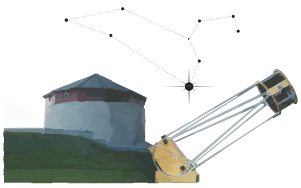
October 2016

Regulus

RASC Kingston Centre



Upcoming Events

Thursday, October 13 **19:00**
Astronomical "Snap Sketches"
Brian McCullough (Ottawa Centre)

Thursday, November 10 **19:00**
Annual/Regular Meeting

Saturday, November 12 **19:30**
KAON Session
Queen's University Observatory

Thursday, December 8 **17:30**
Annual Christmas Dinner
The Rustic Spud restaurant

Check kingston.rasc.ca for meeting locations, kingston.rasc.ca/observing/sites for sites. ★

In this issue:

Fall'n'Stars 2016

various members

There was a good turnout with 34 for dinner, but really crappy weather on Saturday evening and overnight.

Rose-Marie: Great weekend! Just lying here in the tent listening to crows, bluejays, chickadees and other birds, waiting for the Sun to come over the trees. Gee...I see a couple folks wimped out and headed home last night. The rain wasn't too bad: the worst of the storm went south of us. We watched a hokey space movie in the longhouse last night, *Mission to Mars* with Gary Sinese.

Okay, gotta get up, fix some bacon and eggs and home fries, and then pack up.

Hank: I have definitely watched enough hokey movies in the longhouse and packed up wet the next morning, glad to have been in my own bed instead.

The "storm" they called for went mostly south of here [Newburgh] as well but plenty of rain. It is sunny this morning.

Susan: This morning I took a long time to finish my coffee and allowed the tent, etc. to dry out. I was very weary of taking everything home wet and having to open it up again to finish drying.

I had a great weekend. For me the highlight was Friday evening–Saturday morning. We had such low expectations for observing and the sucker-hole skill testing game...what can you possibly see?...was great fun. After a 2½ hour nap, a 2½ hour observing session followed until the Sun came up.

I want to thank the Belleville gang for a great weekend. Thanks Joanne for doing the loo tidy. I was very pleased with a break from being an active volunteer this year. I am ready to get back on that horse next year. Lots of great ideas for new venue experimentation were exchanged.

Rose-Marie: 'Twas a little tough to get going this morning. Good thing the birds woke me up early and I got an early start, had everything plus the kitchen sink to pack up and stuff into the truck. It gave me a much needed weekend away! My friend Dennis absolutely loved it and made me promise to let him know when it takes place again next year. It's too bad it was raining Saturday night, but the bright side to the cloudy weather is that it gives people more of an opportunity to socialize.

Rick: I had a great time. Hope everybody else enjoyed it too. It cleared off Sunday morning about 0630 to a deep blue sky, and a lovely cool, dry breeze. Susan and I sat in the sunshine and chatted and had breakfast and coffee for a couple of hours, occasionally looked at the lovely new sunspot group/faculae that had come around the limb, and slowly packed up our equipment. I had planned to hang around and have lunch and read there while I finished drying the last little bit of dampness out of the tent, not realizing that the gates to the field have to be locked after we depart. So Joanne and John were sitting around waiting for the last few of us to get on our way. So instead of eating there, outside of Saganaska I took the first left off the conservation area's trunk road and that took me down right to the water's

Continues on page 4...

KAON Report: September 10

Paul Winkler

THE OPEN HOUSE was distinguished by the 7:50 p.m. arrival of about 100 students fleeing the amazing light show and torrential rain outside; it was very difficult to make one's way to the auditorium. Of all those students, only four chose to sit in the auditorium; when they left after a short time there were, sadly, only nine people at the talk, including three RASCals.

The talk was given by Professor **Dave Hanes** of Queen's University on "Globular Clusters: Jewels in the Heavens." Prof. Hanes gave an illuminating talk (did you see what I did there?) on clusters, both globs and others. He pointed out that the vast majority of the 150 Milky Way globular clusters reside in the southern hemisphere, where the galactic halo predominantly lies. These clusters and their red giant stars have played an important role in determining the age of not only the stars themselves, but all of the stars in the main sequence including the sun. Globs are old; almost 13 billion years!

A number of lovely pictures were displayed in the presentation, including Omicron Ceti, 47 Tucanae, M13, the Pleiades, Hyades, and others. Interesting talk.★

Girl Guide Camp Visit: August 23

Susan Gagnon

WELL! WHAT A TREAT to go to Carruthers House on a warm breezy day. There were six little girls who chose to learn a bit of astronomy rather than some of the other activities. I am finally getting a handle on getting the attention of these little people for more than 30 seconds. We talked about the solar system mainly but that generated enough questions to keep the ball rolling. I learned something too: alien barf is green. Who knew?!★

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ITEMS OF INTEREST FROM MEMBERS—full articles, or even just a couple of paragraphs are always welcome. Items are gratefully accepted on each and every day of the year! Send items to:

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Meeting Report: September 8

various members

THE MEETING WAS CALLED TO ORDER at 7 p.m. by President **Greg Latiak** with 17 in attendance. There were no reports offered, so **Hank Bartlett** reported for the Secretary that she was a grandmother! There was a call for banquet venue suggestions. Greg got right to the speaker lineup as it was quite long with members keen to show their photos.

First was **Brian Hunter** and his photos from 13 nights in Chile at the Atacama Lodge very close to the Tropic of Capricorn. There were great landscape shots as well as local inhabitants including wildlife in the nearby town of San Pedro de Atacama. Second up was **Malcolm Park** who was on the same trip to Chile. Between the two presentations we saw many amazing astrophotos of the southern skies. The envy was palpable!

After a 10 minute break we resumed activities with the presentation of the Isabel Williams Lunar Observing Certificate to **Richard Wiegand**. Congratulations Richard!

Hank Bartlett continued our presentations with a photo tour of Ireland winding up with a tour of Birr Castle, home of the third Earl of Rosse, complete with a reconstructed 'Leviathan of Parsonstown!' Well done Hank!

Greg Latiak showed us how his latest photo efforts and how his SkyPod was being winterized with Persian rugs (feel free to try to compete with that).

