



Binocular Observing Olympics VI

Stellafane 2024 edition

Compiled by Phil Harrington

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- To qualify for the BOO pin, you must see 15 of the following 20 binocular targets. Check each off as you spot them.
- Tougher objects are *italicized* on the list.

Seen	#	Object	Const	Chart	Type*	RA	Dec	Mag	Size	Nickname/Notes
	1.	M51	CVn	1	Gx	13h 30m	+47° 12'	8.4	10'x8'	Whirlpool Galaxy
	2.	<i>NGC 5195</i>	<i>CVn</i>	<i>1</i>	<i>Gx</i>	<i>13h 30m</i>	<i>+47° 16'</i>	<i>10.5</i>	<i>6'x5'</i>	<i>Whirlpool companion</i>
	3.	16+17 Dra	Dra	2	**	16h 36m	+52° 54'	5.5, 5.6	84"	
	4.	Nu Dra	Dra	2	**	17h 32m	+55° 11'	4.9, 4.9	62"	The Eyes of the Dragon
	5.	M8	Sgr	3	BN/OC	18h 04m	-24° 18'	5	50'x40'	Lagoon Nebula
	6.	M69	Sgr	4	GC	18h 31m	-32° 21'	7.7	10'	
	7.	M70	Sgr	4	GC	18h 43m	-32° 18'	7.8	8'	
	8.	M54	Sgr	4	GC	18h 55m	-30° 29'	7.7	12'	
	9.	NGC 6709	Aql	5	OC	18h 52m	+10° 20'	6.7	13'	
	10.	Collinder 399	Vul	5	As	19h 26m	+20° 06'	4	60'	Coathanger/Brocchi's Cluster
	11.	<i>Barnard 144 & 145</i>	<i>Cyg</i>	<i>6</i>	<i>DN</i>	<i>19h 58m</i>	<i>+35° 20'</i>	<i>n/a</i>	<i>6° x 3°</i>	<i>Fish on a Platter</i>
	12.	NGC 6940	Vul	6	OC	20h 35m	+28° 18'	6.3	31'	
	13.	Flying Bootlaces	Vul	7	As	20h 16m	+32° 14'	5 to 7	~10°	Asterism created by John Davis
	14.	Amber Heart of Cygnus	Cyg	7	As	20h 22m	+40° 00'	2 to 8	~2°	Asterism created by Hope Harle-Mould
	15.	Herman's Cross	Sgr	8	As	19h 59m	-26° 55'	5	1°x2°	Asterism created by Herman Heyn
	16.	Northern Coalsack	Cyg	9	DN	20h 39m	+40°	n/a	5°x6°	Lynds 906
	17.	<i>IC 5067/70</i>	<i>Cyg</i>	<i>9</i>	<i>BN</i>	<i>20h 51m</i>	<i>+44°</i>	<i>8</i>	<i>60' x 50'</i>	<i>Pelican Nebula</i>
	18.	M39	Cyg	10	OC	21h 32m	+48° 27'	4.6	31'	
	19.	<i>NGC 7209</i>	<i>Lac</i>	<i>10</i>	<i>OC</i>	<i>22h 05m</i>	<i>+46° 30'</i>	<i>7.7</i>	<i>24'</i>	
	20.	NGC 7243	Lac	10	OC	22h 15m	+49° 53'	6.4	21'	

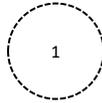
Key

**	Double star	BN	Bright nebula	Gx	Galaxy	OC	Open cluster
As	Asterism	DN	Dark nebula	GC	Globular cluster		

I would enjoy hearing how you make out with this year's list? And would you like to see a new BOO 2025 list next year? Drop me a line through my web site, philharrington.net, and let me know. Good luck. And remember, two eyes are better than one!

All-Sky Star Chart

(Chart drawn for 10:00 PM)



1. Circled areas correspond to the chart numbers found on the pages that follow and represent the recommended finding sequence.

