Volume 16, Issue 09

September 2009

### HAA's June Meeting! By Heather Neprozel



June Meeting Was Well-Attended Photo-by Don Pullen



**Event Horizon** 

HAA Chairperson Steve Germann welcomed attendees to the HAA monthly general meeting at the Spectator building and made a brief announcement regarding the Perseids Meteor Showers occurring on August 11. Steve then proceeded to introduce John Gauvreau and his presentation of "The Sky this Month". In addition to demonstrating how to observe fascinating objects in the summer sky, John showed terrific images of the great star cluster M13 and

### From The Editor's Desk

It is almost like the astronomy gods hate amateur astronomers. This summer has been a very bad one for finding a clear sky. Sure, there have been clear nights, but the seeing or transparency has usually been lousy. For my part, whenever one of those rare nights with a cloudless sky joins up with clear air, it almost never failed that I had a meeting or some other commitment that kept me from my telescope. Oh well, perhaps during another life...

Tim Philp, Editor

(Continued on page 2)

Inside this issue:	
Chair Report	3
Observing the Moon	4-5
40 Years Ago	7
The Sky this Month	9-12
Through the Looking Glass	13
Astronomy–Shipboard Style!	15
Space Place	19

### **Upcoming Events**

HAA AGM and Election of Officers Friday, October 9th, 2009 7:30 PM @ The Spectator HAA'S June Meeting (continued)

(Continued from page 1)

also another summer favourite M57 the Ring Nebula, both taken by member Andrew Bruce with his 80mm refractor. John also showed member Kerry Lecky-Hepburn's stunning image of NGC 4565, a galaxy that always looks to me to be reminiscent of a "flying saucer". Greats shots guys and gals!

After the conclusion of John's talk Steve introduced our main speaker of the evening, long-time HAA member and former HAA chairperson Glenn Muller. Glenn's talk this evening was on the history of astrophotography. Glenn joked that he has spent about "3 Minutes" doing astrophotography and "This is not going to be a workshop". I always have enjoyed Glenn's dry sense of humour.

Glenn started by talking about the impact of images on the world. Did you know that Herschel coined the term "photography"? The very first astronomical image was a "Daguerreotype" picture of the moon. Around this time (1840) daguerreotypes were labour intensive, to say the least. John William Draper took this picture and his son Henry Draper worked on the Draper Catalogue of images, which was commissioned by the elder Draper's widow.

Glenn described the very famous, or perhaps infamous might be a better description, of "The Shot of the Century"...sketches made by Percival Lowell detailing *canals* on Mars. Just what exactly did Lowell see, or thought he saw? Images can have a lot of power, and can resonate through society.

Glenn mentioned that many people think that that the most important images of the 20<sup>th</sup> century were taken by Edwin Hubble. His red-shifted galaxies showed that the universe was not static and unified edifice but it was indeed *expanding.* "Our perception of the universe changed overnight."

Other notable moments in astrophotography according to Glenn: images taken by the first satellites to orbit

(Continued on page 8)

## Treasurer's Report

By Don Pullen

### Sept 2009 Treasurer's Report

(Unaudited)

 Cash opening Balance (1 Jun 2009)
 \$ 4161.34

 Expenses
 \$ 1520.44

 Revenue
 \$ 179.45

 Closing Balance
 (31 Aug 2009)
 \$ 2820.35

Notes:

Major revenue sources included: Memberships (\$135), 50/50 (\$44).

Major expenses included: York University trip (\$118.76), Postage and BASEF prize (\$43.49), 1 yr Binbrook CSC sponsorship (\$56.33), Hall rental 2009-2010 (\$1050.00), Binbrook annual donation (\$100.00), SkyNews Magazine Shipping (\$42.86), EH printing (\$109.00).



From the Chair

by Steve Germann

This being the International Year of Astronomy, we have been encouraged to bring the night sky to the people of Canada, more than ever before. Our club members have always shared a contagious joy for astronomy. Our annual public nights at community parks are an opportunity for members to share their enthusiasm in an informal setting. and let people know why we observe.

When i cross the border to go to Cherry Springs with my telescope in the car, I am often asked "what's in the sky tonight", that could merit you bringing your telescope'. In some cases i can tell them about a momentous stellar occasion, such as an eclipse, but more often than not I am celebrating 'Dark of the Moon'. For me, the sheer beauty and complexity of the night sky is what gets me moving.

Our IYA activities are winding down for the year, but not without a few more sparkles. In November (on Friday, November 13) we will be honoured to receive an internationally acclaimed speaker. Abraham at our Roberto monthly meeting, as our installment of the 'Galileo Lecture Series', sponsored by the IYA team in Canada. Please invite your friends as there will

be extra seating and it's sure to be an interesting talk. Before that, we have public nights in Burlington, and Brantford.

