

Event Horizon



Volume 20, Number 9
September 2013

From The Editor

Welcome back! This month's newsletter features the return of Greg Emery from the far east and, with him, his popular monthly column, Through the Looking Glass. In this month's issue, we are also excited to share information about a new, locally designed and built, equatorial platform for Dobsonian telescopes. John Gauvreau continues his excellent The Sky This Month feature; we have news of upcoming events, reports on summer happenings and other goodies. (Be sure to check out the announcement for our twentieth anniversary banquet and get your tickets fast.)

Enjoy!
Ann Tekatch
Editor@amateurastronomy.org



Chair's Report by Jim Wamsley

September is here, and we are about to start a new season of meetings for the H.A.A.. I hope you all had a great summer. Just because the club wasn't holding monthly meetings, it doesn't mean the H.A.A. was inactive. In July, the club hosted a very successful public star-gazing event at McQuesten Park, as well as an impromptu sidewalk astronomy night there, at the first quarter moon in June.

August 11th saw our annual Perseid meteor shower event. Preceding the night's activities, about 50 members got together for a club picnic. Members were able to enjoy the Binbrook Conservation Area in the daytime for a change, thanks to park staff giving us free access to the park, the use of a picnic pavilion, even providing us with a BBQ, charcoal and starter. I would (Continued on [page 2](#))

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Chair's Report (continued)

like to thank everyone at the B.C.A. for all this, as well as their help later in the evening. Hamburgers and hot dogs were provided by the club, soft drinks, and water were donated by Matthew Mannering, and Leslie Webb. Several members brought salads and other treats. Many thanks to these folks, for helping to make our day a fun time.

As the day moved into the evening, we relocated to the other side of the park, put up an information canopy, set up telescopes, moved club volunteers into position to greet and park the public as they arrived. Every car received a club brochure and an information sheet with a short explanation of where to look for the meteors in the sky. All told, there were approximately 400 people in attendance. Even though the weather didn't cooperate with us (we were totally clouded out), I think everyone had a good time. We handed out almost 200 planispheres and a huge number of glow-in-the-dark bracelets to the kids. Even though there were no meteors to be seen in the sky, people were able to see and handle meteorites at the info canopy, and also John Gauvreau and Don Pullen did "show and tell" as they walked around the park talking to the public. The club was able to collect a large amount of food for the food bank, as well as \$75.00 cash. The back of my car was totally jammed to the max, when I delivered it. I

would like to thank all the volunteers that helped to make the night another successful H.A.A. Event.

To start our fall season this September, we will have Dr. David Galbraith to speak to us about his trip to the U.S. southwest, and his visits to several observatories and the Barringer Crater.

Our October meeting will be the club's annual general meeting, in which we confirm the club's council for the upcoming year. We have several very dedicated members that have served this past year, and I thank them all very much for their service. We need people to step forward and help to keep the club doing the great job it has been doing. If you think you would like to get more involved in the club and help with council, please get in touch with me. It's your club, it needs your help.

You now have only the next two meetings to be able to purchase your tickets for the club's November 2nd, 20th Anniversary Banquet, at the Warplane Heritage Museum. I know I have been beating you all over the head to get your tickets for months now, but time is now getting short. Be sure to get your tickets soon. Tickets will not be available at the door, as we must confirm our numbers 10 days before the event.

I'm looking forward to see you all at the September meeting.



HAA Helps Hamilton

To support our community, we will be collecting non-perishable food items and cash for local food banks at our general meetings. Please bring a non-perishable food item to the meeting or a donation of cash and help us help others in these tough economic times.

If you would like to help or have any questions about this initiative, please contact Jim Wamsley at 905-627-4323.

Masthead Photo: This month's image is a sketch of Comet PanSTARRS by Kevin Salwach. Kevin made this sketch at the eyepiece (32mm Plossl, giving a magnification of 38X) of his 10" Orion SkyQuest XT10 Dobsonian telescope on March 14th 2013 at 8:17 PM from the Binbrook Conservation Area. The sketch has been inverted to give a white on black image that better resembles the comet's appearance in the eyepiece.

Hamilton Amateur Astronomers 20th Anniversary Banquet

At
Canadian Warplane Heritage Museum
Hamilton International Airport
9280 Airport Rd., Mount Hope, ON
Celebrate our 20th anniversary in style!

Tickets will be available at our general meetings or you can contact Ann Tekatch (editor@amateurastronomy.org), Brenda Frederick (moonspinner@sympatico.ca), or Steve Germann (treasurer@amateurastronomy.org), Jim Wamsley (chair@amateurastronomy.org)
Or call (905) 627-4323

Special Guest Speaker
Bob MacDonald
"Vacations in Space"



Saturday, November 2, 2013
Doors open at 5:00 pm
Cocktails at 6:00 pm
Buffet Dinner at 7:00 pm
Cash Bar
HAA Members & Guests
\$45.00 per person

