Event Horizon

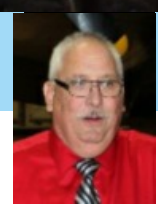
Volume 21, Number 2
December 2013

From The Editor

There's some exciting stuff in this month's Event Horizon!
We've got the usual The Sky This Month, Cartoon Corner, Astronomy Crossword, etc. And look what's back in the E.H.; NASA's Space Place!

Enjoy!

Bob Christmas, Editor



Chair's Report by Jim Wamsley

The H.A.A. has now started in to our 20th anniversary year, and we have started it off with a bang. The banquet, held at the War Plane Heritage Museum, was a great success, and lots of fun. The annual telescope clinic Nov 8th was also very well attended. A well-deserved thank you to all our members that brought their scopes for display. They help to show the options the public have. People that had brought in scopes that have been giving them problems were also helped.

At the November council meeting, we confirmed the appointment of the club's councillors at large; they are Brenda Frederick, Harvey Garden, Ann Tekatch, and David Tym. The club's councillors at large do many of the jobs that come up, that don't fall in to the job descriptions of the elected council. For example, Ann will be looking in to the pros and cons of the club becoming incorporated, and making a report to council. We also named a new web master at this meeting. David Tym, will be taking over this important position from Don Pullen. Don has done a fine job in *(Continued on page 2)*

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HAMILTON AMATEUR ASTRONOMERS

CELEBRATING 20 YEARS OF FUN AND EDUCATION THROUGH ASTRONOMY

1993-2013

Chair's Report (continued)

this post for the past few years, maintaining the website, updating and posting events. Thank you Don, your hard work in this post and others in the club is greatly appreciated. David has been on council for two years now, and is a professional web designer. He has offered to revamp the website, and modernise it, to make it easier to navigate, as well as add new features to give it a whole new look. David has shown council some of his ideas, and we think you will like the way the end product will look. Give this a little time, as David will first be looking at what we are currently using, and make the changes based on the usage. If you have suggestions on improvements you would like to see, please contact David at Webmaster@amateurastronomy.org.

November 16th saw the club's Cosmology discussion group get together for the first time this season. For this session, we watched the first episode of the TV series "Cosmos" with Carl Sagan. We later talked about the show, and noted the changes in cosmology from then to now. It was fun to see the special effects of the time, not to mention the fashion. I think corduroy sport coats with leather patches, and turtle-neck sweaters should make a comeback. December is a very busy time, so we will not have an Astro-photo group meeting. The next meeting of the Astro-photography group will be January 18th and Cosmology on a date in February to be announced.

We have had another telescope donated to the club, for our loaner scope program. Mr. Jack Evans called me earlier in the month, to tell me that he had an 80mm Nexstar scope that he was no longer using, and he wanted to see it put to good use. He knew of our loaner scope program, and thought we could give the scope a good home. That now gives us 6 telescopes and one pair of binoculars in the program. Available for loan are two 8" Dobsonian scopes, two 80mm refractors one of which is a Nexstar computer guided scope. For the more advanced observer, there is an 8" Schmidt-Cassegrain, with an advanced G.T. Equatorial mount. There is also a birding scope available for those adventurous souls that would like to check out our feathered friends. Lastly, but not the least, there is a lovely pair of Pentax binoculars. All these are now available for you to take home and use for a month or so at no cost to you. What an opportunity to see what kind of scope is a fit for you, if you're a new observer, or just try a different scope design, if you have been observing for a while. Just call me at 905-627-4323 or e-mail at chair@amateurastronomy.org and you can take one of these home with you.

Our December meeting will feature Tim Philp as our main speaker. At the time of this writing, Tim has not told me the subject he will speak on, but I'm sure it will be an interesting talk.* Tim has delivered many great talks to the H.A.A. in the past.

I almost forgot!! Sales of the H.A.A. 2014 Calendar have been brisk, and there is only a limited number. If you want to get your copy of this excellent calendar, make sure you pick up one or more at the December meeting, or contact me. The photos in the calendar this year are the best ever, and are by club members. The H.A.A. Calendar is the only fundraiser we have, so please help support your club. They make good Christmas presents.

I hope you all have a fun time this Holiday season, and that Santa brings you the Astro toy of your dreams.

