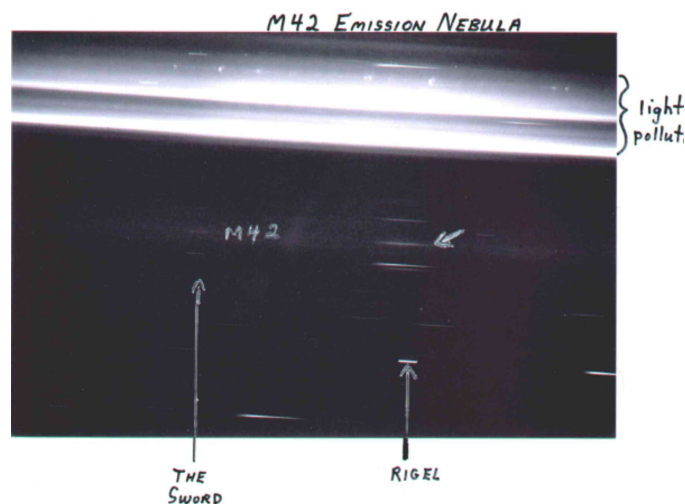
Procyon F5 IV

from February 13, 2005

exposure $\approx 1\frac{1}{2}$ minutes

This subgiant has strong blue radiation but is comparatively weak in the green, yellow, orange, red, and infrared spectral areas. All lines will be less distinct than those of an F51b supergiant.

Strong absorption (very wide lines) in the CaII (K,H) and HE areas weaken the brightness of the extreme blue and near UV (left 1mm.) of the spectrum.



M42 spectrum

from February 13, 2005

exposure 2minutes

The Orion Nebula (arrowed) radiates an emission-line spectrum. This is formed by the fluorescence formed from the UV light of O and sometimes early B stars in the Nebula.

It is called a bright-line spectrum because of the many emission lines. Some of these lines are 'forbidden' (as opposed to 'permitted') because they appear in the 'wrong' places in the spectrum. These emitted energy levels are produced by nebular ions (formed by the interactions of hot stars and nebular gases) which are formed in the low density-high mass environments of these interstellar 'clouds'. Such lines do not normally appear in the spectra of terrestrial laboratory conditions because the density-mass conditions which are necessary for their formation are very difficult to reproduce in a terrestrial state.

Council meetings

All club members are welcome to attend the council meetings. Contact info@amateurastronomy.org for details.

NASA's Space Place

Utterly Alien

by Dr. Tony Phillips

There's a planet in our solar system so cold that in winter its nitrogen atmosphere freezes and falls to the ground. The empty sky becomes perfectly clear, jet-black even at noontime. You can see thousands of stars. Not one twinkles.

The brightest star in the sky is the Sun, so distant and tiny you could eclipse it with the head of a pin. There's a moon, too, so *big* you couldn't blot it out with your entire hand. Together, moonlight and sunshine cast a twilight glow across the icy landscape revealing . . . what? twisted spires, craggy mountains, frozen volcanoes?

No one knows, because no one has ever been to Pluto.

"Pluto is an alien world," says Alan Stern of the Southwest Research Institute in Colorado. "It's the only planet never visited or photographed by NASA space probes."

That's about to change. A robot-ship called New Horizons is scheduled to blast off for Pluto in January 2006. It's a long journey: More than 6 billion kilometers (about 3.7 billion miles). New Horizons won't arrive until 2015.

"I hope we get there before the atmosphere collapses," says Stern, the mission's principal investigator. Winter is coming, and while it's warm enough now for Pluto's air to float, it won't be for long. Imagine seeing a planet's atmosphere collapse. New Horizons might!

"This is a flyby mission," notes Stern. "Slowing the spacecraft down to *orbit* Pluto would burn more fuel than we can carry." New Horizons will glide past the planet furiously snapping pictures. "Our best images will resolve features the size of a house," Stern says.

The cameras will also target Pluto's moon, Charon. Charon is more than half the size of Pluto, and the two circle one another only 19,200 kilometers (12,000 miles) apart. (For comparison, the Moon is 382,400 kilometers [239,000 miles] from Earth.) No wonder some astronomers call the pair a "double planet."

Researchers believe that Pluto and Charon were created billions of years ago by some terrific impact, which split a bigger planet into two smaller ones. This idea is supported by the fact that Pluto and Charon spin on their sides like sibling worlds knocked askew.



New Horizons spacecraft will get a gravity assist from Jupiter on its long journey to Pluto-Charon. Credit: Southwest Research Institute (Dan Durda)/Johns Hopkins University Applied Physics Laboratory (Ken Moscati).

Yet there are some curious differences: Pluto is bright; Charon is darker. Pluto is covered with frozen nitrogen; Charon by frozen water. Pluto has an atmosphere; Charon might not. "These are things we plan to investigate," says Stern.

Two worlds. So alike, yet so different. So utterly alien. Stay tuned for New Horizons.

Find out more about the New Horizons mission at pluto.jhuapl.edu/. Kids can learn amazing facts about Pluto at spaceplace.nasa.gov/en/kids/pluto.

For more information, see <http://www-misr.jpl.nasa.gov>. Kids can learn about MISR, see MISR images, and do an online MISR crossword at http://spaceplace.nasa.gov/en/kids/misr/_xword/misr_xword2.shtml.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

May 2005

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