ORBIT

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More Gorsky

Steve Lascos

The 'Gorsky' story is actually an internet urban legend, not true at all.

The readers may be interested in reading the transcript themselves. It's available on NASA's website. Here's a link about the urban legend.

http://www.snopes.com/quotes/mrgorsky.htm

Regards

ASTRONOMY DAY AT THE OBSERVATORY

Open House for the public and members will be held from 1:00 pm through the evening. Come share telescopes, knowledge and comradery while showing our guests the sun spots and evening treasures Saturn, Jupiter and the Moon. Be a part of a special day. Make some memories for people to take home with them and stirring them to return.

INSIDE THIS ISSUE

From The Editor

Ev Rilett

Spring has arrived and so I will take a look at the most beautiful spring star, Arcturus, "The Guardian of the Bear". Be sure to take a good look at this magnificent star. It is the 4th brightest star outshining Vega & Capella at magnitude –0.06. It is a K2 type star. Often, it is referred to as a *'rogue'* star or *'runaway'* star, because of its very unusual and rapid motion and movement. Arcturus moves in a highly inclined orbit around the centre of the galaxy, and is presently cutting through the galactic plane. The Sun, is moving with the general "stream of traffic" in the plane of the galaxy. This explains the large relative motion between the two stars. From the viewpoint of an Arcturian, it would be the Sun and the rest of the general stream which is moving so rapidly. It is important to consider the motion of Arcturus.

In the third millennium BC., Bootes was a circumpolar constellation that was visible every night very close to Thuban, the Polar Star of the time. Arcturus was regarded as a symbol of Agricultural civilization, representative of the farmer's most complex operation, plowing. Looking back even further to approximately 6000 BC., The North Pole Star was extremely close to the head of Bootes and his figure seemed to be perfectly aligned with the meridian of the summer solstice at midnight. In addition, Bootes was also aligned with the meridian during the winter solstice and at the spring and fall equinoxes. Gradually, from that date on, the slow shifting of the precession of the equinoxes has deprived Bootes of this position of ruler of the Pole and indicator of the seasons.

This motion was discovered by the English Astronomer Edmund Halley, who calculated it to have one of the fastest movements to be found among the fixed stars. A remarkable fact about Arcturus is its great annual proper motion. Arcturus moves 2.28" per year toward the south, which is equivalent of almost one lunar diameter every eight hundred years. This fact is extremely important because, if we backdate this star's position by a few thousand years, we will have seen it gloriously situated at the head of the constellation Arcturus.

What I do when I have my hands on three scopes with different optical designs, or, what I did last summer.

By Glenn Kukkola

The summer of 2005 I had in my possession a 5.1 inch konus maksutov, a 5.1 inch meade achromatic refractor, and a 5.1 inch skywatcher newtonian. I also had a heavy duty equatorial mount and was itching to do some star gazing. So what did it do? I hopped in my hatchback and shuttled up to Torrence Barrens of course , with three scopes in tow. Now

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SCHEDULE OF EVENTS

Hamilton Steam Museum located at **106 Parkwood Crescent, Hamilton, ON L8V 4Z7**, *hosts our General Meeting on the 1st Thursday of each month at 8:00 pm.*

APRIL

6 - General Meeting – Speaker - Dr Doug Welch

13 – Board Meeting – place TBA

May

4 – General Meeting – Speaker TBA

11 – Board Meeting – place TBA

THE HAMILTON CENTRE OBSERVATORY:

From Highway 6 North of Hamilton.

Take Concession 7 East eastbound, cross Centre Road.
Continue on 7E, keep going past railroad tracks, to near end.
Observatory driveway is on the right just before the stop sign.

From Mississauga or Milton.

Britannia Road past Highway 25, Guelph Line, Cedar Springs Road to End. South 1 Block on Milborough Townline to Concession 7 East.
Our gate is on the south side of the last lot (south west).
The observatory phone number is (905) 689-0266.