Background photo credit: Karan Design



The Sky This Month: September by John Gauvreau

The Sky This Month September 2013

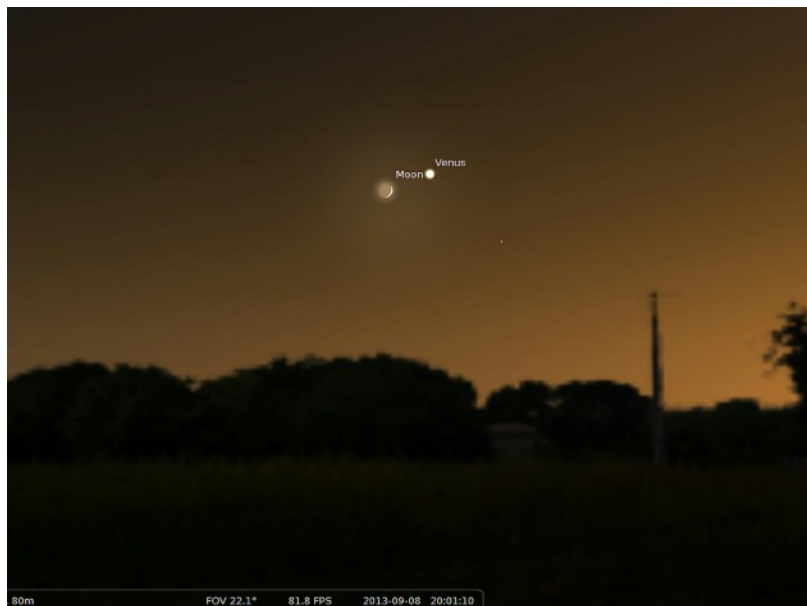
- September 2 - Mars 6 degrees north of Moon (early morning)
- September 5 - New Moon
- September 5 - Venus 2 degrees above Spica (low in west after sunset)
- September 8 - Spica 1 degree below Moon
- September 8 - Mars located in M44, the Beehive (early morning)
- September 12 - First Quarter Moon
- September 19 - Full Moon (Harvest Moon)
- September 20 - Venus 4 degrees from Saturn
- September 22 - Autumnal Equinox; Fall begins
- September 27 - Last Quarter Moon

September sees the arrival of the **Autumnal Equinox**, bringing the first day of fall. Equinox literally means "equal night" and on the days surrounding the equinox we have about 12 hours of daylight and 12 hours of darkness. This is a favorite time of year for many observers, offering the advantages of being able to get out at a reasonable hour after dinner, having a good long observing session (the summer nights are so short!) but still enjoying the warm evening temperatures of September. Statistically, September is also the clearest month of the year, offering the most opportunities to get out under a clear sky, although this past summer has offered many fine observing opportunities.

Over the summer we enjoyed a fine meteor shower, and I heard from many members who saw a good number of Perseids (and I saw a few myself!), some excellent views of Saturn, and even some aurora. The highlight of the summer though was **Nova Delphinus 2013**, a star that quite (Continued on [page 4](#))

The Sky This Month (continued)

unexpectedly popped up in mid-August as a surprise summer bonus. There are different types of novae, but this one was a binary, climbing from an unobservable 17th magnitude to 5th magnitude in a couple of days. Many members saw this extra sight with telescopes or binoculars, some, like Matthew and Janice, noting that it was their first nova. Congratulations to all who saw this unique celestial apparition.



Now, as the nova fades, we turn our attention to the sights of September. On September 8th the moon sits only a degree away from **Venus**, making a lovely pairing low in the west after sunset. (See *illustration at left*) Visible with the unaided eye, a binocular will give an excellent view, and of course, this is a great photo op! You'll need a clear view to the west, and once you've found this picturesque pair, look for Saturn a few degrees above and to the left.

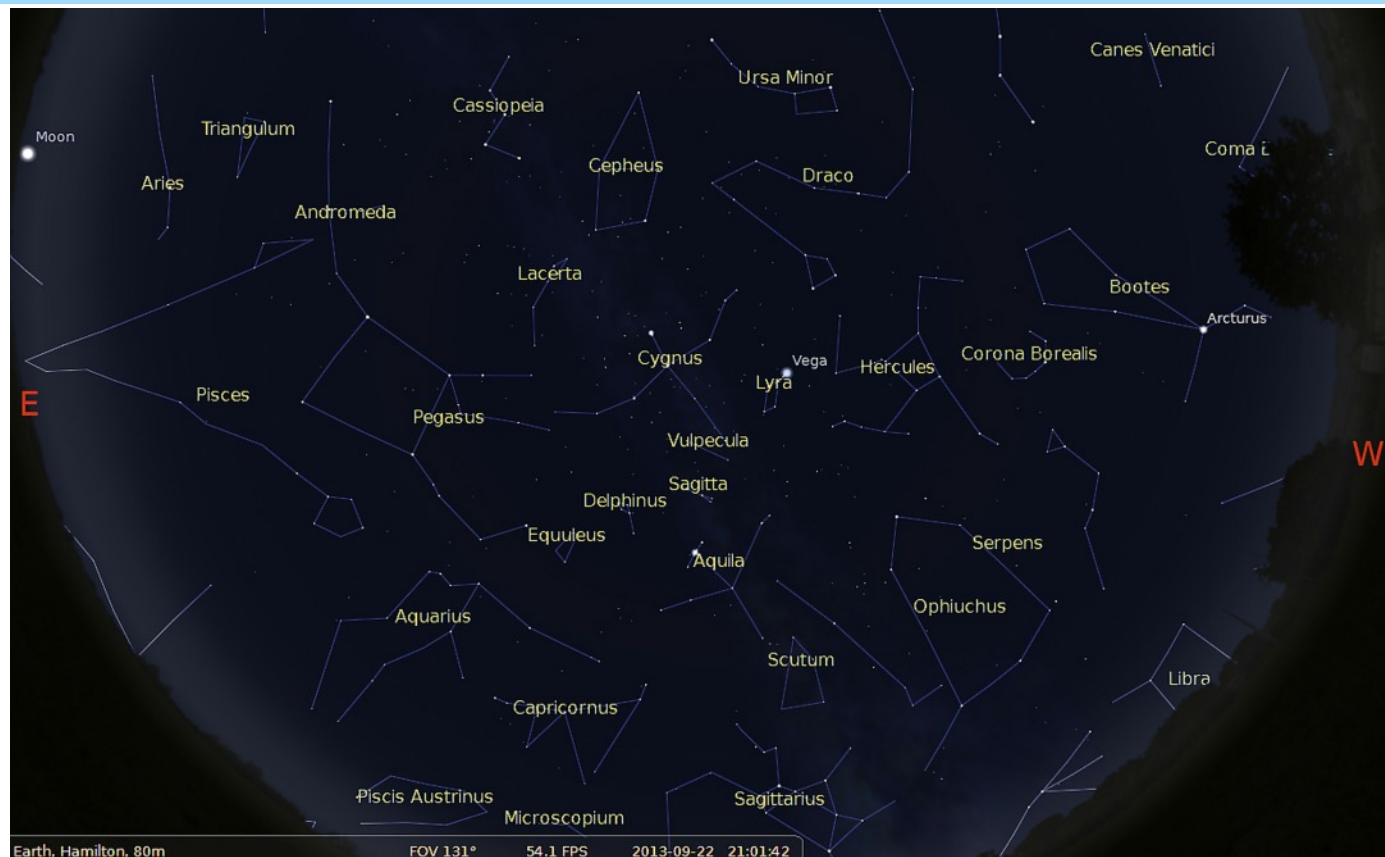
For those willing to stay up all night, or get up early that morning or the next, **Mars** passes through M44, the Beehive Cluster in Cancer. The planets often make an appearance here, as the cluster lies right beside the ecliptic, marking the plane of the solar system. On the morning of the 8th and 9th this month, Mars passes through this rich cluster, making an excellent binocular or telescopic target. (Photo, at right, taken by John Gauvreau, during one of Mars' previous excursions through M44 - Ed.)

