Lunar Eclipse
By Ken Lemke

On November 8, 2003 about 10 members of the RASC Hamilton Centre gathered at Bay front Park in Hamilton to view the Total Lunar Eclipse and to share views with the public.

The evening started with some concerns as about 6:00 PM, a large mass of clouds flirted with the moon and threatened to ruin the view. Then, as mysteriously as the clouds appeared, they disappeared and by the time the partial eclipse started (6:32 PM) we had a clear view, and it remained that way for the rest of the evening.

As the moon slipped into the earth's shadow, I was amazed that I could start to see coppery red tones showing on the eclipsed portion. During the earlier part of the eclipse, the reddish colour was more apparent naked eye, but was harder to detect in the telescope. In my case a 130 mm f/5 Newtonian using a 19 mm panoptic ocular.

About 8:06 PM, totality was upon us and for about 24 minutes, we (and the public) marvelled at the reddish tones that were quite apparent both to the naked eye and in our telescopes. It's a sight I won't forget. As one person stated, the view was "way too cool" – did I mention the temperature outside was COLD, but for those short 24 minutes we forgot about the temperature.

While a total eclipse, a small slice of the moon (southwest corner, as seen by the naked eye) appeared as if it hadn't been eclipsed. This is a result of the fact that the moon was just inside the earth's umbra, and was still receiving some "white" light.

Once totality was over the group started to thin out, but a few hearty souls continued to watch as the moon slipped out of the earth's shadow, and all the while continuing to exhibit the coppery red tones on the eclipsed portions.

Finally, about 10:00 PM, the last few souls packed up, agreeing that it was an excellent night with the moon putting on an unforgettable show.

January Meetings

The January general meeting has been changed to Wednesday January 7, 2004.

The January Board meeting is on it's regular night of Thursday January 8, 2004.

Planning Your Deep Sky Observations Using Readily Available Resources
By Keith McColl

A simple yet very useful method for the observation of Deep Sky Objects may be developed from articles contained in the Observer's Handbook 2004.

If we wish to develop an outline to be used in January 2004 we should take the following steps: -

1. Consult Alan Dyer's " The Messier Catalogue, page 273, and specifically " Seasonal Listing of Messier Objects, " pp 274-276.
"The Winter Sky," page 274, includes Taurus, Auriga, Orion, Lepus, Gemini, Canis Major, Monoceros, Puppis and Hydra. If, as an example, we were to select Orion we would list:

- M42, NGC1976, Combination of Emission and Reflection Nebula. The Orion Nebula, the finest in the Northern Sky.
- M43, NGC1982, Combination of Emission and Reflection Nebula. A detached part of the Orion Nebula.
- M78, NGC2068, Reflection Nebula. A bright, featureless reflection nebula.

2.Consult Alan Dyer's " The Finest NGC Objects," page 277, and specifically " Seasonal Listing of Finest NGC Objects, page 278.

- Staying with Orion" The Winter Sky" list includes: -
- NGC1788, Reflection Nebula. Fairly bright but diffuse reflection nebula.
- NGC1973+, Combination of Emission and Reflection Nebula. NGC1973-5-7 just N. of M42 and M43
- NGC2022, Planetary Nebula, small, faint and distinct with annular (ring-like) form.
- NGC2024, Emission Nebula, bright but masked by glow from zeta Orion.
- NGC2194, Open Cluster, 80 stars, fairly rich; look for NGC2169 nearby.

3. Read Paul Markov's article," The Observing Logbook," pp 74-5 of the Handbook. It provides guidance in the development of the observing experience. He suggests that for all object types the following questions might be asked: -

1.A. What is the shape of the object?
B. What is its size? (Based on the field of view of your eyepiece.)
C. Is averted vision needed to see the object?
D. Does averted vision allow you to see more detail?
E. Is the object near, or in the same field, as other objects or bright stars?
F. What magnification gives the best view of the object?
G. Does a filter improve the view?