Rick Wagner provided some panoramic views of the Milky Way from his house, that he had successfully stitched together along with some concentration on dark nebulae.

Leslie Roberts rounded out the show with more dark nebulae and terrific results with a new auto-guider on Mars and Jupiter. Leslie said he was trying out new things from what he was learning from others in the centre. Great to hear.

Greg Latiak presents Richard Weigand with his certificate for completing the lunar observing program. Details of the program can be found at rasc.ca/isabel-williamson-lunar-observing-program

The meeting wrapped up with announcements of Fall'n'Stars beginning the next evening and next month's meeting speaker **Brian McCullough** (Ottawa Centre) on Astronomical Sketching. We adjourned at about 9 p.m. ★

Torus Update

Kevin Kell

MUCH MORE TIME has gone into the Torus telescope project this summer.

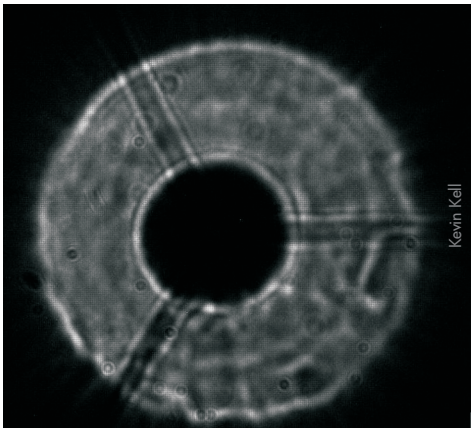
The latest results from last night show a good night coarse collimation. The plan was daytime coarse, nighttime coarse, nighttime fine collimation runs. Daytime coarse collimation was done, attempted many times until we thought it was a good as it was going to get. The next step was a night time star collimation.

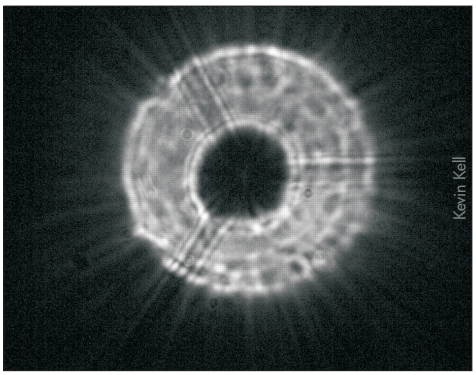
The scope was pointed up on its end (to eliminate the push bolts from the equation), at Altair, defocussed to fill half the field of view and imaged with the ASI120MC camera with 0.5x focal reducer.

The Vtruss hangers were loosened, the push bolts loosened and the first image (left) was taken, as a starting point.

The end goal is to get the dark centre centered and symmetrical. Here you can see it over near the 9 o'clock position.

Very tiny (1/6 turn) adjustments were made on one pull bolt at a time and recorded and imaged. In the end, as good as I could tell visually, the end result was one pull bolt 2/6 turn counter and another pull bolt 3/6 turn clockwise from the daytime coarse collimation (I recorded the session in audio and have to transcribe the notes to be sure those are the final adjustments). That got this final image:





where it looked pretty much centred by eye. But possibly still not good enough. After that, the push bolts were moved into contact and then tightened ¼ turn each in turn. The image did wander a bit and lost some of its centering. Then the Vtruss bolts were tightened hard. The image did wander again but came back to its

Continues on page 9...

Skyward, September 2016: My First Mentor

David H. Levy

OVER MANY YEARS, as I tried to find my bearings in the night sky, I have been aided by mentors. Dozens, possibly hundreds, of people have helped me to find my way, and each one would be worthy of a long column. But of all these people, the one to whom I owe the most is my father. He had a passing interest in astronomy, but he liked to think that his interest spawned mine.

Of all Dad's influence, by far the most profound happened at dinner one evening early in the summer of 1960, when he told a captivating and unforgettable story of a book he had read as a young adult. Written by **Arthur Preston Hankins** and titled *Cole of Spyglass Mountain*, the book was a story of a young boy whose abusive father sent him away to a boarding school whose students were known not by names but by numbers; Joshua Cole's was 5635. One teacher at the school was interested in astronomy, and that teacher inspired Cole to follow the night sky. As Cole matured, he set up his telescope at railway depots and earned a steady income letting passengers look through his telescope. With increasing wealth, he built an observatory on a hill he called Spyglass Mountain.

One night at his telescope, Cole discovered evidence of intelligent life on Mars. At that very moment, a criminal intent on killing him broke into the observatory and began firing shots at Cole. As bullets ricocheted around the curved dome, Cole was seriously injured.

Dad's voice lowered a bit as he reached the climax of this beautiful story. As Cole lay in bed recovering from his injury someone entered his room excitedly, carrying a stack of newspapers, all of which were trumpeting the story of how this 'alleged fake astronomer' had beaten all the professionals to make this seminal discovery. Dad smiled broadly as he quoted the end of the book: "is Mars a living planet? Cole of Spyglass Mountain famous in a night."

I have had many mentors, though my Dad's wonderful story is probably the most fertile piece of inspiration I've ever had in my life as a stargazer. The story had a direct bearing on my decision to begin my own search for comets five years after I heard it. There is an asteroid in the sky, discovered in 1981 by S.J. (Bobby) Bus. It orbits the Sun with sunrises and sunsets like here on Earth. The asteroid is numbered 5635, the same number that Joshua Cole bore while a student at the institution. **Brian Marsden**, late director of the Minor Planet Center, loved the idea of connecting these asteroid worlds with literature whenever possible, and he was enthusiastic about my proposal to name this particular asteroid Cole.

I miss my Dad and think of him every day. As I recall each of the 23 comets in whose discoveries I played a part, and asteroid 5635 Cole, I am reminded of the joy in the sky my father shared with Joshua Cole and Hankins's wonderful story *Cole of Spyglass Mountain*.★

You can download Cole of Spyglass Mountain at rasc.ca/cole-spyglass-mountain.