Although the full **Harvest Moon** falls on the 19th on the calendar, the fullest phase of the moon occurs before sunrise that day, so really you can enjoy the full moon on the night of the 18th. The moon rises at about 6:45 that night and almost half an hour later the next. Either night will give you a beautiful view of the full moon rise for those who seek out a clear eastern horizon, and of course the moon will be up all night.



(Continued on [page 5](#))

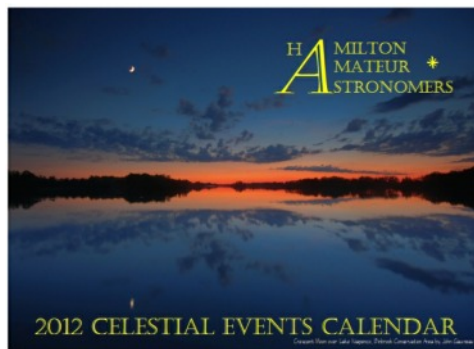
The Sky This Month (continued)



The September sky offers the best of all worlds, with the summer constellations still up and now visible at a convenient hour, the Milky Way riding directly overhead in the evening, and mild temperatures for those who want to stay up late or get up early for the constellations of late fall and winter. Enjoy what may be the finest month for observing all year!

As always, feel free to send me any observing reports, photos, questions, or comments that you would like to share with your fellow members. I'm always happy to hear about your observing experiences. See you out there!

John
observing@amateurastronomy.org



The HAA is accepting image submissions for its 2014 calendar. The images should be submitted by email to the observing@amateurastronomy.org in JPG format. Submit images using the highest resolution possible to ensure good quality print. Include the imager's name, the image date, and a brief description of the image and information about what equipment and settings you used. Images must be submitted in Landscape/Horizontal orientation NOT Portrait/Vertically oriented.

Images need not be astro-photographs but should be of an astronomical theme (ie., images of the night sky, sun, deep-sky objects, or any HAA club event such as meetings, public nights or star parties would be acceptable).

The images must have been taken by you and must be originals. Only submissions from HAA members will be considered. **Submission deadline is September 30, 2013.**



Through the Looking Glass by Greg Emery

I haven't written much in the past year. My family and I returned from China in the spring and have been trying to get used to being Canadian again. The final tallies for the past year are quite amazing. To recap, we drove across Canada, flew to Hawaii then on to China. We lived in China until May (for my wife and kids) and end of June for me. We spent a month or so (January/February) travelling in Thailand with a week in Hong Kong. My wife and daughter took a side trip to Kuala Lumpur for a few days. Then the four of us took our last trip abroad to Bali. Inside China we travelled to Beijing (twice), Shanghai (twice), Yixing, Yichang, Xi'An, Chengdu and Leshan. My wife was born in England and still has cousins, Aunts and Uncles there. She and my two kids travelled from Shanghai to London, then London to Toronto. So in the course of a year the three of them physically travelled around the world. We all went from a latitude of 68°N (Inuvik, NT) to 8.6°S (Bali, Indonesia). The distance travelled is roughly 65,000 km for my wife and daughter, 61,000 km for my son and a paltry 58,000 km for me. I have literally thousands of pictures, here are a few of my favourites:



My wife and son on the Great Wall.

(Photos courtesy of Greg Emery.)

(Continued on [page 7](#))

View from island off of Koh Lanta, Thailand.



Through the Looking Glass (continued)



The family at Tegalalang, Bali.

I did manage to get some astronomy in while I was away, but not a lot. I did some marginal viewing in Hawaii, China and Thailand. The best viewing I did have over the past year, while away, was in Bali. Our first two nights in Bali my wife had booked us into an eco-resort up in the mountains of Bali. The resort was a working coffee plantation at about 1300 feet above the beach. Even with the lights on the porch turned on, the southern Milky Way could be discerned. When the lights were turned off the Milky Way jumped out. This is the second time I have been south of the equator, and the Milky Way is dazzling. I took the time to show my wife and kids some of the important highlights. As most of these highlights are all naked eye objects it was easy to do.

