

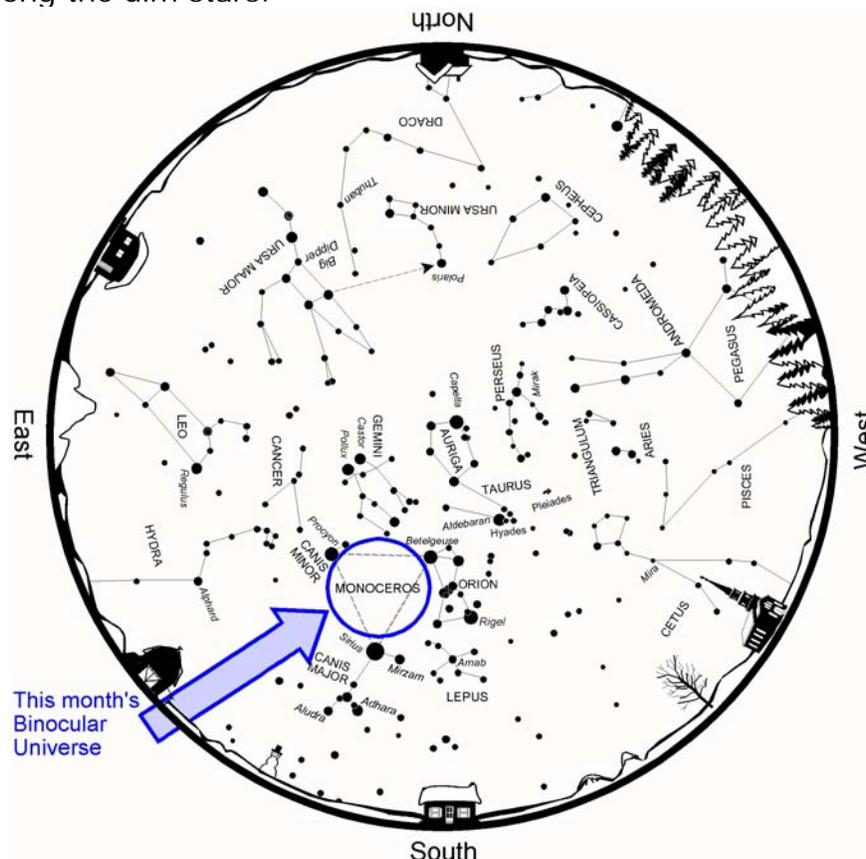
Binocular Universe: The Winter Triangle

February 2013

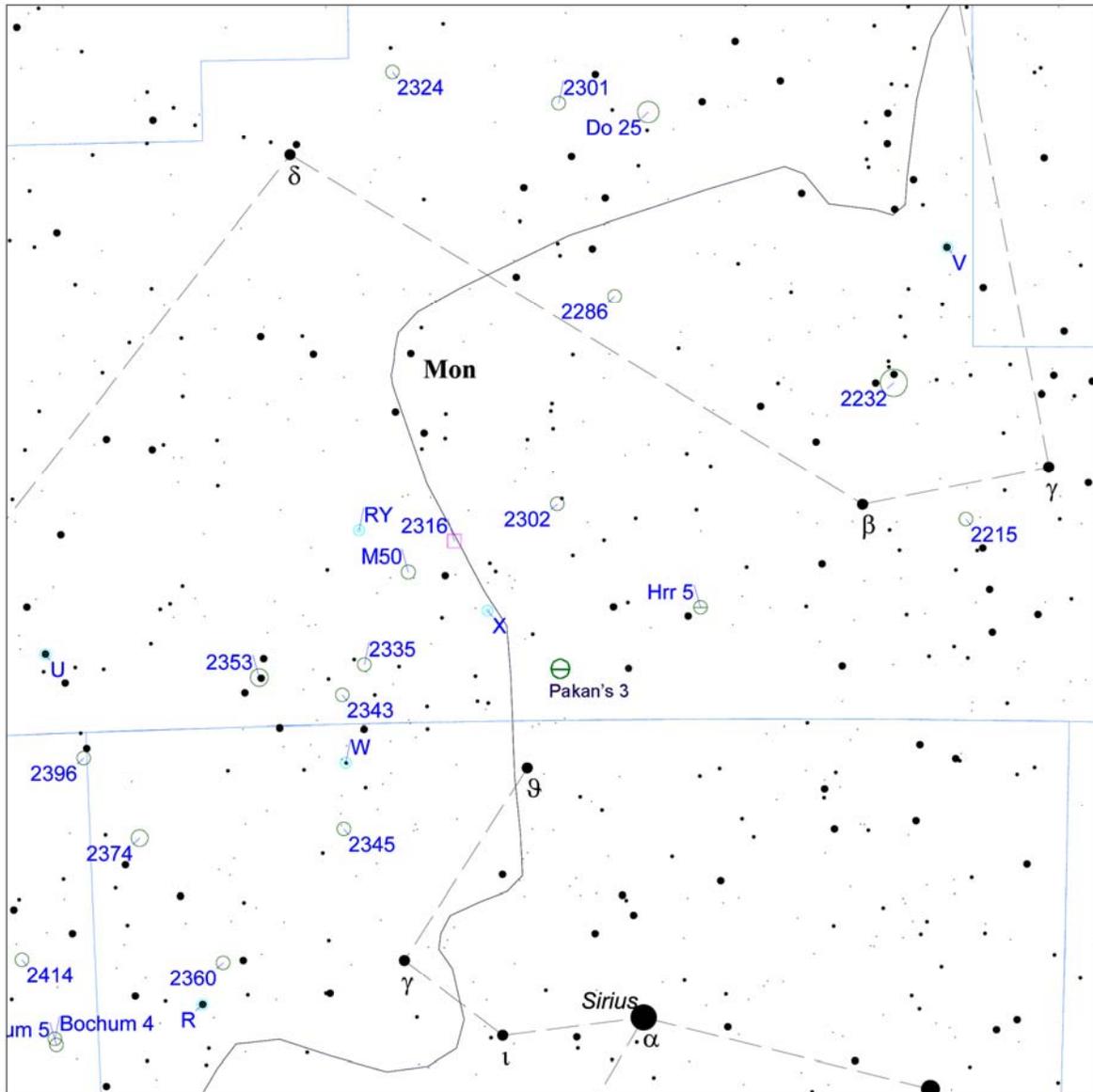
Phil Harrington



Most of us probably learned to recognize the Summer Triangle early on in our astronomical careers. But how about the Winter Triangle? The Winter Triangle is drawn from three of winter's brightest stars - Betelgeuse, Sirius, and Procyon. While they blaze on clear winter nights, they frame a surprisingly barren part of the February sky. This vast empty region is labeled as **Monoceros** the Unicorn on many sky maps, although I doubt that many of us are able to see such a whimsical creature among the dim stars.



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



Touring the Universe Through Binoculars Atlas

RA: 6h 52m, Dec: -7d 57m, FOV: 19d, Mag: 8

- | | | | |
|-------------|--------------------|-----------|------------|
| ● ≤ 1.1 | ○ Galaxy | ♿ Mercury | ♇ Pluto |
| ● 1.1 - 2.3 | ○ Open Cluster | ♁ Venus | ☉ Sun |
| ● 2.3 - 3.4 | ⊕ Globular Cluster | ♂ Mars | ☾ Moon |
| ● 3.4 - 4.6 | □ Diffuse Nebula | ♃ Jupiter | ♁ Asteroid |
| ● 4.6 - 5.7 | □ Planetary Nebula | ♄ Saturn | ☄ Comet |
| ● 5.7 - 6.9 | ○ Variable Star | ♅ Uranus | ⊛ Unknown |
| ● > 6.9 | ○ 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