YOUR BOARD OF DIRECTORS

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LIST SERVERS

Check out our newest addition of communications. We have a **new website** found at http://www.hamiltonrasc.ca/new . Also, we have a new forum linked from the new homepage including an interactive calendar which members can contribute to, found at the following: http://www.hamiltonrasc.ca/forums
Les Nagy will be making improvements to their appearance and function as the weeks go on.

There are two list servers available for members to receive and contribute with informative conversation. Our local centre list. Get in touch with Mark Kaye (see Board of Directors List) and he will sign you up.

There is also the national list. Members must go the national web page to sign up for. http://www.rasc.ca/computer/rasclist.htm

PUBLIC EDUCATION

Public Education is very important at the Observatory. Among other events, our Centre is involved with Girl Guides, Scouts, and other groups interested in a guided tour of the night sky. We generally give a brief discussion, a slide show or other visuals, and then a tour outside with two or three different scopes. This gives the guests a chance to decide for themselves which type of telescope they like best.

It is wonderful to see the look on a child's face the first time they look through a telescope. Also, if you know of a group that may be interested in an evening under the stars call for a booking.

Call a board member to find out more. Your help is always welcome.

MONTHLY SWAP MEET

Feel free to bring in any astronomical items you no longer need in your collection. It might be just what someone else is looking for. A table will be set up each month for items to be swapped that evening. So, clear out that closet space and make room for some new, slightly used astro ware.

DO YOU WANT A KEY FOR THE OBSERVATORY

- If you are a Key Holder please make sure you get your new key from John Williamson.
- If you are interested in becoming a key holder, you must be a member in good standing for one year, sign a release form and take a short Observatory Security Training evening.
- Please forward any questions you may have to Board Members.

Dew Heater Fix

By Colin Haig

Recently I'd noticed an occasional problem with one of the dew heaters on my scope. With the damp weather we had in March and the early part of April, my dew heater came on from time to time, and it seemed to be draining the battery faster than expected. I've heard stories of these things shorting out, or causing fires, but haven't had that experience myself. It seemed to me time to investigate to prevent future problems. Upon closer inspection, I found a problem with some of the older Kendrick Dew Heaters on my scope. If you have these dew heaters, I suggest you check for the problem yourself by gently unscrewing the cover at the RCA plug end, and look for a possible short circuit.

If you look at photo Dew1.jpg, you will see the two white wires, one soldered to the flat metal tab at the bottom, and one into the centre connector. When both wires are clamped in the strain relief part of the bottom tab, the tab and the centre conductor can come too close together and form a short circuit. In the second photo (Dew2.jpg), the insulation is peeled back, and the wires separated. Next, using a soldering iron and solder sucker like a Soldapult, or solder vacuum bulb, remove the centre wire, and clean out the excess solder. (See Dew3.jpg)

Now that the wires are separate from the connector, you might want to check the resistance value with an ohmmeter. Most digital multi-meters have a resistance setting to check for 200 Ohms (200 Ω) or less. Connect up the meter on this setting to the two white wires. For eyepiece heaters, mine show up around 45Ω resistance. The big dew heater on the front of the scope is between 6 Ω and 8 Ω. This will vary depending on the dew heater. Smaller ones tend to have more resistance. If you get a value below this, I would suspect a short somewhere in the wires inside the dew heater cable or heater pad itself. If this happens, throw it out and buy a new one. Otherwise, write the resistance down somewhere, like on the handy manufacturer tab. When you check the resistance next year, it will give you a handy reference.

Now slide some 1/8" heat shrink tubing over the centre wire. Solder the centre wire back, and slip the heat shrink quickly over the centre conductor. If you are too slow, you will inadvertently heat up the tubing, and it will not be possible to slide it over the centre bit. You will have to cut it off and try again. You will get something like photo Dew4.jpg. Use a heat gun if you have one, or gently hold your soldering iron about ¼" away, and shrink the tubing. Make sure none of the centre conductor is visible. If this works out, crimp the strain relief gently back into place, being careful not to bite through the wires. (See Dew5.jpg).