While in China, I was unable to do any observing. I did not stay in a city with a population of less than 2 million my entire time there - yep the SMALLEST city I stayed in was the size of Toronto. So coming back to Dundas was great from an observing point of view. In August I went to Manitoulin for the Stargazing Manitoulin Star Party. The skies there are dark, the camping rustic and the crowds small. After the experience of China, being in a remote setting was nice. The weather was clear, some moisture in the air made the sky a little soft, but the Milky Way was visible in high detail. Sagittarius hung just above the tree line to the south of the camp. The sites were nice (even with my mirror which is in terrible need of a recoating). Globulars, open clusters and galaxies were all easily seen. My daughter noticed/counted 30 bright meteors and the ISS was bumbling across the sky a few times per night. The only thing I was lacking was my sky atlas/charts. My sky atlas that I have used since 2001 when I took up astronomy unfortunately did not survive the past year of travel, it is lying in pieces somewhere in China. This turned out to be a much bigger problem than I anticipated.

I really have not observed much over the last two years. Without a reference, I have forgotten most of the pointers I use to find objects. I have forgotten the Northern Skies (I don't know the Southern Skies, truly) so I have forgotten a significant amount of what little I used to know. So, I have decided, for various reasons, to re-learn the skies month by month. I will use both telescope and binoculars to review observing in the Northern Hemisphere. Of course since I have put this in writing, we will now have a cloudy Fall and Winter.

It is nice to be back, looking forward to observing and to seeing old friends and meeting new ones.



June Meeting Summary by Bob Christmas

Yes, I know it's been three months since we last had our last Monthly Meeting, but it was another awesome meeting worth summarizing, with another large turnout at the Hamilton Spectator Auditorium.

At 7:30pm, HAA Chair Jim Wamsley got the meeting under way with a warm welcome to all the new people in the audience attending an HAA meeting for the first time, and some announcements about the Loaner Scope Program, our public Perseid Meteor Shower night at Binbrook CA, which, along with our members' picnic, took place on August 11, and summer sidewalk astronomy nights. He also reminded us all that tickets for our 20th Anniversary dinner in November, featuring Bob McDonald as our keynote speaker, are on sale.

Jim then introduced our main speaker of the evening, Dr. Christine Wilson of McMaster University. Dr. Wilson gave her talk on Galaxy Formation/Views from the Herschel Space Observatory, which was about probing the universe in infrared and submillimeter wavelengths, which reveal so much more than mere visible-light observing and imagery can.

She talked about the Herschel Space Observatory and some of its results, including spectacular images of NGC 7538, M31, M81, M83, Centaurus "A" and the interacting "Antennae" galaxies.

Christine also mentioned the ALMA array in Chile, a complex of 66 radio dishes at an elevation of about 5000m in the Andes, which is a massive radio observatory. Its early results include a study of stellar mass loss within the aforementioned "Antennae" galaxies.

Thanks very much for this fascinating talk, Christine!

After Christine's presentation, HAA member and Past Chair Mike Spicer informed the audience he had some batteries available for red-dot finders and headset lights.

We then took our usual intermission break, after which Alex Tekatch and Matthew Mannering drew the door prizes and the 50/50.

Finally, HAA observing director, John Gauvreau, talked about The Sky This Month for the month of June, reminding HAA members to start thinking about image submissions for the 2014 HAA calendar.

John talked about the Cherry Springs Star Party recently held at Cherry Springs State Park in Pennsylvania, during which he mentioned an interesting connection that legendary FBI agent Eliot Ness (the man who brought down Al Capone) had with the nearby town of Coudersport, PA. John also showed off images he took at that star party of the Sagittarius Teapot, the Scorpius region, and the Cygnus Star Cloud.

He also showed recent images from the SOHO spacecraft showing Jupiter passing behind the Sun in superior conjunction.

John then talked about the late spring and early summer sky, including the "summer triangle" of bright stars, Vega, Deneb and Altair, which are still prominent in our sky right now in September by the way. He also highlighted various deep sky sites visible in the same region, including The Coathanger cluster, the double-star Albereio, NGC 6871, the North America Nebula, the Gamma-Cygni nebula complex and the open star cluster M39.

After the meeting, some of us reconvened at Crabby Joe's in West Hamilton for food, drinks and after-meeting conversation.



Treasurer's Report by Steve Germann

Treasurer's report for June-August 2013 (unaudited)

Opening Balance	\$7147.80
Revenue	\$ 847.00
Expenses	\$3533.36
Closing Balance	\$4461.44

Major revenue included ticket sales \$585, 50/50 \$57, and memberships \$205.

Major expenses included rent for our meeting location next year \$1130, the next instalment of the banquet costs \$1575.95, and the flight for Bob MacDonald to attend and speak at our banquet \$677.41, and food advance for our picnic \$150.



The 'Radio' Sun by Mike Jefferson

To date, I have been monitoring the Sun's x-ray output via radio 'telescopes' and satellite observations for the better part of 6 years. It has been a very engaging activity which I still continue to enjoy and adds a great deal to monitoring the sun via H-alpha, filtered white light and internet solar sites on a daily basis.

It began with the Stanford University LOFAR II LW(long wave) and has developed into the GOES LOFAR II SW(short wave) equipment.

The long wave telescope receiver died several years ago and was replaced with commercial short wave equipment (Sony ICF 6800 W).

