

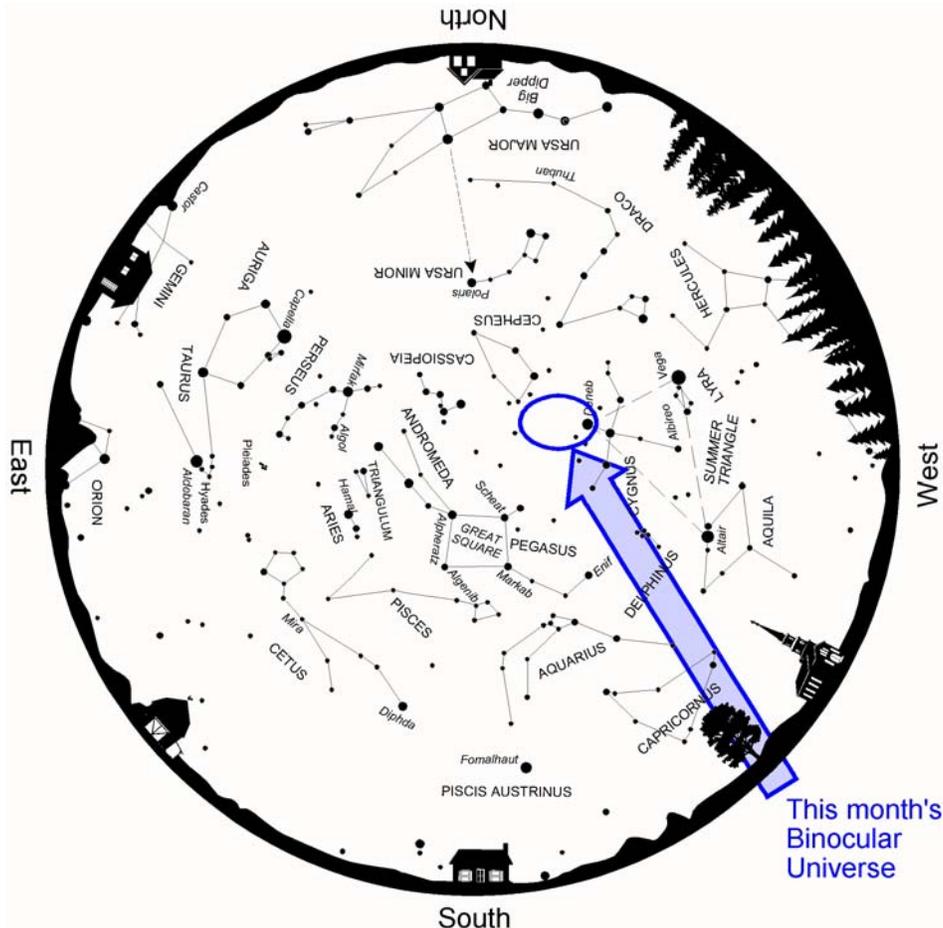
Binocular Universe: The Swan and the Lizard

October 2010

[Phil Harrington](#)



