

From The Editor

Our first issue of 2013 features a note from our man in China, Greg Emery! A great way to kick off the new year and hopefully one of many Through the Looking Glass columns yet to come from Greg.

In his report this month, Jim Wamsley mentions the new beginner's group (Astronomy 101). I urge you to check it out. The various groups within our club offer many opportunities for club members to learn and make new friends. A member of our telescope making group, Harvey Garden, was inspired to build a 17.5" telescope (featured in this month's issue) after joining. What inspiration will you find at one of our groups?

Best wishes to everyone for a healthy, happy New Year filled with clear, starry nights!!

Ann Tekatch Editor@amateurastronomy.org

Chair's Report by Jim Wamsley

Well, it's 2013, and we all lived through the Mayan end of the world prophesy. Perhaps the Maya should have had an H.A.A. 2013 Celestial Calendar. Of course, we all know that the Maya never predicted the end of the world to be on Dec. 21, 2012, and all the hype on the subject was contrived by the media and people looking to make a profit from it, or were just misguided, nevertheless, here we are.

It's traditional at this time of the year, to look back at the past year and reflect, and who am I to break from tradition? 2012 has been a great year for the H.A.A.. We have had many very successful public events, from Astronomy Day in the spring, to the Scope Clinic in November and the December general meeting. All of the club events have been well attended, and our membership numbers have swelled to over 160, more than ever before. The club produced our H.A.A. Calendar again this year, and we have sold a record numbers of these. 230 calendars have been sold so far, most of these to members and locals, but I have recently been contacted by a gentleman in Houston, B.C. asking me to send him an H.A.A

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Chair's Report (continued)

calendar. We have fewer than 20 calendars left, so if you have put off getting yours, you'd better do so now.

Although I personally feel the weather man has conspired against me to prevent me from doing much observing, as it seems that on nights I was able to go out, the sky was clouded over, there have been some terrific opportunities to observe some celestial wonders. The highlights for me this past year have been the May partial solar eclipse, and the June 5th Transit of Venus, though, true to form, the Jupiter, Moon conjunction was totally clouded out from my location.

This time of year, it's also traditional to look forward to the New Year. The upcoming year for the H.A.A. is looking to be a banner year. 2013 is the 20th year the club has been helping people enjoy astronomy. For openers, we have Dr. Laura Parker, of the Department of Physics & Astronomy, at Mc-Master University, as our January keynote speaker. In February, Dr. Christine Wilson, also from McMaster's Physics & Astronomy Dept. will speak to us. We have many excellent speakers lined up for the remainder of the year.

We also have a new seminar group, Astronomy 101, which will start to meet in the rec room of my apartment building on Jan.19. This group will be made up mostly of our newer members, and is designed to teach the "newbie", basic telescope design, proper care of scopes, constellations, how to find your way around the stars, and what you can expect to see through the eyepiece. We have had 12 members sign up for this already, and I will be sending out e-mails to these people soon. The book club group has been suspended, but this means we will be adding more nights to the cosmology group, and the astro-imaging group. There is something for everyone at the H.A.A..

Most importantly, this year, on November 2, the H.A.A. will celebrate its 20th Anniversary. We have already booked the Canadian Warplane Heritage Museum, as the venue to have our anniversary banquet. We will have access to the museum from 5:00 pm till 1:00 am for our members and guests to enjoy all of the museum's exhibits. There will be a buffet dinner and a cash bar as well. We have not booked anyone to speak at this event as yet, but are actively looking for a very special speaker. I'm sure, no matter who we get, the night will be a memorable one.

This is going to be one stellar year for the H.A.A. (pun intended). I'm looking forward to seeing you all, and wish you a very Happy New Year.



Treasurer's Report by Steve Germann

(unaudited)

 Starting balance:
 \$5626.80

 Revenue:
 \$1958.00

 Expenses:
 \$1080.00

 Ending Balance
 \$6654.80

Revenue consisted of Calendar sales \$1630; Memberships \$270, and 50/50 \$57 and donation \$1. Also affecting the balance was the return of the \$50 in change used for selling the calendars. Expenses consisted of \$1000 to reserve the banquet hall for our 20th anniversary party, and \$80 for door prizes.

