

POLARIS



Royal Astronomical Society of Canada
London Centre Newsletter
December 2006

Telescope Review: Stellarvue Nighthawk II November 25, 2006

I was in the market for a small refractor; something in the 80mm range with the object that I would be using the telescope to image with and to guide my Celestron 8" SCT. I was also on a tight budget. I had the chance to look at an Orion 80ED up close for a few days and while the mechanicals just didn't give me that 'I want one' feeling the images taken through it were very good; the price didn't meet my CFO's (read wife) approval so I pressed on looking at the used market to find that there wasn't much out there.

In a quandary I called Joe O'Neil of London, ON to discuss the matter with him. He is a dealer for Orion, SkyWatcher and Stellarvue. After much discussion about scopes that my wife would never live down Joe said 'Hey, I have a Stellarvue Nighthawk II here I'll let you have, taxes in, for five hundred bucks'. Interesting! I had at one time been drooling over a Stellarvue 80/9D and knew that they made quality items. It was time to do some research so I joined the (very busy) Stellarvue Yahoo group and read a lot of web-pages; the outcome of which was a cheque written to Joe for the full amount and a small refractor in my basement.

Stellarvue of Auburn, California has been quietly making exceptional small refractors for several years; always flying under the radar as it were in a consumer market dominated by William Optics and TeleVue. The Nighthawk classic, with over 3000 sold, has always been their 'low-end' offering in their 80mm line but this doesn't mean that it has low-end performance.





New to the company is the Nighthawk II. This has the same optics as the classic but has shed a few pounds in the re-design. This doesn't mean that it's a 'light-weight'. The mechanicals appear to be a mix of off-shore and in-house parts. The tube itself is quite hefty and comes off of Stellarvue's CNC machines in Auburn. As Vic Marin, president and CEO of Stellarvue says, 'It's built like a tank', and he means it. The main has a diameter of about 3.5" and just feels solid. The interior sports three baffles and is painted 'ultra

flat black' against reflection. The exterior finish on mine is a glossy and sleek powder-coated black that is beautiful to look at. Screwed to the bottom of the tube is a standard Vixen dovetail bar with a few 1/4-20 threaded holes in it to mount to a camera tripod.

The retractable dew shield has a diameter of about 4.1" and threads into a chrome ring that glides over the tube on felt pads. The objective cell also has felt pads around its circumference that the shield itself rides on. Mine slides effortlessly and doesn't slip when the tube is pointed at the zenith. If the shield is a bit loose Stellarvue provides three extra self-adhesive felt pads that can be added to tighten things up. The lens cap is a slide-on, metal unit unlike the 80/9D and previous Nighthawks which had screw-on caps. I found that it fitted nicely and wasn't prone to being knocked off the end.

Two focusers are available on the Nighthawk II, a standard crayford and a rotating, dual-speed, 11:1 crayford unit. Both appear to be sourced from Taiwan and you can see the same focusers on many of the small refractors on the market from other vendors. This does NOT mean that they are of sub-standard quality. I have the dual-speed and it is beautifully machined and anodized a glossy black to match the tube. This unit incorporates a deeply cut and white-filled scale along the top marked in centimeters and millimeters, has a range of 80mm and is smooth and positive. It is adjustable for both tension and level, and Stellarvue provides the hex keys (another nice touch). When adjusted it doesn't slip with either my diagonal or my DSLR hanging from it and pointing at the zenith. Of course, there is a locking thumbscrew for both the rotation and focus position. When the thumbscrew is turned I noticed no shift in the image. I also noticed no shift in the image rotating the focuser. The telescope ships with a 1.25" adapter; the focuser and adapter both having brass compression rings. My focuser needed a small bit of tightening, a process which is explained in the small user

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Moon Phases	
	December 21 2006 09:01
	December 27 2006 09:48
	January 3 2006 8:57
	January 11 2007 07:44

Observing Any Way I Can

By Dave McCarter, President

The fall of 2006 is on record as being one of the grayest on record, as low pressure systems, hang back cloud, wet highs and Alberta clippers have all brought their share of moisture to our skies. If that were not enough to dampen the observer's spirits, a nasty cold has kept me indoors for the better part of two months, and landed Harold in the hospital for almost as long.