Even more important than the IYA, and our outreach to the public, is our club's internal camaraderie among the members, and our ability to support each other with ideas, information, enthusiasm, the odd borrowed evepiece, and shared views through various teleand optical instruscopes ments. In addition, we get a chance to refresh our knowledge of the sky. As I have repeated many times, it's much better to try out a telescope before you buy one, and you will have a chance to determine what kind of telescope is right for you.

To that end, we are planning a telescope clinic, for the last Friday in November, in time for Christmas shopping, as well as a chance for you to bring in vour scope for help getting it collimated and adjusted. There's also a chance to learn some tips and tricks about your model from others who are familiar with the same kinds.

Our 'The Sky This Season, sessions at Binbrook Live' have been a treat, and John has done his usual excellent the club. The work they do bejob of bringing the constellations and other wonders of the club enjoyable for everyone. sky home to us.

This November, (the month of clouds, traditionally) council is planning to organize another Planetarium visit for members, at the McCallion Planetarium.

There is one more Star Party coming up... the Black Forest Star Party, and several HAA members have already signed up. It's still not too late to consider joining in.

Most importantly, though, is our continuous opportunity to look up from wherever we may be. Our observing director, John, has posted some interesting blog articles recently about Jupiter, a planet that looks good in telescope (or binoculars) from anyplace on earth, being so bright. (You do need to have a gap in the clouds though). There was a sunspot last week, and with spots comes the chance for Aurora. Your best bet to see Aurora is to look up each clear night around midnight and see what's happening. You could be pleasantly surprised. Our blog is a dynamic place for interesting updates and we should make good use of it.

I also want to thank every member of this year's council for their efforts on behalf of hind the scenes makes our



### **Observing the Moon** by Tim Philp

Often when we think about astronomv. we think about deep skv objects, we think about galaxies and nebulae – all dim objects that require good telescopic equipment with which to observe We them. often neglect an object that is right in front of our faces night after night - the moon.

Our moon is our closest neighbour in space and it has dramatically influenced our planet. Everything from regulating the life cycles of marine life to slowing the rotation of our planet to give us the length of our day. It causes the tides and has been a source of illumination for our

vears.

moon. Its just look at the moon.



When the moon fills the sky with light, you might as well look at the moon because you are not going to get good deep-sky object visibility. Gibbous moon taken on 09/08/02 by Tim Philp. 6" refractor Cannon 50D @ 1/60 sec.

planet for more than a billion Of course, the full moon is not telescope to see. It is a large the best time to observe the Most astronomers who view moon because the lighting is very deep sky objects hate the harsh and fine details are obglow completely scured by the flat overhead light Each night when you view the washes out the sky and makes from the sun. The most interestobservational astronomy very ing place to look at the moon is at difficult – unless you want to the terminator. The terminator is look at the moon. On full moon the boundary between light and nights, I generally give up and dark on the moon's surface ject will have a different aspect where shadows and light battle

for supremacy. It is at the terminator where you get the best views of the moon as another large body similar to the Earth. You can see mountains. craters. rills, and large flat lava flows that festoon the surface and lay bare the ancient history of that pock-marked alobe.

The best thina about lunar observing is that you don't need a lot of expensive equipment to see quite a bit of the moon's surface. A simple pair of binoculars will give you magnificent views of lunar the landscape. The moon is also about the only thing that you can use a cheap department-store

enough target that you don't need expensive equipment to observe.

moon, you can see something different. In fact, you can observe the same area of the moon, and each day, that ob-

(Continued on page 5)

### **Observing the Moon** (Continued)

(Continued from page 4)

to it as the lighting conditions change on the surface due to the moon revolving around the Earth.

Interestingly, you can see many you don't keep control of your imagination. Our brains are excellent in picking out patterns from chaos and sometimes our face at all. imagination gets away from our control.

You may remember the controversial 'face' on Mars. This was a rock formation that resembled

a face in the available photos that walls, meandering 'river' like we had of the area. There was a structures that look like they lot of nonsense printed about that were carved by running water, rock formation and even a Holly- and craters of all shapes and wood movie used it as the basis sizes. for a rather cheesy plot.