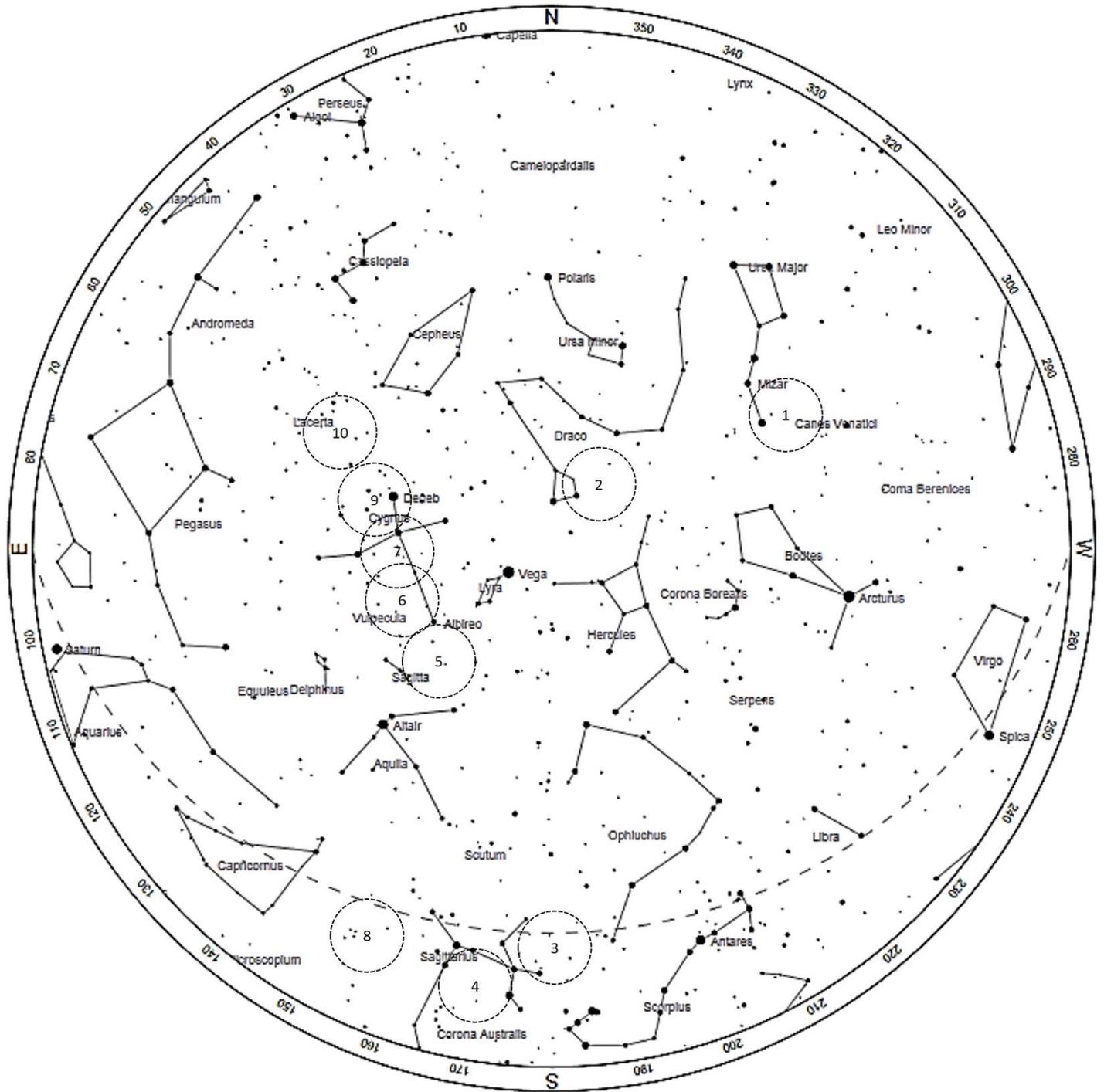


Chart 1. M51 and NGC 5195

To find **M51**, begin at the star Alkaid (Eta [η] Ursae Majoris) at the end of the Big Dipper's handle. Place Alkaid along the northeastern edge of the field and then glancing from it to 4th-magnitude 24 Canum Venaticorum 2° to its west. From there, shift your gaze an equal distance to the latter star's southwest, to a rectangle of fainter stars. M51 is inside that rectangle, next to the star at the northeastern corner.