Masthead Photo: is a pencil sketch by Ann Tekatch of the Moon's Gassendi crater and surrounding area. The sketch was made at the eyepiece (4.8 mm Nagler) of a 4" f/5 refractor. I used a neutral density filter to dim the light from the Moon. The drawing was done on the night of June 19, 1994 and took me about an hour.

E

Through the Looking Glass by Greg Emery

I have not submitted a column for the EH in a few months (I haven't even submitted my membership renewal for 2013 either!) as I have been traveling. As you may be aware, I am on sabbatical in China. My family and I are living in the city of Wuhan, Hubei, China. Wuhan is a city along the Yangtze River about 1000 km west of Shanghai. The city has a population of 10 million (2009/2010 census) although I have been told that the true population is somewhere closer to 12 million.

The skies are hazy here. A clear day or night always has some haze associated with it. The city is large, with an ever-growing population. The primary source of electricity in China is thermal generation from coal. I have seen one truly good night sky here from Wuhan; it was later at night. I caught a glimpse of Orion.

I have been keeping a blog, which if you are so inclined, you can find at http://www.mohawkcollege.ca/blogs/sabbatical-blog.html. I miss my astronomy, but I will be back home in July just in time to take my telescope up to Manitoulin Island to look at the clouds there.

I hope everyone in the HAA had a good Holiday Season and that the New Year brings Good Fortune, Good Health and Clear Skies.

Best Wishes from the Emerys in China.



Greg Emery and his family pose in the lobby of a Hotel in Yichang. Photo is courtesy of Greg Emery.



Harvey Garden sent this photo of his newly finished, home made telescope which he has dubbed the HBS (Harvey's Black Scope or the Huge Black Scope). The scope has a 17.5 inch x 1.5 inch thick main mirror with a focal ratio of F/4.5 and a 78.7 inch focal length. Harvey used an 18 inch diameter heavy duty Lazy Susan-type turntable as the azimuth bearing. All woodwork in the telescope's mount is 3/4 inch, 11 layer, laminated, Baltic Birch plywood. The two piece optical tube is made from .023 inch aluminum. The lower half of the optical tube is 49.5 inches long with 4 aluminum tube (1.25 inch x 3/32 inch wall) longitudinal side supports. The upper half of the optical tube is 22.25 inches long with 4 - 1 inch x 3/32 inch wall aluminum tube longitudinal side supports. The telescope's interior is painted flat black and the exterior is painted satin black.

The spider, secondary mirror, 2 inch focusser and the 4 longitudinal supports for the upper tube were installed after this photo was taken. Harvey has yet to install a suitable counterweight on the bottom of the rocker.

For ease of transportation, there are five sections to the telescope:

- * ground board and rocker box
- * rocker with main mirror
- * bottom section of optical tube
- * top section of optical tube
- * counterweight

The heaviest section is the mirror box & mirror at 47 pounds.

The end result is both beautiful and functional.



The Sky This Month January 2013

January 2 - Earth at Perihelion (closest to the Sun) January 3 - Quadrantid Meteor Shower at peak (before dawn) January 3 - Jupiter's Great Red Spot on Meridian (10:30pm) January 5 - Last Quarter Moon January 10- Venus 3 south of Moon (low in east, morning sky) January 11- New Moon January 15- lo transits Jupiter near Red Spot (9:30-11:30pm) January 18- First Quarter Moon January 20- Jupiter's Great Red Spot on Meridian (9:30pm) January 21- Jupiter less than 1 from Moon (all night) January 21- Europa transits Jupiter (7:30-10:00pm) January 24- Ganymede Transits Jupiter (8:30-10:30) January 26- Full Moon January 27- Jupiter's Great Red Spot on Meridian (10:15pm) January 28- Europa transits Jupiter (10:00pm - 12:30am) January 29- Jupiter's Great Red Spot on Meridian (midnight) January 30- Jupiter's Great Red Spot on Meridian (7:45pm) January 31- lo transits Jupiter near Red Spot (7:15-9:30pm)

Under the Sky

Welcome to 2013, or as the Mayans like to call it, year 1 of the next calendar (only 25,625 years until the end of the world). Just as 2012 delivered some lovely celestial treats for skywatchers, like the well-observed Venus transit, and the lovely partial solar eclipse that we enjoyed, so too does 2013 promise some wonderful sights. Although events like the Venus transit was long anticipated and arrived like clockwork, the best of 2013 might be the surprises that it holds.