Monoceros may not hold much for constellation watchers, but it overflows with open star clusters for us binocularists. Despite the fact that many are visible in binoculars, only one found its way into Charles Messier's eyepiece field. That's our first target, **M50**. Even though it lies in the middle of nowhere, M50 is surprisingly easy to find. Begin at Sirius and slowly scan northeastward toward Procyon. Stop a little less than halfway along and look for a tiny blur of starlight punctuated by possibly one or two dim points. That's M50. The brightest cluster star, lying just south of center, shines at 8th magnitude and may appear faintly golden through 80-mm and larger binoculars.

Before we leave M50, try your luck with **Pakan's 3**, a fun asterism first spotted by amateur Randy Pakan from Edmonton, Alberta. Depending on your binoculars, it might be in the same field as M50, since both are only separated by only 3°. Put M50 in the northeastern part of your view, and then look to the southwest for a collection of faint stars that together form the number 3. The figure covers an area equal to that of the Full Moon, so it's large enough to be pretty obvious through binoculars. But since none of the stars shine brighter than 8th magnitude, moonlight as well as light pollution could play havoc. Wait for that special, dark February night to try your luck.

Now, up stakes and continue on your way toward Procyon. Before you reach it, you'll first bump into **Delta (δ) Monocerotis**. Binoculars easily show that 4th-magnitude Delta is accompanied by 5th-magnitude 21 Mon just to its northwest. They make a pretty, if not faux, double star.