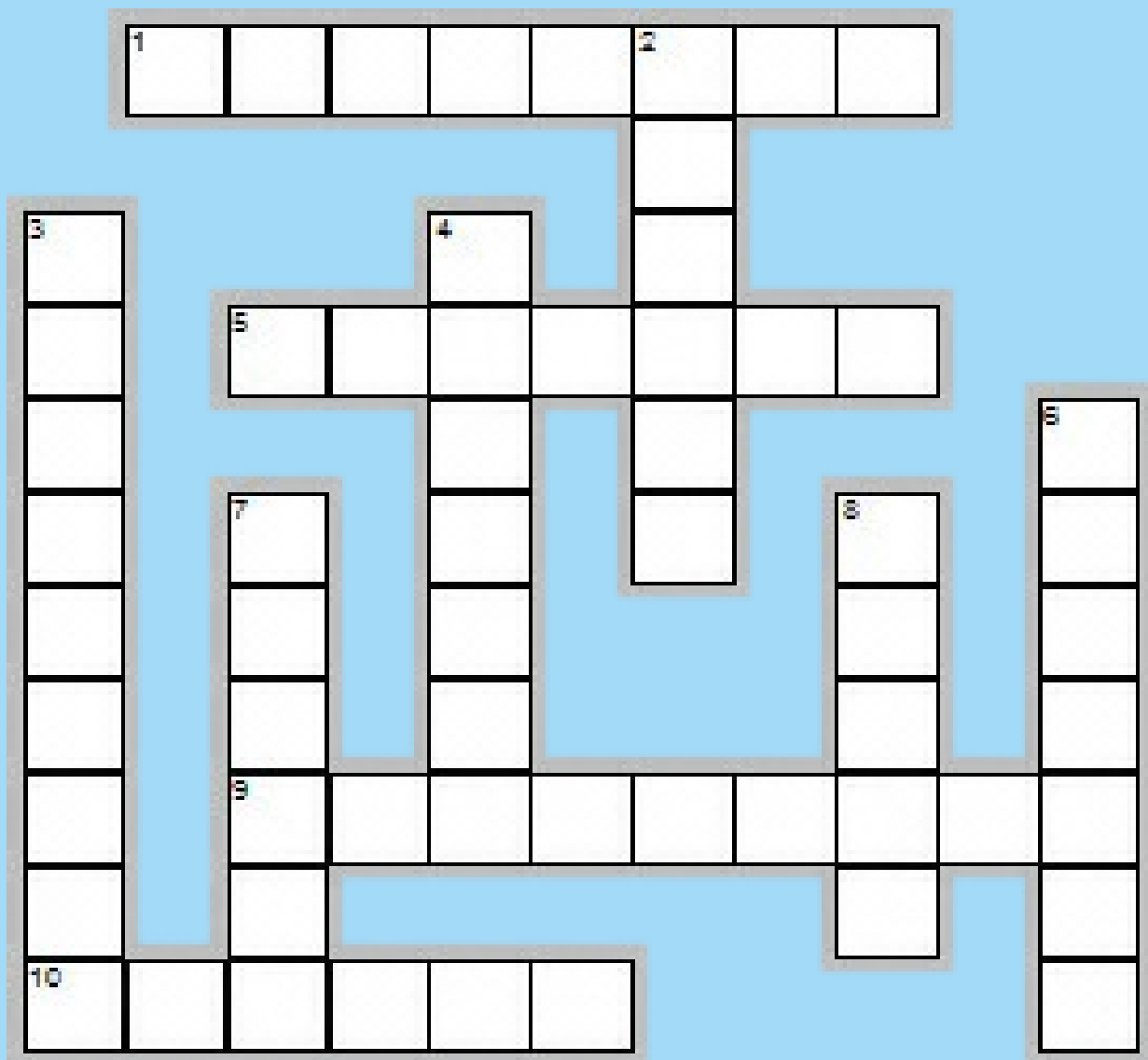
The LW data is @24 kHz (US Navy submarine communications signal) and was recorded by an old Dell logging computer from the now-defunct Stanford LW receiver.

The 'SW recorded data' is that of the NOAA's GOES satellites and it is checked periodically by cross-referencing it with the ICF 6800 W 'observations' to see how the sun is affecting the communications airwaves on a regular basis at WWV's 5, 10, 15 and 20 mHz bands. To do this involves the services of the same Dell logging computer, which has been in continuous service now for about 4 years.

All of this data is on a memory stick and can be displayed as charts for study or project work. If anyone is interested in making use of it beyond what I do with it, I consider it in the public domain and am happy to share it with any interested individuals within HAA or out. The GOES data can be seen directly on their websites, although finding it can be a bit circuitous. I can be reached at 905-648-8919 or mchljefferson284@gmail.com.



Astronomy Crossword by Mario Carr



Across

1. Starting Sept. 4, you can see this light for the next two weeks.
5. On Sept. 22, this happens.
9. When the William J. McCallion Planetarium opened in 1949, this was used as its dome.
10. On Sept. 9, the crescent moon is close to this planet low in the evening sky.

Down

2. A nocturnal astronomical bird
3. In Aug. a nova occurred in this constellation.
4. On Sept. 28, the crescent moon is five degrees from this planet in the morning sky?
6. What is the name of the moon on Sept. 19?
7. Its steam reveals the Lagoon Nebulae and other celestial wonders
8. On Sept. 8, the waxing crescent moon is two degrees from this planet.

Answers can be found on page 14 . (No peeking!)



Spreading The Word by Don Pullen



I've had the privilege of doing a number of astronomy-related presentations this summer to a number of groups and more are scheduled for the fall. Doing presentations is a lot of fun and a great way to meet new people and get more of them inspired to explore the hobby of astronomy.