My 10x50 binoculars show M51 as a round, dim glow. But don't just grab a quick glance and move on. Again, brace your binoculars on a tripod or some other support and make a long, slow study of the galaxy.

Can you see that M51 is a little lopsided, that there is a lump protruding on its north side? If so, you've just seen something through your binoculars that Charles Messier himself missed. That's M51's companion galaxy **NGC 5195**. It glows weakly at about 10th magnitude.

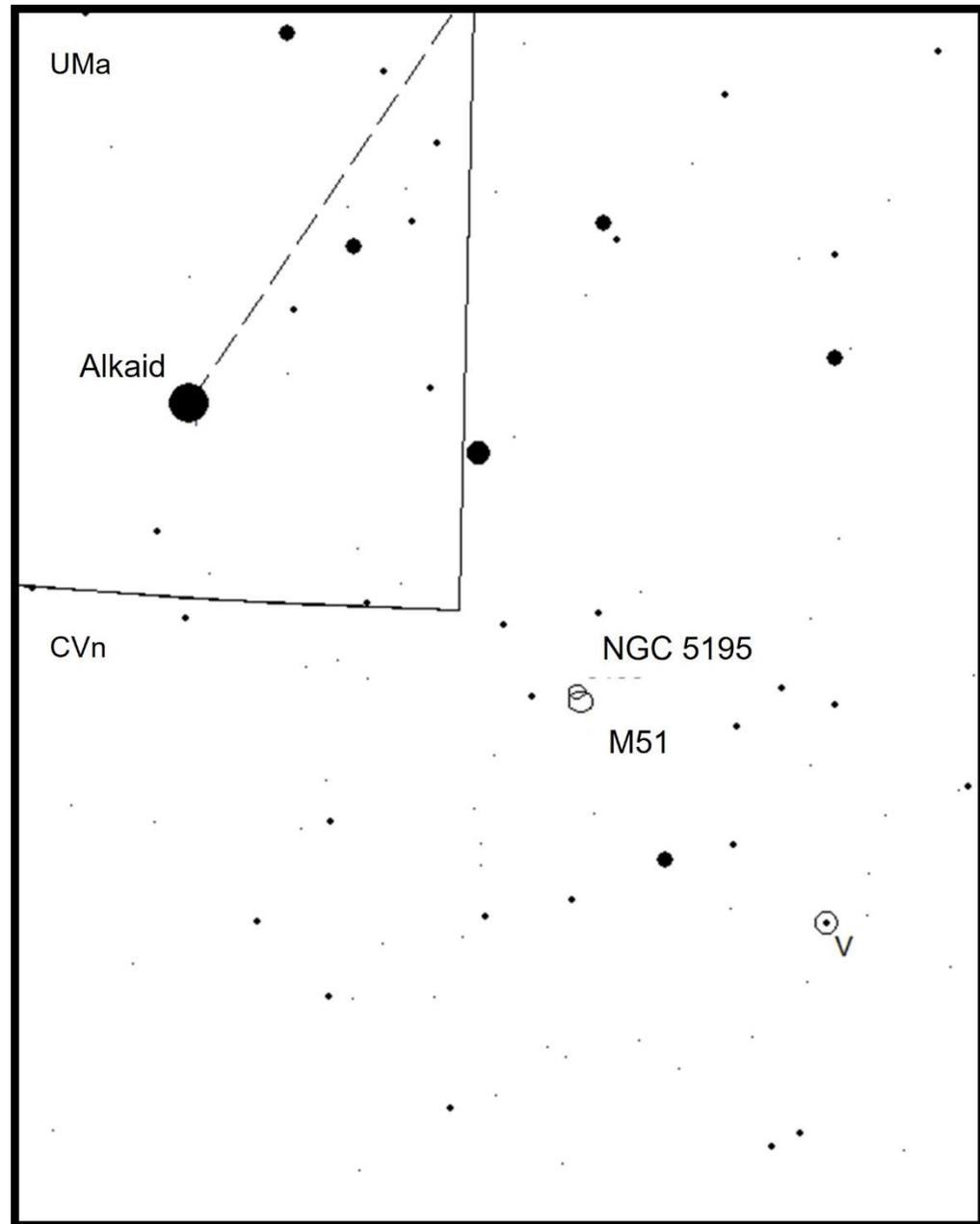


Chart 2. 16+17 Dra and Nu Dra

16 and 17 Draconis form a wide, easily resolved pair of stars in south-central Draco. 17 is the northernmost and slightly brighter of the two. 16 Dra, with a spectral class of F8V, has an apparent magnitude of 5.4, while 17 Draconis, a G0V star, has an apparent magnitude of 5.0. The two stars are separated by about 84 arcseconds. Despite their proximity in the sky, they are not a gravitationally bound pair, so they do not orbit each other.

Nu (ν) Draconis is another wide double star that can be split through all binoculars. Nu is the faintest of the four stars in the Dragon's "head", which led to its nickname, the Eyes of the Dragon. Nu is composed of two nearly identical 5th magnitude type-A white stellar jewels. In his classic book Celestial Objects for Common Telescopes, the renowned 19th-century deep-sky observer Reverend T.W. Webb called these stars "grand", an accurate portrait through modern binoculars as well. Studies indicate Nu is a true binary system, with both stars located about 100 light years away. At this distance, the stars' apparent separation of 62 arc-seconds indicates a real separation of about 1,500 Astronomical Units. They have an orbital period of roughly 44,000 years.