Our Orion lists contain a number of Emission and/or Reflection Nebulae. In this case Markov suggests these criteria: -

5.A. Is the brightness even or are there brighter areas?
B. Are the edges of the nebula well defined?
C. Are there any stars within the nebula?
D. Is there a hint of any colour?

It would probably be worth copying these criteria down and including them in your logbook inside a plastic folder. If you use a numbering/lettering system you could then just enter numbers and letters with your answers

4. Copies of the RASC Visual Observing Log can be downloaded and printed from:
http://www.rasc.ca/handbook/obsform.pdf

5. An excellent log sheet for Messier objects can be found at " The Ultimate Messier Object Log" (TUMOL). The easiest way to find it is simply to put "TUMOL" into Google. "The Main Screen" provides a full page for each Messier object with: -

-Messier #
-NGC#
-Type
-Name, if any
-Constellation
-Magnitude
-A 1 sq.in. colour picture
-A 6-1/4 x 4-_ map.
-Space for your viewing notes

If you don't want to print all 110 pages a shorter version, on 19 pages, can be found under "View Pictures."

Such a procedure is, of course, applicable to any month or season. For those who have previously followed Mr Dyer's suggestions there are many more lists in the Handbook including: -

-Deep-Sky Challenge Objects, pp 280-1
-Dark Nebulae, pp 282
-Galaxies: Brightest and Nearest, pp 283-5

The Predicament of the Elderly, Financially Cautious, Novice Amateur Astronomer

By Keith McColl

Although the Sun has been gone for only a half-hour and the western sky is fairly clear, Venus is not to be found. The binoculars scan from northwest to southwest but there is no star-like planet to be seen. Perhaps the timing is wrong. The stop at Tim's may have done it. High above, in the western sky, golden Arcturus dominates. Not to worry, there will be many more chances through fall and winter to find the Evening Star.

A little later, at 7.20 pm on Saturday, November 8th, 2003 the glorious melodies of Rachmaninoff's Second Concerto resound from the open windows of the car across the lane, corn stubble on one side and the timothy on the other. The elderly, financially cautious, novice amateur astronomer, hereinafter known as Jack, stands on a hill behind a farmhouse in southwest Ancaster. The nightscape is excellent and the seeing is a six!

The partial eclipse of the Moon has been proceeding for about fifty minutes and the Moon is now more than half in the shadow of the Earth. Jack turns to the trunk lid of his car, switches on his red flashlight, notes the time, sketches the Moon in his observing log and describes what he sees.

Jack goes back to sit on his little three-legged stool. His binoculars, held by his binocular stand, reveal the glow of the still visible half moon. He peels back his woolen, insulated fishing mitts so that his cold fingers can better aim and focus on the ascending Moon as the relentless shadow advances. He blows on those cold fingers. He stuffs them into the pockets of his warmest winter coat, but too no avail. It is November. He is sitting on the top of a hill and the wind is fresh. His hands are cold .His feet are cold. As he watches the Moon is swallowed by the shadow! Total eclipse!!! This is what he came here for and it is both humbling and awe-inspiring. It is but a small unimportant incident in the life of the universe and yet it commands the attention of millions of Earth's inhabitants.

At 8.10, having stood for a few minutes looking in awe at the orange disk, searching out the Maria, still visible despite the shadow, Jack turns to the task of setting up his new ETX 125. He struggles to get the tripod out of the bag. Then his cold fingers lose the washers and the spring as he fumble to get the spreader tray in place. He searches in the dust. This time he is lucky. Next, from its case come the 'scope. It has been sitting outside in the car trunk all day so it feels like a block of ice. He fiddles with those two screws as he tries to place the base correctly on the tripod tilt-plate. His cold hands are no longer working very well. The cold is penetrating his winter boots and his two pairs of woolen socks.

Suddenly a sacrilegious thought came thrusting into his consciousness. " Why the hell am I standing on a windy hill on a bitterly cold night, freezing my butt off, to look at the damned Moon? I've seen it before; I'll surely see it again. Isn't there a more comfortable way to do this?"