**[Edtr.: See Tim Philp's meeting extract on Page 17]*

HAA Helps Hamilton

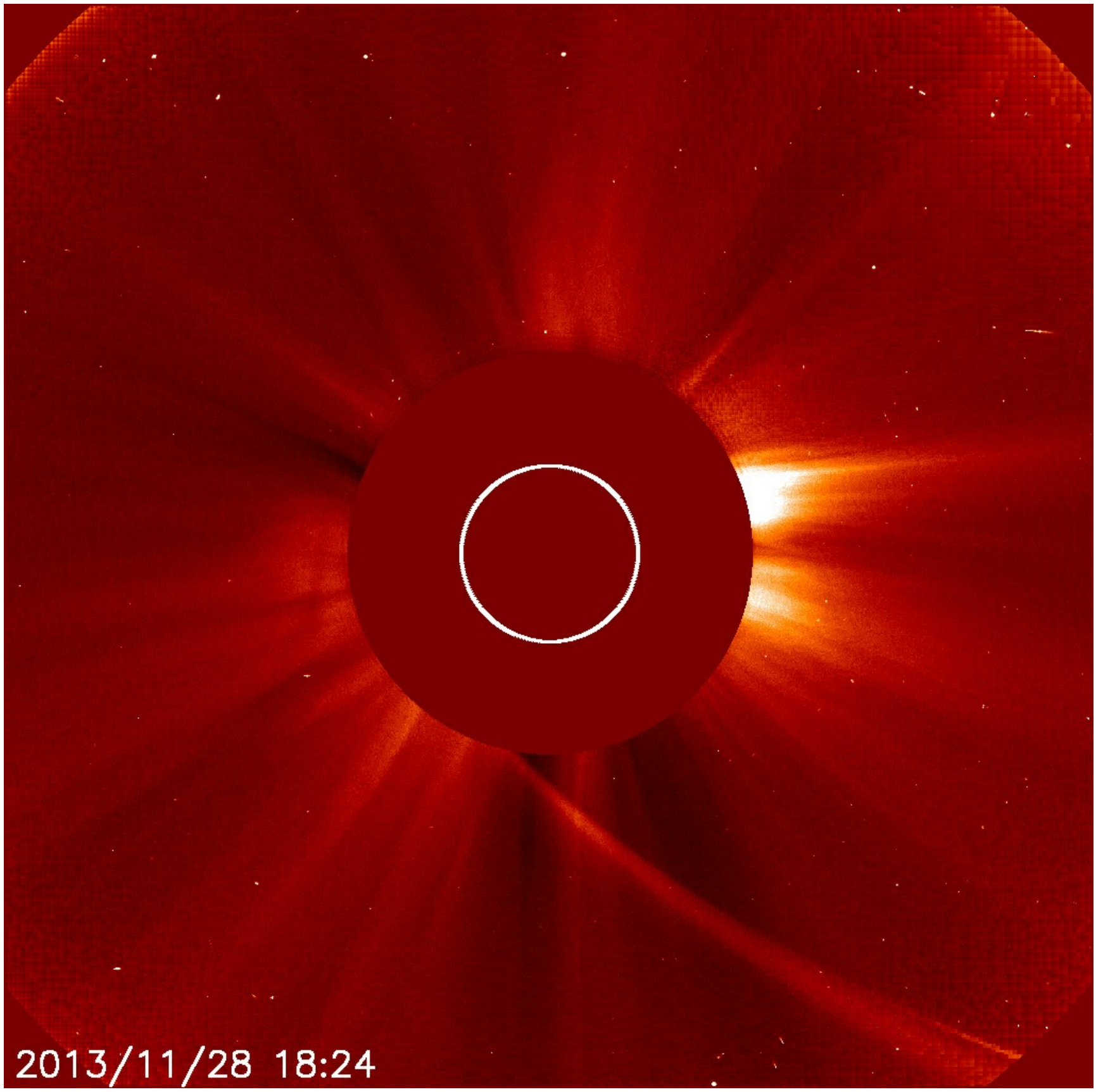
To support our community, we will be collecting non-perishable food items and cash for local food banks at our general meetings. Please bring a non-perishable food item to the meeting or a donation of cash and help us help others in these tough economic times.

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 of the Swarm Rocket Launch on November 20, 2013 taken by Clyde Miller from Paris, Ontario.
This image is a composite of four successive images with a 150-second total time span.

The Sky This Month for December 2013 by Matthew Mannering

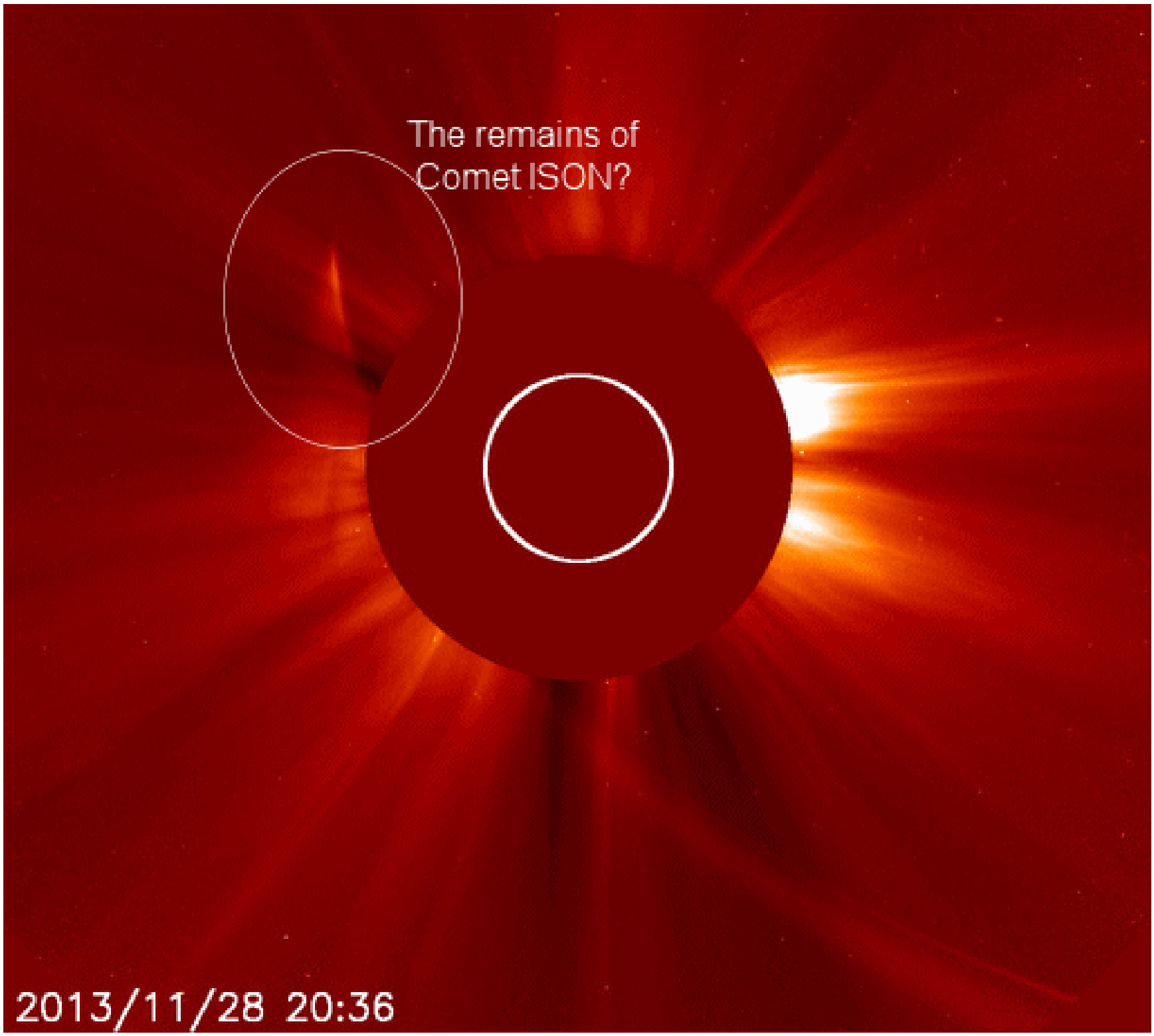
Well it looks like **Comet ISON** didn't survive it's close encounter with the Sun. It brightened significantly around November 14th and by the 18th had a tail 16 million km long. On November 28th (date of closest approach to the Sun) the comet brightened to around magnitude zero. Images from SOHO cameras show that the nucleus seemed to smear just before the comet disappeared behind the black disc that covers the Sun. This indicates that the nucleus has disintegrated. You can see this in the image below. That's really unfortunate after all the hype and expectations of a great spectacle for this month. Better luck next time I guess.