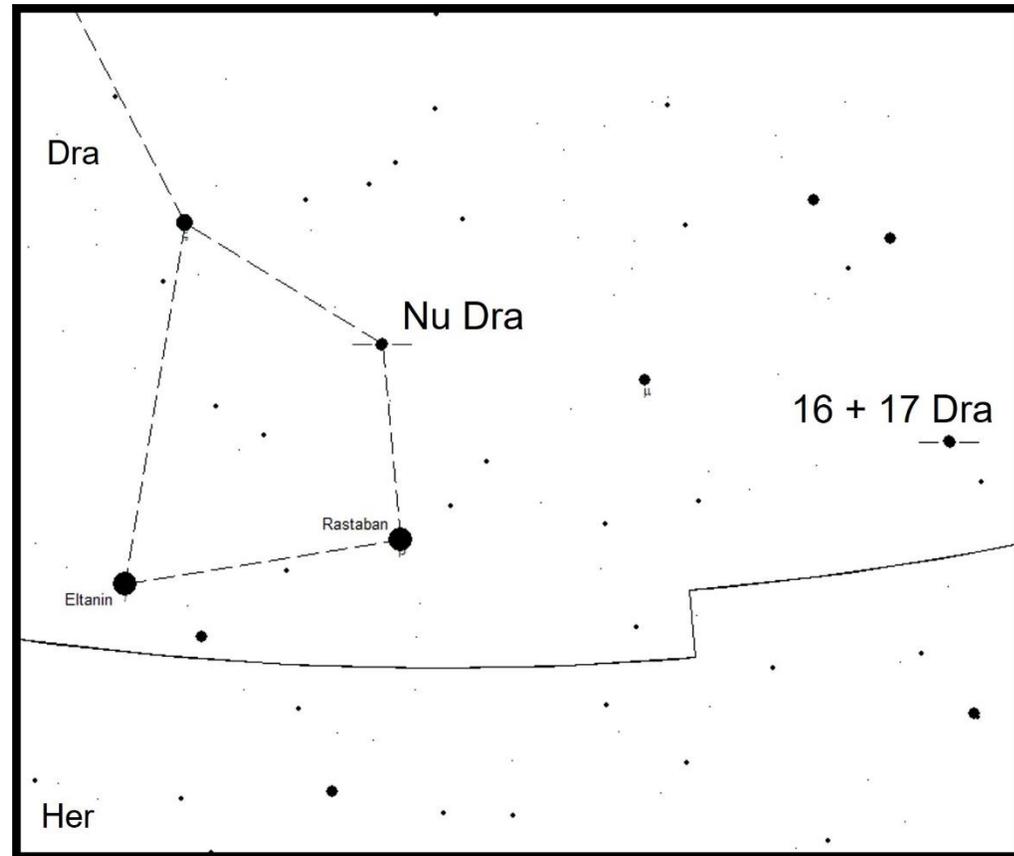


Chart 3. M8

M8, or the Lagoon Nebula, is located 6° north of Gamma (γ) Sagittarii, at the tip of the Sagittarius Teapot's spout. It appears as a faint glow within the Milky Way, visible without optical aid under the dark skies of Stellafane. Through binoculars, M8 reveals itself as a vast emission nebula, glowing due to ionized hydrogen from embedded stars.

Binoculars show the Lagoon Nebula's complex structure, with a dark dust cloud running north-south, dividing it into two sections. The western portion is brighter, while the eastern half contains many stars from the open cluster **NGC 6530**. These stars produce stellar winds, creating funnel-shaped clouds.

M8 features dark nebulous patches, including **Barnard 88** (B88), a small dark cloud in the northeastern corner. 10x70 and larger binoculars are needed to reveal B88 clearly.