Jack knew right away that amateur astronomers are not supposed to think heretical thoughts like this. He was supposed to be committed, devoted to science, ready to stand the privation of time and temperature in the interests of knowledge. What would Sagan have

thought? But he had never been bound by creed or convention. This was no time to start. He knew that no one, least of all his wife, was going to admire his dedication. Besides his hands and feet were frozen and he was starting to shiver.

Isn't this supposed to be fun? There has to be a better way and the top of a windy hill is not the place to think about it. Let's go home.

The 'scope went back into the box. The tripod went back into the bag. The binoculars and stand went into the back seat. The log and the other paraphernalia went into his case. The cars, with heater on full blast, headed down the hill and back home.

Sunday was not a day of rest for Jack as he struggled with the problem. " How can I go on observing without the discomfort of the cold?" The windy hill had been great in the summer and fall, but not any longer. Perhaps the remedy was right here in his backyard. He put aside his memories of the frustrating nights he had spent guarding his eyes from his neighbors' security lighting. "I could get an observing hood," he thought. He looked at the cluster of tall cedars on the southeast corner of the yard and thought," If I go to the other end of the garden I will see Orion over them. If I concentrate on constellations high in the sky I should be OK. I will change my observing program to fit the circumstances."

Jack proceeded to think through this solution. He knew he would be protected from the cold west wind that had driven him off the hill. But what about January nights when it got down to 10 or 20 below? How could he beat the cold? The answer was his pool shed. He could set up a table with a red light for his star maps and log, and a little heater to take the chill off. Jack got to work. Things were moved around to create space. An all-weather extension cord was plugged into an outside socket and brought through a small hole in the shed wall to provide power.

Of course he would still have to go outside to set up the telescope and to observe. He would need to sit with his cold hands clutching pencil and log book as he tried to draw a cluster or a nebula. He'd tried drawing from memory before but it didn't work too well, especially with an open cluster. Mmm… What about those guys with their laptops, running the scope from inside, Jack wondered. Could he do that?

What would he need? Well, first he'd have to get a laptop. He'd heard that electronic eyepieces were pretty good for the Solar System, but what about deep sky objects? Maybe a CCD was the real answer. Software, cords, power unit; already this was climbing out of his price range. Maybe he could find everything "used." Christmas is coming; maybe he could put a list out to all the family!

Of course he wouldn't need to take all this stuff when they went down to Florida in February. Ah… those warm, dark, velvety Florida nights! But if he bought all this stuff they wouldn't be going to Florida! Wait a minute; he was thinking of stripping the family budget to buy gear which would make observing easier in just December and January. And how many nights would there be for observing? One or two per week; perhaps a dozen in total! Did it make sense? Not really, all that money for just a dozen nights. Perhaps the great thrill he got in looking for and looking at the galaxies, the nebulae and the star clusters was worth a little discomfort. Perhaps cold hands and cold feet could not detract from the exhilaration he felt while counting the stars in the Pleiades on a clear, crisp night.

Jack sat and thought about this predicament. He weighed the pros and cons. It would be nice to have all those toys and bring a disk of his latest observations to the club meeting, but for him it was all about looking at and getting to know the sky. He had come to this hobby late in life and there was so much to learn. Maybe he should stick with what he could handle and leave the hi-tech stuff to the other guys.

Yes, that was it. He'd stay with observing, even when it got cold. He'd save his money and spend it on February and March in Florida. He felt good about the sensible solution he had reached. But for the next few weeks he'd make sure he was well insulated. He could use his pool shed to get warm between spells at the 'scope.

As for the next full lunar eclipse to be seen in North America, on October 28th 2004 he might even go back to that windy little hill and tough it out. The splendor of the night sky would be, as it always is, more than worth it!

