

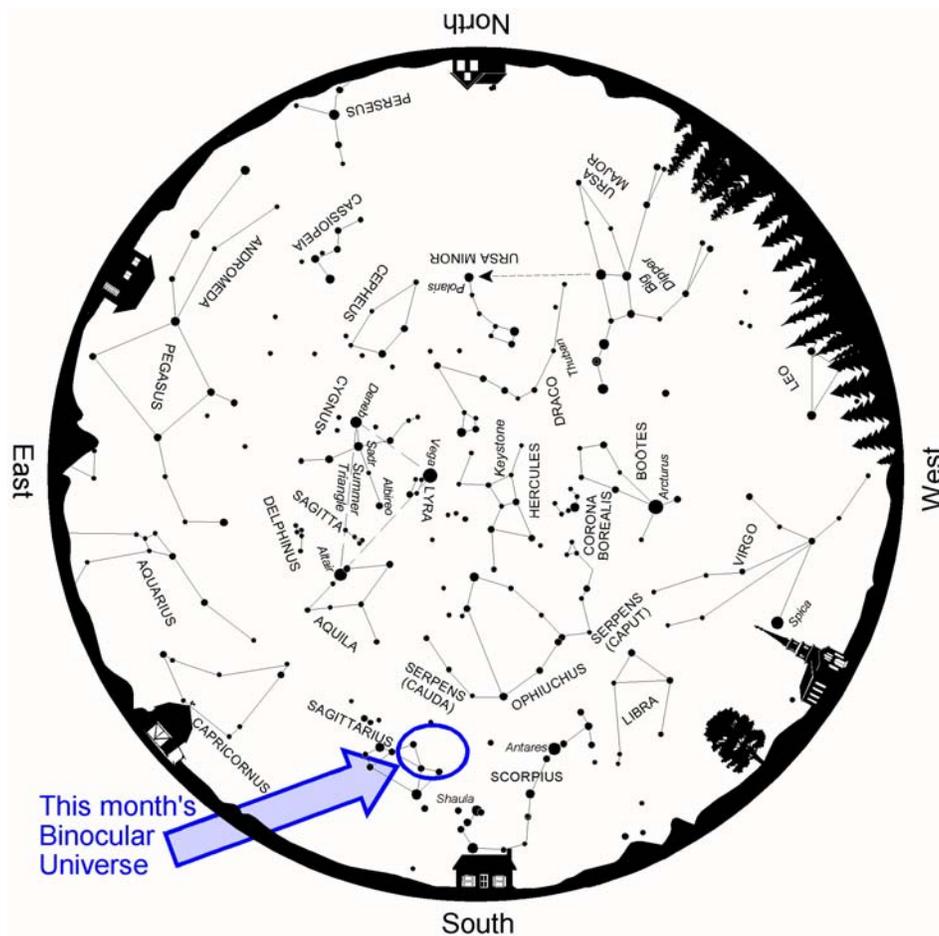
Binocular Universe: A Spot of Celestial Tea