Still the urge to observe the heavens lives on, because we know and appreciate the beauty to be found in the night sky. When I first became fascinated with astronomy no satellites had been launched by man, and now you can see several each night simply by looking up following twilight. The International Space Station is big and complex enough now to reflect enough sunlight to rival Venus in brightness as it speeds across the sky. I have seen people weep when they first spot this marvel of engineering with their own eyes, knowing that as many as ten people are temporarily visiting this outpost when a shuttle is docked. As I write this I know that the ISS and shuttle have just passed overhead, hidden by cloud. Apparently we will get a good view of the ISS and the Shuttle on Saturday night at 18:27:25 EST as it passes low to the south and moves into earth's shadow at 18:28:55 EST. The following night the ISS, with the shuttle following behind, will appear at 18:49:23 in the south west before it is lost again to earth's shadow at 18:51:11. Short passes to be sure, but worth the attempt, so long as it's clear!

The Leonid Meteors put on a fair show this year. Pity they couldn't be seen. I observed them all the same, or rather my computer observed the Leonids, when I used a short wave receiver to monitor the 29.85MHz transmissions of the Canadian Meteor Orbit Radar, located just

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Changes in the London RASC

Patrick Whelan, Vice President

Last month saw some changes in our club. Steve Gauthier stepped down as vice-president and also stepped down as editor of this newsletter.

I was nominated for vice president along with Mike Hanes. After a very intense campaign, (okay, Mike opted out of the running) I came out as vice-president. The club also needed someone to edit this newsletter so I volunteered for that duty.

I know from the past that it is hard to get people to submit articles. I have written a few articles since I joined the London RASC a few years ago. I certainly wasn't what you would call a 'regular' contributor.

We do have our regular contributors though. We have Chris Fleming writing the observer's corner. We have Bob Duff writing about our library. I will write an article for each issue of Polaris as well.

I will try to coerce people into writing articles. Now remember, they can be as short and simple as you like. As long as the article is 'astronomy themed' that is great.

I wasn't quite prepared to create this, my first Polaris newsletter. Please be patient with me!

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guide that Stellarvue provides.

The Nighthawk II requires a diagonal, or at least a 2" extension tube, as it will NOT come to focus while 'naked'. Neither a diagonal nor an extension ship with the scope. I think it would be nice if Stellarvue would put standard SCT threads on the end of the focuser as at least one other vendor does to allow us SCT owners to use our current gear. I know I'll be buying a 2" to SCT adapter AND a 2" extension tube.

The objective is the 'legendary 80mm f/6 doublet' (Stellarvue's words) 80mm f/6 that Stellarvue has been putting in their Nighthawks from the start with a focal length of 480mm. Unlike the competition's achromats the Nighthawk's objective is air-spaced (no generic cemented objective here) and rides in an adjustable, proprietary lens cell that supports the two elements in perfect alignment even if the scope is jarred or bumped. The lens was designed by Stellarvue and is proprietary. Every Stellarvue objective passes their stringent in-house testing regimen THEN is star tested by Vic himself. If it doesn't pass the last test... the unit doesn't ship.

The Nighthawk II ships in Stellarvue's C11 hard case. This is a nice unit with cutouts for the scope, a diagonal, a pile of eyepieces and room for whatever else you might want to haul around. It is tough, has locks and will fit in an airline's overhead bins. The scope also comes with Stellarvue's version of the ubiquitous small-refractor red-dot finder. While this is fairly flimsy it does stay in place and returns to index after being taken off and put back on. But enough with the details and off to the dark site.

So, how does the Nighthawk II perform? In a word... phenomenally! I took the little scope out for it's first light to the local RASC dark-site and plunked it on my modified HEQ5 mount. The night was incredibly transparent for southwestern Ontario and seeing was almost immeasurable in the scope at 106x.

As the evening darkened I moved the scope from bright star to bright star as they appeared to get a handle on the amount of aberration present. Yes, there is some colour fringing but at a much lower levels than I had anticipated, and mostly around quite bright stars. Stellarvue guarantees that the objective is free of astigmatism and coma and with my TeleVue Plossls I could vouch for that. Unfortunately things were different in my wide-angle eyepiece, a 36mm Meade QX 4000. This eyepiece just wasn't made for an f/6 refractor. While the vistas were huge, the eyepiece added aberration from just off centre to the edge. A great performer in my f/10 Schmidt-Cass it's not the eyepiece to use to really test the wide-field wonders of the Nighthawk II.

