

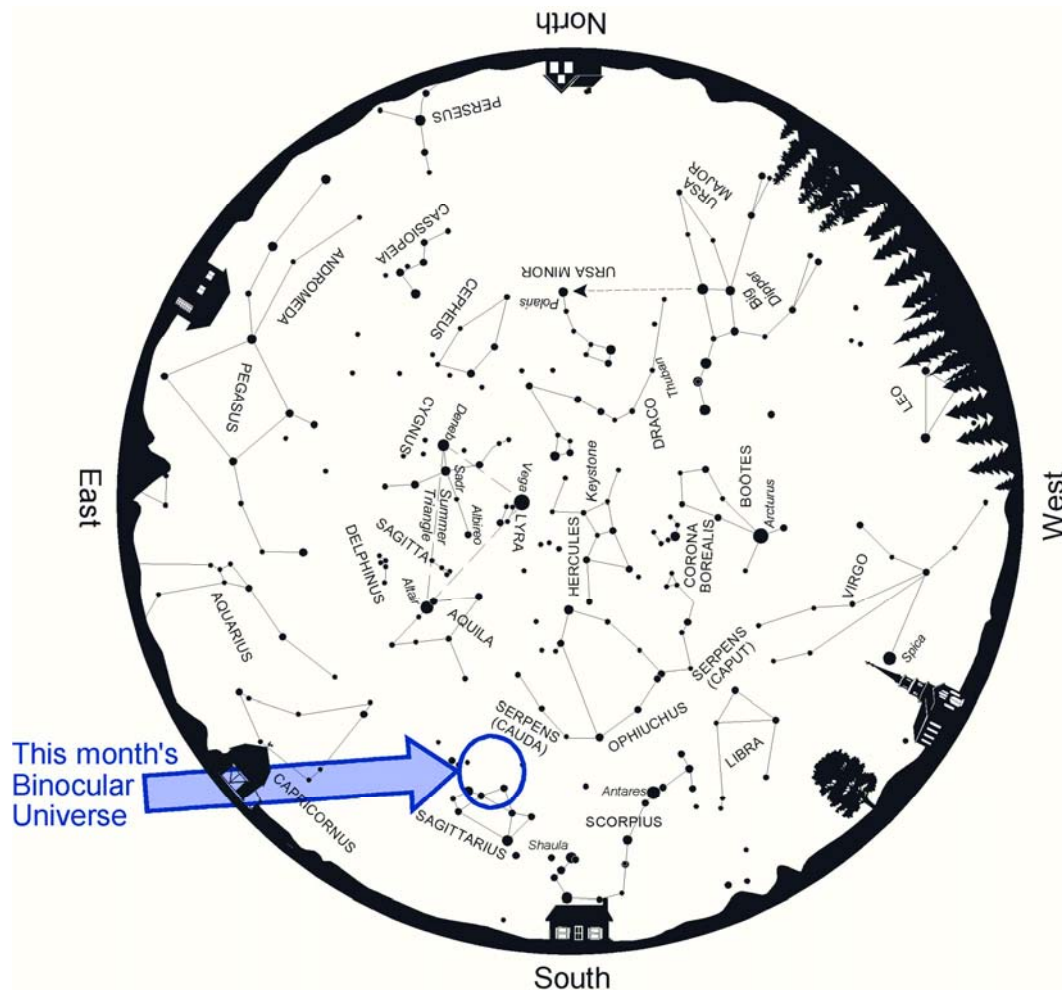
Binocular Universe: Taking Aim at the Archer