Unfortunately for the believers in ject to look at and you can things that are not really there if alien civilizations, when high- spend hours and not see the resolution photos were made of same thing twice. As well, fathe area, it became clear that it miliar objects can look vastly was just a pile of rocks, not a different in only a few days as

> The moon too can present inter- shadows across the surface. esting patterns near the termina- Get out and have a look at our tor that sometimes resemble fa- nearest neighbour. miliar objects. You can see straight lines formed by canyon

The moon is an interesting obthe lighting changes move

### **NOTICE** of the Annual General Meeting of the HAA

### The HAA Annual General Meeting (AGM)

### Friday October 9th at the Spectator Auditorium.

This is the time when the current Council ends their term and a new slate of candidates is presented to the membership for election. There are several positions on Council to be filled by member candidates each year.

Any member in good standing can put their name forward to be included on the election slate by contacting us. We will provide further information at that time.

For the office of Chair, a member must have been a director on Council for a minimum of one year and have their membership dues paid in full in advance of the AGM in year they are nominated.

Any member choosing to stand for election as a Director or appointment as a Councilor at Large must have been a member in good standing for a minimum of six months prior and must have their membership dues for the year they are nominated paid in full in advance of the AGM.

We encourage your participation and are looking forward to hearing from you.

### Astro-Events for 2009 by Don Pullen

For the International Year of Astronomy, the HAA has put together a list of events that either we are sponsoring, or may be participating in over the next 6 months or so. For some of these events, a few HAA members may be participating on their own, or may be going to represent the HAA, such as some of the star parties. And while most of these events are "public" in nature meaning that both public and members are welcome to the activity, some are reserved strictly (indicated) for HAA members only (part of the privileges of membership). Please note that this list does not include any smaller events that a single individual (or maybe 2) might be under-

taking such as camping trips or sidewalk astronomy plans. Please refer to our website for postings of these types of events or changes to any others.

Fri Sep 11 - HAA Sept General Meeting

**Sep 17-20** - Huronia Star Party - Duntroon, near Collingwood

Sep 18-20 - Black Forest Star Party - Cherry Springs PA Sat Sep 26 - Binbrook/Camtech Star Party, Binbrook

**Sat Oct 3 (4)** - Burlington Public Night, Burloak Waterfront Park, Lakeshore Dr, Burlington

**Fri Oct 9** - HAA Oct Annual General Meeting and Election of Officers (Thanksgiving weekend)

Oct 24 - Brantford Public Night, Tourism Centre



Men landed on the Moon forty years ago, and like millions of others, I was up before dawn that summer day, to watch it on TV. My little reflector telescope had given me many opportunities to observe the fascinating moonscape as the view waxed and waned, the jagged terminator moving from night to night and even or to hour. Now on the night I watched astronauts bounce along on that lunar surface, kicking up sprays of dust as the US flag was set up. The Moon would never again seem so distant.

I'm an amateur astronomer. Observing the sky is more than a hobby for me, it's a way of thinking. I think of the Earth as a small rock in space; I'm not looking "up" so much as I am looking "out" at nearby objects. I have always been attracted to changes in the sky. In elementary school I started with solar and lunar eclipses and charting the phases of the Moon. Then I followed the motions of the planets Mars and Jupiter from week to week in the months around opposition, marking the movement in my Norton's Star As I entered high Atlas. school, variable stars became the core of my hobby, starting

with Nova Delphini 1967, visi-

ble all summer above the

#### RASC Journal, 1971 August

#### Notes

189

R.A.S.C. Award to Exhibitor at Canada-Wide Science Fair

Congratulations to the winner in the Astronomy Section of the tenth Canada-Wide Science Fair held at the University of Alberta, Edmonton, from May 11–15, 1971—Michael John Spicer, who is a member of the Hamilton Centre of the Society. The Certificate was presented by Professor E. S. Keeping and the astronomy exhibits were judged on our behalf by Dr. D. R. Crosby.



houses across the street from my home.

In those days Hamilton street lights were 60 watt light bulbs and from the front porch of my house on East Avenue, fourth magnitude stars were easily visible to the naked eve and fainter constellations like Delphinus were obvious. Why, with my little 3" reflector, I could easily see 10th magnitude stars and make out the oval of M57 overhead using the poor quality 0.96" evepieces that were standard at the time. I didn't have binoculars in high school so I used the telescope to observe and measure the changes in variable stars such as R Leonis and R

Corona Borealis. I bought a bigger telescope with prize money from the Hamilton Science Fair. Its beautiful equatorial mount permitted long high-power observations of Jupiter and the Great Red Spot, which was brick-red back then.

I joined the local astronomy club in 1968, taking the bus out to McMaster University every month for meetings attended by about 30 adults and a handful of high school students. The adults were mostly interested in the Apollo exploration missions since almost all

of them were "armchair astronomers". A Hamilton teacher, Ken Chilton was the club's observing director and I attended the few observing nights he organized at Rock Chapel Park in Dundas. He tried to encourage telescope observing but had little success with the adults. The students were very enthusiastic and I organized the Student Observers of Hamilton to conduct observing projects. We observed the planets, followed variable stars and charted the Perseid meteor showers every summer, when they were beautifully visible streaking in the night sky over the city as we lay on the grass at Sam Lawrence Park. Those were the days!