August 2011
Phil Harrington

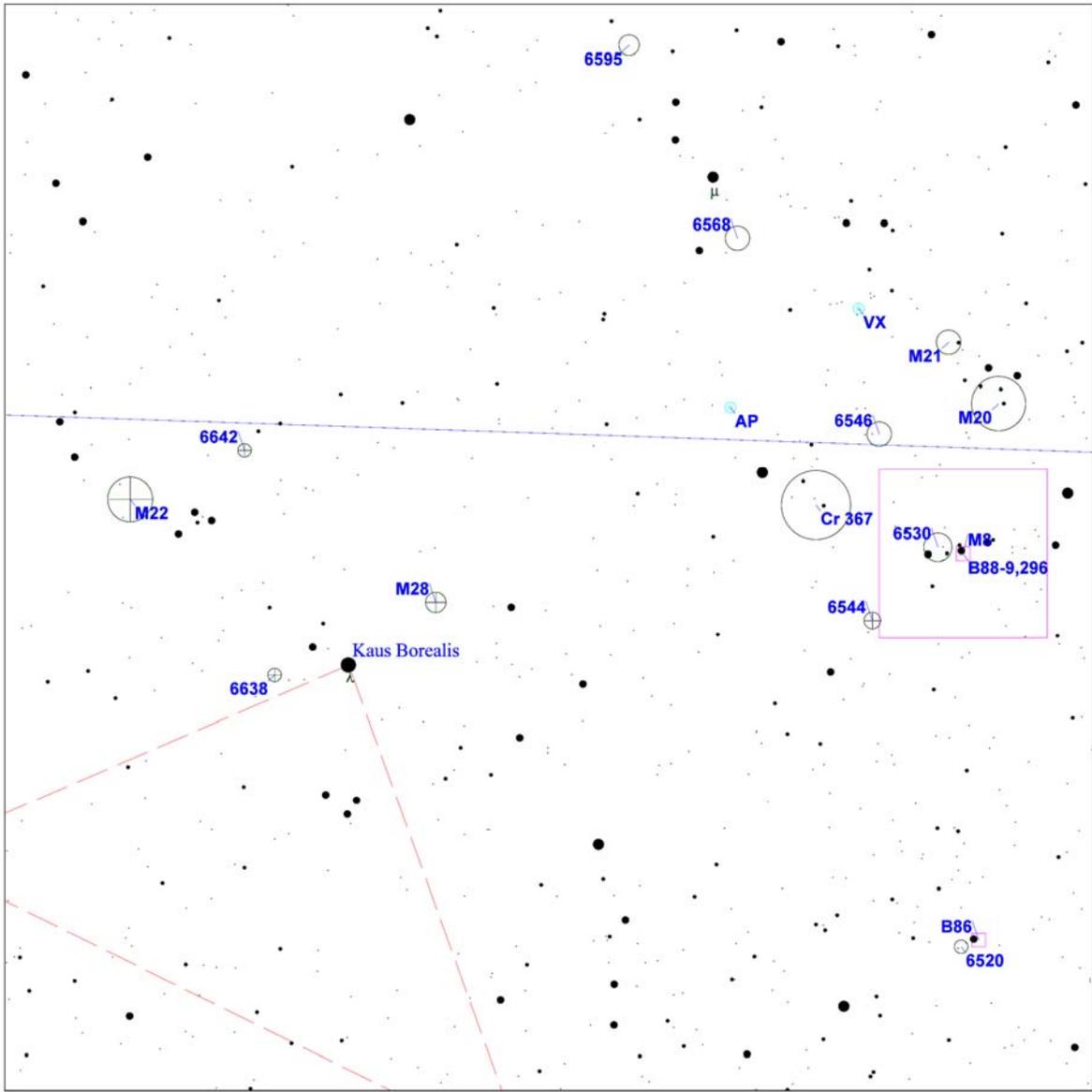


If there a region of the sky more beautiful through binoculars than the area around Sagittarius's Teapot asterism, I don't know of it. As author Garrett Serviss put it in his classic 1910 book Round the Year with the Stars:

A good opera-glass or field-glass is almost indispensable for one who would enjoy the glory of this wondrous region. Its riches are almost oppressive in their lavish abundance. Here one can have handfuls of stars for the picking up, like sands of gold from the bed of Pactolus. Sagittarius is like a stupendous cavern of space all ablaze and aglitter with millions of sparkling gems.



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



Touring the Universe Through Binoculars Atlas
RA: 18h 20m, Dec: -24d 22m, FOV: 9d, Mag: 9

- | | | | |
|-------------|--------------------|-----------|------------|
| ● ≤ 1.3 | ○ Galaxy | ♿ Mercury | ♃ Pluto |
| ● 1.3 - 2.6 | ○ Open Cluster | ♋ Venus | ☼ Sun |
| ● 2.6 - 3.9 | ⊕ Globular Cluster | ♌ Mars | ☾ Moon |
| ● 3.9 - 5.1 | □ Diffuse Nebula | ♍ Jupiter | ☼ Asteroid |
| ● 5.1 - 6.4 | □ Planetary Nebula | ♎ Saturn | ☼ Comet |
| ● 6.4 - 7.7 | ○ Variable Star | ♏ Uranus | ☼ Unknown |
| ● > 7.7 | ○ Double Star | ♐ Neptune | |

Above: Finder chart for this month's *Binocular Universe*.
 Chart adapted from *Touring the Universe through Binoculars Atlas (TUBA)*,
www.philharrington.net/tuba.htm

This month, let's follow in Serviss's footsteps by touring some of the sights in and around the Teapot.

We begin with the finest emission nebula in the summer sky, **Messier 8**. Better known as the Lagoon Nebula, M8 is about a binocular field west of the star Kaus Borealis (Lambda Sagittarii) at the top of the Teapot's lid. There, you'll spy several closely packed stars entangled in a glowing cloud. Many of those stars belong to the open star cluster **NGC 6530**, which is actually being formed from the clouds of M8 before our eyes.

Notice how M8 isn't uniform, but instead looks a little lopsided. The western is a little brighter than the eastern half. A lane, or "lagoon," of obscuring dust divides the nebula. Spotting the dark lagoon itself through binoculars is a challenge, but just might be possible if you have a good eye, a steady hand, and dark skies.



Left: M8 (bottom) and M20 (center) as sketched by the author through his 10x50 binoculars. North is up in this sketch from the author's book, Cosmic Challenge.