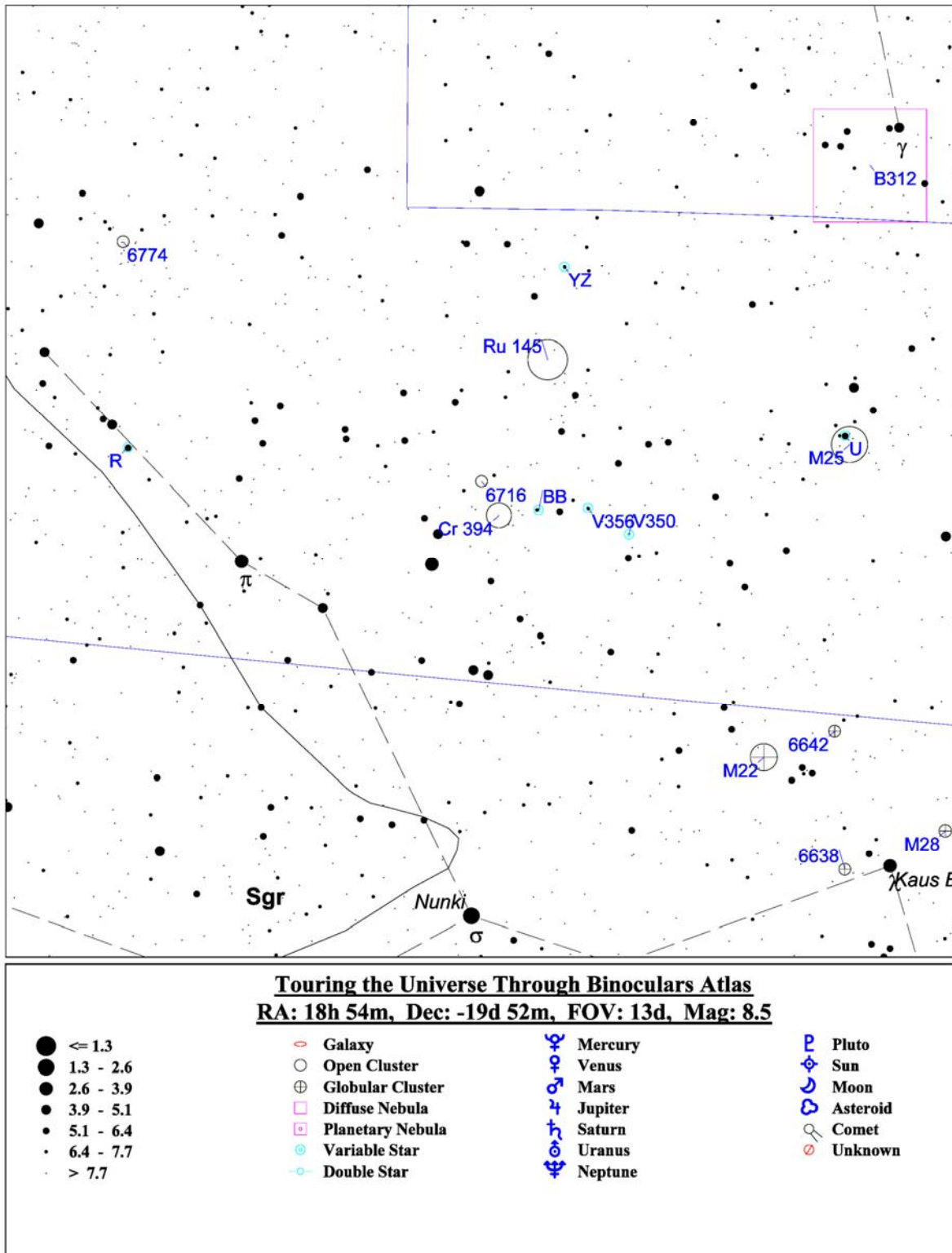
August 2013

Phil Harrington

It's August, and that can only mean one thing: the Milky Way! This month, we're going to focus our attention toward the center of our galaxy and survey the area just to the north of the Sagittarius "Teapot" asterism. There, we find some wonderful celestial trophies to add to our collection.



Above: Summer star map from [Star Watch](#) by Phil Harrington.



Above: Finder chart for this month's *Binocular Universe*.

Chart adapted from *Touring the Universe through Binoculars Atlas (TUBA)*,
www.philharrington.net/tuba.htm

Let's start at the star **Kaus Borealis** [Lambda (λ) Sagittarii], marking the top of the Teapot's lid. The name translates from the Arabic for "northern bow," an apt title since it often represents the top of the Archer's drawn bow in formal portrayals. Through binoculars, it shows a warm, orangish tint, an indication of its type K spectral designation.

Just 1 degree to the northwest of Kaus Borealis, we find the small, densely packed globular cluster **M28**. Although not as eye-catching as some other nearby globulars, M28 is still worth a glimpse. Through my 10x50s, M28 reveals itself as a fuzzy "star." Even through my 25x100 big binoculars, it still looks like a nebulous puff of unresolved stardust. That's also the impression it left with Charles Messier when he discovered it on July 27, 1764. He recorded a "nebula containing no star... round, seen with difficulty in 3½-foot [focal length] telescope." The true nature of M28 went unrecognized until William Herschel saw it as a "star cloud" through his much larger instruments.



Left: The orangish star Kaus Borealis is joined by M22 (left) and M28 (right) in this portrayal based on the view through the author's 10x50 binoculars.

North is up.