### June Meeting (continued)

(Continued from page 2)

the earth; the Russian Luna3, an early "fax" type of photo of the moon; Mariner 9 in 1971 with the first highresolution shots of Mars, showing craters, not vegetation somewhat disappointingly, especially to fans of Lowell's "canals". The astronauts on Apollo 8 took one of the most famous photos of all time – "Earthrise". This image marked the first time humans journeyed safely to another world. This is one of Glenn's favourites (I think a lot of folks would feel the same about this photo).

Glenn had a real smorgasbord of fabulous images for us to feast our eyes on and to let the meaning of these images resonate: how about the iconic image of the astronauts boot print on the moon (from Apollo 11), the first steps of human beings on another world. Or the Mars Rover's shot of Earth from the surface of the Red Planet: this image seems to coincide with the description, many years before, of Earth by Carl Sagan as "a pale blue dot". How about the Hubble (remember him) Space Telescope's "Deep Field" with an astounding 125 billion galaxies? And one of my favourites, The Mars Reconnaissance Orbiter's shot of the soon to be landing Mars Phoenix lander. Glenn says the acquisition of this image took exquisite timing and coordination.

Glenn predicted a future great image: how about a shot of the first people on Mars?!

Thanks Glenn for a thoroughly enjoyable presentation.



EVENT HORIZON

### The Sky this Month by John Gauvreau

Over the summer I have heard many people complain about the weather. I have had no complaints, and have enjoyed the moderate temperatures and stormy spectacles that come with the late summer. I recognize though, that complaining about the weather is a long standing Canadian pastime. The good news though, is that, statistically, September is one of the clearest months of the year. You are more likely to have a clear night at this time of year than at any other. I hope you can take advantage of this and enjoy some of the wonderful sights in the early autumn sky.

The **Sun** passes the **autumnal equinox** on Tuesday September 22 this year, heralding the fall season. With it come not only cooler evenings, but earlier sunsets, allowing for more observing in the evening sky. Before the equinox though, comes the new **Moon** of September, on the Friday the 18th. That weekend will provide wonderful dark skies for those of you who like to hunt deep sky objects. Take advantage of this time too, to look for the **Zodiacal light**. At this time of year it is visible in the morning (in the spring it is visible in the evening) and appears as a large triangular shaped glow rising from the eastern horizon before dawn. From a dark site it can be guite overwhelming. I recall one year at Starfest, as I was observing Taurus rising in the morning sky. I was startled when the eastern sky began to lighten, thinking that the night had flown by much too quickly and here was the dawn. But of course it wasn't the dawn; it was the Zodiacal light, which is sunlight reflecting of all the loose dust particles that lie along the plane of the solar system. You will notice that the triangular shape is tilted relative to the horizon, as it follows the ecliptic across the sky. Last year, at Cherry Springs State Park in Pennsylvania, a dark sky preserve with skies even better than Starfest, the Zodiacal light washed out the eastern Milky Way, and stopped astrophotographers from shooting the eastern sky, because it shone so brightly. These next few weeks are the best time of year to see this elusive solar system phenomenon.

**Jupiter** rules the night during the month of September. If you have been observing Jupiter through the summer then you have enjoyed views of a suspected cometary impact, and a spectacular showcase of satellite antics. Jupiter is perhaps my favourite planet. While Saturn is pretty, Jupiter will show you something different every night, from the game of peek-aboo that the moons play, darting in front of and behind the planet, to the moons' shadow plays that appear on Jupiter's surface, to the swirling clouds themselves, with bands and spots that are constantly changing. Any telescope will reward the observer with a planetary view like no other, and even binoculars will allow you to watch the ever changing moons. On September 29th the Moon will be only 2 degrees from Jupiter, as they rise in the east before sunset. If you have a clear view to the east it is a great chance to observe Jupiter during the daylight hours. Many planets (and some stars) are bright enough to shine through the blue sky of day, if only you know where to look. Use the Moon to guide you to Jupiter, lying just 2 degrees below the Moon. Binoculars will help. Put the moon near the top of the

(Continued on page 12)

# The Sky t



# his Month





### Binocular Object: Collinder 399, The Coathanger

The Coathanger was first recorded by the great observer, Al Sufi, in the year 964. You too can see it with the unaided eye, as it shines with a total magnitude of about 3.6. Covering about 1 degree of sky, you could easily fit it into a wide field view in your telescope eyepiece, and this is the best way to see the faintest of the 40 stars that make up this cluster. The 10 brightest stars make up the shape that gives this cluster its name and, by viewing through binoculars the recognizable shape of this asterism stands out against the surrounding black sky, making the Coathanger pop , and look its best.