North is up.

Studies suggest that M8 spans 140 by 60 light years. The hydrogen gas that forms M8 is ionized, which means that it is energized into fluorescence by the ultraviolet energy emanating from the stars within. Those same stars create strong stellar winds that spawn funnel-shaped clouds resembling tornadoes here on Earth. Although they remain hidden to backyard stargazers, the Hubble Space Telescope shows the tornadic clouds in amazing detail, with each measuring about half a light year in length.

Without moving your binoculars, look less than half a field north of M8 for a small diamond pattern of stars. Look carefully and you may notice that the southernmost star in the diamond is actually surrounded by a second, much smaller patch of nebulosity. That's **M20**, the Trifid Nebula. Unfortunately, while the Trifid photographs beautifully, its small size shrinks it to a tiny glow through binoculars. It takes at least 50x to spot the dark dust lanes that led the 19th-century astronomer John Herschel to christen it the "Trifid," from the Latin *trifidus*, "split into three."

Next, pay a visit to open cluster **M21**, just to the northeast of M20. Most binoculars will resolve only a few members, while the rest blend into a soft glow. By studying the spectra of the hot, blue-white cluster stars, astronomers know the M21 is only about 4.5 million years. In other words, M21 began to evolve at about the same time that our earliest hominid ancestors, the Australopithecines, were doing likewise on the grassy savannahs of eastern Africa. Something to ponder as you gaze skyward tonight.

From M8, drop 3.5 degrees due south to hunt for the tiny open cluster **NGC 6520**, set just to the east-southeast of a 7th-magnitude field star. Despite it being one of the targets in the Astronomical League's Deep-Sky Binocular Club, this is a tough test through most binoculars. Even under dark conditions, my 10x50s only show a faint trace. It takes the extra oomph of my 16x70s to resolve a line of three dim stars across the cluster's oval span.

Those same binoculars hint at the dark nebula **Barnard 86**. As with most dark nebulae, B86 is a tough binocular test under even the best of skies. If you see *nothing* just west of that field star, then you just might be seeing the nebula. Or maybe not.

Pop back over to Kaus Borealis, and then pan just 1 degree to its northwest. There, you may see a small, soft glow between Kaus Borealis and a 6th-magnitude field star. That's **M28**, a tough find through binoculars smaller than 50-mm aperture. Expect to see little more than a fuzzy "star."

If M28 proves too tough, try **M22** on for size. It lies 2.5 degrees east-northeast of Kaus Borealis. Although binoculars cannot resolve any of the cluster's stars, it is unmistakable as a blurry, round disk next to an isosceles triangle of faint suns. In my opinion M22 is the finest globular visible from most of the northern hemisphere, outclassing even mighty M13 in Hercules.

There is plenty more here to keep your binoculars busy this month, as you can see from the list below. Each is plotted on the chart above. How many can you find?

Object	Con	Type	R.A. (2000)	Dec	Mag	Size/Sep/ Period	Notes
M20	Sgr	OC	18 2.6	-23 2	8.5	29'x27'	*TUB page 216* NGC 6514, Trifid Nebula
B86	Sgr	Dk	18 2.7	-27 50		4'	
6520	Sgr	OC	18 3.4	-27 54	7.6p	6'	
B88-9,296	Sgr	Dk	18 3.8	-24 23			Regions in M8
M8	Sgr	DN	18 3.8	-24 23	5.8	90'x40'	*TUB page 216-218* NGC 6523, Lagoon Nebula
M21	Sgr	OC	18 4.6	-22 30	5.9	13'	*TUB page 218* NGC 6531
6530	Sgr	OC	18 4.8	-24 20	4.6	15'	*TUB page 218* M8 cluster
6546	Sgr	OC	18 7.2	-23 20	8.0	13'	
6544	Sgr	GC	18 7.3	-25 0	8.3	9'	
VX	Sgr	Vr	18 8.1	-22 13	6.5-12.5	732 days	Semi-Regular
Cr 367	Sgr	OC	18 9.6	-23 59	6.4p	37'	
6568	Sgr	OC	18 12.8	-21 36	8.6p	13'	
AP	Sgr	Vr	18 13	-23 7	6.6-7.4	5.058 days	Cepheid
6595	Sgr	OC	18 17	-19 53	7.0p	11'	
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'	
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

Have a suggestion for a fun binocular target that you'd like to share? Tell me about it! E-mail me at phil@philharrington.net.

Until next month, remember that, when it comes to summer stargazing, 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.

Phil Harrington's Binocular Universe is copyright 2011 by Philip S. Harrington. All rights reserved. No reproduction, in whole or in part, beyond single copies for use by an individual, is permitted without written permission of the copyright holder.