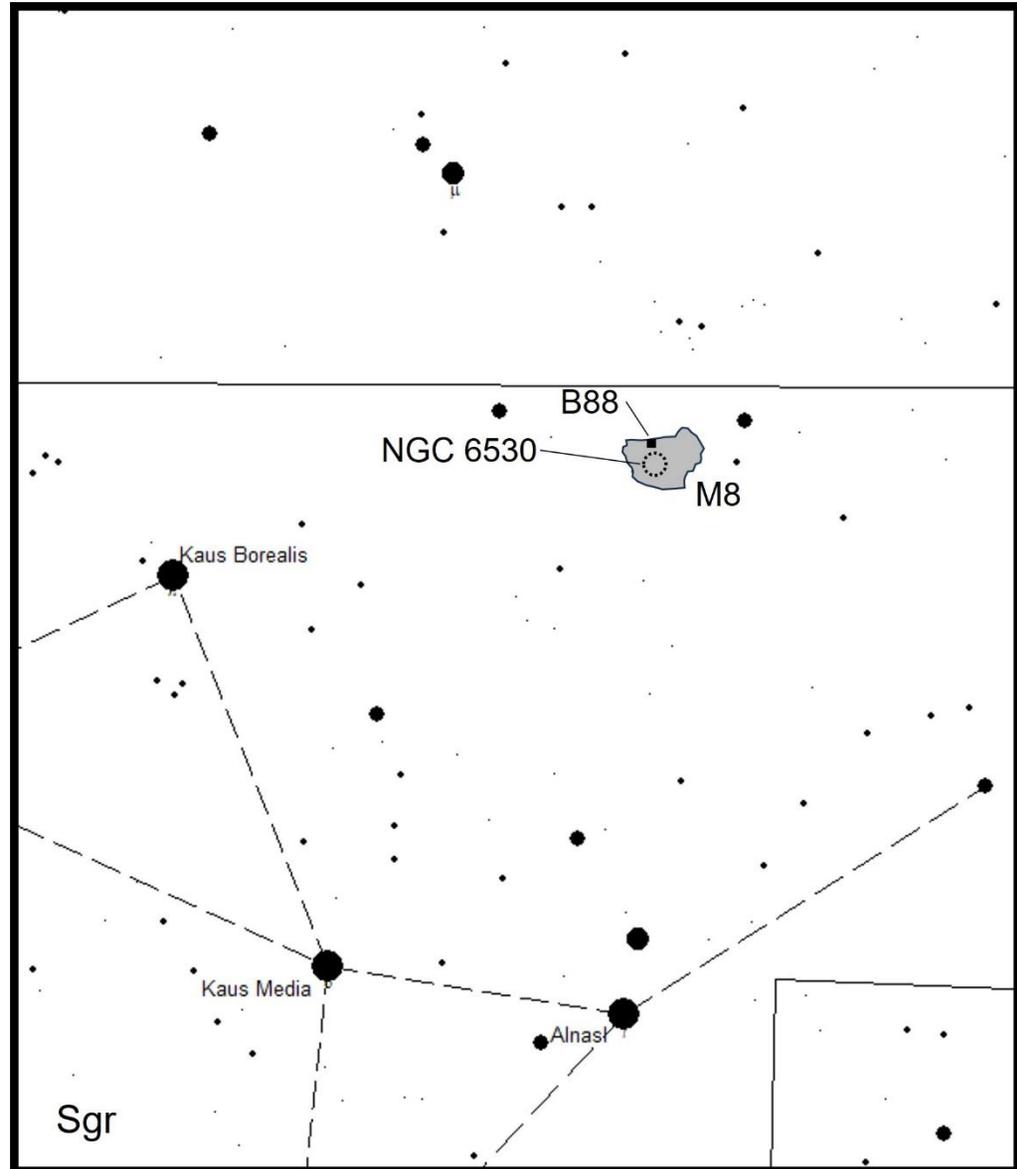


Chart 4. M54, M69, and M70

Three globular clusters lie along the bottom of the Sagittarius Teapot, but be forewarned, they are daunting tests through binoculars.

Use a pair of fainter stars to the east of the star Kaus Australis as a guide. **M69** is just to their north, while **M70** is to their east. Each shines at only 8th magnitude, so hopefully we will get a haze-free sky to try our luck. Under better than average conditions, I can see each as a faint, slightly fuzzy "star" with my 10x50s.

The third globular in this area, **M54**, is easiest to find by starting at Ascella, the Teapot's lower left star. M54 lies directly to its west, just south of a triangle of dim stars. Like its two compatriots, M54 will impress you as a tiny, blurry point of light highlighted by a slightly brighter center.