The most anticipated events of the upcoming year are the arrival of two comets. As always, comets are unpredictable, and although we will watch closely and with eager anticipation, the truth is that we won't know how good these comets are going to be until they get here. The last time we had a really good comet (and I mean a really good one. There are always a couple of comets every year that are satisfactory in a backyard telescope), was Comet McNaught in 2007, but even that comet was better for viewers in the Southern Hemisphere. Really, we have to go back to the great comets of 1996 and 1997, comets Hyakutake and Hale-Bopp, to recall what it's like to have a real spectacle cross our sky. All that may change this year though, with the arrival of Comet ISON in the late fall. This may be a comet we speak of for years and tell tales of in the future. Or, it may not. Time will tell. Before ISON arrives though, we will be visited by Comet PANSTARRS in late March. Although bright enough for backyard scopes even now, it is best seen in the southern hemisphere, but by the time it swings far enough north for us to see, it will be at its closest approach to Earth and should be a lovely sight in the low western evening sky. We will explore these comets more as the time (and comet) approaches.

This month sees the great constellations of winter riding high overhead, with Orion blazing brightly and Taurus playing host to Jupiter. Visible for most of the night and nearly as high as (Continued on page 6)

The Sky This Month (continued)



it can appear in our sky, this is the best time to see Jupiter that you will get. I have included some interesting Jupiter events in the sky calendar above, and as you can see there are plenty of good sightings to choose from.

This month begins with the peak of the Quadrantid Meteor Shower. It is a strong but short shower (unlike some that are slow and steady and may last for weeks) and if viewed at just the right time can rival the great meteor showers of the year, the Perseids and the Geminids. It can produce 60 meteors an hour at peak, but the peak lasts only a few hours. Unfortunately, this year the peak falls on the morning of January 3rd and even if you get up before dawn to see the show you will still have a waning gibbous moon light-polluting your sky. Even so, this is a shower well worth viewing, and I encourage you to rise early on the 3rd for a meteoric treat.

Meteor showers are named for the constellation which hosts the radiant for the shower. This means that the Perseids all seem to emanate from the constellation Perseus. The meteors themselves may appear



anywhere in the sky, but if you follow their path backwards, they will always lead you to Perseus. Likewise, the Geminids radiate from Gemini and the Leonids emanate from Leo. So which constellation do the Quadrantids radiate from? There is no constellation that is an obvious answer, but if you were an avid astronomer some 200 years ago, you would know that they originate in the now forgotten constellation Quadrans Muralis. (See photo at left.) Today, this part of the sky is located in Bootes, just above and behind the handle of the Big Dipper. It was created by Joseph Jerome le Francais de La Lande in 1795, and depicted a mural quadrant, a tool used to (Continued on page 7)

The Sky This Month (continued)

read and create charts and maps. Joseph and his nephew Michel used one to plot star positions on a great wall chart (mural literally means 'wall'). Today of course, this constellation is no longer in use, but is remembered through lending its name to the Quadrantid Meteor Shower.

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





copy.



Across

- 5. January's meteor shower
- 6. On Jan. 5 the Moon is three degrees from this object
- 8. The seven sisters
- 9. January's full moon
- 10. The moon's shadow line

Down

- 1. On Jan. 21 Jupiter is less than a degree from this object
- 2. On Jan. 2 the Earth is closest to the Sun or
- 3. This light can be seen for two weeks in the western evening sky starting Jan. 29
- 4. This planet is high and bright
- 7. M42 in Orion

Answers on page 13 No peeking!

Two Excellent Eyepieces by Mike Jefferson



When it comes to the topic of eyepieces for astronomical uses everyone has his favorites and reasons as to why. Here are two that I would like to present to you and my reasons for selecting them.