(Continued on page 4)

The Sky This Month (continued)

Latest news on ISON: Images taken around 8pm EST show that something survived the encounter. Most likely this is a dust trail (the remains of a comet with no nucleus), but it could be a fragment of the nucleus. Either way, I wouldn't expect any kind of show worth watching in December.



Winter Solstice is coming up fast. Take note though, that there is a little typo in SKYNEWS magazine. It shows the solstice at 12:11pm on December 20th but it actually arrives at 12:11pm on December 21st. With the low number of hours of daylight at this time of year it's a good time to do early evening astronomy. Get your scope out at supper time to cool down, then get outside to view. When you are done you can still be in bed at a reasonable time. The temperature isn't too bad in the early evening but of course it drops as the evening progresses. The number of clear nights in December are usually few, so take advantage of any clear nights that come our way.

(Continued on page 5)

The Sky This Month (continued)

Easy Targets
For this month, let's look at the open clusters in Auriga and Gemini. Each open cluster is unique. They vary in overall brightness, the number of stars and the apparent size. As you can see from the chart below, there are three Messier Objects in Auriga(**M36,M37,M38**), all of them are open clusters. The best way to find them is with binoculars. They all show up as misty patches but will resolve into very nice clusters once you use a scope. From M37 scan down towards the horizon into Gemini to find M35 at the foot of Gemini. M35 is the brightest of the four and the largest. Which one do you enjoy looking at the most?.

Jupiter is in Gemini just to the west of Pollux and I'll talk a little more about that in **The Planets** section on Page 7. Meanwhile get out your scope, big or small, and take a good look at the star Castor. Use high magnification and you will see Castor split into two stars. Castor A is about 1 magnitude brighter than Castor B. Stars like Castor are a good introduction into splitting doubles. If you haven't looked at the ones I mentioned in last months report, now's the time.

Finally, with Orion now available for evening viewing, you can start looking at the Great Orion Nebula M42. Start at the eastern most star (the left one) in Orion's belt and look below it with your binos to find his sword. The misty patch in the middle of the sword is M42. Remember that at this time of year, Orion comes up 'on his side' so if you are using your own charts you have to turn the chart to match how Orion looks in the sky. That makes finding things a lot easier! We'll talk more about the area around Orion next month.

(Continued on page 6)

The Sky This Month (continued)

Now have a look at M38 with binoculars. Put M38 near the left edge of the field and look to the right of it for the smiley face as highlighted in the close-up chart. I found that about four years ago and still get a kick out of it. It turns out that others have found it as well but apparently it doesn't have an official name. Not that it matters; it's just a fun to look at.

The Planets:

- ***Mercury*** is visible low in the East at dawn for the first third of the month and then sinks below the horizon on its way to *Superior Conjunction*. This is just a way of saying that on December 29th Mercury will be on the far side of the Sun and directly in line with us. Now, because the orbit of Mercury is tipped relative to the ecliptic it can actually be slightly above or below the Sun at that time, but we're ignoring that to keep things simple.
- ***Venus*** is at its brightest on December 6th in the South West at dusk. As December progresses, it will slowly sink towards the horizon. At month end it will be 7 degrees above the horizon at 5pm. It will be a thin crescent, looking like a 1 day old Moon. Have your scope ready and to be safe, wait for the Sun to disappear below the horizon.
  In January Venus will be at Inferior Conjunction. Can you figure out what that means based on what Superior Conjunction looks like?
- ***Mars*** has moved into Virgo and rises around 1am. Its apparent diameter is still very small. With high magnification you may catch a glimpse of the north polar ice cap but that's about it. Between December 27th and 30th Mars will travel very close to the double star Porrima in Virgo. You can try to split Porrima but realistically you'll need a five or six inch (125 to 150mm) scope to resolve the two stars because they are separated by less than 2 arc seconds. Both stars in the double shine at about magnitude 3.5.
- ***Jupiter*** (in Gemini) is big and bright in the East by 7pm. Give it some time to get higher in the sky and then take a good look. Even in a small scope the dark North and South equatorial bands are visible along with the four Galilean moons. On the 17th Callisto's shadow starts to cross Jupiter's disk around 10:04pm. Don't give up if you can't see it right away. Wait a while and it will become more obvious as it approaches the mid point of it's transit in the southern hemisphere. It will show up as an inky black spot.
- ***Saturn*** is in Libra at the moment. It is very low in the East before dawn at the beginning of the month and will rise a little earlier each day.
- ***Uranus*** has moved a few degrees East of the position charted in the November Sky This Month and ***Neptune*** has barely moved