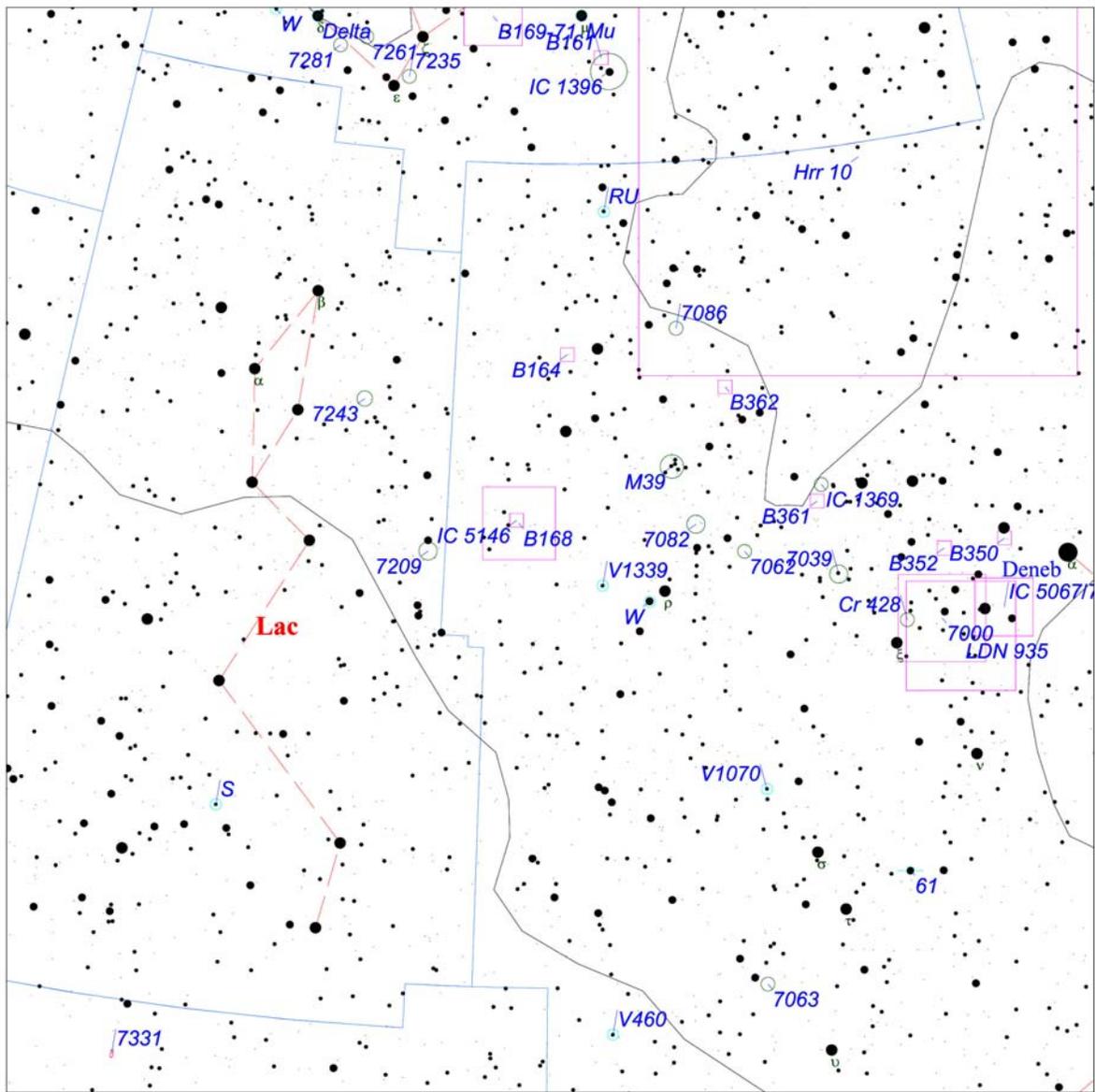
October is probably my favorite month for stargazing. The night air is clearer than the humid nights of July, August, and even September. And the temperatures are still warm enough that all we need is a sweatshirt or light jacket to spend many enjoyable hours under the sky. Overhead, the Summer Triangle rides near the zenith as evening twilight ends, while the autumn Milky Way streams eastward from Cygnus toward Cassiopeia.



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

Last month, I mentioned that we were going to continue my [Stellafane](#) scan of the Milky Way up through northern Cygnus and into its faint neighboring constellation, Lacerta, the Lizard. You probably know Cygnus well, but possibly not Lacerta. Lacerta was one of seven faint constellations created by the 17th-century Polish astronomer Johannes Hevelius. His

atlas of the sky, which introduced those constellations, was published posthumously in 1690, three years after his death.