Put a piece of 3/8" heat shrink over the connector, and slide it onto the wire side, so that it covers both wires and the bottom tab. Shrink this using the heat gun or soldering iron technique. (See Dew 6.jpg) Now screw the connector cover back on. This can be secured with a drop of Lok-Tite if you wish, but I didn't bother. (See Dew 7.jpg) Now, you can put a piece of ¼" heat shrink over the whole thing, so the metal plug cover isn't exposed. I did this to prevent accidental shorting/grounding with other equipment on my scope. Again, heat it up until it shrinks evenly around the whole assembly. The last thing is to label the cable, so you know where it goes. I used some sticky wire numbers. (See Dew 8.jpg).

The final step is to check the resistance of the dew heater once it is all reassembled. The value you get should be the same or a bit higher than the amount you measured when checking the wires earlier on after you desoldered the centre conductor. If you get less close to 0 Ω I recommend you disassemble the connector and re-check your work. A value below 6Ω will draw more than 2A of current, which is a fair amount. If you still have a problem, toss the dew heater and buy a new one. Your professional repair will prevent future trouble. If you are not comfortable doing this job yourself, let me know, and we can make it the subject of a workshop at the observatory one afternoon.

Wishing you dew-free optics for those spring clear skies!

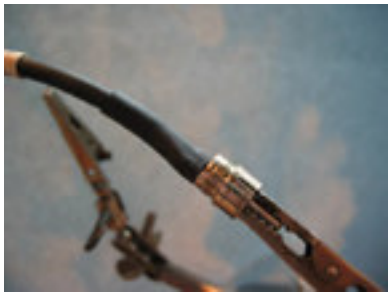
Dew 1

Dew 2

Dew 3

Dew 4

Dew 5



Dew 6

Dew 7

Dew 8

Three shorter legs to stand on: Shrinking the Giant Field Tripod

By Colin Haig

This spring I acquired a larger telescope, my first scope purchase in about 10 years or so. I moved up to a Meade 12" LX-200 GPS, and am in the process of doing some tune-ups. This scope, with substantially greater light-gathering power than my 7" Big Mak is better suited to hunting deep sky objects from my somewhat light polluted back yard. Being that the scope is a couple of years old, it doesn't have all the latest advancements, but optically it is pretty decent, and most importantly, it fits my SkyShed.

The scope came with a Giant Field Tripod, which unfortunately for this vertically-challenged author, stands about 39" or so to its base. When I add the extra 16" inches of the super wedge to polar mount the scope, its simply too tall for me to handle. I needed to do something about this particular problem.

Since spring is finally here, and observing in the field has a certain appeal, portability is an issue with this excess height. Of course, this is just in case I ever decide to pull it out of the Star Shak and enjoy warmer nights but later sunsets somewhere other than home.

A few different people and the members of the Yahoo LX200GPS group pointed me to Peterson Engineering in Barrington, RI, USA. They have a web site at: http://www.petersonengineering.com/sky/
I looked through the online list, and then called up Pete Peterson, and ordered a few goodies from their list of scope accessories, and it showed up in the mail a few days later.

Pete is a talkative, knowledgeable fellow, and gave me some suggestions. He also asked me some questions to check my mechanical skill (which is about average), and he offered up some sage advice on what was really necessary, and what I might want to skip. I found it refreshing to find someone who was NOT trying to sell me things that I didn't really need. As it turns out, this particular scope was prior to August 2005, and Meade has subsequently made some improvements to the design, most notably, chopping about 8" out of the tripod!