At 106x, my 9mm Antares Ortho in a Celestron 2x Ultima barlow, stars show a classic Airy disk. Moving inside and outside focus showed that there was no pinch in the optics and that they were very well collimated. The views were VERY contrasty compared to my SCT and star colours showed through very nicely. The few doubles that I turned to split beautifully. The several star clusters and other DSOs that I looked at were what I would expect in the little scope. M33 was easy to find and fairly bright. M31 and it's outriders looked like they were on a black velvet background and the Double Cluster blew me away.

Having peeked around enough it was time to see how the little scope would do as an imager so I hung my Canon DSLR on it and took several unguided images all with exposures of about 3 minutes. Below is shown a representative image of M31. This is the full frame, no cropping was done though it was processed to bring out detail. On the original you can see the 'blue goo' around brighter stars that tips you off that the shot was taken through an achromat and you can also see that there is some off-axis aberration as the star images elongate towards the corners and edges. Not much, but it's there. No mush or sea gulling, just an elongation. While the star images are bloated (again, it's an achromat) they are nice and round and show no signs of distortion other than the above-mentioned elongation in the corners. Very nice.

For imaging this little scope cries out for a good minus-violet filter and while I think that the Lumicon 2" may be the one to buy Vic Marin says that there will be an announcement about some new Stellarvue filters designed especially for the Nighthawk II and 80/9D 'soon'. If their filters are as good as their objectives I might change my mind.

So, would I recommend a Nighthawk II? Unreservedly. Whether you are new to the astronomy game and are looking for your first telescope or you are a grizzled veteran looking for an inexpensive grab and go scope, the Nighthawk II is bound to please. For you manic perfectionists perhaps you should look at Stellarvue's apochromatic offerings; but if you can live with a bit of colour the Nighthawk II won't upset either your sensibilities or your bank account. This one is a keeper.

The Stellarvue Nighthawk II is available from Stellarvue (<http://www.stellarvue.com>) and from better astronomical retailers everywhere.

**Clear skies,
Rick Saunders
London, Ontario**

Sky Events for Dec/Jan

Dec 13/14 Geminid meteor shower peaks (expect 40 to 50 meteors per hour).

Dec 18 Waning crescent Moon 5 south of Jupiter and Mars

Dec 21 Winter Solstice, 7:22 p.m., EST (winter officially begins).

Dec 31 Moon occults the Pleiades star cluster 7am

January 3, 2007 Quadrantid meteors peak

January 4, 2007 Jupiter 5 degrees north of Antares

January 6, 2007 Saturn 1 degree south of Moon

January 6, 2007 The Moon is 1 degree North of Regulus

January 15, 2007 The Moon is 1 degree to the right of Antares 6am

January 20, 2007 Venus 1 degree north of Moon

Venus can be seen as a bright object in the southwest sky low in the evening twilight. Venus will be the evening "star" in the winter and spring of 2007.

Jupiter can be seen as a bright object (magnitude -1.7) low in the predawn sky in December (it is still too close to the Sun to be seen in November) and appears very close to Mercury (within 10 arc minutes) on December 10.

Uranus, at magnitude 5.8, can be seen as a "star" in Aquarius, low in the south in the early evening.

Saturn is the most prominent planet this winter, shining at magnitude 0.4 in Leo

Saturn rises around 8:00 pm

R.A.S.C. London Centre Library

Books of the Month

By Robert Duff

In order to make our library collection available to members, I bring three books to our general monthly meetings. These "Books of the Month" are available for loan, to be returned at the following monthly meeting.

The books for December 2006 are as follows:

Burnham's Celestial Handbook: an Observer's Guide to the Universe Beyond the Solar System, by Robert Burnham. Revised and Enlarged Edition. c1978.

Volume Two, Chamaeleon—Orion.

Here be Dragons: the Scientific Quest for Extraterrestrial Life, by David Koerner & Simon LeVay. c2000.

Star Ware: the Amateur Astronomer's Ultimate guide to Choosing, Buying, and Using Telescopes and Accessories, by Philip S. Harrington. c1994.