Beginners Observing Group

If you are interest in the Beginners Observing Group contact Ken Lemke by e-mail at cfs@worldchat.com (day time) or klemke@worldchat.com (night time or week-ends). His phone number is 905-634-5168 (day time) or 905-639-5127 (night time and week-ends) or Gary Colwell at glcolwell@rogers.com

Hamilton Centre Logo Clothing

Ken Lemke has generously offered to coordinate the sale of various clothing items with a very distinct Hamilton Centre Logo on them. The logo is shown as the header on page one of Orbit. Here is a list of the clothing items and our introductory special prices. If you are interested in ordering items please contact Ken Lemke by e-mail at cfs@worldchat.com (day time) or klemke@worldchat.com (night time or week-ends). His phone number is 905-634-5168 (day time) or 905-639-

5127 (night time and week-ends) To make the ordering process as easy as possible we are requesting that you pay for your garments upon ordering with a cheque payable to "RASC Hamilton Centre"

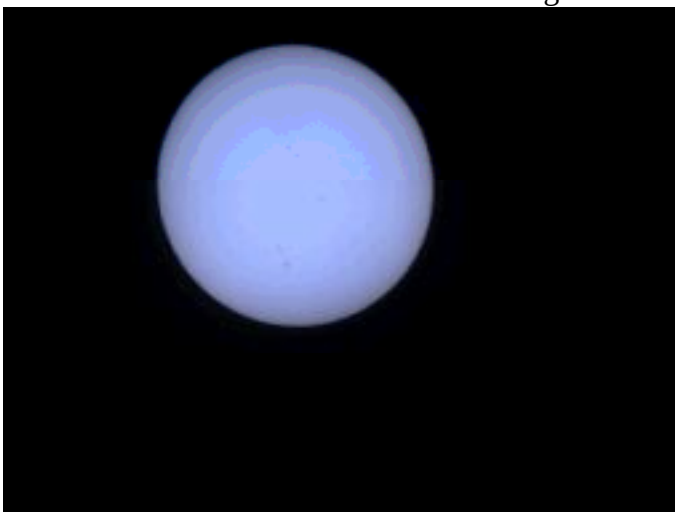
Item	Style Number	Price
Ladies North End Fleece Vest	ASH70086	$39.00
Denim Shirt Long Sleeve	WD7120	$36.00
Sweat Top "Heavy Cotton"	WD18430-D	$30.00
Men's Micro Plus Lined Wind shirt	ASH88001	$53.00
High Point Golf Shirt	WD5600-01	$34.00
Men's Extreme Cotton Long Sleeve Pique Golf Shirt	ASH85017	$33.00
Ladies Extreme Fashion Cut Pique Golf Shirt	ASH75008	$27.00
Men's North End Fleece Vest	ASH88005	$49.00
Elements Polyester Fleece Toque	ASH441006	$16.00
Elements Polyester Fleece Headband	ASH441007	$16.00
Gildan Long Sleeve T-Shirt	WD2400	$23.00

The Sun in H-Alpha Light.
By Gary Colwell

I have been active in Astronomy for almost 38 years now, and in all those years I have never been thrilled by observing anything as much as I have been thrilled by seeing the sun in a new "light" so to speak. When I was 8 years old I got my first telescope. It was a 40mm Tasco desktop special…but it was the 200" Palomar Telescope to me! I can remember it came with a little screw on solar filter…. so that day I read the HUGE warning instruction not to look at the sun without proper filters….took the scope outside and pointed it to the sun….oh baby….was that cool!….I have had a keen interest in observing the sun ever since….

With the invention of solar viewing apparatus like Baader films and the likes…solar viewing has become much safer and easier to do….
Then came the Hamilton Centre Summer Picnic of 2003…and I got my first look through an H-Alpha filter that Steve Barnes had brought along…..to say I was amazed would be the understatement of the century! Deep inside I said I… "gottagetmeone!"

Picture of Sun With Baader Solar Film Fig.1. kinda boring…..