I purchased Peterson Engineering's Giant Field Tripod Shrink Kit, to shrink this beast down to size. From what I gather, Meade has been shipping these unusable 39" beasts for many years, for 12" and 14" scopes. For less than US$50 and a few dollars postage, a nice white envelope came in the shipping box. (See the picture). I was kind of surprised to see everything stuffed inside the package – 3 spacer bars, a bunch of nuts, studs, small tool items like drill rod, and some very detailed instructions with great photos. Lots of good advice too – like buying a good hacksaw, using a blowtorch, reading everything over first, measure twice and cut once. Common sense, and some things I found worked surprisingly well.

The kit also suggests most of the tools you will need, and I really didn't have to add anything to it, although I did find my Dremel tool with a cut-off wheel came in handy at one point for trimming the spacer rods to the right size.
The basic process consists of disassembling all of the tripod components. You take out the center threaded rod with the spreader. The next thing is to remove these press-fit pins from the center of the spacer rods near the ground. This consisted of a lot of hammering on the drill rod, cursing, and some minor sweatiness. That had to be the first hard part. You then remove the acorn nuts and unthread the studs using a clever technique. After that, all three of the legs come off, and you feel like you are about halfway done. Next comes the really painful part – you have to heat up the casting at the top of each leg to melt the glue and expand the casting enough that it can be hammered off. The manufacturer must use some kind of press to put these together. I used a felt marker to indicate the starting place on each leg.

Pete suggested using a pot of boiling water or a propane blowtorch, but I used an electric heat gun instead. It took several minutes of evenly heating the casting while rolling the leg around on my workmate. Once I smelled disgusting glue, I knew I was getting close. A bit more heat, and then I was ready to get hammered. I mean, start hammering. By clamping the chrome part of the leg gently in the workmate, and hammering on a piece wood placed against the casting, I was able to start moving the castings off.

Once each casting was off, I sawed these babies down to the recommended length for a 28" high tripod. Since the inner legs are pretty long, it can still be extended up a great height, beyond what even most basketball players might need! (See the photo showing the chopped piece next to the re-assembled tripod – there is about 13" of material removed).

The last few steps consisted of reassembling the tripod. A few more minutes of hard labour to hammer the castings onto the shortened legs resulted in the right lengths and no problems. I started to get concerned that maybe this was too short, but I kept reminding myself that the legs extend.

The three supplied spacer rods are predrilled for different heights, and I used the cut-off wheel on the Dremel to chop them to the smallest length. Instead of trying to re-fit the pins, the kit included some very small machine screws and lock nuts that fit perfectly.

After it was all together, my first reaction was that it looked too short. Kind of like a mechanical troll – short, squat, and muscular. I then realized I left the factory sticker on one of the cut-off parts, so I peeled it with some heat and reapplied it to a leg, and placed the Peterson Engineering hologram sticker underneath. (See photo).

I think this is the first time I ended up with less than I started with when I paid for a scope accessory. In total, it took me a little over 4 hours to do everything, and it would have gone a bit faster if I knew what I was doing. This package cost about 1% of the value of the scope, and adds substantially to its usability. I highly recommend it!

Tripod Shrink Kit

Knob

Knobs

Chopped

Sticker

Victorious

No More Snags ! Safer Tripod Legs

By Colin Haig

Kevin Hobbs made a comment to me about how he found a lot of the scope tripods very annoying, because it is so easy to catch a pant leg on the ridiculous knobs they put on them. I thought about this ever since, and stumbled across a solution that you might want to implement yourself.

The bottom of many tripods, such as the Meade standard tripod pictured (See photo snag1.jpg) have one or two knobs with 3 arms on them for turning. In the dark, its easy to catch one as you walk near the tripod, have it snag, and it will throw your alignment off. The easy solution is to go to your neighbourhood hardware store (e.g. Home Hardware or The Home Depot), and to buy some Socket Head Cap Screws that are the right length, and to buy some plastic knobs that you hammer into the top of these screws. If you want to do this right, find some Stainless Steel ones so they don't rust. You might have to try Brafasco in Burlington as well.