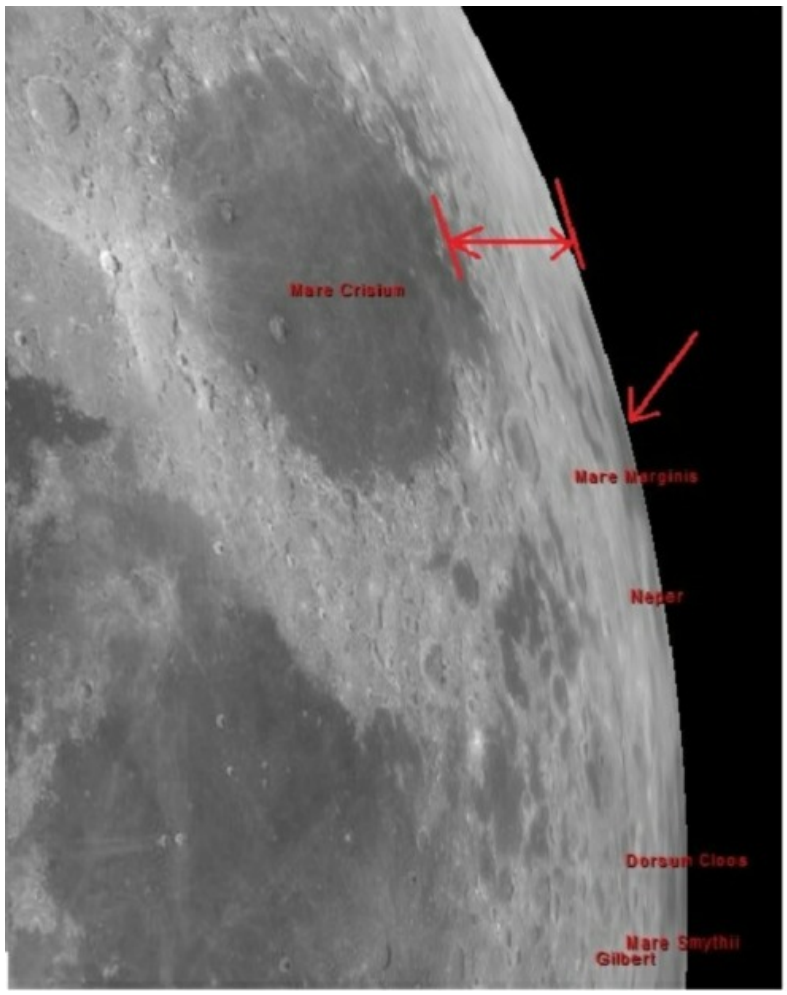
(Continued on page 7)

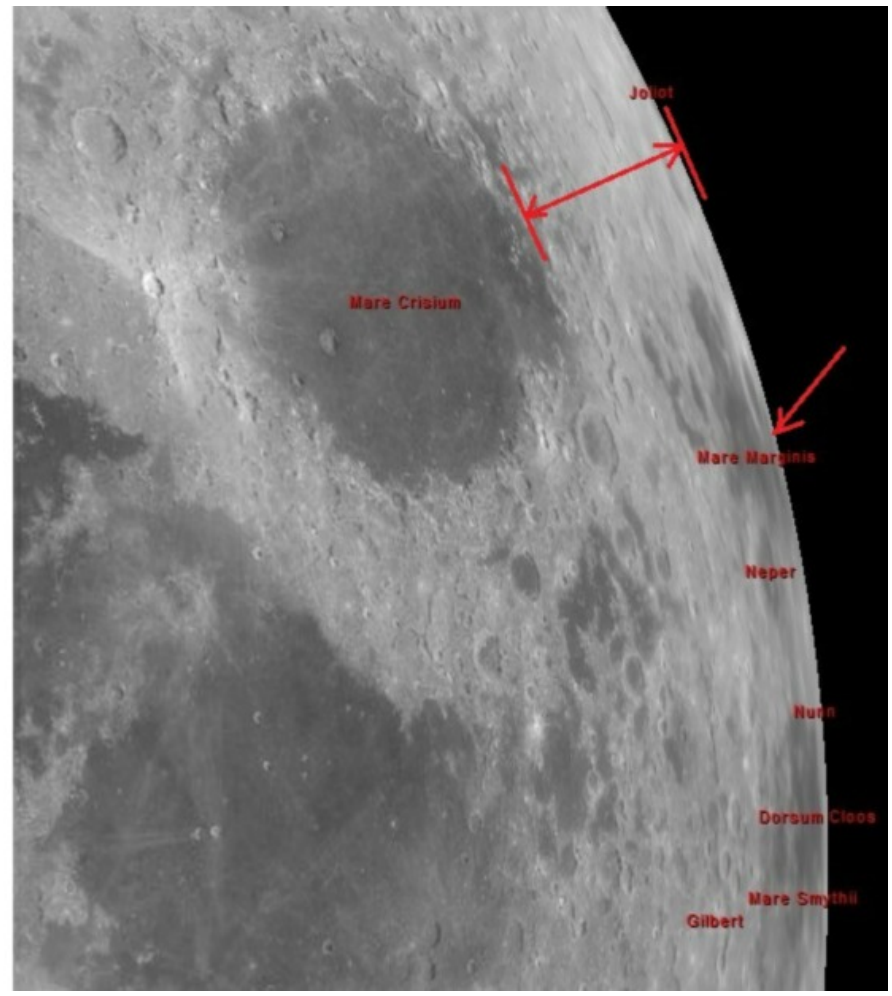
The Sky This Month (continued)

The Moon

The full Moon at mid month will be the smallest of the year and its apparent diameter will continue to shrink until it reaches apogee (the point when it is furthest from the Earth) on the 19th. Of course any actual difference in the Moon's apparent size is minimal and not really noticeable to the eye.

As the moon moves through its orbit, it appears to "rock" slightly North/South and East/West. This is called 'libration'. The end result is that we can see roughly 59% of the Moon's surface over a period of time (9% more than you would expect). This means that there are times when it is more favourable to view surface features along certain parts of the limb (outer edge) depending on the current tilt. The libration of the Moon favours the South and East limbs in the early part of the month and the North and West limbs later in the month.





As an example, lets looks at the Moon on the evenings of October 11th and December 9th (above). In both cases the Moon's phase is very close to first quarter, but if you look at the two images of the Moon, you will see how the features along the eastern limb differ. See how the detail visible along the Eastern edge of Mare Crisium is much more defined and clear in December compared to October. Also notice that Mare Marginis is much more in view.

Your mission, should you decide to accept it, is to try and view Mare Marginis East of Mare Crisium on the limb around the time of first quarter.