These filters are not cheap!…..I have the Solarmax 40 BF15…..and it retails over $2500.00!…..eeeeegad!…my van cost less than that!…(doesn't say much for my van…)…thank goodness for Astronomy Buy & Sell and Astromart!… I picked up one along with a Televue Pronto for roughly the same price!

So now…here I am…the proud owner of an H-Alpha System…OK…. what to do with it…The Internet has been great to help smooth out the learning curve. I shall attempt to give you a layman's perspective on the subject, for I am by no means a "Jack Newton" when it comes to H-Alpha photography.

The System Fig 2.

The System consists of three components. The first is the actual filter….a complex array of filters that are designed to produce a net filter that allows for the transmission of the H-alpha wavelength of light. This is at 6562.8 A.(angstroms)….but unless you are an expert….all we have to know is that this allows us to see the sun in hydrogen light…in a spectacular way!.

The filter is attached to what is known as a T-max tuner…(see fig. 2 right photo). The tuner allows you to "fine tune" the filter to bring out subtle details on the solar disk, either on the surface itself, or to see prominences on the limb.

The final piece is the "Blocking filter". It is housed in a 1 _" diagonal. To avoid getting technical…suffice it to say that all three pieces are a marvel of technology…. once only owned by those in large observatories on government budgets!

The Solarmax 40 attached to my Televue Pronto Fig. 3

The above picture is my current set up. I have ordered an adaptor so that I can mount the filter on my TV102. The whole setup takes less than 30 seconds to put together and is sooooo user friendly.

There are different packages that are suited for specific focal lengths. There is the BF5 BF10 and BF15. The BF refers to the focal length and the number refers to the maximum focal length it will support, therefore the BF15 supports scopes with focal lengths of up to 1500mm. This is very important as if the focal length were longer; you could not get a full disc image.

Well, the next major thing was to look in and see what there was to be seen. My first H-alpha view in July almost got me kicked out of the picnic…cause I nearly drooled all over Steve's telescope!. It was incredible…. I could see prominences jumping off the limb, filaments and granulation…AMAZING!

A Huge red ball that came to life in ways I have never seen! Truly one of the most exciting moments in observing! In the picture above, you can see huge solar prominences stretching several earth diameters in height. The dark lines on the surface are filaments…prominences viewed directly overhead.

The above image is a “raw” image taken with my Nikon Coolpix 995 digital camera using a 26mm. Eyepiece.

The following Pictures were taken with the same camera, but processed using Registax and Photoshop. They were taken on Oct 13, 2003. The camera was set on “Program Auto” so the camera focused and set the exposure automatically. I find this the easiest way to capture solar pics. I have not had enough sunny weather since then to play around with exposures and settings.

Raw Image of Sun (Above)

Processed Image (Below)