The length of the cap screw should be the same as the old knob (See photo oldknob.jpg). When you put the knob and screw together, you need to put a block of wood under the knob, press the screw head into the bottom of the knob, and then hammer on the top of the screw, using another block of wood between hammer and screw. This will fit the screw nicely into the knob. Don't hammer on the knob – you will shatter it. I picked red coloured knobs so they show up well with a flashlight. A finished knob is shown. (See photo knob.jpg). The finished scope gets 6 of these in total, and I have shown a leg here. (See photo knobs.jpg). This works as well as the old ones, they are harder to overtighten, and they don't snag so easily.

If you look carefully at my Shrunk tripod, you can see them at the bottom of each leg.
Good luck and have fun.

Snag 1

Old Knob

73P – shwachman wachman
Photo by Andy Blanchard

SBIB 11000 Camera Training

Andy Blanchard

Last December Coin Haig and I set out to produce a training program for the SBIB 11000 camera. Colin had already produced a detailed step by step program with great visuals. The challenge to us both was to take the process of taking a photo to a basic level that all Hamilton Center members could easily master. Being a novice photographer myself, the test of the system was simple; if I could achieve success then anyone else could likely do it too.

The scope and equipment to me had appeared daunting. We decided that the project would require a stepped approach. The steps being: an introduction to the equipment and how to set up and break it down for the night, and the second step being software operation and how to achieve a focus, the third step would involve the use of filters, dark frames and guiding, the last step being the most difficult the art of digital development.

The 1st three steps would need to be completed at the observatory utilizing the scope and camera on site. The last step of digital development could be accomplished in a classroom setting utilizing shareware software and student laptops.

Do to the extended drought of poor sky's this winter and freezing temperatures little interest in signing up for lessons materialized. Well the warmer nights are now here and its time to register for lessons. I will be available Monday's and Tuesdays for steps one through three. To get involved just e-mail me at ablanchard@cogeco.ca and I will schedule your training.

Andy Blanchard

Walter & "Snoopy" are always ready to go.

I'm wearing an RASC hat to keep the mosquitoes away, the head light is an LED and switches to red for chart reading. Around my waist I'm wearing a carpenter tool belt. I store my eye pieces in the pouches, 24MM on the left to 9MM on the right. There is a pouch lower front for my Plossal and room for filters. I modified a golf cart so I can haul Snoopy out to the field at the campground. The owner of the campground in Port Elgin gave me the key to the field for good unobstructed observing. I'm joined at night by one other fellow with a small scope, along with a dozen or so other interested people who are not supposed to be there. The owner of the campground joins us a few times a year. He is fascinated by smudges and blurs as he calls them.

Walter McGaw

Cont'd from pg 1 - What I Did Last Summer

you might be wondering what I was doing with three telescopes, and I would politely respond: don't ask. I have them and now I want to compare them. Why? Well, to help myself and others appreciate the value and limitations of these three optical designs. You might be asking why I didn't test a 5.1 inch cassegrain, but, then you would be somewhat missing the point.

We are looking at focal lengths, number of optical surfaces, and colour of visible bright targets. A maksutov and cassegrain are similar enough. Different configuration of surfaces, but essentially the same number of surfaces and are similar in the amount of focal length packed in a small package. The Mak is a little longer in focal length than a similar size cassegrain but, oh well. The point is that whether you have Mak or cassegrain, you get tons of high power viewing, but at a loss of both contrast, light transmission and most importantly field of view.

The Konus/ celestron 5 inch Mak has an f15 focal length and has four optical surfaces not including eyepiece. This means that their will be greater loss through dispersion as well as an extremely narrow field of view. Also there is a

central obstruction yielding more light loss and loss in contrast but not as much as a cassegrain of the same aperture. Believe me when I say that finding things with a Mak is a pain in the neck. Another peculiarity is that objects appear a little yellowish due to some chroma, but it may also be due to the coatings on the meniscus lens which both attempts to increase light transmission but also compensate for chromatic aberration.