The Coathanger is an asterism that is well placed during the late summer months. In the constellation Vulpecula, it is nestled within the Summer Triangle just above the tail of Sagitta, and lies on a line about a third of the way from Altair to Vega. Looking through your binoculars, start at Altair and scan toward Vega and you will pick up this charming cluster with no trouble

When you spot it you will note, however, that this coathanger won't be very good at holding any garments; it's upside down!

# The Sky this Month (Continued)

(Continued from page 9)

field of view, and Jupiter will appear near the center of most binocular fields. One of the best views I've ever had of Mars was through a six inch reflector in the daylight. As the sky brightened in the morning I just kept on observing until well after sunrise, and Mars continued to show great detail even in the daylight, and was perhaps even easier to observe because of the reduced glare.

When we meet again in October we will all be enjoying a conjunction of three planets in the morning sky. I will mention it now (rather than wait for next month) so you don't miss any of the action. As the month of October begins **Venus** is still high in the morning sky, with **Mercury** below and to the left. **Saturn** is finally emerging out of the Sun's glare and hugs the horizon at sunrise. Over the next couple of weeks, though, the three planets dance around each other making for some lovely arrangements. By October 8th Saturn has joined Mercury, and they will appear only 20 arcminutes apart. Leaving Mercury behind, Saturn continues on to meet Venus only 5 days later, on October 13th, when that pair will appear only 30 arcminutes apart. This half degree separation is the diameter of the full moon, so they will make a spectacular pairing, and easily fit in a telescope field of view at the same time. What a wonderful opportunity to compare the brightness of distant Saturn, where the Sun shines so dimly in the outer solar system, to Venus and Mercury, who constantly travel in the glare of an overwhelming Sun. This is a sight well worth getting up early for.

All of this planetary action is, of course, set against the lovely background sky of early autumn. The **summer constellations** of Cygnus and Lyra are still high overhead, and perhaps there is no better time of year to observe the nebula and cluster rich region around Deneb. And yet, even now, the great square of Pegasus is rising, and with it Cassiopeia and its clusters, and of course, our first good look of the perennial favourite, M31. The **Andromeda Galaxy** is a sure sign of the season, and a favourite of many observers. It was the first deep sky object I observed as a teenager when I got my first telescope. Over the years my interest in it waned, it was simply a bright but nondescript fuzzy oval, while other more detailed galaxies stole my attention; the spiral arms of M51 or the knottiness of M82, or the dust lanes of NGC4565 or M104. Then, last year, I was again at a dark sky site and I saw the Andromeda Galaxy as if for the first time. Through my small but mighty 80mm refractor and a wide field eyepiece that gave a four degree field of view, M31 showed a rich amount of detail, dust lanes and a vast reach across the field, as the faint outer portions revealed themselves. It showed that it truly deserves the attention it gets as one of the premier deep sky objects of the northern hemisphere.

As always, thanks to those who have helped out by contributing thoughts and images, and feel free to submit reports, anecdotes or observations to:

observing@amateurastronomy.org



### Through the Looking Glass by Greg Emory

sary of Galileo's invention of accomplishment in crafting a the telescope passed. was the original ATM. No he didn't dispense money, he built telescopes - or at least supervised the construction. As our society becomes more advanced, we lose touch with the basic function and operation of the equipment we rely upon. How many of you reading this article drive a car? How many of you know how to do the basic maintenance or minor repairs on that car? How many of you own a goto mount for your telescope(s)? Any idea of the math and trigonometry involved in aligning your goto each time?

We don't actually need these basic skills anymore. As long as we can find a mechanic who does understand our vehicle, we should The engineers, be good. technicians and production workers can make a goto telescope with fairly consistent results; we don't need to worry about the details. As is always the case however, some people like the details as much or more than they like the whole ob-Amateur telescope iect. making (ATM) is like this.

Recently the 400<sup>th</sup> anniver- There is a joy and sense of reason why I like to grind my He telescope with your own hands. To start with a flat piece of glass and to grind and polish it to the correct shape, as determined by testing the equipment with that you also had to make is wonderful. When finally finished the views in those telescopes are better than other telescopes - because you had a hand in creating it.