I did my Radio Astronomy program that I gave to our club last year, to the Burlington Amateur Radio Club, a group of ham radio operators. I modified my original program to make it more suitable for this audience since they are already quite familiar with the basics of radio communications. I'm a member of this club, though I don't attend as often as I'd like. With a limited budget and finite time, I can only manage one hobby at a time and these days, it's mostly astronomy. But I do know many of the members. However that didn't adversely affect the response of the audience. They were quite enthusiastic and had many technical questions which I really enjoyed tackling since most of my audiences usually don't have much knowledge of the subject matter.

Over the summer, I was asked by the Hamilton Public Library to help with their summer reading program and do presentations for the kids. This year, I had 2 age groups and 3 different libraries (Barton, Kenilworth and Terryberry). The theme for the summer was "Go - Explore Far and Wide" which was a perfect fit for astronomy. For the youngest group, I got them to pretend that we were on a rocket and going to explore the solar system and universe. I included video and audio in the presentation of a real rocket launch so they could better envision our journey. We even got them to shake and bounce

around as if they were experiencing the vibrations of a launch. That evoked lots of giggles. For greater distances, I stole some Star Trek Warp Drive sequences. (So many choices for faster than light travel: StarTrek, Star Wars, Battle Star Galactica, Stargate SG-1, etc).

Since the kids presentations were day-time events, I brought along my Coronado PST solar scope so they could look at the Sun after everything was done. One of the days we were mostly clouded out so not all of the kids were able to see the Sun. But we were lucky for the other two with perfectly clear skies.

The presentations were rounded out with an opportunity to see and handle meteorites, and I gave each of the kids planispheres and showed them how to use them to find their way around the night sky. When you get a group of children who are into astronomy, it's a lot of fun with a huge variety of questions, not only about astronomy, but also dinosaurs, aliens, rocket ships and more.

For the fall, my outreach efforts continue but strictly for adults (so far). I will be doing my Radio Astronomy presentation for the Hamilton Amateur Radio Club on Sept 18. I'm also doing an introduction to astronomy for adults at the Barton branch of the library on Sept 11, and a similar program at Kenilworth branch on Oct 17. We're hoping for both of these latter events to set up a telescope (or two) afterwards to look at the sky and provide a bit of a night sky tour.

So I'm still doing my bit to help spread the word about the fun and excitement of doing astronomy. Hopefully other members of the HAA will consider doing outreach in some form. I know many participate at our public stargazing events, which is a great start. But I encourage you to try doing a small presentation on something of interest for the club. We are friendly audience and it's a great place to learn the basics of speaking in front of a group of people. It could be about some new equipment you have, an astronomy-related trip you took, or some particular topic in the wide field of astronomy that interests you. The skies are the limit. And if we get more members who can venture out to the wider public, the more people we can draw into the hobby we all enjoy so much.



The Making of the SkyStopper by Steve Germann

I started out with the intention to design a simple crystal controller stepper motor driver for an equatorial platform design that Ed Smith, an experienced machinist, had shown me. Of course I would want to add the ability to go Solar, Lunar or Sidereal. Little did I know at the time how fancy a job I could/would do. Ed used roller blade bearings. They are inexpensive and easy to get, even in small quantities. He used ball transfer unit bearings for supporting the back part of the arc, and cut the curved arc by hand. He got me thinking.



Setting up the SkyStopper equatorial platform.
(all photos courtesy of the author.)

I thought up a way to make curved arcs out of wood with a router and a jig to hold the wood. It turns out that my preferred wood, Red Oak sanded 4 sides, available from Home Depot, has internal grain that tears when cut by a router blade. I would get halfway cutting it down the grain, but as soon as it had to climb the wood grain, it would shatter the board. Back to the drawing board. Plywood was better. 13 layer 3/4 inch Baltic Birch was ideal. I could cut it without tearing it, and it was very stable. I left some in a glass of water to make sure it would not peel apart.

In the intervening years, I have built 4 different equatorial platform designs and tested them with my control units, making

improvements. Supporting the bearings which support the curved arcs of wood on the top platform was the thing that changed the most.

All the while I was guided by the goal of being able to make many of them for people with Dobsonian telescopes. I wanted to share the joy of astronomy through a guided Dobsonian with everyone. Checking back issues of the Event Horizon will turn up some eloquent praises of my aluminum equatorial platform. I did the math and established that my beloved aluminum platform was actually slightly inaccurate. As the time elapsed, it would get ahead of the stars, and then fall back at the end of travel until aligned again. I wanted something that was easy to make and accurate too.

In the meantime, push-to telescopes and even motorized Dobsonians have been popularized. Although you can get a decent view through a motorized Dobsonian, it's impractical for astro-photography due to image rotation. The equatorial platform, guided by a tangent arm, is the most accurate way to use a push-to telescope. By centering the platform, while it is stopped, and calibrating the telescope axes, you can push it anywhere, then start the tracking. Presto, astro-photography becomes possible. When it's time to seek another target, rewind the platform to a precise point (center the platform) and the calibration of the push-to will still be valid.

There were a number of issues which vexed me and were eventually solved. One was the motor strength. The design uses a threaded rod which pulls the platform along. This has some advantages. For one, the motion can be extremely accurate, because the motor ticks 400 times for the platform to move 1 millimeter. It turns out that no threaded rod is perfectly straight, and some are dreadful. I designed a memory into my controller, so that if I guide it once, it can remember the commands and adjust itself next time even without a guider. If the rod is not straight, the shaft coupler gets compressed during part of the rotation. This was enough to stop the weak

(Continued on [page 13](#))

The Making of the SkyStopper (continued)

motor I was using. But a geared motor is too slow when rewinding. So a trade-off had to be made, including lower friction for the threaded rod.