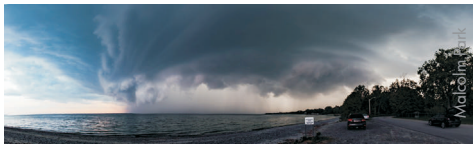
...Fall'n'Stars 2016

edge. I set my chair out on the shingle and had lunch in the shade with the breezes playing through my hair. Looks like a good place to swim for next year, so everybody bring your bathing suits. I think Tony was fishing from this spot as well, and it might be where Dennis was swimming.

According to Environment Canada, an EF0 tornado occurred near Sandbanks Provincial Park on Saturday:

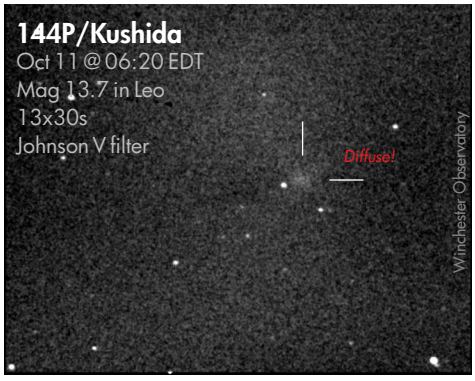
Malcolm: Good thing I went to that Canwarn training! (NOT!) I never made it. If I had, I may not have watched as this monster came ashore right on top of me.

For those that know my area:



Environment Canada says a thunderstorm in the early evening produced a tornado that began as a waterspout over Lake Ontario before coming ashore at the Hideaway Trailer Park near Bloomfield in Prince Edward County, tracking about 3.5 kilometres to the east before dissipating.

Greg: Yeah, my friends who live in your area were pretty stressed about me being in the open at FNS, I was getting texts all the way home. I had the Canwarn but have also lived in places where tornados were a regular thing. Where we are was justa bunch of rain. The south shore of the island got hammered, trees down, buildings damaged and so forth. A very localized phenomena to be sure. And if it had been bad I would have been happier to be with my family than reading about it later...★



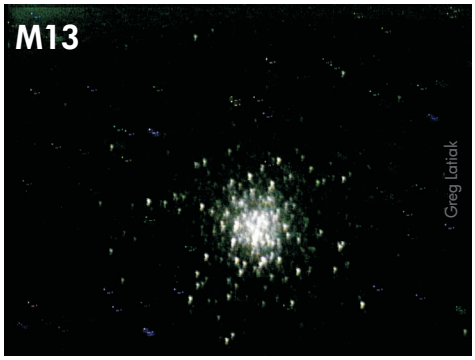
Observing Reports: August–October

Various Members

Fri/Sat, August 26/27

Greg: Instead of renovating my POD, I spent a good chunk of Friday night trying to drift align my mount again. It's a bit of a drag when a big poplar and a couple of willows are between the scope and Polaris. And since it is not a temperature controlled environment (high of 45C) the combination of the brass altitude adjustment and cast mount means it shifts back and forth a bit over time. The azimuth is pretty stable, though.

Before the clouds irised in I took a look at M13 and experimented with a number of approaches to imaging it. One thing that struck me looking at it through the eyepiece and similarly through the video camera was a purpleish colour cast, faint but distinctive...did not survive the trip to .png though. Miloslick additive stacking of four successive 5-second exposures, hot pixel masking. VRC6, Mallincam Jr Pro.



The software I use with the Mallincam (Miloslick) has features for handling hot pixels and related issues. By running a number of exposures with the cover on the scope, the software compiles a list of the hot pixels that show up. When I am observing I tell the software which hot pixel list to use. Once the exposures are made there is no way the software can distinguish a star image from a hot pixel. I have a small monitor connected to the composite feed from the camera—it is 'raw' in every sense of the word. The PC gets S-video and applies hot pixel correction and dark frames. It is sometimes fascinating to see how different the two are. If I am lucky, the hots look white, like a star. But the more frequent failures seem to be cyan... sigh.

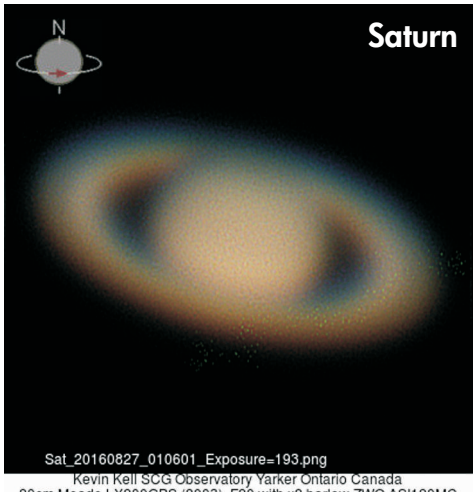
Sat/Sun, August 27/28

Kevin: After drying out the imaging laptop for a week, it was fired up for a quick imaging run of Saturn on Friday evening, after returning from a field trip to see the Jupiter-Venus conjunction.

The seeing was bad, Saturn remains low in the south, and now I am starting to see what may be the development of hot pixels on the ZWO ASI 120MC camera.

No Cassini's Division can be seen after processing through Pipp (cropped to 400x400 pixels), Autostakkert! to stack and then I used the best 10% and best 50% to run through RegiStax. Both came out poor.

The hot pixels appear more so on other images, but are showing as brighter green pixels in the lower right rings. FireCapture has the ability to map hot pixels and correct the image. I have done that and will see what effect it has next time the skies are not raining down.



Brian: From here Saturn is straight up! We are in the middle of a dust storm.

...We've had two good nights. A 10 second tripod-mount image centred on Eta Carina is attached:

Greg: Sigh...

Mon/Tue, August 29/30

Kevin: A large fireball went off last night, at 02:53:40 Aug 30 UTC. AllSky1 did not record the event.

Thu/Fri, September 1/2

Hank: Unfortunately the brightest aurora was out of focus; by 23:00 it had disappeared so I went to bed.

Rose-Marie: Three of us were sitting on the dock for an hour and a half, nada, zip, zilch. About the time of your pics there was a cloud bank, that's probably when it fired up. One of my companions was getting messages through her phone from a friend showing pics from Barrie and Southhampton, lots of green with red spikes.

It is clear here at the moment; I am going to set the alarm for about 45 minutes and snooze on the couch then

going out to check again.

Charliette Brown signing off as she awaits the Great Pumpkin.