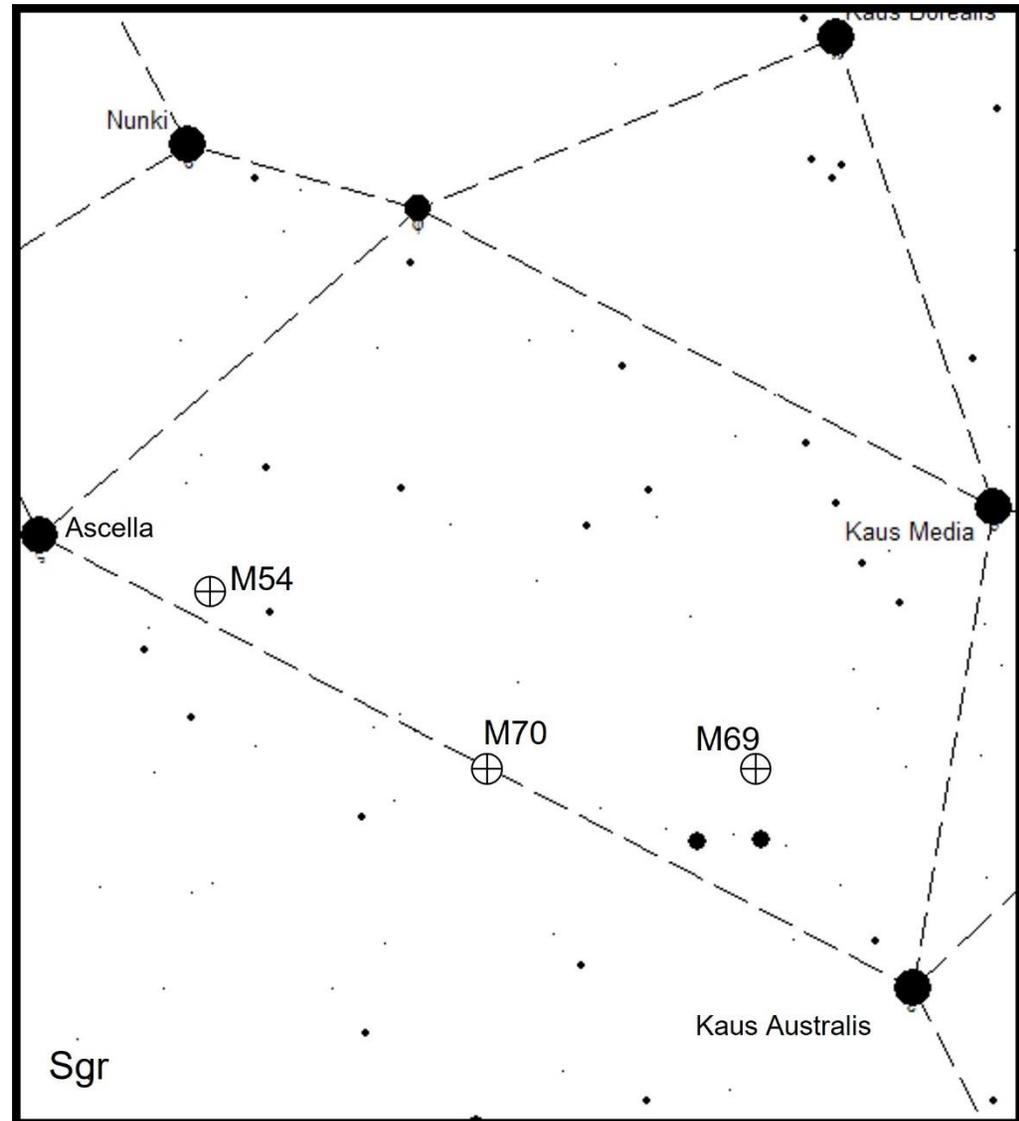