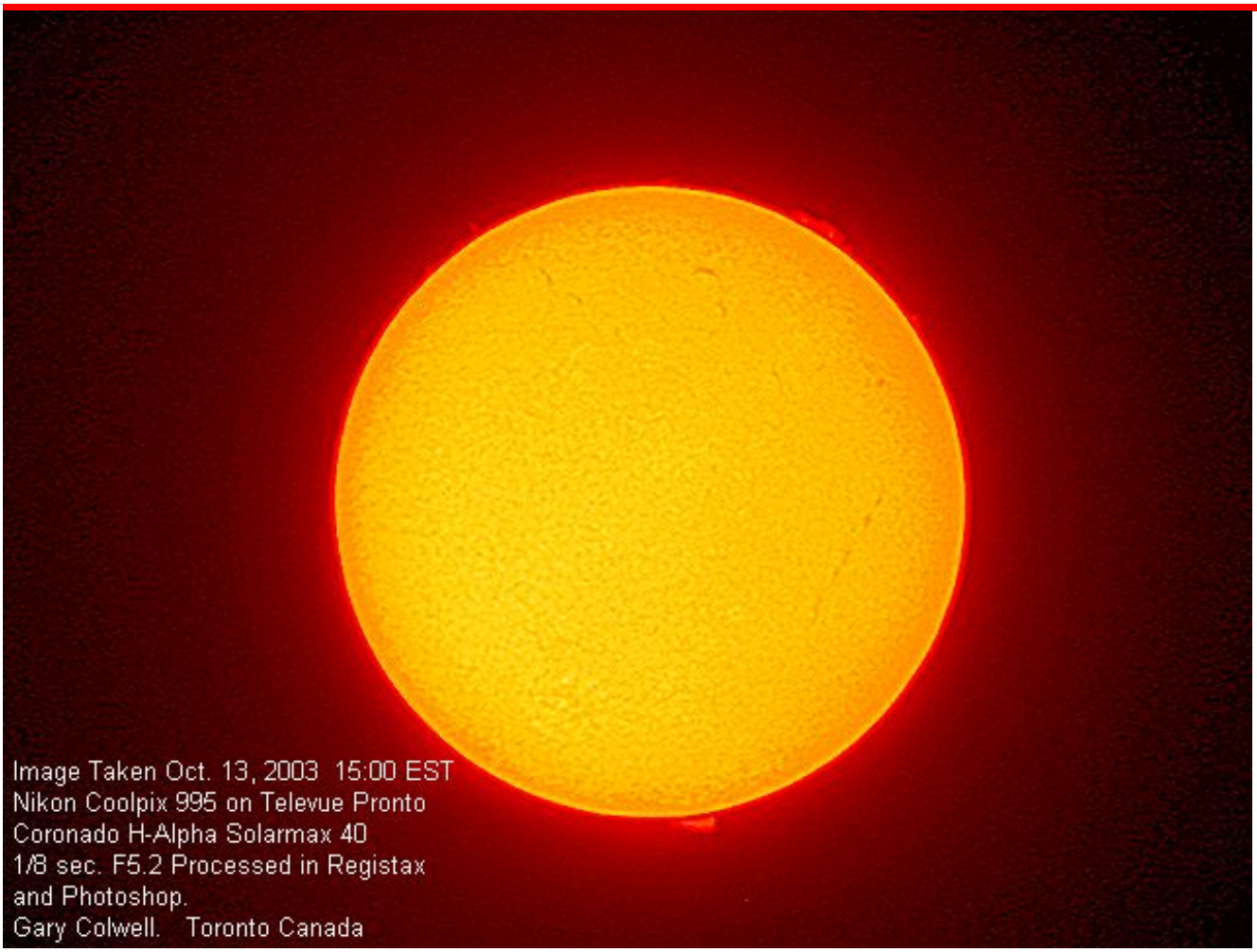
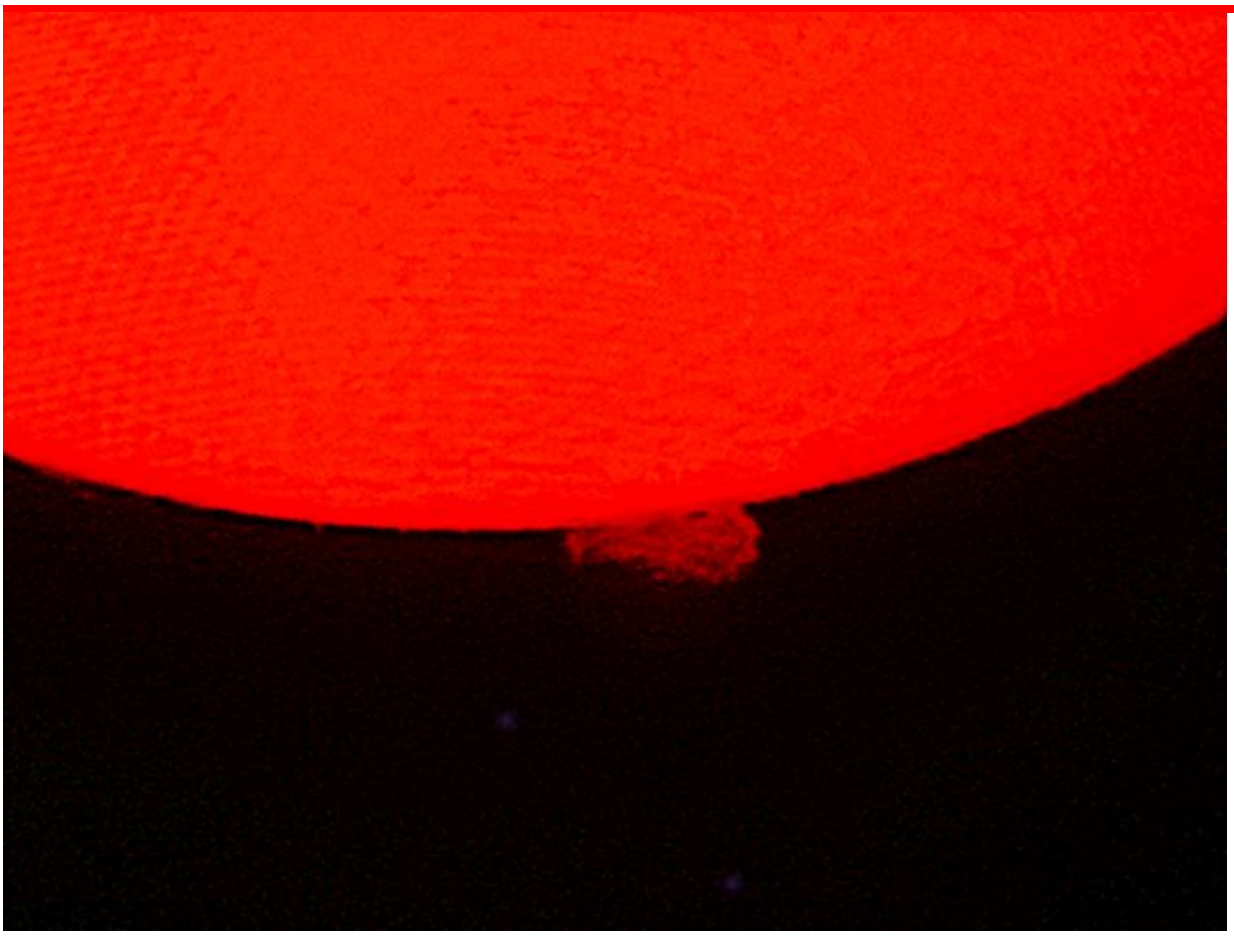