The meade refractor, is also exactly 5.1 in aperture but has almost half the focal length of f 9.3. The longer the focal length the less chromatic aberration. The purple and yellow hallows in this refractor are not too annoying, but they do make it hard to take pictures without some manipulation of the raw data. The field of view is still narrow but not as miserly as the maksutov's. Note also that the refractor also has four optical surfaces due to the air spaced doublet lens but it has no central obstruction. It's all clear aperture baby! The 5.1 inch skywatcher brand reflector is a 650 mm focal length (f5) which is about half the refractor's focal length and it has a secondary mirror which yields a modest but significant central obstruction, but this design has only two optical surfaces and therefore less light loss through dispersion. The parabaloid mirror also ensures that rays of light converge at a point. What this design is free of is chromatic aberration although it is not free of coma.

So what does one expect to get out of these three scopes when viewing a M13; a globular cluster. Well, one gets some expected and unexpected results. The Mak yields some nice high powers with a low power eyepiece, but the image although fairly sharp, is rather dim, and lacks umfph! That is my scientific term for brightness and contrast. The refractor performed brilliantly (no pun), but required a more high power eyepiece and again field of view was limited. The gain was in both contrast and brightness. Detail with averted vision was also greater in the refractor. Colour aberration in both was not objectionable. The reflector, however gave the most pleasant view of the globular though admittedly not as bright as the refractor, and an even higher power eyepiece was need for the same magnification, if barlowed to achieve this it would constitute some loss in brightness and sharpness.

I'm assuming average priced eyepieces and not crazy expensive Taks, Radians, or Pentax. What the reflector gave was brilliant true colour and a nice field of view. It lacked the magnification and sharpness of the refractor. With the reflector the higher the power the more mushy the image basically due to the roughness of the optical surface. You need to spend massive money to get mirror surfaces that can maintain a crisp image at high powers. The way around it is to increase aperture and focal length which gains you high resolution with low power eyepieces. The mak's and cassegrains also can yield slightly mushy images that lack sharpness when their powers are pushed higher since they also rely on mirror optics.

But if we take a bright object like the moon, then we can really see the strengths and weaknesses of optical design when comparing three scopes in a similar price range. The views of the moon with the Mak lacked both brightness and accurate colour, but there was decent contrast. The sharpness of the view was reasonable as well. I would like to insert here that on splitting the double double in Lyre, that the Mak does a splendid job with slight additional faint diffraction rings around the stars. The refractor does an even better job yielding tiny ping-pong balls with sizable separation. The reflector barely splits them. But I digress. It is no surprise that the refractor yielded both the sharpest and brightest image of the moon although there was purple edges to the shadows. Contrast was excellent. The newt in comparison gave the best natural colour and slightly lower contrast, but a more pleasant image than the Mak especially at low power. There is a little coma at the edges of the image but that is to be expected with any reflector with a focal length of f5 or shorter.

The verdict: achromatic refractors rule for bright objects, globulars and stars, if you can get over the purple fringes. The Mak rocks for high power viewing and ideal for bright objects such as planets, but for low power wide field viewing the short focal length reflector is still at the top of the heap, yielding bright images set in a large view. It also excels at galaxies. The refractor as well given the lack of obstruction, and good contrast can also perform well on galaxies, but it is a little more work finding them with the narrower field of view. The proof of such claims is in the pictures I took of the moon represented in three digital images for your own perusal and evaluation. Why did I have three scopes ready for use? Because they all have strengths for viewing different types of objects and can perform well according to their suitable application. I recently acquired a 6 inch achromat at a rock bottom price, and mounted it on an even heavier equatorial. On Jupiter the f/8 refractor had noticeable purple halo, but with a minus violet filter, the contrast, and the resolution possible with six inches of unobstructed aperture yielded incredible detail of bands, festoons, barges, and the famed red spot. But I still have my 10 inch reflector for some of the deep space jewels outside the grasp of this scope. I love astronomy!

Meade

Skywatcher

Maksutov

Images by Glenn Kukkola