SPECTRUM

Northern Cross Science Foundation Newsletter July 1999

LOOKING UP

July 1 Thursday
Astronomy 101
7:00 PM
General Meeting
8:00 PM
Carlson Tool & Mfg.

July 3 Saturday
Public Viewing
9:00 PM
Pike Lake State Park

July 14 Wednesday
Board Of Directors
7:30 PM
Jeff Setzer's House

July 16 Friday
Public Viewing
9:00 PM
Riverside Park Saukville
Rain date July 17 Sat.

July 28 - Aug. 1 Wed - Sun.
Public Viewing
7:00 PM
Ozaukee County Fair
Cedarburg

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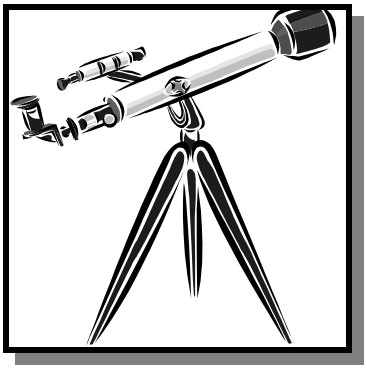
The Northern Cross
Science Foundation

The Deep Sky Through a Small Instrument

By Jack Kramer http://homepage.interaccess.com/~purcellm/lcas.htm

As you read articles on deep sky observing in the astronomy press, you might conclude that this pursuit is fruitless unless you have at least an 8" telescope. And you may feel like a forgotten person when those with larger instruments start bragging about all the faint, difficult objects they've managed to catch. It is true that due to the faintness of many deep sky objects, the light-gathering power of larger optics becomes an important factor. But there are many galaxies, nebulae, and star clusters accessible to those who use small telescopes or binoculars. This article is intended to encourage those of you who haven't spent much time in deep space with your small instrument.



The first rule of thumb is not to overpower your instrument. As magnification increases, the apparent brightness of the object decreases. With binoculars, that's generally not a problem, but many small telescopes come with eyepieces that provide way too much magnification. Use the lowest power you have; only a very few deep sky objects are sufficiently bright to show more of themselves under high magnification with a small telescope.

Now let's start looking around. It's helpful to start out with some idea of what you can expect to see. The following observations are based on what I've observed with either my 70mm or 98mm copyscopes. (Even for those of us with larger instruments, small telescopes or binoculars are very handy to use on nights when we don't feel like dragging out the behemoths.) There are many additional objects accessible; I've just covered some examples here. The results that you achieve with other types of small telescopes should be similar or even better.

GALAXIES

In a light-polluted sky, M51 (the Whirlpool) is visible as a small fuzzy spot, but in really dark skies, the hubs of both components are seen as small bright spots, with the arms shown as a halo of light around the larger hub. M31 in Andromeda is visible in any type of sky. It's surprisingly impressive under darker conditions, where a great deal of the spiral envelope stands out, along with its companion galaxies, M32 and M110. M33 (the Pinwheel galaxy in Triangulum) is difficult in all but the best skies, where a small instrument will show the hub as a bright spot; a slight haze may betray the massive spiral arms under a dark sky. M81 and M82 in Ursa Major are visible in all but the worst conditions, and on a fairly good night from my backyard, I even spotted some structure in the elongated M82 (an active galaxy at radio wavelengths). A 3" refractor shows this duet as very striking, with good contrast. A lot of other galaxies are also visible, but they generally present themselves as

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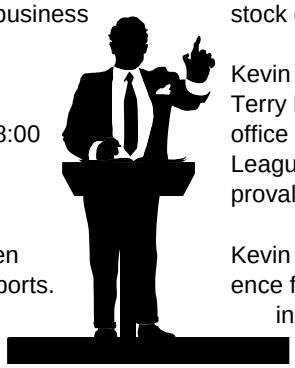
June Minutes

By Kevin Bert

The June meeting of the Northern Cross Science Foundation was held in the conference room of Carlson Tool & Mfg. in Cedarburg. The 101 Program preceded the business meeting.



President Jeff Setzer opened the meeting at 8:00 p.m. to over 15 people.

Jeff welcomed the two guests that attended then called for the regular reports.