Fri/Sat, September 2/3

Walter: I observed at the farm (near Thomasburg), and it was dewy which affected the transparency a bit as the night went on. Belleville is distressingly bright now compared to even 10–15 years ago. I was having a nice quiet session when suddenly my reverie was interrupted by some large animal. So I went and got a radio and had that softly playing to let any local wildlife know someone was around.

It was just me and my C8 from 22:00–02:00. The south was a bit murky, but I was just able to see the Helix Nebula. While I was able to see NGC 253 & 288, 247 was not seen (it is a couple mags fainter).

Sat/Sun, September 3/4

Walter: I went to Oak Heights this evening. Thin cloud was visible in the western sky as I drove over but it seemed to be gone by the time I arrived on site. I observed with my 7x50 binocs, C8, and a 14" Dob that was set up next to me (very nice scope—especially on NGC 6992/5 and 6960).

Several of us observed objects all over the sky with the 12½" scope, now on a GOTO mount. It is a very nice set up. The sky got murkier as the night went on, so we tried to get objects higher up. The transparency was much worse than Friday night. The 12½" showed the central star in M27, and also NGC 604 in M33 (a nebula in another galaxy!)

Three of us closed out the night by observing M42. Later on I saw Sirius at dawn, so that is the official end of summer.

Mon/Tue, September 12/13

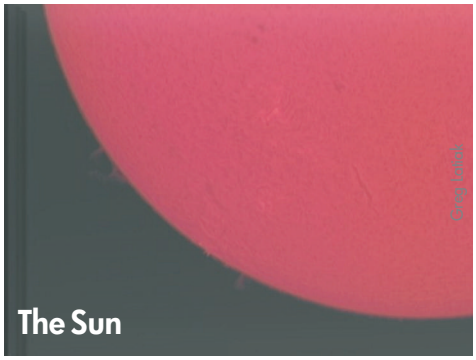
Susan: Doing a bit of lunar... Aristarchus looks huge, right on the terminator. It looks like it is peeking around the edge.

Greg: Nice night for it, but I am getting a guide scope pointing in the same general direction as the main scope. The Moon does look very nice up there. Enjoy.

Walter: Tonight was a great run with 218 variables imaged (mostly Miras, but with a few CVs thrown in to keep the scope busy at all times. Outbursts of TT Boo, LX And, TW Tri, PY Per, MR Per were detected.

Tuesday, September 13

Greg: Here is the first image from the Lunt60 single stack h-alpha:



Mallincam Jr Pro, 2x shorty Barlow. 350 frames from 2 minute video, Registax.

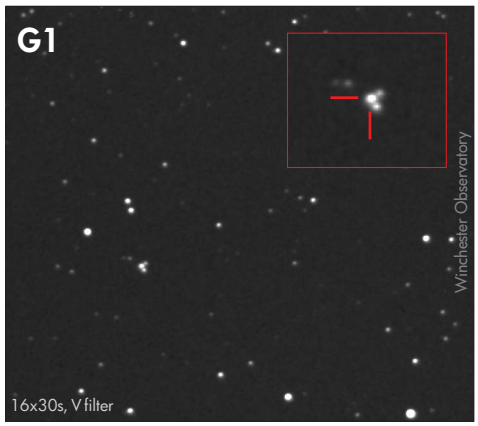
Observation: it's tricky to get a good focus on a monitor with the glare of the day around. I think I need to rig up some sort of photographer's blind. And obviously there is some subtlety to adjusting the pressure tuner. Sigh, another learning curve.

Hank: The tuner changes the proms and filaments but also removes some of the haze. I have never stacked an image thus far and know nothing about doing so. Good start for you. Yes on the black cloth shroud.

Wed/Thu, September 14/15

Walter: I imaged 108 variables, mostly CVs, plus Miras in Auriga and Gemini at the back end of the run. V792 Cyg, and TY Psc were caught in outburst tonight.

Just before midnight I imaged a globular, G1, in the Andromeda Galaxy:



G1 (aka Mayal II) is a surprisingly bright target at mag 13.7, has twice the mass of Omega Centauri, and is located 170 000 light years from M31's nucleus.

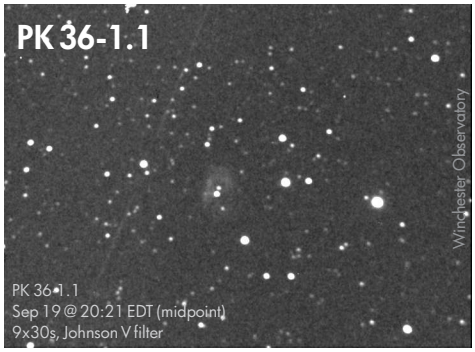
Thu/Fri, September 15/16

Walter: Another full-night run! All cataclysmic variables tonight, with a total haul of 79. R CrB is up to 11th magnitude. Will it go all the way up this time? V503 Cyg was in outburst.

Mon/Tue, September 19/20

Walter: It's shaping up to be a good month, with yet another all-night run. The observatory computer has sometimes been reluctant to boot this month, but so far it's still going.

I started by imaging planetary nebula PK36-1.1 which was near the



park position of the telescope. While imaging it, the DDW software lost its connection to the dome. I had to park the scope and turn it off, then cycle power on the DDW hardware. It took a few tries, but I finally got the software to connect and it held the connection for the rest of the night.

The sky clouded over at 05:15, while I was imaging MR Per. The south edge of the cloud ran diagonally across the south, intersecting the shoulder of Orion. It's great that the cloud held off as long as it did—we were wedged between cloud to the N and S all night. 105 cataclysmics were imaged, and FO And was in caught in outburst.

Wed/Thu, September 21/22

Mark K: Was it cloudy last night (Wednesday)? There are reports of a bright meteor at 21:40 EDT seen from Lac Megantic to Toronto.

Kevin: Of course it was cloudy Wednesday evening! Totally overcast from about 20:43 to 22:00, just covering the trail of the secret alien meteorite! AllSky1 should have picked it up; AllSky2 has got trees in its eastern horizon. Nothing detected.

Rick: It was clear here. I had the scope out doing photometry from 20:15 to 04:30. But I saw nothing. Never do. And the camera was pointed into Draco, so it caught nothing.