For a complete listing of our library collection please see our RASC London Centre Web site at:

<http://www.astro.uwo.ca/~rasc/>

Simply scroll down the Web page and click on **library of astronomy books** under the section, Benefits of Membership, or go directly to the Library Web page at: <http://www.astro.uwo.ca/~rasc/Library.html>

If there is a particular book or video you wish to borrow, please feel free to contact me by telephone at (519) 439-7504 or by e-mail at rduffsympatico.ca

Sky and Telescope Subscriptions

Sky & Telescope subscriptions are available at a discounted rate through the London Centre. The cost is \$39.95USD instead of the normal \$49.95USD subscription rate. Please see Bill Gardner for details.

Robots versus Astronauts

by Richard L. Gibbens

What is the reason why our civilisation wants to engage in space exploration? Is it to gain knowledge of the universe beyond Earth, to gain the high ground for military purposes, to obtain sources of new energy and raw materials to run our world, or to give us a better outlet for our aggressive drives than war? If all of these reasons are valid which ones would be more real than the others?

The space age really began on the 4th. of October 1957 when the Russians launched the first Earth satellite Sputnik One into an orbit around our planet. Since that momentous event there emerged a debate among politicians, military personal and scientists as to whether machines should do the exploration of outer space or whether the main focus should be human astronauts.

Carl Sagan who later founded The Planetary Society, started out in his career in astronomy by claiming that robot probes to the Moon, planets and asteroid belt would bring humanity a lot more knowledge for a fraction of the cost of sending human beings out to these places and without the obvious risks to the safety and lives of these people. So far, Sagan has been proven right when it comes to scientific knowledge concerning celestial bodies of our solar system. The Americans spent billions of dollars to send twelve astronauts to the Moon and really only got back a few tens of kilograms of rock. The Russians sent a number of robot sample return missions to the Moon and obtained as many rocks without the price tags of the Americans. Billions of dollars and rubles have been spent and many people have said wasted on building and operating the international space station, and the scientific knowledge we have got is meagre compared to the input of resources that many countries have contributed. By contrast, robot missions and orbiting space telescopes have overwhelmed us with the new knowledge and insights of how our cosmos works and all the new phenomena in it. We learnt from Venus and Martian probes what the materials and atmospheres of these planets are like, we have learnt what gamma ray bursters are and how much energy they represent; and we found this object by military satellites which were un-

manned. There does not seem to be much question as of this date whether robots or human astronauts are most suited to obtaining new knowledge of our universe.

But what about the future when manned space vehicles are much more advanced than they are today, and when these space craft will allow astronauts to travel to planets over a period of months and years? Would not human scientists on the spot be more suited to doing all the experiments and exploration of say Mars, and know better how to look for past evidence of life on the Red Planet than say a robot no matter how sophisticated? Human beings so far have a self-aware intelligence that robots lack and can form new hypotheses to interpret the nature of a novel discovery, or to react to unexpected situations. As space propulsion systems become more advanced and reliable, the cost of sending humans into space will drop tremendously.

I would like to say that robots and humans will be partners in our future exploration of outer space. We will evolve our relationship together to meet the challenges that the universe will throw at us. Humans and robots each have different attributes that will be complementary to the other and will allow the greatest adventure that our species will ever embark on.

There is of course an ultimate reason why humans will have to go into space to explore and then settle and that is survival of our species. If we remain on our planet our civilisation will collapse and the existence of humans themselves may end on account of war, overpopulation, infectious disease and the chaos of global social breakdown, or a combination of all these factors. Stephen Hawking said that unless the human race spreads itself out into the universe, we may not survive in another two hundred years. Sir Martin Rees, the Astronomer Royal for the United Kingdom says our chance of survival if we remain on Earth is only fifty percent by 2100. Hopefully, our civilisation will not falter and humanity will learn to solve its problems so that its future in space will usher in a new golden age.

The Observers Group Meeting

Often on the Sunday evening following the Monthly meeting London Centre members gather at the home of a member for a social time, the Observers Group Meeting, the better to get to know each other, share ideas, and relax and snack. December's OGM will be held in Aylmer, at the home of Arthur Oslach. Arthur is a very experienced observer, and a visit to his home is very likely to reward the visitor with loads of new ideas and increased motivation to expand observing techniques and equipment.