Other Events:

-*December 2nd:* New Moon.
-*December 6th:* Venus at it's brightest at magnitude -4.9.
-*December 13th:* Geminid meteor shower at its peak; viewing will be difficult due to the waxing moon.
-*December 17th:* Full Moon.
-*December 25th:* **Merry Christmas!**
-*January 1st:* **Have a Happy and Safe New Year!**

In Praise of *Small* Telescopes by Mike Jefferson

Before we praise this classification of instrument, we need to decide just what constitutes a small telescope. In professional terms, because working astronomers deal with very large instruments, anything the size of about one metre, or so, is very small. To an amateur, that would be huge. Amateurs are used to equipment 14” or more being very large. So, we'll set our definition of small at 5“ or less.

At the November Telescope Clinic-General Meeting I brought a small telescope to display and to open discussion about telescopes with curious public and HAA membership. I received all kinds of discussion from people who could simply not 'pull themselves away' from my telescope to those who dubiously wondered whether it would be any good for galaxy hunting and were lukewarm in their attitude toward it. (That's O.K. Everyone is entitled to an opinion.) I explained to the 'Doubting Thomases' that it scans the Milky Way beautifully at low magnification and sees all of the M-objects easily and many NGC objects beautifully. Photographically, it goes even deeper than visually. In addition, it is beautifully equipped for white-light solar observation, resolves intricate lunar detail and does extremely well on the planets. It is a 1962 Questar and the company has a reputation as old as the 60 years it has been in business and in production. Most of its present offerings are professional (microscope, surveillance, etc.). However, it continues its astronomical offerings in 3.5 and 7-inch sizes.

When Jean and I had entered the Spectator Building, I set the telescope up on one of the tables, inserted an eyepiece and proceeded to resolve one of the 'EXIT' lights into an organized display of rough edges, red letters and hairline cracks, impossible to see from 2 feet away with the naked eye. The microscopic detail from 50 feet away was astounding, even at 20X and 40X. It is also well-known that these instruments will focus with extreme precision from 10 feet to infinity, a feat that almost all other instruments are not capable of doing. It's finder and barlow are available in the same eyepiece as the standard magnification and without the need to remove your eyes to a different eyepiece. This is observing comfort just not known with other telescopes.

However, to be fair about it, there are other excellent small telescopes out there that will do extremely well. Some are small Cassegrains and Newtonians. Most are small apochromatic and semi-apochromatic refractive systems which are a pleasure to transport, set up and take down. And, for a mobile astronomy club, this is just what we are all about. Many of these little telescopes have amazing wavefigures, more efficient light throughput and have brighter images than mine. However, it must be remembered that these are refractive systems with much shorter focal lengths. Contrast and resolution are on par.

Without being totally biased, I have to put in a good word for large telescopes. If galaxy-hunting is your 'sport', this is what you need - in a permanently mounted location. However, for most suburban dwellers this is just out of the question. I have never found the imagery in these large Dobsonians to be pleasing – fuzzy and washed out in many cases. Maybe the large Zambuto mirrors are superb (and they are expensive!) but I have never relished the idea of climbing a stepladder in the dark to be a favourite pastime!

So, there are indicators to determine whether or not you need a small telescope. If you do not want to trade your Maseratti for a huge Porsche Cayenne – you need a small telescope. If you do not wish to trade your mid-sized car for a Cadillac Escalade – you need a small telescope. If your telescope is too much trouble to set up and take down – you need an always-ready small telescope. If you can't take it with you everywhere – you need a small telescope. If you live in an apartment – you need a window-sill-size small telescope. If your wife/husband is always saying “Get that contraption out of here!” - you need an easy-storing small telescope. If you are tired of large achromatic refractors' rainbows - you need a colour-free small telescope. If your large reflector is always out of adjustment – you need a more permanently aligned small telescope. If you want the utmost in fine resolution with which to tackle Dawe's limit and indifferent air – you need a very precise small telescope. If your finder is hard to reach or you are perched on a ladder in the dark to observe – you need an ergonomic small telescope. If you've finally had about enough of instruments with large or long, shaky tubes – you need a short-tubed, small telescope. And if you get a crick in the neck or aches and pains from contortions when using a your optical monster – you need the restful-posture of a small telescope.

(Continued on page 10)

Pictures From The 2013 Fall Telescope Clinic

Some of the HAA's members were on hand at the annual Fall Telescope Clinic on November 8, 2013 to give helpful tips and advice on telescopes and scope equipment.

Photos by Matthew Mannering.

In Praise of *Small* Telescopes (continued)

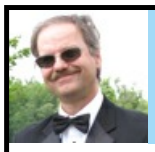
The incomparable small telescope can be many instruments in one. It is a fine telescope for serious work whose new kind of observing comfort encourages achievement in astronomy, nature studies, birding, photography and a whole host of other activities. It is a lifetime of entertainment and enjoyment for your family, your friends and yourself.

The final word in all of this comes from my arrival on November 08. When I drove in, the Spectator door was flung wide with heat escaping from the building and cold coming in. People were entering and exiting, in a series of trips with boxes, bags, tubes, cases and telescope parts, in a frantic hurry to set up before 7:30. After locking the car, I sauntered up the side-walk to the front door with telescope, tripod and two eyepieces in an 8”X9”X16” piece of luggage in my left hand, my carryall over my left shoulder and my 'chick' in my right hand. It just doesn't get any more elegant than this!

More Pictures From The 20th Anniversary Banquet

Kevin Salwach speaks at the HAA 20th Anniversary Banquet. Photo by Steve Germann.

Dinner and speeches beneath the Lancaster bomber. Photo by Janice Mannering.



Treasurer's Report by Steve Germann

Treasurer's report for November 2013
(unaudited)

Previous closing balance:	$5117.12
Year-end adjustments:	$251.00
Actual adjusted opening Balance:	$4866.12
Revenue:	$1085.00
Expenses:	$1027.07
Closing Balance:	$4924.05

The banquet was enjoyed by all, and performed financially as expected.

The food cost was covered by the tickets and the speaker expenses were covered by our general budget. We fed 80 people and sold $3285 worth of tickets and had total expense of $3753.44 including the speaker expenses.

Major expenses for the month included insurance $810, and speaker expenses $217.
Major revenue for the month included calendar sales of $825 and memberships of $260.