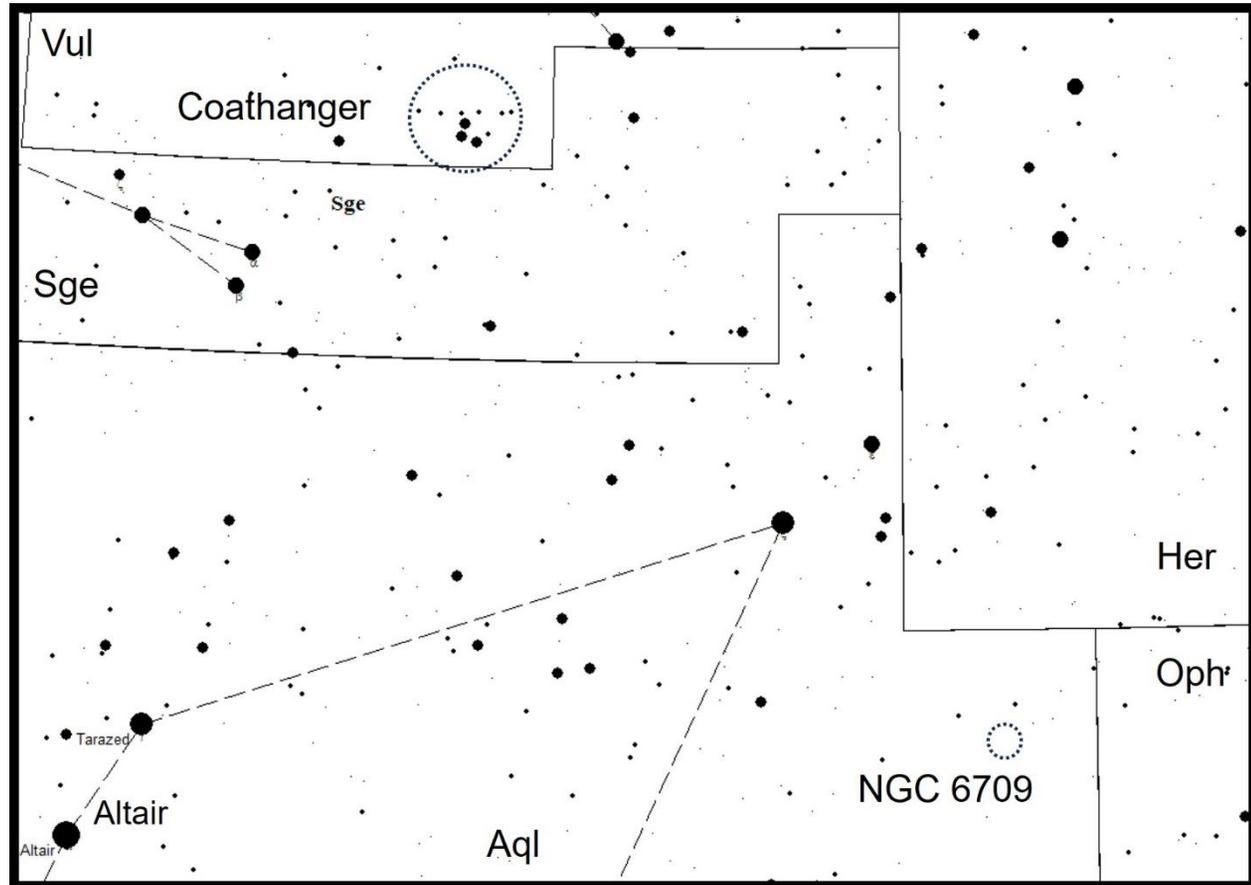