Brad Plaumann reported that the Sky and Telescope magazine subscriptions have gone up to $29.95. The liability insurance premium had been paid along with a small bill for non stock corporation filing.

Kevin Bert presented the details on Terry Mann who was running for the office of secretary in the Astronomical League. There was unanimous approval to elect him.

Kevin asked if there was any preference for a date to have a public viewing night at Harrington Beach state Park. It was decided to leave it up to Kevin to set a date but he was encouraged to schedule it at a dark sky period to take advantage of the favorable sky conditions.

Jeff commented on the past months events and went over the upcoming events scheduled for June.

The business meeting was closed by Jeff Setzer at 8:35 p.m.

Respectfully submitted,
Kevin Bert, secretary

Iridium Flares

By Kevin Bert http://www.gsoc.dlr.de/satvis/

Observer's Location: Cedarburg (43.2970°N, 87.9880°W)

Local Time: Central Daylight Time (GMT - 5:00)

Date	Local Time	Intensity (Mag.)	Elev.	Azimuth	Distance to flare centre	(Mag.) at center	Satellite
01 Jul	02:39:40	-2	29°	298° (WNW)	34.5 km (W)	-7	Iridium 3
01 Jul	04:17:04	-1	59°	269° (W)	29.6 km (W)	-8	Iridium 60
01 Jul	21:07:09	-1	21°	342° (NNW)	42.3 km (E)	-6	Iridium 50
01 Jul	22:48:30	-1	26°	44° (NE)	49.4 km (E)	-7	Iridium 74
01 Jul	23:15:19	-3	33°	242° (WSW)	22.7 km (E)	-7	Iridium 17
02 Jul	02:33:31	-4	29°	300° (WNW)	16.4 km (E)	-7	Iridium 76
02 Jul	04:10:58	-8	60°	271° (W)	3.7 km (E)	-8	Iridium 29

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just little fuzzy blobs.

GLOBULAR STAR CLUSTERS

Resolution of globulars into discrete stars is difficult with this type of telescope. But here is one case where you might try higher magnification, so long as your optics are of good quality. Typically, globulars have small bright central condensations with the edges fading off gradually. I suspect that the bright M13 is right on the verge of being resolved with my 98mm copyscope; this is also true for M22 in Sagittarius, which is fairly loose at the edges. M4 in Scorpius is also easy, but due to its low declination, it quickly falls victim to horizon skyglow. Nonetheless, the interesting vertical line of stars that bisects this cluster is discernible as a little strip, and this is probably a good candidate for resolution with good optics and a modest increase in magnification.

OPEN CLUSTERS

Here's the area where small instruments really shine, especially those with nice wide fields of view. There are many open clusters composed of inherently bright members which present themselves as tight little groupings of stars, even from light-polluted backyards. And here you don't have to stick to the traditional showpieces. Studies during this century have identified many more clusters where the stars have true connections with one another. These clusters were not recognized as such by earlier observers, so they haven't been included as Messier objects, or even in the NGC or IC catalogs. A good example is Stock 2 in Cassiopeia, a 4.4 magnitude cluster spanning about one degree of sky. Some of the well-known

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clusters are much more interesting with small instruments. The Beehive Cluster (M44 in Cancer) and M35 in Gemini are prime examples. The Pleiades is mostly of interest in larger scopes for the nebulosity in the region, but the stars themselves take center stage in a small telescope or binoculars. Fainter clusters present more of a challenge to the small telescope or binocular. While touring the sky, you'll frequently come across little hazy patches; careful observation will often resolve them into faint pinpoints of light. With the 70mm copyscope, I "discovered" NGC 7510 in Cepheus this way. While searching for something else, this cluster came into view as an eliptical hazy patch. Upping the magnification from 16x to 40x, a few individual stars became visible with averted vision. Another prominent cluster is the "Christmas Tree" (NGC 2264) in Monoceros, which is of interest due to the unique outline formed by the stars.