The first was a bit of a surprise 16 years ago when I purchased a short focal-length refractor for wide field, deep-sky purposes. Since the focal length of the telescope is 640mm and this 'huge' 2-inch eyepiece is f/30mm, I get 21.33X on a 4-degree telescopic field of view.

Telescope Engineering Co. Inc. of Colorado was importing this 950 gram 'grenade' from Germany in 1996. I don't remember how I discovered it because I was not on the internet back in those times. (??) Perhaps there was an advertisement in "Sky and Telescope". However, its flier describes it as "Weitfeld-Planokular f30/70degrees". It certainly is! It has 7 pieces of optical glass used in its construction and is corrected for focal ratios of up to f/3.5. It is as big as the 31mm Nagler and its apparent field of view is 88degrees The '70degrees' refers to the 'geometrical' field of view. What does that mean? Here is where I learned that it refers to the unvignetted field that we like to find in our optics. Only 18 degrees will show some astigmatism or curvature. This is a remarkable accomplishment in a time well before the advent of the Televue Ethos series.

Personally, I do not like Ethos eyepieces. I find that you have to crank your head around the rim of these instruments to get the field of view (FOV) that you paid for. They may be 100-110 degrees apparent FOV, but you have to work for every bit of that angular magnitude.

The "Weitwinkel Planokular", as is inscribed on my eyepiece's barrel, was developed for the German military's range finders and was originally anodized silver. It was designed by Carl Zeiss and built by Optik Leitz. So popular did it become in that country's astronomical community, that they made an astronomical version in anodized black for night sky use.

The eye - relief is listed as 20mm. However, the beauty of using this instrument is that you can leave both eyes open when observing. It truly 'obsolesces' binoviewers and all of the problems that they entail, such as having to have 2 matched eyepieces, spacers, etc. It is like looking down a well out on to the universe - an astronomical 'picture window'!

Drawbacks? Price; and it is out of production today. It was a lot of money for one eyepiece. Was it worth it? Judging by the reactions it generated at Starfest over a number of years and my observing comfort, yes.

The second eyepiece surprise is almost a direct antithesis to the above. It was a 'steal' that I acquired from "Khan Scope", Toronto in 2011 for very little money, as a used instrument.

Having wanted to lower the power of the 1300mm Questar 3.5, for many years, to ~28X, I had purchased a 48mm, 2-inch Brandon with a 1.25" adapter. However, while it worked to that end, it also narrowed the FOV considerably - this on a telescope with little more than '1 full moon' FOV.

The Khan purchase turned out to be a 50mm, 1.25" Hastings cemented triplet from Criterion - a company which I believe is now out of business. (??) It was not expensive as a 'used' purchase and it never was even as a new purchase, for those who bought Criterion telescopes. Since the glass elements are cemented, it has only 2 air-to-glass surfaces. The apparent FOV is not wide either, thus matching the Questar well. However, it is flat across it's entire field. The real beauty of it is that the image, although tiny when you look very close to the ocular lens, expands to fill the entire barrel when your eyes are ~6" from it - thus giving the observer 6" of eye relief with, again, both eyes open!

To conclude, I would add that many of our best and most surprising astronomical purchases are often not planned. They come as an opportunity to acquire something that you either thought you did not need (and subsequently found a use that you had not thought about earlier); or maybe you had a need to fulfill and could not find the equipment for it right away, the 'surprise' purchase 'coming' at you when you least expected it, and the job got done. So, whether through an advertisement, a chance discovery in an astronomical store, a swap table at a star party or a colleague who is 'unloading' something he doesn't want any longer, these 'surprises' often make the best astronomical purchases and night sky experiences that you can have!



December Meeting Summary by Keith Mann

Astronomy is one of those rare activities that can be enjoyed across a wide range of levels, from the most casual observer who glances skyward when a full moon or a bright planet catches their eye, to the most devoted professional who spends a lifetime in study and endless nights in observatories. Within the ranks of the Hamilton Amateur Astronomers can be found a comparable range of interests: we have a number of members new to the hobby, and we also have a cadre of veterans whose work qualifies as *bona fide* science.