I made a transcription error in one of the figures for deferred memberships last month. Review of the receipt book has corrected it. That figure was $250 high. 50/50 revenue was quoted 1 dollar high at $37. It was actually $36. Income for the previous year was affected by $1 and will be reflected properly in our Revenue Canada filing.

The HAA 2014 Celestial Events Calendar

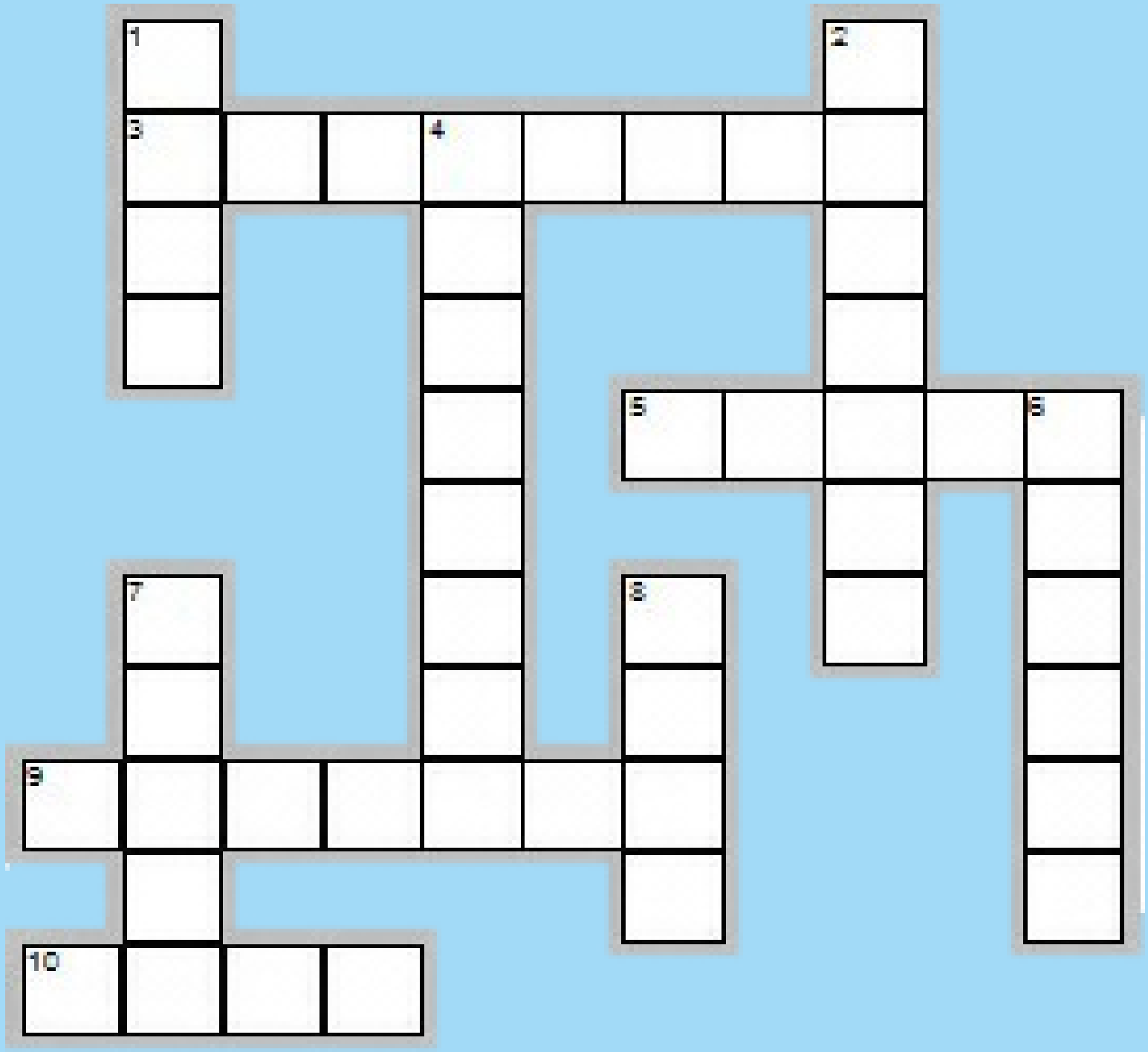
is now for sale!

Prices: $15 each, or two for $25.

We will have calendars available to purchase at out monthly meeting on Friday, December 13. They will also be available at any of our regular meetings and events, while supplies last.

These are excellent calendars with some wonderful photos taken by your fellow club members. They make terrific Christmas gifts and are perfect for the home or office.

Astronomy Crossword by Mario Carr



Across

3. Dec. 21 event
5. This planet will reach its maximum brightness of magnitude -4.9 on Dec. 6
9. During early evening on Dec. 18, the Moon will be near this planet
10. On Dec. 5, this object will be above Venus in the evening sky.

Down

1. If this comet survives its trip around the Sun, it will make its closet approach to Earth on Dec. 26.
2. This meteor shower peaks on Dec. 13
4. Of all full Moons in 2013, December's will be the
6. On Dec. 1, the thin waning Moon will be between Mercury and this planet at dawn?
7. In 2015, New Horizons will hurtle by this object.
8. On Christmas morning, this planet will be near the Moon.