> As we become more advanced technologically (or is it more complicated) the skills we lose along the way are not lost completely - in most cases a few professionals or hobbyists will retain the skill set. Whv should we all be able to design, build and test our own telescopes when we can spend less money buying a manufactured one? The time waiting for delivery is often much less than the time it takes to make your Who knows, maybe own. the time is coming when we can skip standing out in the cold damp night air, we can our astronomy do by downloading real time images from an orbiting telescope.

For me, there is one other

own optics. Doing so gives me a direct connect with some of the greats of astron-People like Galileo, omy. Ritchey or Herschel. In previous times there was no choice but to be involved with the design and construction of the telescopes.

On a recent trip to England my wife, Joanna, went to Bath. And picked up two booklets for me on William Herschel. One pamphlet is dedicated to cataloguing the telescopes that are still extent. The pamphlet lists some 40 telescopes ranging from 4" mirrors to a 14.7" speculum mirror. Other documentation shows that Herschel produced or supervised the production of 70 or more telescopes for both amateurs and professionals alike. The telescopes would have a cost (adjusted to 1995) of \$5000 to \$10,000.

Going out on a clear dark night when the seeing is rock steady is what we all hope for. Staying in touch with our hobby or passion on cloudy nights can be accomplished many ways. Building, design, tinkering or even cleaning our telescopes and other equipment keeps us in the game.



### Traveling *Fast!* By Tim Philp

I was in Germany a few years ago and got to travel on the Autobahn, their superhighway with no speed limits. I was driving a car that I rented in London and took over through the Channel Tunnel. It was a Vauxhall Vectra, not your fastest sports car to be sure. Even so, after some coaxing and heavy footwork, I managed to get it to climb to 207kms/hr! Man, did it seem like I was moving! Of course, when you stop to think about it, we are typically moving at much higher velocities... we just don't know it.

Take the Earth's rotation. At our latitude, we are traveling at about 800kms/hr because the Earth is spinning on its axis. Of course, we are also spinning at that speed and would be moving even faster if we were at the equator. Of course, that seems kind of sluggish. Heck commercial airliners travel at those kinds of speeds and better than that.

Well, let's look at the motion of translates the Earth around the Sun. To 30kms/second! complete the journey in a year, Well, that is fast, but it still does Autobahn seem rather tame by



Just how fast can we go? While rockets and space probes travel very quickly, these speeds pale in comparison to the speed that we are faster. Surely we can do traveling as we sit and read the Event Horizon!

into

the Earth has to be moving at not seem to be blazingly fast comparison, doesn't it? more than 100,000kms/hr. That when you consider the size of

the universe. After all, we have sent spacecraft faster than that. For instance, the Mars Pathfinder mission traveled at more than 120.000kms/hr. Does the Earth have a faster motion?

Well, as a matter of fact, it does. Besides going around the Sun, the Earth also follows the Sun on its trip around the galaxy. This 200-million-year trip is accomplished at about 225kms/second and that is really motoring! As well, you can add the motion of the galaxv itself at about another 40kms/second as it heads toward the centre of the local group of galaxies.

While that speed it a bit leisurely, you can also add the motion of the galaxy as we speed toward the great Virgo cluster - a vast group of galaxies of which we are a member. Here we are moving at more than 600kms/second. If that doesn't get us a cosmic speeding ticket.

about I don't know what will.

Kind of makes my trip on the

# Astronomy—Shipboard Style!

By Steve Germann

Last month I had the pleasure of northern touring Quebec. Labrador. and Newfoundland. on a cross-country car trip, with a buddy of mine. We brought along my Celestron 25x100 binoculars, and a lightweight tripod. and my green laser, and we were watchful for а chance to do

some sidewalk astronomy. As luck would have it, almost supposed every night was cloudy and rainy, precluding any kind of for one night.

We took the 'Sir Bond' Robert ferry, which had been originally designed to carry railway cars. (and had the vesof tiges cemented-over tracks on the vehicle deck) from Goose Bay, Labrador, to Cartwright, Labrador, on the night of August 2, 2009. The ferry trip is



13 hours 'at sea', and we are report to boarding 2 hours in advance. So at about 3 pm Newfoundsidewalk astronomy, except land time (1:30 EST) we were ready for boarding.

by the time I knew when we would be travall of those were for elling, booked, so we had to make do with a coach-style seat in the lounge. My buddy was watching tv (the same DVD



During the trip, it's possible to go and visit the to car. aet things...

the ferry is decked out with about 40 small cabins with sink and bunk beds, for those travellers who want to be fresh the next morning. Unfortunately,

played 3 times), while L went downstairs and got my binoculars and tripod to set up.