The December meeting of the HAA reflected that spectrum. One of the opening announcements by chair **Jim Wamsley** concerned the establishment of a beginners group aimed at helping new members to learn the ropes. Between this group and our growing collection of outstanding loaner scopes, the HAA is a fantastic organization for anyone who wants to give astronomy a try. Those who want to come out for "Astronomy 101" on January 19th should contact Jim (his e-mail address is **chair@amateurastronomy.org**).

Following Jim's remarks, we were treated to an encore performance of observing director John Gauvreau's promotion of the 2013 Celestial Events Calendar. Remember to pick yours up before they're sold out.

Whereas Jim had something for those at the beginner end of the spectrum, our guest speakers had a treat for the more advanced astronomers among us. We were pleased to have our friends **Brian Dernesch** and **Brady Johnson** of KW Telescope join us. Brian showed off a couple of new mounts, and we learned about KW's plans for their new retail location and their website, including seminars, video tutorials, monthly updates and observing challenges. Brady then launched into his presentation, "Differential Photometry for Non Rocket Scientists." Just as last month's talk by **Don Pullen** taught us about opportunities to contribute to scientific radio astronomy studies, Brady discussed how amateur astronomers can help to study the brightness of stars. Brady related his own experience with these observations and provided some valuable tips and advice.

No gathering of astronomers on the fourteenth of December would be complete without marking the anniversary of our own **Kevin Salwach's** birth. Fortunately for us, Kevin himself was on hand to present "Today In Astronomy" and make sure we did so. Never one to hog the limelight, Kevin reminded us that Tycho Brahe was also born on that day.

Following Kevin's presentation, we were joined by **Dr. David Galbraith** of the **Royal Botanical Gardens**. David is the RBG's Head of Science. He both treated us to a show of his own nighttime photography and announced a course on that subject, which he will be conducting at the RBG Center starting February 20th. For details, please visit <u>http://www.rbg.ca/Page.aspx?pid=347</u>.

John Gauvreau capped off the night for us with "The Sky This Month." John's topics included observing Jupiter's great red spot (surprisingly easy to miss for something three times the size of the Earth), the Geminids, and upcoming ISS flyovers. John then showed us a couple of interesting "before and after" images. The first, a comparison of the famous Apollo 17 "Blue Marble" shot of the Earth with a recent NASA image, was striking in its illustration of how far we've progressed in viewing our own planet. The second, a Martian landscape under natural light compared with one colour-corrected to show what it would look like under Earthly light, helped us to understand just how remarkably similar Mars is to our own planet.

The Pleiades are such a stunning cluster of stars, it's no wonder that they've found their way into the mythology of many cultures. John told us the Huron myth, which explained why one always saw either six bright stars in the cluster, or eight (but never seven); he also gave us the less romantic scientific explanation. Finally, John reminded us to look up on Christmas to see the (almost) full Moon and Jupiter just one degree apart. (Continued on page 12)

December Meeting Summary (continued)

Jim closed the meeting by announcing that next month's guest speaker will be **Dr. Laura Parker** of **Mc-Master University**. Please join us at our next meeting, on January 11th, as Dr. Parker presents "The Role of Environment on Galaxy Evolution." There's sure to be something for everyone.

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HAA Helps Hamilton

To support our community, we will be collecting nonperishable 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.



UPCOMING EVENTS

January 11, 2013 - 7:30 pm General Meeting at the Hamilton Spectator Auditorium. Guest speaker will be Dr. Laura Parker of McMaster University.

January 19, 2013 - 7:30 pm Astronomy 101 beginner's group meets in the basement rec room of 75 Main St., Dundas, ON. Contact Jim Wamsley for details (chair@amateurastronomy.org). January 26, 2013 - 7:30 pm Astrophotography Group meets in the basement rec room of 75 Main St., Dundas, ON. Contact Jim Wamsley for details (chair@amateurastronomy.org). February 8, 2013 - 7:30 pm General Meeting at the Hamilton Spectator Auditorium. Guest speaker will be Dr. Christine Wilson of McMaster University.

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