Another thing that disappointed me about my aluminum platform was that it was only good at guiding for objects that were near the meridian. In other words, overhead or south of the telescope, not east and west. Since I want to reach the whole sky, I wanted to be able to photograph it too. That helped me stay keen on designing the ideal platform for my telescope to ride.

After some initial success, I did some more experimenting. Making the guiding actuator was a problem. I wanted to use a hinged paddle, using a motor with an off-center bearing (a cam) to lift the paddle. It turned out the hinge was the problem. The hinges I could buy all had lateral play which was too great for use with astro-photography. One day I was driving in the car, and thought of using a threaded rod as the hinge. A short time later I realized that turning the rod would move the actuator laterally. That was how my idea began. Now it is patent pending.

I put some nice features into the design. An example is the adjustable level. There are three fine adjustment screws on the bubble level. Here's how it works. I set up and align the equatorial platform at my favourite observing site, and make sure it's tracking on the pole as accurately as possible. Then I use the screws to ensure that the level reads horizontal. I know the length of the platform and the pitch of the main levelling feet screws, so if I travel north or south to a different observing site, I can just level it first, then turn the screws a full turn for each 14.71 km of latitude change. That way I know I have the pole in my sights. All that remains is to adjust it for east-west to get it on the pole, and it's all set up.

To make it usable in the dark, I put a beeper on it with descriptive tones that show what speed is selected, etc.

My aluminum equatorial platform brought me a lot of joy. I have observed the Ring Nebula at 500 times magnification, and been able to walk away and get a filter, and come back and it's still there. Also, checking star charts and then continuing my star hop to get to a hard to find object in the sky, is where an equatorial platform comes in handy. Knowing that I can do astro-photography with my Dob (the Great White Scope) and that there will be no eyepiece rotation or messing about at the zenith, is also reassuring.

The list price on my Aluminum platform is more than I spent on all my telescopes and accessories combined (except the camera). Even then I would say it's worth it. Once someone has used an equatorial platform, they wonder how they ever used their telescope before. It's like night and day, so to speak.



Matthew Mannering's 12" Dob on custom made SkyStopper



SkyStopper Equatorial Platform

The SkyStopper equatorial platform, custom made for your telescope and latitude, can be yours in just a week, for only \$649 plus shipping. (Local pickup save \$25 and all the shipping)

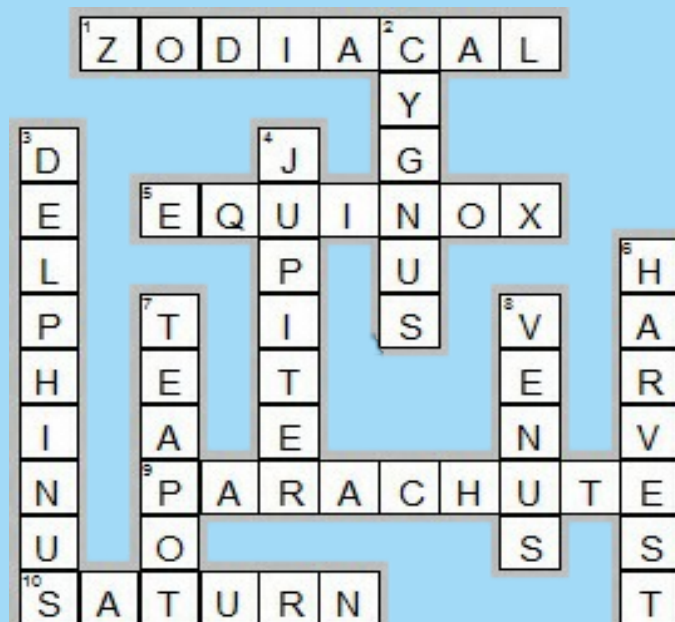
Features:

- handles high power eyepieces without drift
- patent pending dual direction guide capability guides in any part of the sky, not just the meridian
- do guided astrophotography and manual fine centering with your Dob
- effortless tracking through the zenith
- compatible with push-to digital setting circles
- compatible with goto Dobs that can stop their clock drive
- runs on 12v accessory power from your tank
- star, sun, moon, half-solar, and tuned rates
- easy to assemble, adjust and maintain
- adjustable bubble level allows quick setup at a variety of sites
- made in Canada, ships from Canada
- quick release magnetic linkage
- infra red remote control with audio acknowledgement
- pushbutton override possible instead of remote
- extra long levelling feet for range of latitudes
- high weight capacity and stability
- typically 90 minutes run time
- quick rewind or re-center
- low power
- dimmable led display

<http://www.skystopper.ca/> or email smrg@cogeco.ca



Answers to Astronomy Crossword on Page 10





I Have Seen “the Canals on Mars” by Mike Jefferson

Yes. It's true. I have seen 'the Martian canals'. As hard as it may be to believe, it is actually true! Better than being true, I did not have to use a telescope, either! However, a little history first.

Percival Lowell, the great American popularizer of Martian 'facts' and lore, was the man responsible for bringing most of this Martian information to light, not only in the United States but also in the rest of the world. He had started his life boosting the Lowell family's fortunes to even higher levels through their textile businesses and making an already rich American 'Brahmin' family even richer. Then he went on to become an American diplomat to Korea and travelled to Japan where he learned to speak fluent Japanese. Somewhere in all of this he got the idea that a relationship with an extraterrestrial civilization might just be possible. His education in mathematics, at Harvard in 1876, turned him toward the work of the Italian astronomer, Giovanni Schiaparelli, who's eyesight was failing him and who's studies of Mars had to be given over to teaching duties. Lowell figured he was just the man to carry on this valuable enterprise. Using the Lowell fortune, he constructed Mars Hill Observatory near Flagstaff, Arizona and installed a 24" Alvan Clarke refracting telescope. He was obsessed with Mars.