Saturday, September 24

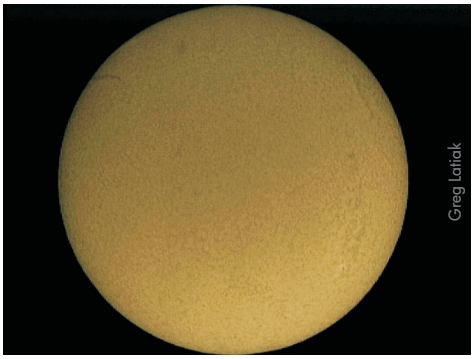
Kevin: I've written up my research on the Saturday, September 24th 20:50 EDT event of a loud boom as reported by the media, on our starlightcascade.ca blog.

Looking at my imaging logs that night, I took my last image at 20:46 and spent the next 5–10 minutes outside packing up the observatory... and do not recall hearing anything abnormal in that time. Certainly no light-up-the-sky fireballs either.

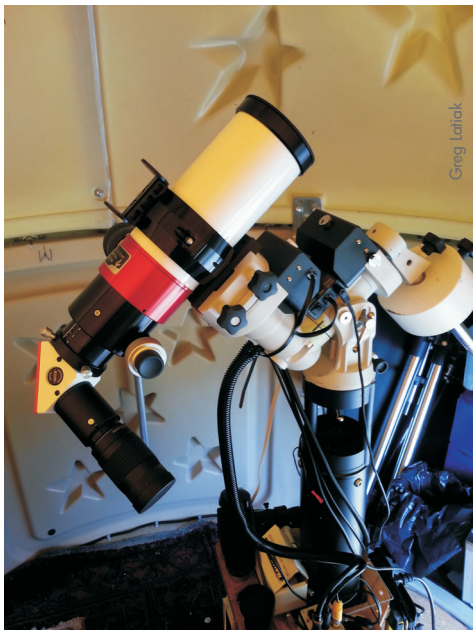
No imagery, no visual sightings, nothing on the AMS website... it must have been something else entirely...

Tuesday, September 27

Greg: Nice morning for staring at the sun:



Lunt LS60THA, 1/8000s f/8.4 Mallincam Jr Pro, single image. Here is the setup:

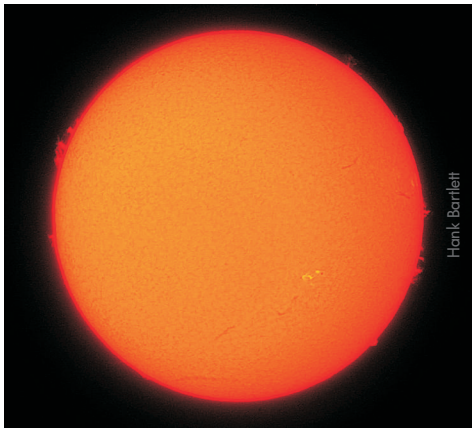


Hank: Ah yes the Lunt, how do you like it so far? I hope to see our two scopes side by side one day for a comparison. Is the yellow tone visual or is it pink like the SolarMax? The SolarMax images start to take on a yellow tone 1/8 sec and below at ISO 200, at faster exposures they are orange and pink.

Greg: So far, so good. Visually the colour is deep red—this image was made by adjusting the image in the video interface software. To the eye the solar disk is a glowing ball, very attractive. I'm getting used to the pressure tuner—it is somewhat stiff. I prefer to use the monitor but the glare in the observatory makes seeing the fine detail and obtaining a decent focus interesting. To the Mark 1 eyeball this is not an issue, however. Overall, I like it but recognize the learning curve...

Hank: If you are interested and don't already monitor these sites or ones like them for h-alpha here are the ones I follow to catch the action as it happens: tesis.lebedev.ru/en/sun_flares.html for graphing and grading of eruptions, gong2.nso.edu/products/tableView/table.php?configFile=configs/hAlpha.cfg for worldwide h-alpha images

Here is an image of a minor (C 1.3) eruption on the 25th:



Tue/Wed, October 4/5

A fireball was seen by many (including fans in the north end of Skydome in Toronto). amsmeteors.org reports it at around 02:34 UT. John Percy reports that it was captured on video by UTSC observatory: twitter.com/UTSCObservatory/status/783504708522635264

Walter: I had trouble getting the

computer to start this evening. The hard drive, CD, and CD-R lights were all on solid and there was no beep or video output. After many attempts I finally got the machine to start.

Despite the late start, 115 variables (a mix of Mira and CV) were imaged before the sky clouded over solidly at 00:56 (in a fairly sudden way, which is good). Only images of S Peg and FF Peg had to be thrown away. Fog must have moved in later in accord with the forecast—someone later told me there was fog at 06:30.

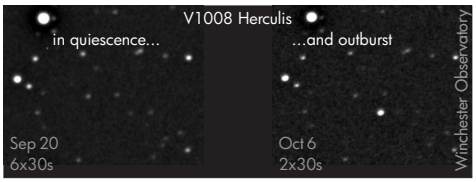
THU/FRI, OCTOBER 6/7

Rose-Marie: My brother is telling me that while they were driving back on the 401 last night around 10 p.m. or later he saw a bright meteor overhead. Anything on the allsky?

I was out playing with my new camera (GAWD how I hate the learning curve!). I saw a nice one that may have been a Draconid. I was just turning the tripod to face NW when it came streaking through, *just* missed it. Aargh. The old camera doesn't write to the card, I think the problem is the shutter is not opening, so had to buy a new Canon T5. The ISO on the old one only goes to 1600, this one has 3200 and 6400. I slapped the 50mm lens on it that goes down to f/1.8, holy mackerel does that bring out the stars. Unfortunately I was way too tired to stay out for long, and the dew was really heavy. Hopefully we'll get more clear nights soon, will have to wait for the waxing moon to set.

Kevin: From AllSky1: nothing that grabs my attention from 21:30 to 22:30. From AllSky2: a pretty lame meteor at 01:57UT in the SSW, and a much better one at 08:33UT this morning.