Touring the Universe Through Binoculars Atlas
RA: 21h 48m, Dec: 46d 36m, FOV: 23d, Mag: 7.5

● ≤ 1.2	○ Galaxy	♿ Mercury	♇ Pluto
● 1.2 - 2.4	○ Open Cluster	♀ Venus	☀ Sun
● 2.4 - 3.6	⊕ Globular Cluster	♂ Mars	☾ Moon
● 3.6 - 4.9	□ Diffuse Nebula	♃ Jupiter	♁ Asteroid
● 4.9 - 6.1	□ Planetary Nebula	♄ Saturn	☄ Comet
● 6.1 - 7.3	○ Variable Star	♅ Uranus	⊛ Unknown
● > 7.3	○ 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

Since the brightest Lacertan stars shine at only 4th magnitude, the constellation's faint, zigzag pattern is tough to make out from any but the darkest observing sites. Binoculars, however, reveal unexpected riches hidden among them, even under moderate light pollution. As you can see from the TUBA chart here, it's a mighty crowded area.

Before we cross into Lacerta, let's pause at **M39**, one of my favorite late-summer open clusters. M39 lies about 9°, or about 1.5 binocular fields, from Deneb. To find it, scan from Deneb to a small arrowhead of stars just to the northeast. Follow the arrowhead's aim to a string of six faint stars that continues to the east-northeast. M39 is east of the easternmost star in that line. Look for a tiny, triangular grouping of about two-dozen faint points. Whenever I view it from a dark location, M39 strikes me as looking almost three dimensional, as if it were suspended in front of a blanket of faint stardust.

The sketch here by CN member Rony De Laet also shows a small smudge to the south of M39. That's **NGC 7082**, a comparatively dim open cluster. As the drawing so clearly portrays, NGC 7082 appears as an oval blur of light with two faint points poking through, one on either end. It's hard to believe that M39 and NGC 7082 each contain about 180 stars, but they do. Their distances explain the difference. M39 is "just" 2,600 light years from Earth, while NGC 7082 is 4,300 light years away.



*Left: M39 (above center) and NGC 7082 (below center) as portrayed by **Rony De Laet** through 8x56 binoculars. This remarkably realistic sketch was made on July 1, 2008 from Bütgenbach, Belgium.*

Be sure to visit Rony's [web site](#) for more amazing sketches.

North is up.

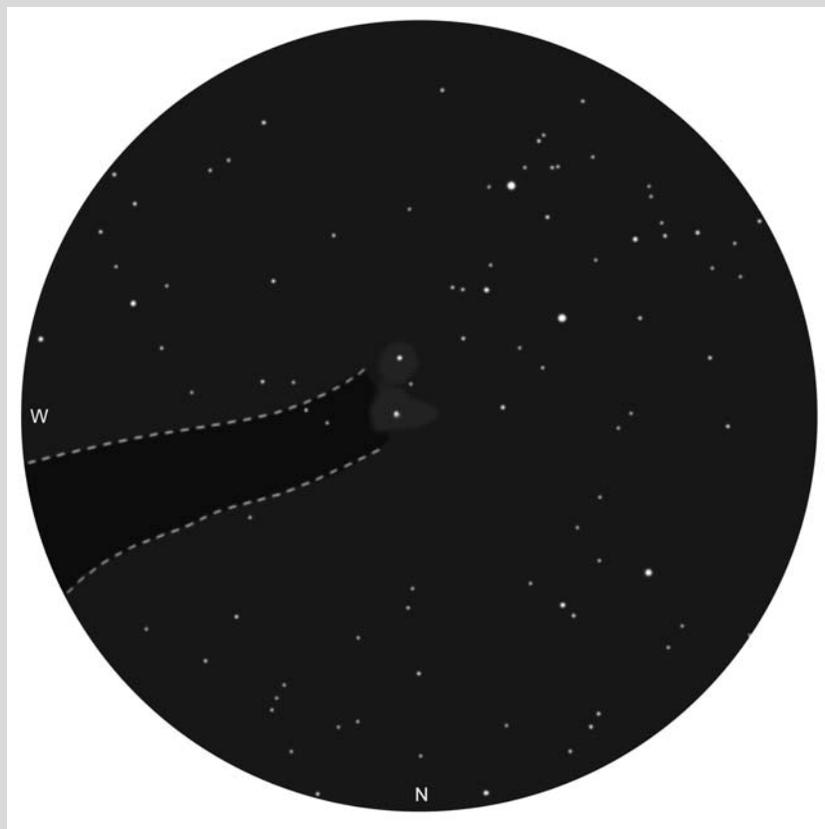
Working our way slowly toward Lacerta, let's next try for one of the binocular challenges profiled in my book [Cosmic Challenge](#), available next month "at better bookstores everywhere" from Cambridge University Press. Actually, this isn't just one challenge, but rather, a pair. Here's an excerpt from the book describing them.