Schiaparelli had observed what he drew on his 'images' as *canali* or channels, with his refractor. He never implied anything more to these than surface features on a distant body. Lowell wondered whether he could see them as well. He cranked the 24" up to some amazing magnifications (mostly 'empty') to see how much detail he could discover. To remove atmospheric tremors, he could diaphragm the huge instrument down to a few inches, which made it even more powerful. His imagination started to 'kick in' here and he began concocting stories and ideas about the Martians. Any astronomers at Mars Hill who were critical or sarcastic about this work were fast-tracked on the road to being sent back to their universities or fired, PDQ.

Lowell imagined a brilliant civilization that was dying because it needed water. Therefore, it built canals to move water around the planet. He figured the mean Martian temperature was like that of the south coast of England. He probably foresaw the day when Martians and Earthmen would one day be 'shaking hands' across the solar system. His mind literally 'flew' with these ideas and he became obsessed.

He published "Mars" in 1895, "Mars and Its Canals" in 1906 and "Mars As The Abode of Life" in 1908. These writings were drawn to the attention of Alfred Russell Wallace, the co-discoverer of evolution, probably the world's greatest biogeographer and likely the first

astrobiologist, amongst many other accomplishments. Wallace called on advice from astronomy, biology, geography and physics friends to compile a monogram, a critique, of Lowell's theories, and in an essay's length, destroyed them.

Eight years later, Lowell, suffering from his ideas' lack of acceptance from all scholars, and depressed by the outbreak of World War I (he was a pacifist) died of a stroke in 1916, age 61. However, he had seen the 'canals', as Schiaparelli had, too. He had even seen them on Venus, no less! And I saw them - using a microscope! They are an artifact of optics, the human eye and nothing more. You simply need powerful enough magnification and small enough aperture. There is nothing more to it than that.

Using a Greenough Stereo Zoom microscope, I had increased the magnification to 80X to get crystal clear imagery of Star Gazer Lily stamens (yes "Star Gazer"). And as I pulled my head about 6 inches away from the eyepieces to reflect on my observations, the internal structure of my eyes planted itself over the imagery of the stamens. My microscope, like Lowell's and Schiaparelli's telescopes, had become an ophthalmoscope! Like Lowell, I saw fine, spidery structures, large and small oases where the lines converged and all kinds of other intricate structure - all inside my eyes! A little imagination and a planetary image (say Venus or Mars) could have given me double canals, irrigation concepts ("works of art" as Wallace termed them), a dying civilization trying to save itself by pumping water, a lovely mild climate in a desert environment, etc.! There is simply no end to the wonders of the human imagination - all from the imagery of misinterpreted evidence!

Mariner IV returned about 22 pictures of Mars in the 1960's which showed it to be more Moonlike than we were willing to believe - thin, non-breathable atmosphere, very cold desert, no obvious plant life, no canals, no liquid water, no crops, no cities.....and no Martians! But we still clung (and we still do) to the hope that somewhere on that surface, plant or bacterial life might be found. As the Viking craft were preparing to head for Mars in the mid-1970's, Wernher von Braun, shortly before his death, in a Q&A forum, expressed the hope that we would find forms of plant life there. Old concepts, theories, etc. die hard.

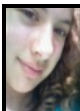
In any and all scientific endeavour, it is very important to be objective, to doubt what might appear at first to be, to not misinterpret results and to consider other explanations as strong possibilities. Above all, be gracious and humble before jumping to conclusions.



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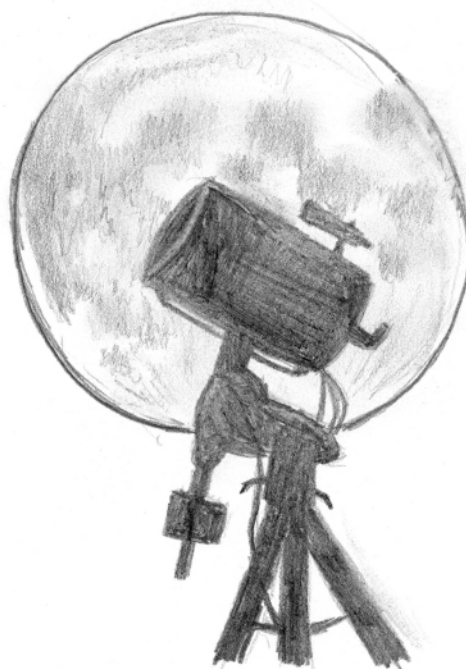
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UPCOMING EVENTS

September 13, 2013 - 7:30 pm General Meeting at the Hamilton Spectator Auditorium. Dr. David Galbraith of the Royal Botanical Gardens will be our guest speaker. Kevin Salwach and John Gauvreau will update us on This Day in Astronomy History and the Sky This Month.

September 14, 2013 - Public Stargazing event at Niagara Gateway Tourism Centre, 424 South Service Rd, Grimsby. 7:30 pm - 11:00 pm.

October 11, 2013 - 7:30 pm Annual General Meeting at the Hamilton Spectator Auditorium.

November 2, 2013 - Hamilton Amateur Astronomers' 20th Anniversary Banquet at Hamilton's Warplane Heritage Museum. Contact Steve Germann, Ann Tekatch 905-575-5433 (editor@amateurastronomy.org), Brenda Frederick or Jim Wamsley for tickets.

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