To find Arthur's home, first drive to Aylmer, located at the junction of John Street, formerly highway 73, and Talbot Line, also known as Highway 3, about 12 kilometers east of St. Thomas. At the main stoplight in Aylmer go south on John St. and immediately turn left one block south of Highway 3 onto Sydenham St. East. Go past King Street and find Arthur's place on the south side with a big illuminated Santa Claus on the roof. If you find Queen Street you have gone a bit too far. Usually these events start about 7:00 to 7:30, and you are invited to bring some nibbles and drinks to share.

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outside Tavistock. Because the transmitter is located about one hundred kilometers away, and my receive antenna is less than three meters above ground, the received signal is normally very weak and dominated by local noise.

However, when a bright meteor creates an ionized trail in the sky the radar signal is strongly reflected and I hear a sudden buzz sound, due to the radar pulse repetition rate of 532Hz, that then fades away rather quickly.

The receiver is patched into my computer sound card, and I use a freeware program called Radio-Skypipe that logs the received signal strength and displays it in graphical format that can be scrolled, expanded and shrunk, and stored to the hard drive for future reference. This all may seem very high tech but it was lashed together quite quickly, and works well. Amusingly, the system also responds to the many aircraft that fly the skies over the Tavistock area, but flights seem to be minimal during the late evening when meteors are more frequent.

At the moment I am hearing the quick tell-tale sounds of Geminid meteors, oh that was a good one, and wishing that the skies would clear. I hope you get a chance to observe during this festive season, and wish you a happy and observing experience filled 2007.

Astronomy Day Cherryhill Mall

By Robert Duff

On Saturday, December 9, we held an Astronomy Day at Cherryhill Village Mall in cooperation with McKittrick's Photo/Video. When I arrived a little before 10:00 a.m., Dave Clark was setting up his Celestron C8 Schmidt Cassegrain and laptop computer. He had his "Clear Sky" software program running as well as access to the Internet. Elias St. Brice also arrived with his 8-inch (20.3-cm) Celestron Dobsonian and laptop computer, which ran a software program displaying the sky overhead.

We also set up four telescopes from John McKittrick's store including a Celestron 20.3-cm Dobsonian (same as Elias's), an 11.4-cm Bushnell Dobsonian, a Bushnell portable "ball" scope and a SkyWatcher short tube refractor on an equatorial mount.

It was not an overly busy day but we did speak to a number of visitors. Most everybody packed up by a little after 4:00 p.m. and some of us stayed and chatted until after 5:00 p.m.

Many thanks to Dave Clark, John Rousom, Dave McCarter, Gary Hinks, Rick Saunders, Peter Jedicke, Harold Tutt, Elias St. Brice, Dave Rubbenhagen, Don MacKenzie and Robert Duff for taking part in this event.

Winter Solstice

It is here again! The year's shortest day and longest night will soon be upon us. Winter. Cold days and colder nights. That is the bad part. The good part is it gets dark earlier, and we can get the telescopes out sooner. And that means more observing time. Of course if you don't like the cold, then you will be waiting for the spring to observe! Winter observing, like winter camping, isn't for everyone.

The winter solstice has been observed and celebrated for most of human history. It is symbolic of the start of the solar year. In Egypt, Osiris is said to have died and been reborn on Winter Solstice. In Greece, the winter solstice rites were called Lenaea, in which Dionysos was torn apart and then reborn. The Incas had their Festival of the Sun and the Pueblos and Hopis, as well as many other Native Americans, observed Winter Solstice with sun-centered rituals. Over 4,000 years ago the Irish built a tomb that was designed to only let the light in on the shortest day of the year. The Newgrange tomb in County Meath Ireland is believed to be the oldest continuously roofed building in the world. It was built 1,000 years before Britain's Stonehenge and 500 years before Egypt's pyramids. Hanukkah always begins three days before the new moon that is closest to the winter solstice. About 1,600 years ago it was decided by Pope Julius I that Christmas should replace the pagan Roman holiday honouring Saturn the god of farming. That holiday was on December 25th. In the old Roman calendar, the solstice occurred very close to the 25th.

The winter solstice has been very important to people!

London Centre Observing Site (Fingal)