I was able to scrutinize the hills and mountains on shore. since the departure was in broad daylight. The boat had a small amount of vibration. but

# Astronomy—Shipboard Style!

By Steve Germann

(Continued from page 15)

not much swav. It also navigated, which caused frequent turning to new headings. I searched the waters for any sign of whales. but saw none in Goose Bav. There was gibbous а waxing that moon evenina.

mates to do the same. tailed, but nothing like the bring their friends. perfectly adequate for the

and it was possible to point purpose of showing that the litely the binoculars at the moon moon has a lot of detail. I was could see it. and it would not drift out of also able, once it rose above There were clouds in most of view for long enough to let the distant clouds, to target the sky. I was fortunate to be someone else have a look, Jupiter, and its moons. Sevso despite some low clouds, eral pre-teens got their first Later we journeyed to a part I was able to observe the look at Jupiter's moons, and moon, and invite my ship- were well impressed. People of all ages got some entertain-All in all, I estimate 50 peo- ment from it. I set up near the ple had a look at the moon. bar, and people on their way The 25x magnification made out for a smoke happened by Aw... I did not suspect it. it look guite large and de- and had a look. Some went to There was definitely a lot of

100x view through a real One toddler had a try, but did I packed up at about 1 AM telescope. It was, however, not see much. She smiled po-

anyway-her mom

able to see my targets.

of the bay with less clouds, and I was able to see some stars. The next day, someone asked if I saw the aurora.

cloud.

after a good night of sidewalk astronomy, ferry style.



## **Press Release** LRO Images Apollo Landing Sites!

NASA's Lunar Reconnaissance Orbiter. or LRO, has returned its first imagery of the Apollo moon landing sites. The pictures show the Apollo missions' lunar module descent stages sitting on the moon's surface, as long shadows from a low sun angle make the modules' locations evident.

The Lunar Reconnaissance Orbiter Camera, or LROC, was able to image five of the six Apollo sites,

with the remaining Apollo 12 site expected to be photographed in the coming weeks.

The satellite reached lunar orbit June 23 and captured the Apollo sites between July 11 and 15. Though it had been expected that LRO would be able to resolve the remnants of the Apollo mission. these first images came before the spacecraft reached its final mapping orbit. Future LROC images from these sites will have two to three times greater resolution.

To view the new images, visit:

http://www.nasa.gov/LRO



"The LROC team anxiously awaited each image," said LROC principal investigator Mark Robinson of Arizona State University. "We were very interested in getting our first peek at the lunar module descent stages just for the thrill - and to see how well the cameras had come into focus. Indeed, the images are fantastic and so is the focus."

Although these pictures provide a reminder of past NASA exploration, LRO's primary focus is on paving the way for the future. By returning detailed lunar data, the mission will help NASA identure explorers, locate potential resources, describe the moon's radiation environment demonstrate and new technologies.

"Not only do these images reveal the great accomplishments of Apollo, they also show us that lunar exploration continues." said LRO project scientist Richard Vondrak of NASA's Goddard Space Flight Center in Greenbelt, Md. "They demonstrate how LRO will be

used to identify the best destinations for the next journeys to the moon."

The spacecraft's current elliptical orbit resulted in image resolutions that were slightly different for each site but were all around four feet per pixel. Because the deck of the descent stage is about 12 feet in diameter, the Apollo relics themselves fill an area of about nine pixels. However, because the sun was low to the horizon when the images were made, even subtle variations in topography create long shadows. Standing slightly more than ten feet above surface. the each tify safe landing sites for fu- Apollo descent stage creates

(Continued on page 18)

### **LRO Images Apollo Landing Sites!** (Continued)

(Continued from page 17)

a distinct shadow that fills primary misroughly 20 pixels.

The image of the Apollo 14 landing site had a particularly desirable lighting condition that allowed visibility of three camadditional details. The Apollo eras -- two Lunar Surface Experiment h i g h -Package, a set of scientific resolution instruments placed by the astronauts at the landing site, is discernable, as are eras the faint trails between the one module and instrument pack- resolution age left by the astronauts' Wide Angle footprints.

Launched on June 18, LRO LRO will be carries seven scientific in- directed into struments, all of which are its currently undergoing calibra- mission tion and testing prior to the bit

spacecraft reaching its sion orbit. The LROC instrument comprises Narrow Angle Camand lower Camera. primary orin Au-



Apollo 11 Landing site (dead centre of image, left of crater) as imaged by the Lunar Reconnaissance Orbiter (LRO). At last, we have photographic proof for the lunar landing conspiracy buffs. We really did land on the moon.



gust, nearlyа circular orbit about 31 miles above the lunar surface. Goddard built and manages LRO, a NASA mission with international participation from the Institute for Space Research in Moscow. Russia provided the neutron detector aboard the spacecraft.