Place Delta and 21 toward the eastern limit of your field of view and then look toward the western edge. Can you just make out a half dozen or so faint points lined up in an undulating north-south procession? If so, you've spotted **NGC 2301**, one of my favorite little "unknown" clusters. My 10x50 binoculars show those half dozen stars and a slight background glow from fainter cluster stars, while my 16x70s further resolve that glow into a north-south string of 8th- and 9th-magnitude stars marked at mid-span by a hazy triangular clump of many stars that remain too faint to resolve. In my book [Touring the Universe through Binoculars](#) (1990: John Wiley & Sons), I call this the "Great Bird of the Galaxy" Cluster. The "bird's" two wings are represented by the string of stars extending from the three-sided body. Can you see it, too? Or am I crazy??

From Delta, shift 12 degrees southwestward toward Beta and Gamma Monocerotis. Nearby, you'll find **NGC 2232**. This open cluster contains 5th-magnitude 10 Monocerotis as well as many fainter stars. My 10x50 binoculars display the remaining stars, which range between 8th and 10th magnitudes, as lying in a curved cone-shaped pattern that opens toward the southeast. With an apparent diameter nearly equal to that of the Full Moon, NGC 2232 is actually better appreciated through giant binoculars than through most telescopes. At least, that's my opinion.



Left: Open cluster NGC 2301 as portrayed through the author's 16x70 binoculars. The "Great Bird's" wings extend north and south of the hazy triangular body.

North is up.

I first bumped into this next little asterism more than 20 years ago as I was researching [Touring the Universe through Binoculars](#). I simply listed it in the book as "Harrington 5" (Hrr 5 on the chart here), being the fifth entry in a compilation of a dozen asterisms described in that book. Later, I came to think of it as the "Unicorn's Horn," given its constellation. Call it what you wish, this V-shaped group is composed of six stars of 9th and 10th magnitude. Due to both their dimness as well as the compact size of the "horn," 11x is probably the lowest power that will show the pattern well. It's nearly centered on the finder chart above.

Here is a list of many more targets within the Winter Triangle. Give each a go and see just how many you can find this month! And be sure to post your results in this column's discussion forum.

Object	Con	Type	R.A.	Dec	Mag	Size/Sep/ Period	Notes
			(2000)				
W	CMa	Vr	7 8.1	-11 55	6.4-7.9		Irregular
2345	CMa	OC	7 8.3	-13 10	7.7	12'	
2360	CMa	OC	7 17.8	-15 37	7.2	13'	
R	CMa	Vr	7 19.5	-16 24	5.7-6.3	1.136 days	Eclipsing Binary
2374	CMa	OC	7 24	-13 16	8.0	19'	
2215	Mon	OC	6 21	-7 17	8.6	11'	
V	Mon	Vr	6 22.7	-2 12	6.0-13.7	333.80 days	Long Period Variable
2232	Mon	OC	6 26.6	-4 45	3.9	30'	*TUB page 178*
Hrr 5	Mon	OC	6 41	-9 0		15'	*TUB page 180* Asterism
Do 25	Mon	OC	6 45.1	+0 18	7.6	24'	
2286	Mon	OC	6 47.6	-3 10	7.5	15'	
2301	Mon	OC	6 51.8	+0 28	5.8	12'	*TUB page 181* Great Bird
2302	Mon	OC	6 51.9	-7 4	8.9	3'	
X	Mon	Vr	6 57.2	-9 4	6.9-10.0	155.70 days	Semi-Regular
2316	Mon	DN	6 59.7	-7 46		4'x3'	
M50	Mon	OC	7 3.2	-8 20	5.9	16'	*TUB page 181* NGC 2323
2324	Mon	OC	7 4.2	+1 3	8.5	8'	
2335	Mon	OC	7 6.6	-10 5	7.2	12'	
RY	Mon	Vr	7 6.9	-7 33	7.7-9.2	466 days	Semi-Regular
2343	Mon	OC	7 8.3	-10 39	6.7	7'	
2353	Mon	OC	7 14.6	-10 18	7.1	20'	
U	Mon	Vr	7 30.8	-9 47	6.1-8.1p	92.26 days	RV Tauri type
2396	Pup	OC	7 28.1	-11 44	7.4p	10'	
Bochum 5	Pup	OC	7 30.9	-17 4	7.0		
Bochum 4	Pup	OC	7 31	-16 57	7.3		
2414	Pup	OC	7 33.3	-15 27	7.9	4'	

Next month, spring is in the air -- well, almost. Until we meet again under the stars, here's hoping that you can grab those binoculars and get in some quality star time this month. And of course, remember that two eyes are better than one.



About the Author:

Phil Harrington has written 9 books for amateur astronomers, including his latest, Cosmic Challenge. Be sure to visit his web site at www.philharrington.net for more information.

Phil Harrington's Binocular Universe is copyright 2013 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.