A brighter and larger globular lurks 2.5 degrees northeast of Kaus Borealis, just beyond a triangle of three stars. **M22** is one of summer's true showpiece objects, outclassing – in my humble opinion, anyway – the Hercules Globular, M13. Part of the appeal must be credited to its starry surroundings. But even beyond that, M22 is a real showpiece. Viewing through 10x50 binoculars, I record a round, fuzzy globe of light that is punctuated by a brighter central core, but with nary a hint of resolution. Some comment that the core appears somewhat triangular, though to my eye it's almost perfectly round. Through my 25x100s, M22's outer halo shows a

grainy texture, as if on the verge of resolution. A few faint pinpoints of light poke out from around the edges, but I am not sure if those are true cluster stars or simply foreground intruders.

Open cluster **NGC 6716** is centered on the [Touring the Universe through Binoculars Atlas](#) (TUBA) finder chart above. One of the cast from the Astronomical League's Deep-Sky Binocular List, NGC 6716 is made up of about three dozen stars. Only four break the binocular barrier, however. The rest blend into a subtle mist spanning 7'. Several brighter stars surround NGC 6716 and tend to muddy the issue of exactly where the cluster begins and ends. One, 7th-magnitude SAO 161947, especially stands out for its orangish color. It lies just 12' to the west-northwest of the cluster's center.

You'll also see open cluster **Collinder 394** (Cr 394) centrally plotted on the chart. Although some sources credit as many as 50 stars belonging to Cr 394, binoculars resolve only a small, ill-defined quintet of 9th-magnitude stars that is easily lost against the starry environs. As a hint, the center of Cr 394 is just southeast of the halfway point between NGC 6716 and the 5th-magnitude field star 29 Sagittarii to the west-southwest.

Once you identify 29 Sgr, can you also see a second, slightly fainter point just to its west? That's **BB Sagittarii**, a Cepheid variable star. Looking like a golden ember, BB varies only slightly between magnitudes 6.7 and 7.3 with a period of just over 6.6 days. Some studies suggest that BB is also an outlying member of Cr 394.

Finally, let's shift to the upper left-hand (northeast) corner of the finder chart for **NGC 6774**. It lies 1.5 degrees west of 5th-magnitude Nu (ν) Sagittarii. While many observing handbooks pass right by in favor of other Sagittarius objects, I thought it might be appropriate to stop here for a moment. The cluster's weak concentration and relatively large apparent size, roughly half a degree in diameter, can make it difficult to identify through telescopes. But binoculars readily display about 20 scattered stars. Look for a triangular asterism of 7th-magnitude stars with many fainter stars set within.

As you can see from the list below, we have only scratched the surface of all this region of Sagittarius has to offer. Give each a try and send me your observations. I'd love to include them in a future column when we next return to the Archer.

Object	Con	Type	R.A.	Dec	Mag	Size/Sep/ Period	Notes
			(2000)				
M28	Sgr	GC	18 24.5	-24 52	6.9	11'	*TUB page 219* NGC 6626
6638	Sgr	GC	18 30.9	-25 30	9.2	5'	
M25	Sgr	OC	18 31.6	-19 15	4.6	32'	*TUB page 219-220* IC 4725
U	Sgr	Vr	18 31.9	-19 7	6.3-7.1	6.745 days	*TUB page 220* Cepheid (in M25)
6642	Sgr	GC	18 31.9	-23 29	8.8	5'	
M22	Sgr	GC	18 36.4	-23 54	5.1	24'	*TUB page 220-221* NGC 6656
V350	Sgr	Vr	18 45.3	-20 39	7.1-7.8	5.154 days	Cepheid
V356	Sgr	Vr	18 47.9	-20 16	7.0-7.9p	8.896 days	Eclipsing Binary
YZ	Sgr	Vr	18 49.5	-16 43	7.0-7.8	9.553 days	Cepheid
Ru 145	Sgr	OC	18 50.5	-18 5		35'	
BB	Sgr	Vr	18 51	-20 18	6.7-7.3	6.637 days	*TUB page 221* Cepheid
Cr 394	Sgr	OC	18 53.5	-20 23	6.3p	22'	*TUB page 221*
6716	Sgr	OC	18 54.6	-19 53	6.9	7'	*TUB page 221*
6774	Sgr	OC	19 16.6	-16 16	30'		*TUB page 221-222*
R	Sgr	Vr	19 16.7	-19 18	6.7-12.8	268.81 days	Long Period Variable
B312	Sct	Dk	18 30.9	-15 8		100'x30'	2.5° E of M17

Next month: we will search out some late summer deep-sky delights. Until then, remember that two eyes are better than one!



About the Author:

Phil Harrington's latest book is called [Cosmic Challenge](#). Visit his web site www.philharrington.net for more information.

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