IC 5146, known to many by its nickname, the Cocoon Nebula, is a taxing patch of glowing gas, while Barnard 168 is a thin, sinuous lane of darkness that seems to start at the bright nebula and extend far to its northwest.

To spot this celestial odd couple for yourself, begin at the bright open cluster M39 to the northeast of Deneb [Alpha (α) Cygni]. Famous as a bright, loose congregation of stars and covering an area of sky as large as the Full Moon, M39 is best appreciated at very low powers. Be sure to take a moment to enjoy the view.

From M39, steer your telescope $2\frac{1}{2}^\circ$ east-northeast to 4th-magnitude Pi2 (π_2) Cygni, and then slowly scan southward, watching for the starry background to drop off abruptly. That will be Barnard 168. Because of its length -- more than a degree tip-to-tip -- Barnard 168 is best appreciated with binoculars. My 16x70 binoculars reveal a winding stream of black ink flowing through a valley in the stars.

By following the dark cloud to its eastern end, you will come to a pair of 9.5-magnitude stars. Both are engulfed in the subtle clouds of the Cocoon. Armed with a 22-mm Tele Vue Panoptic eyepiece (46x), my 4-inch refractor, used to make the sketch here, can only muster the slightest hint of the nebula itself, looking like an oval glow surrounding those stars.



The opaque silhouette of Barnard 168 was obvious in my 16x70s from Stellafane in August, but I still couldn't see any hint of IC 5146, the Cocoon Nebula, despite the clear skies. One of my observing projects this month is to try again through my new 25x100 binoculars. From a dark-sky site, both should be evident...hopefully. I'll post an update on my success (or failure) in this column's discussion forum. I'd encourage all readers to do the same and share their experiences with this challenging pair.

Hopping across the border into Lacerta, let's stop at a cluster that's visible in most binoculars. **NGC 7209** borders 6th-magnitude HT Lacertae to the south. HT Lacertae is a semi-regular variable that fluctuates between magnitudes 6.1 and 6.4. That variability is far too subtle to be detected by most eyes, but the star's yellowish tint should be evident.

Through my 10x50s, NGC 7209 looks like a soft glow spanning perhaps 20'. The brightest of the 98 stars that call the cluster home shine at 9th magnitude. Although that's below the visibility threshold for 50-mm binoculars, a few faint points are visible in my 16x70s.

You will probably find that **NGC 7243** is more satisfying through binoculars. Here, we find some 40 stars gathered into an area about 20' across. Most of the cluster stars shine between 9th and 11th magnitudes, although a few appear a little brighter. Of these, eight are bright enough to be seen through my 10x50s. The remaining stars blend into a circular glow. NGC 7243 is a little less than 3° west of Alpha Lacertae, the constellation's brightest star and one of four that mark the Lizard's diamond-shaped body.

Here is a list of all binocular objects that are plotted on the TUBA chart. That should keep even the most industrious binocularist busy for a while!