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

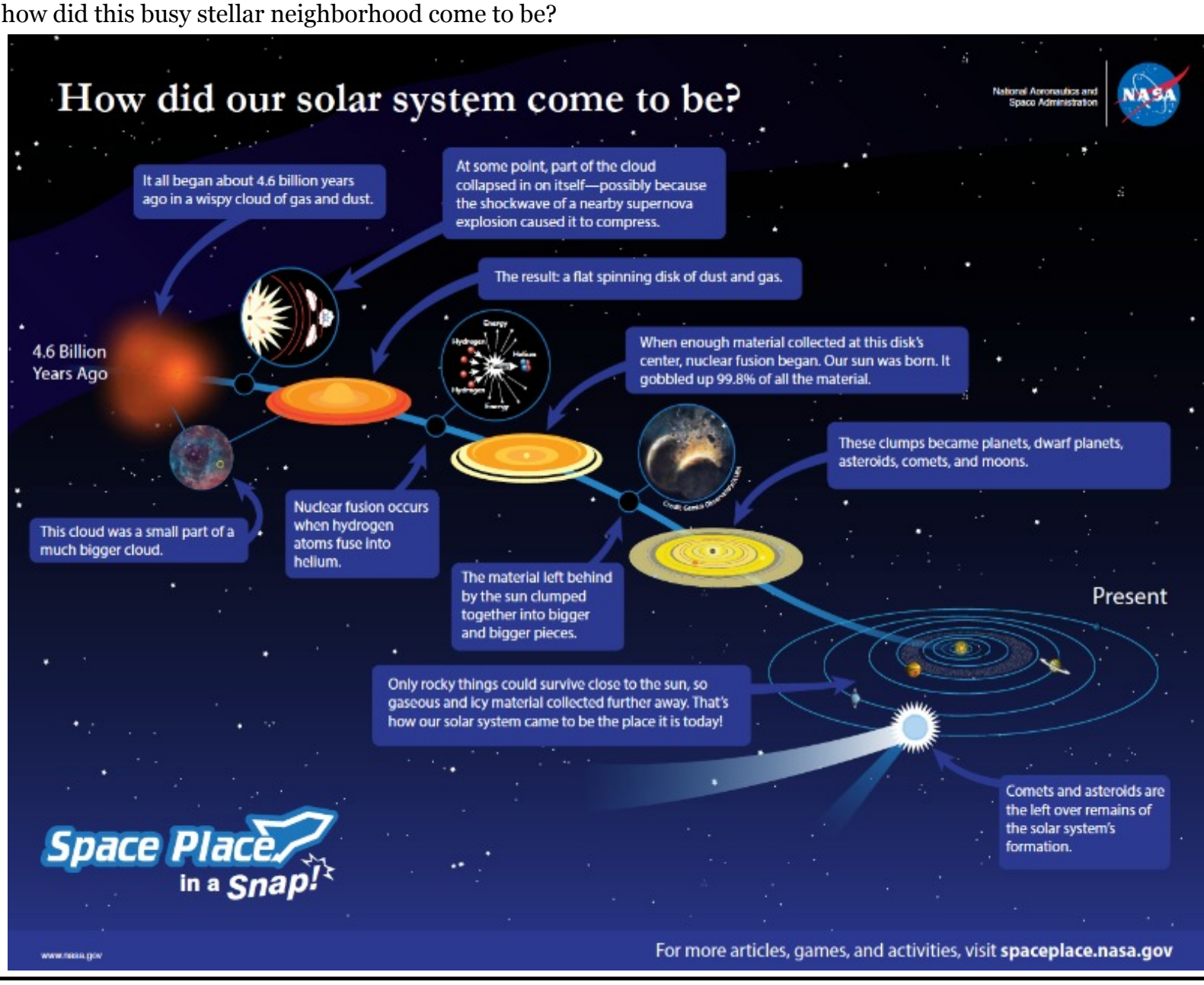
Space Place in a Snap!

NASA's Space Place is pleased to announce a new way to learn about science—Space Place in a Snap! These brief, narrated stories are engaging and entertaining, and they come with a downloadable poster, too. In our first episode, we tackle the question of how our solar system came to be the place it is today. Check it out: http://spaceplace.nasa.gov/solar-system-formation.

You can also find great interviews from our Space Place Live! series as well as Space Place in a Snap! at the NASA's Space Place You Tube channel at: http://www.youtube.com/user/nasaspaceplace?feature=watch.

The solar system is a pretty busy place. It's got all kinds of planets, moons, asteroids, and comets zipping around our Sun.

But how did this busy stellar neighborhood come to be?



SkyStopper Equatorial Platform

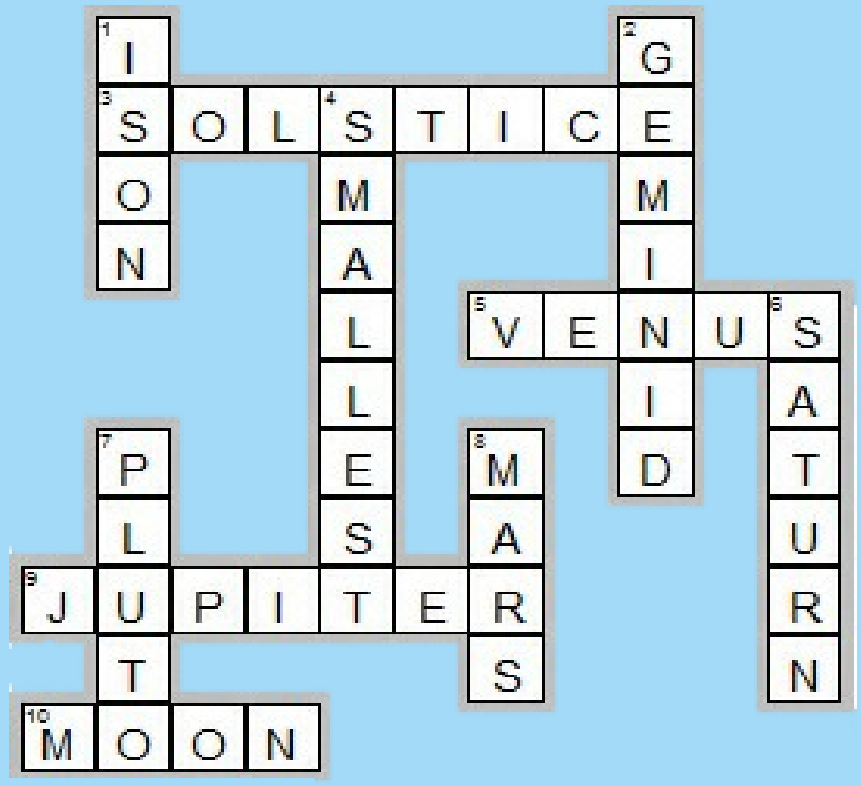
The SkyStopper equatorial platform, custom made for your telescope and latitude, can be yours in just a week, for only $649 plus shipping. (Local pickup save $25 and all the shipping)