Walter: The sky stayed clear all night, though it got foggy in the wee hours. A nice full load of 198 variables were imaged. V1008 Her and CZ Ori were caught in outburst.



MON/TUE, OCTOBER 10/11

Walter: 245 variables and two comets *(see p.4 and 10)* were imaged. Both comets are moving south (Kushida will enter Sextans this afternoon). Kushida is quite diffuse which made it more of a challenge to image in the brightening dawn sky. ★

Pictures from the final visit to Oso Observatory and Villa Leonis (see *Regulus*, September 2016, p.3).

Skyward, October 2016: A Streak of Light

David H. Levy

IT WAS A FLASH, a single streak, of light that got me started in astronomy almost sixty years ago. I have written in this column about this event before, but in thinking about it, I want to refer to it again. The streak could not have lasted more than a second that clear evening of July 4, 1956. I was terribly homesick. At age 8, just four days into my first summer away from home, I had already written to beg Mom and Dad to rescue me from that lonely place. I did not understand at the time that they needed a break from me, and that no matter what happened, I wasn't going home until the end of the summer.

The sky was clear that warm summer evening as children and staff gathered around the softball field to enjoy a fireworks display in celebration of the fourth of July. As a young Canadian I didn't know anything about what the United States Day of Independence stood for. As the fireworks wound down the youngest groups, including mine, were dismissed for the night. We began walking up the hill towards again at the sky. Is it possible, I thought, that this shooting star was meant just for me?

I simply placed that little memory in my 8-year-old brain where it rested for about a year until October 4, 1957. I recalled it when I was told that the Russians had launched a rocket into orbit around the Earth. To me, that dawn of the space age was intensely private because I could relate it to something I had seen personally. The image of the meteor rested again until June of 1960, when a bicycle accident and a get-well present of a book about astronomy brought the memory to the forefront again. This time it stayed there. This time I was hooked.

I know now that my first meteor was from the Omicron Draconid meteor shower, an annual event confirmed at about that same time by a young astronomer named **Brian Marsden**. It is possible that my shooting star was the first visual sighting of an Omicron Draconid meteor. I've seen more since, and on July 4, 2005, photographed one that happened to be passing in front of Comet Tempel just minutes after the *Deep Impact* spacecraft crashed into the comet.

Over the next several decades I saw thousands more meteors, but I'll never forget that distant night, at the dawn of my life, where I saw my first shooting star that ushered in a lifetime passion for the night sky.★

This picture was taken in 2005, less than an hour after the *Deep Impact* spacecraft crashed deliberately into Comet 9P Tempel. I captured this meteor, probably an Omicron Draconid similar to the one I saw in 1956, crossing directly in front of Tempel's comet.

...Torus Update

...from page 3

starting point when done.

The next attempt we will overlay a transparency target and try to actually measure as we go. Looking at this some more, it now appears to me to be a little to the 7:30 oclock position.

The air currents were tremendous, and it appears to have some dust in the optical system, most likely the camera. It will be cleaned later.

The scope was outside before sunset and given 40 minutes to cool down. There was some dew as well and I wonder about heating the secondary mirror... it looked a little foggy at times. Even this little amount of tweaking to the collimation broke the pointing again and that will have to be redone in the end.

Another dead mouse to add to the tally. We now have four traps on the pier...a little hazardous to the astronomer as well!

Lastly, I shot an imaging run of Mars... at 2 or 3 ms per image(!) but at an equivalent of f/5, Mars was little more than a bright red star with no surface features.

The nights are good.. warm low temps means the telescope does not have as far to cool to ambient. No mosquitos for the first time in months is also very good. However the moths are out in force, flying towards all of the lights inside the observatory.★

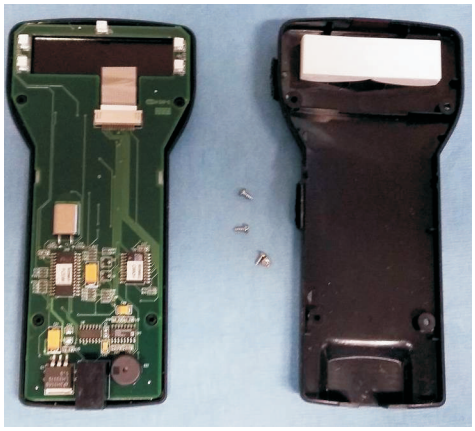
Cleaning the LX-200 Hand Controller Buttons

Kevin Kell

OVER THE LAST MANY YEARS, the responsiveness of the buttons on the LX-200GPS Autostar II hand controller has been getting worse and worse. Especially the Enter and Mode (Esc) buttons, but also the general numbers and directions as well. Enough was enough. After researching a dozen videos on YouTube (some good, some not so good), I went ahead this morning and started the process.

Here are the front and back of the hand controller respectively:

Four small Phillips head screws come out and the unit just opens up, as seen here:



Before opening up I applied a piece of tape to the red filter at the top of the unit, as it falls out easily. As a sidenote, have you ever seen the classic episode of MASH where Trapper John and Hawkeye are defusing a bomb in the compound. The instructions say "remove the upper locking nut"—turn page —"but BEFORE doing that, cut the red wire."

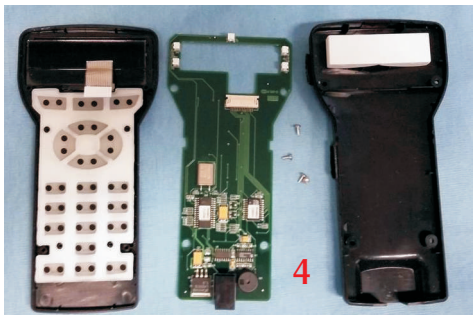


Image 4 shows the control board removed from its housing and the ribbon tape cable detached as well. Fairly simple circuits with a piezo buzzer in the bottom right, a voltage regulator on the bottom left, a crystal for timing on the upper right. The ribbon cable is to drive the red LED display.