Object	Con	Type	R.A. (2000)	Dec	Mag	Size/Sep/ Period	Notes
IC 1396	Cep	OC	21 39.1	+57 30	3.5	50'	*TUB page 122*
B161	Cep	Dk	21 40.3	+57 49		13'x3'	near IC 1396
Mu	Cep	Vr	21 43.5	+58 47	3.4-5.1	730 days	*TUB page 122-123* Semi-Reg "Garnet star"
B169-71	Cep	Dk	21 58.9	+58 45		80'	3° NE of IC 1396
7235	Cep	OC	22 12.6	+57 17	7.7	4'	
7261	Cep	OC	22 20.4	+58 5	8.4	6'	
7281	Cep	OC	22 24.7	+57 50			
Delta	Cep	Vr	22 29.2	+58 25	3.5-4.4	5.366 days	*TUB page 123* Cepheid prototype
W	Cep	Vr	22 36.5	+58 26	7.0-9.2		Semi-Regular
B350	Cyg	Dk	20 49.1	+45 53		3'	
IC 5067/70	Cyg	DN	20 50.8	+44 21		80'x70'	*TUB page 141* Pelican Nebula
LDN 935	Cyg	Dk	20 56.8	+43 52		150'x40'	*TUB page 141* Between N.A. & Pelican Neb
B352	Cyg	Dk	20 57.1	+45 54		20'x10'	
7000	Cyg	DN	20 58.8	+44 20		120'x100'	*TUB page 141* North America Nebula
Hrr 10	Cyg	Dk	21 0	+55 0		600'x180'	*TUB page 141* Dark lane across Milky Way
Cr 428	Cyg	OC	21 3.2	+44 25	8.7p	14'	
61	Cyg	**	21 6.9	+38 45	5.2,6.0	321"	*TUB page 141,143* 195°(1976);14636;large
7039	Cyg	OC	21 11.2	+45 39	7.6	25'	*TUB page 143*
IC 1369	Cyg	OC	21 12.1	+47 44	6.8	4'	
B361	Cyg	Dk	21 12.9	+47 22		17'	
V1070	Cyg	Vr	21 22.8	+40 56	6.7-7.7		Semi-Regular
7062	Cyg	OC	21 23.2	+46 23	8.3	7'	
B362	Cyg	Dk	21 24	+50 10		15'x8'	
7063	Cyg	OC	21 24.4	+36 30	7.0	8'	
7082	Cyg	OC	21 29.4	+47 5	7.2	25'	
7086	Cyg	OC	21 30.5	+51 35	8.4	9'	
M39	Cyg	OC	21 32.2	+48 26	4.6	32'	*TUB page 143-144* NGC 7092
W	Cyg	Vr	21 36	+45 22	6.8-8.9	126.26 days	Semi-Regular
RU	Cyg	Vr	21 40.6	+54 19	9.2-11.6p	233.85 days	Semi-Regular
V460	Cyg	Vr	21 42	+35 31	5.6-7.0		Irregular
V1339	Cyg	Vr	21 42.1	+45 46	5.9-7.1	35 days	Semi-Regular
B164	Cyg	Dk	21 46.5	+51 4		12'x6'	
B168	Cyg	Dk	21 53.2	+47 12		100'x10'	*TUB page 144* Cocoon Nebula at east end
IC 5146	Cyg	DN	21 53.5	+47 16		12'x12'	*TUB page 144* Cocoon Nebula
7209	Lac	OC	22 5.2	+46 30	6.7	25'	*TUB page 164*
7243	Lac	OC	22 15.3	+49 53	6.4	21'	*TUB page 164*
S	Lac	Vr	22 29	+40 19	7.6-13.9	241.80 days	Long Period Variable
7331	Peg	Gx	22 37.1	+34 25	9.1	10'x4'	*TUB page 198* Sb

Next month, we'll wrap up my Stellafane 2010 experience with a royal visit to the queen of the autumn sky. Meanwhile, if you have comments or suggestions for future columns, I'd love to hear them. E-mail me at phil@philharrington.net.

Until November, remember that when it comes to stargazing, two eyes are better than one!



About the Author:

Phil Harrington is the author of eight books on astronomy, including [Touring the Universe through Binoculars](#). Visit his web site at www.philharrington.net for a preview of his next book, [Cosmic Challenge](#), coming next month from Cambridge University Press.

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