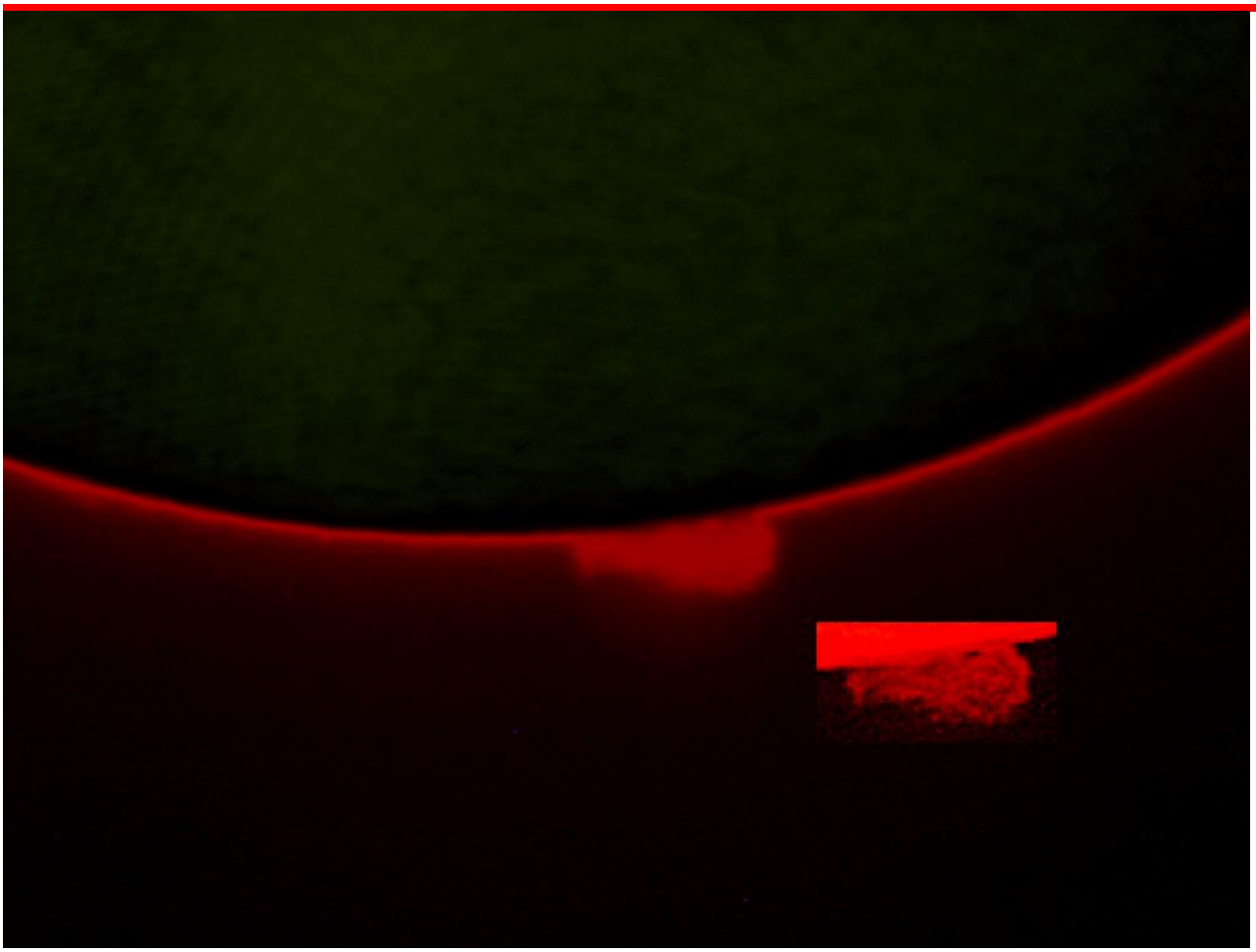