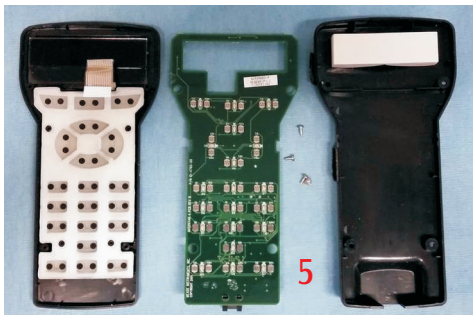


Image 5 show the flip side of the circuit board, with the button sensors showing.

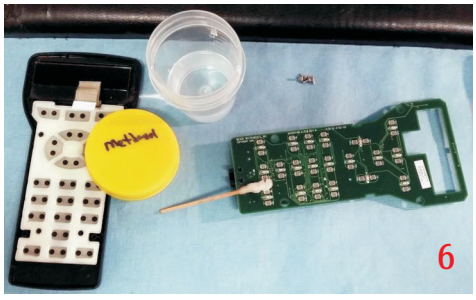
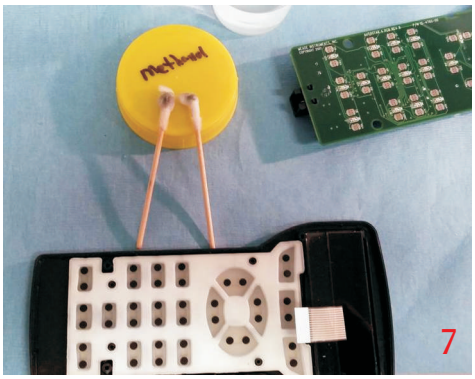
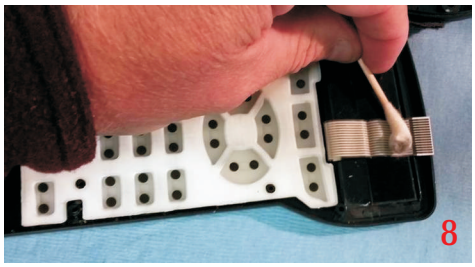
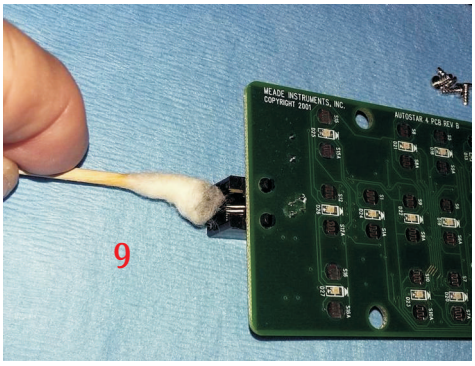


Image 6 shows the method of cleaning... laboratory grade methanol and a cue tip. Each contact was gone over lightly and then with a 2nd cue tip, a little harder. The contact buttons were also done and Image 7 shows the results.

Image 8 shows that the ribbon cable was also cleaned as was the external cable jack as seen here:

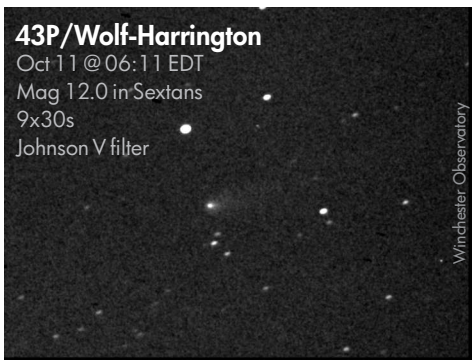






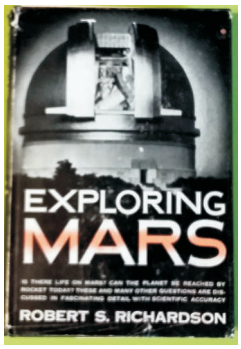
The entire assembly was put back together and the entire operation was less than 10 minutes. This evening we plug it back in (after cleaning the external cable plug as well) and see what happens!

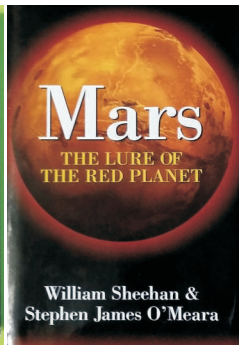
And the results were: success! The buttons are very much more responsive and no longer require pushing hard enough to poke through the back of the case. ★



Kevin Kell

Exploring Mars, by Robert S. Richardson.





It doesn't take long getting into the book that yes indeed, was published in 1954. There had been no landing on, or travel to, Mars, nor even an orbital flight of the Earth (Sputnik was in 1957). All was speculation at that time. And it was wonderful! Using the only methods they knew of, astronomers were pushing for bigger glass on higher mountains. The concept of lucky imaging (thousands of short exposures, picking the best and applying computers) was a total unknown at the time, as computers of the day were good at grade school arithmetic and that is about all.

The Mars image below was probably the best available at the time of publication (taken with a red filter), that the text credits to Mount Wilson and Palomar Observatories, 200 inch). Below that is one of my best images taken during the closest approach in the summer of 2016, using an 8 inch telescope with modern computer (and camera) power. With more processing I believe the 8 inch image could approach that of the 200-inch.

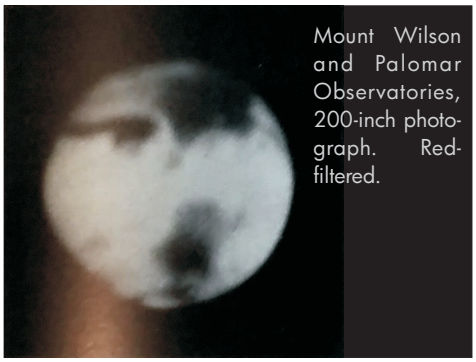
As part of talking about Mars, the author also made comparisons to other planets, Jupiter being one. We all have heard that the Great Red Spot is shrinking, and by extension it was larger in the past. But it didn't really hit me until I saw this photo of Jupiter and the GRS taken with again, either the 60, 100 or 200 inch telescope and how freakin' big the storm was then.