Pluto. But how about their smaller cousins Eris, Ceres, Or-Easterbunnv?

You know Uranus, Neptune, and However, ever since its formation in 1919, the International Astronomical Union (IAU) ultimately decides cus, and Makemake? How about whether to accept or reject the name suggested by an object's discoverers. "Easterbunny" probably

kay), the creator of humanity in the mythology of Easter Island, so named because Europeans first arrived there on Easter 1722.

Other names have other ration-

These are all names given to relatively large "planet-like" objects recently found in the outer reaches of our solar system. Some were just temporary nicknames, others are now official and permanent. Each has a unique story.

"The names we chose are important," says astronomer Caltech Mike Brown, who had a hand in many of the discoveries. "These objects are a part of solar system; our they're in our neighborhood. We 'gravitate' to

them more if they have real wouldn't be approved. names. instead of technical names like 2003 UB313."

and Mars have been known since antiquity and were named by the ancient Romans after their gods. In modern times, though, who gets to name newly discovered solar-system bodies?

In short, whoever finds it names it. For example, a few days after Easter 2005. Brown and his colbelt. The team's informal nickname for this new object quickly became Easterbunny.



Artist's rendering of dwarf planet MakeMake, discovered around Easter 2005. Unlikely to gain acceptance their nickname Easterbunny, the discoverers named it for the god of humanity in the mythology of Easter Island.

According to IAU guidelines, comets are named after whoever dis-Nearby planets such as Venus covered them-such as comet Hale -Bopp, named after its discoverers Alan Hale and Thomas Bopp. Asteroids can be named almost anything. IAU rules state that objects in the Kuiper belt should be given dwarf planets and other important mythological names related to creation.

So Brown's team started brainstorming. They considered several Easter-esque names: Eostre, the leagues discovered a bright pagan mythological figure that may dwarf planet orbiting in the Kuiper be Easter's namesake; Manabozho, the Algonguin rabbit trickster god.

> In the end, they settled on Makemake (pronounced MAH-kay MAH-

ales. The dwarf planet discovered in 2005 that triggered a fierce debate over Pluto's status was named Eris. for the Greek goddess of strife and discord. Another dwarf planet with an orbit that mirrors Pluto's was dubbed Orcus, a god in Etruscan mythology that, like Pluto, ruled the underworld.

Brown says he takes "this naming business" seriously verv and probably spends too much time on it. "But I enjoy it." More tales of discovery and naming

may be found in Brown's blog MikeBrownsPlanets.com.

Constellations have also been named after ancient gods, human figures, and animals. Kids can start to learn their constellations by making a Star Finder for this month at spaceplace.nasa.gov/ en/kids/st6starfinder/ st6starfinder.shtml. There you will also find a handy explanation of why astrology has no place in science.

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



letter.

fore

meeting.

small, to:

your astronomy

lated writings for the **Event Horizon news-**

Please

your articles, big or

editor@amateurastronomy.org

The submission dead-

line is two weeks be-

each

re-

send

general

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.

# 2009 HAA Council

DO Dov 65579	Chair	Steve Germann
Dundas, Ontario L9H 6Y6	Second Chair	Jackie Fulton
General Inquiries secretary@amateurastronomy.org Membership membership@amateurastronomy.org	Secretary	Darrell Maude
	Treasurer	Don Pullen
Meeting Inquiries chair@amateurastronomy.org Public Events	Membership Director	Jim Wamsley
publicity@amateurastronomy.org Observing Inquiries	Observing Director	John Gauvreau
observing@amateurastronomy.org Newsletter	Event Horizon Editor	Tim Philp
euitoreaniateurasuononny.org	Webmaster	Bob Christmas
We're on the Web! www.amateurastronomy.org	Recorder	Ann Tekatch
	Councillor	Brenda Frederick
	Councillor	Heather Neproszel
Article	Councillor	Ray Badgerow
Submissions	Councillor	Harvey Garden
The HAA welcomes	Councillor	Vacant

# **Next Meeting – AGM** Friday, October 9th, 2009 7:30 PM @ The Spectator

Observing site for the HAA provided with the generous support of

**Binbrook Conservation Area**... Come out observing with other members and see what a great location this is for stargazing, a family day or an outdoor function. Please consider purchasing a season's pass for \$70 to help support the park. www.conservation-niagara.on.ca/conservation\_areas/ binbrook/binbrook.html (905) 692-3228

Domain name and web hosting for the Hamilton Amateur Astronomy club supplied by

### **Axess Communications**

Corporate and Residential DSL and Web Hosting

Www.axess.com

support@axess.com