Image Taken Oct. 13, 2003 15:00 EST
Nikon Coolpix 995 on Televue Pronto
Coronado H-Alpha Solarmax 40
1/8 sec. F5.2 Processed in Registax
and Photoshop.
Gary Colwell. Toronto Canada





So there you have it! The sun in H-Alpha. I hope to refine my techniques and present a little more detailed account of the topic, but I am just learning myself. If you have any questions about this topic, there are several sites on the web you can do a Yahoo or Google search on for more info. Until then….I am hoping for more sunny days, and another opportunity to set up my scope and explore the wonders of the sun!,

Keep Looking UP!

Board of Directors

Name	Position	Email
Les Nagy	Public Ed	lnagy@thelightages.com
Steve Barnes	President	sbarnes@worldchat.com
Gary Colwell	Observing Director	glcolwell@rogers.com
Mark Kaye	Past President	mark.kaye@sympatico.ca
Roger Hill	Recorder	roger.hill@sympatico.ca
Tina Coppolino		tinacoppolino@cogeco.ca
Ken Lemke	Membership	cfs@worldchat.com klemke@worldchat.com
John Williamson	Treasurer	john.williamson@sympatico.ca
Grant Maguire	Orbit Editor	maguires@lara.on.ca
Colin Haig	Secretary	astronomer@cogeco.ca
Scott Barrie	Web Master	scottbarrie@homeroom.ca
Rob Bodner	Librarian	robbodner@sympatico.ca