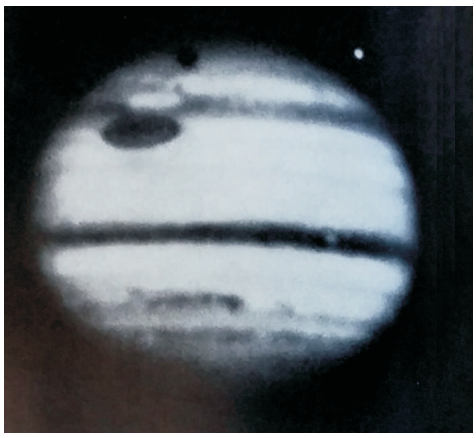
The image of Jupiter below is accompanied by one of my best with the 8-inch, showing this year's GRS: it is much smaller! I now live in fear that the GRS will disappear in my lifetime.

Mars: The Lure of the Red Planet (2001) by William Sheehan and Stephen James O'Meara

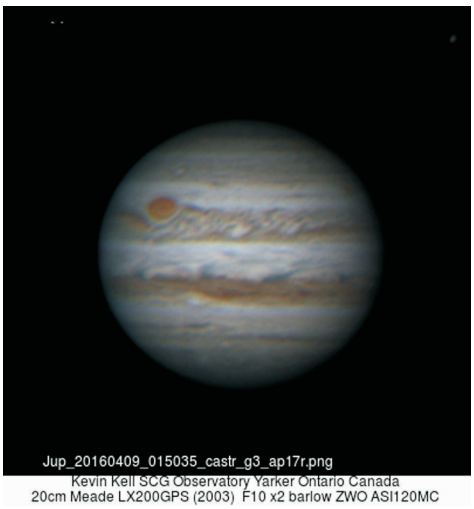
Now to compare and contrast with a newer book:

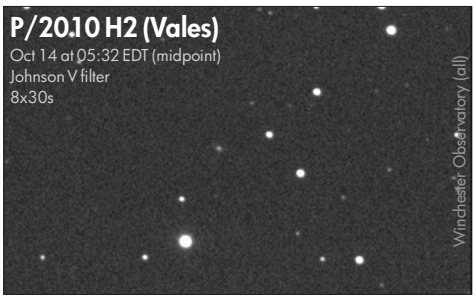
Wow. What a difference 46 years make! If you decide to read these books I would recommend doing one after the other (oldest first), to help keep things in mind and how they have changed. This book was an excellent read, and very far-ranging through history, mythology, astronomy and spaceprobes. I loved it!★

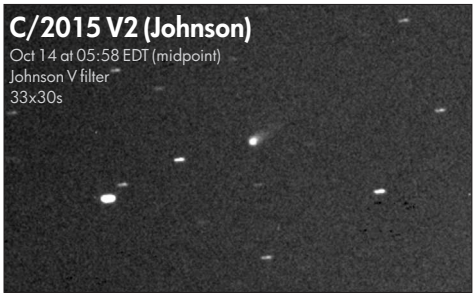




Mount Wilson and Palomar Observatories 200-inch photograph. Blue-filtered. Ganymede and its shadow are visible along with the Great Red Spot at upper left.







Kingston Centre's Upcoming Annual Meeting

THE CENTRE DEVOTES half of its November meeting each year to get its business done. Since it is only *half* a meeting, it is relatively painless. The best part is that we get to hear summaries of a year's worth of activities—and it's been a good year!

As usual, several positions are up for election this year, and the duties for these are listed below for anyone who is interested in grabbing one! Hopefully someone will go for the VP position this year. As long as the current President doesn't get hit by a bus, it is one of the easier offices to hold.

AGENDA

AGM—RASC Kingston Centre,
November 10, 2016

1. Welcome
2. Presentation of Agenda
3. Approval of Agenda
4. Approval of 2013 AGM minutes
5. Reading of annual reports:
   - President
   - Secretary (report and approval to update at year end.)
   - Treasurer
   - Library
   - NAC Representative
   - Editor
6. Centre Elections:
   - Secretary
   - Librarian
   - Editor
   - NC Representative
7. Appointment of Auditor
8. Adjourn with thanks

DUTIES OF THE SECRETARY:

- Compile meeting information each month and send to the Editor for inclusion in the newsletter.
- Take minutes at Executive Board Meetings: Assign Motion numbers to minutes. Type up minutes and send out to the Executive, especially if there are actions. *Note: We must have a minimum of three executive meetings a year.*
- Send out "Thank You" letters. This could be to speakers or members.
- Update Executive and Members' Manuals. (The entire Executive will help with this, as everyone's input is needed to do this effectively.)
- Send in the Centre Annual Report to national office by Feb 15th. (This has been done for the 2013 year already.) This report goes to the Executive Director and the National Secretary. This report will appear in the RASC's *Annual Report*.
- Send welcome letters to new members listed in the national office reports to centres. *These come out once a month, and the Treasurer passes them on to the Executive list.*
- Be on the Executive email list and contribute. We all help the Centre grow.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE VICE PRESIDENT:

- Help with meetings when the President is away.
- Send out hard copies of newsletters to members who wish to receive them in that format.
- Promote Centre meetings in local newspapers.
- Maintain the Centre's Facebook page.
- Be on the Executive email list and contribute. We all help the Centre grow.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE LIBRARIAN:

- Maintain an up to date list of library books.
- House the library. While this has been the custom in recent years, it is not a mandatory duty.
- Procure new additions to the library that may be used by members.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE EDITOR:

- Solicit material for the newsletter.
- Produce the Centre's newsletter, *Regulus*, using the software of your choice. *Ideally 10 issues per year will be produced (monthly, except for July and August).*
- Post the newsletter to the website.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE WEBMASTER:

- Maintain the Centre's website. Currently our site uses Drupal 7.
- Do upgrades and add modules when necessary.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet.

DUTIES OF THE NATIONAL COUNCIL REPRESENTATIVE:

This person is the liaison between the Centre and the Society.

- Attend NAC meetings either in person or by phone.
- Report back any items that effect the Centre and its members. The Centre executive will discuss any such items, and any concerns arising from this are taken back to the NAC for clarification or answers.
- Attend the Annual General Meetings at the General Assembly. This is covered through the Travel Policy of the Society, and the Centre will cover up to $200.00 of travel expenses.
- Help with any special projects that may come up.
- Attend Board meetings in person or via Internet. ★

The Centre's annual reports are online at:
kingston.rasc.ca/annual-reports