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 12

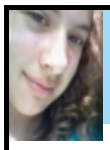


William J. McCallion

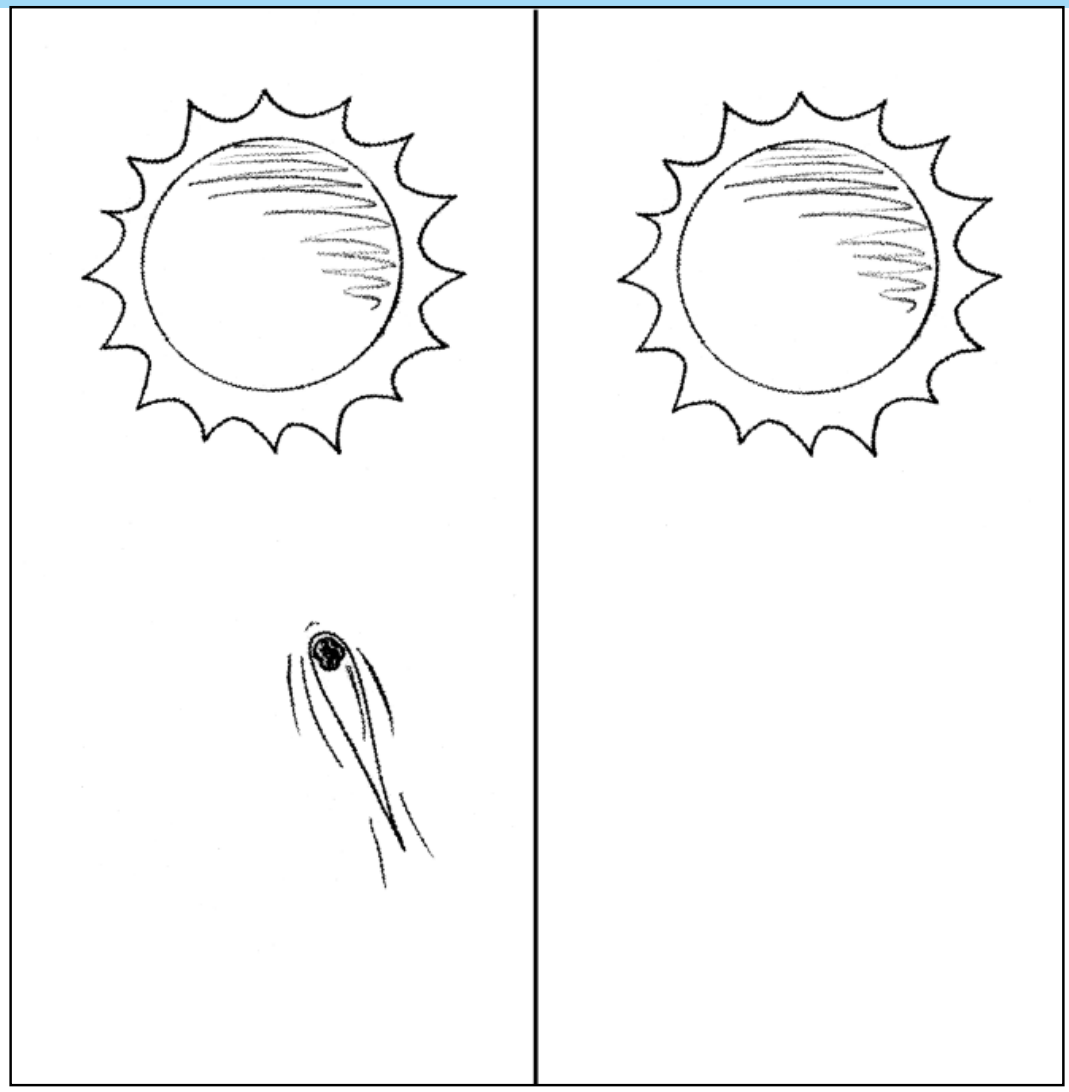
Planetarium

McMASTER UNIVERSITY, HAMILTON, ONTARIO

- Public shows every Wednesday (7:00pm)
- Public transit available directly to McMaster campus
- Tickets $5 per person; private group bookings $100
- Different shows every week
- Upcoming shows include:
  - **Dec 4: The Wonder of the Sky: A World Heritage in Peril!**
  - **Dec 11: Festive Skies**
  - **Dec 18: Festive Skies**
- For more details, visit www.physics.mcmaster.ca/planetarium



Cartoon Corner by Alexandra Tekatch



Comet ISON Comet IGONE

UPCOMING EVENTS

December 13, 2013 - 7:30 pm — *General Meeting* at the Hamilton Spectator Auditorium. Our main speaker will be **Tim Philp**. Tim retired after over 30 years' experience in computer and electronics engineering, including working on projects as diverse as computerization of railway locomotives for CP Rail, electrical control systems for forklift trucks, and classified electronics warfare design for the Canadian Navy. Tim has had an interest in astronomy for more than 50 years and has written extensively about the subject. He currently writes a science column for Sun Media that appears weekly dealing with interesting developments in the sciences.
With comets in the recent news, Tim will discuss their latest discoveries and place in history.
January 10, 2014 - 7:30 pm — *General Meeting* at the Hamilton Spectator Auditorium. Our main speaker will be **Steve Germann**.

2013-2014 Council

Chair	Jim Wamsley
Second Chair	John Gauvreau
Treasurer	Steve Germann
Membership Director	Leslie Webb
Observing Director	Matthew Mannering
Event Horizon Editor	Bob Christmas
Recorder	Mike Jefferson
Secretary	Joe McArdle
Public Education	Mario Carr
Councillors at Large	Brenda Frederick Harvey Garden Ann Tekatch David Tym

Observing site for the HAA provided with the generous support of the
Binbrook Conservation Area
Come observing with the HAA and see what a great location this is for stargazing, a family day or an out-door function.
Please consider purchasing a season's pass for $79 to help support the park.
http://www.npca.ca/conservation-areas/binbrook/
905-692-3228

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