DIFFUSE NEBULAE

The title says it all - when a nebula is diffuse, you need light gathering power to see it well. Although there aren't a great many such objects within the range of small telescopes, there are some standouts. Of course, one of these is M42/M43 in Orion, which can be seen with the least optical aid. Another is M8, the Lagoon Nebula in Sagittarius; even in light-polluted skies, the lagoon feature shows up quite well. (Use a nebula filter, if you have one.) Nearby is M20, the Trifid, which shows up as a tiny circular hazy spot around the central star. Also in Sagittarius is M17, the Omega Nebula, which shows the characteristic checkmark shape. But don't write off other diffuse nebulae. If you can get to a dark site, that will greatly expand your instrument's capability. The *Observer's Guide* reports of one observer spotting the large and faint California Nebula (NGC 1499 in Perseus) with 16x80 binoculars. And I once was able to just glimpse the Veil Nebula in Cygnus with my 98mm copyscope from a very dark site.

PLANETARY NEBULAE

Planetaries are fairly condensed in comparison to diffuse nebulae; there are quite a few visible in small instruments. The Dumbbell Nebula (M27 in Vulpecula) is probably the easiest of all because it's large and bright. The characteristic dumbbell shape shows up even where light pollution is a problem. The famous Ring Nebula (M57) takes power well, and actually requires higher magnification to detect the central hole. The Owl Nebula (M97 in Ursa Major) and the Crab (M1 in Taurus) are more challenging, but in a dark sky they show up clearly as small circular spots. Other planetaries, such as NGC 2392 in Gemini and M76 in Perseus, require careful star-hopping (or setting circles if you have them). Since they're not prominent in small scopes, they often appear as hazy stars and can be easily overlooked. Again, a nebula filter will help. For these small, condensed objects, there's a helpful routine that

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CURRENT CLACK

Northwoods Starfest

This years attendance will be limited to the first 130 people. If you are thinking of attending it would be wise to pre-register. The full package with meals is $30.00 until August 1st. Thereafter the price increases to $40.00. The event is held near Eau Claire Wisconsin on August 13 - 15. Check out their web site for more information.
http://www.cvastro.org/starfest.htm

New public viewing date

August 7th will be the date for our public outing at Harrington Beach. A brief program will be given at 8:00 p.m., followed by viewing. As of now all the activities will take place at the lower parking lot near a new building.

Astronomy 101

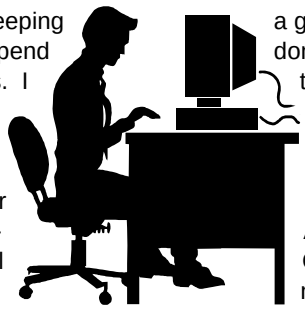
By Kevin Bert

The July 101 topic will be "The planet Venus" by Bill Fisher. The planet is a bright beacon over the western horizon. It will be displaying a crescent phase soon as it slowly makes it's way closer to the horizon each night.

The highlighted constellation will be Ophiuchus.

From The Editor

By Kevin Bert



It has been a combination of several things that has been keeping me from getting out and spend some time under the stars. I am looking forward to some viewing opportunities soon. I have a hunch that the upcoming weather will be favorable. Unfortunately things didn't go well for Wisconsin Observers Weekend (WOW). Jeff Setzer can tell you about a brief opportunity he had to stimulate his retina with photons from a galaxy far far away. No I don't mean another showing of the new Star Wars, but a break in the clouds on Saturday night to use his 22" Starmaster.

A site provided by the Lake County Astronomical Society near Chicago provides the lead article on viewing with a small telescope. This is great inspiration to those small telescope owners who may not have used their scope to it's full potential. Binoculars would also fall into this category.

President Jeff Setzer will present the main program for the July meeting. It will be about his trip to Cedar Rapids Iowa to attend the NCRAL Convention. There are a number of interesting activities that took place there and he will discuss some of them.
I hope to see you at the meeting.

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many observers follow. Once you're fairly certain that the scope is aimed in the right area, let your eye wander between objects looking for something that may be just a bit fuzzier than the rest. Averted vision may also help. (This same technique works when searching for small, faint galaxies.)

If I could offer any words of encouragement to small instrument users, it would simply be this: Consider the small size and inferior quality of the telescope used by Charles Messier in the late 1700s. As I recall, his scope was only about 3.5" in diameter. The quality of yours is certainly better than his. Yet Messier's name has become synonymous with deep sky observing!

SPECTRUM

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