Chart 5. NGC 6709 and the Coathanger

To find the **Coathanger**, start at Altair, the southernmost star of the Summer Triangle. Draw an imaginary line between Altair and two fainter stars beside it, then extend that line northwest for about twice its length into Vulpecula. There, you'll see a tiny flock of about 10 stars.

The Coathanger's crossbar is formed by six stars in a row, with four more curving south to create the hook. Binoculars with 7x to 10x magnification provide the best view, framing the Coathanger against a rich backdrop of stardust.



Also known as Brocchi's Cluster, the Coathanger was included on an AAVSO chart created by amateur astronomer Dalmiro Brocchi in the 1920s, and later named in his honor. It was also cataloged as Collinder 399 (Cr 399) in Per Collinder's 1931 catalog of open star clusters. Thanks to data from the European Space Agency's Hipparcos satellite, we now know it is not a cluster at all, but rather an asterism formed by unrelated, widely separated stars. The stars range from 220 to 1,100 light years away.

NGC 6709, an undisputed open cluster 3,510 light-years away, contains about 60 stars. Through 10x50 binoculars, it appears as a ghostly triangular haze, but with 16x70s, several dim points can be seen in the southeastern and southwestern corners. Can you resolve any stars in NGC 6709?

Chart 6. Barnard 144 & 145 (Fish on a Plate) and NGC 6940

Scan the body of Cygnus with your binoculars, from Deneb to Albireo, tracing the Milky Way's Great Rift, and pause at 4th-magnitude Eta (η) Cygni. Just to its north, look for an irregular oval "hole" framed by 5th-magnitude stars 25, 27, and 28 Cygni. That's **Barnard 144** (B144), the Fish on a Platter Nebula.

B144 represents the body of the fish. Its tail lies just to its north as the triangularly shaped **Barnard 145** (B145). B145 is immediately south of 7th-magnitude HD 190275.

NGC 6940 is an under-observed summer target that stands out nicely once you spot it. You will find this open cluster just inside the northeastern border of Vulpecula, the Fox. The cluster's football-shaped glow measures about half a degree across and looks like a detached cloud from the Milky Way. You can't miss it (even from moderately light-polluted suburban skies back home). Look carefully, and you may even see a few faint stars poking out from within.

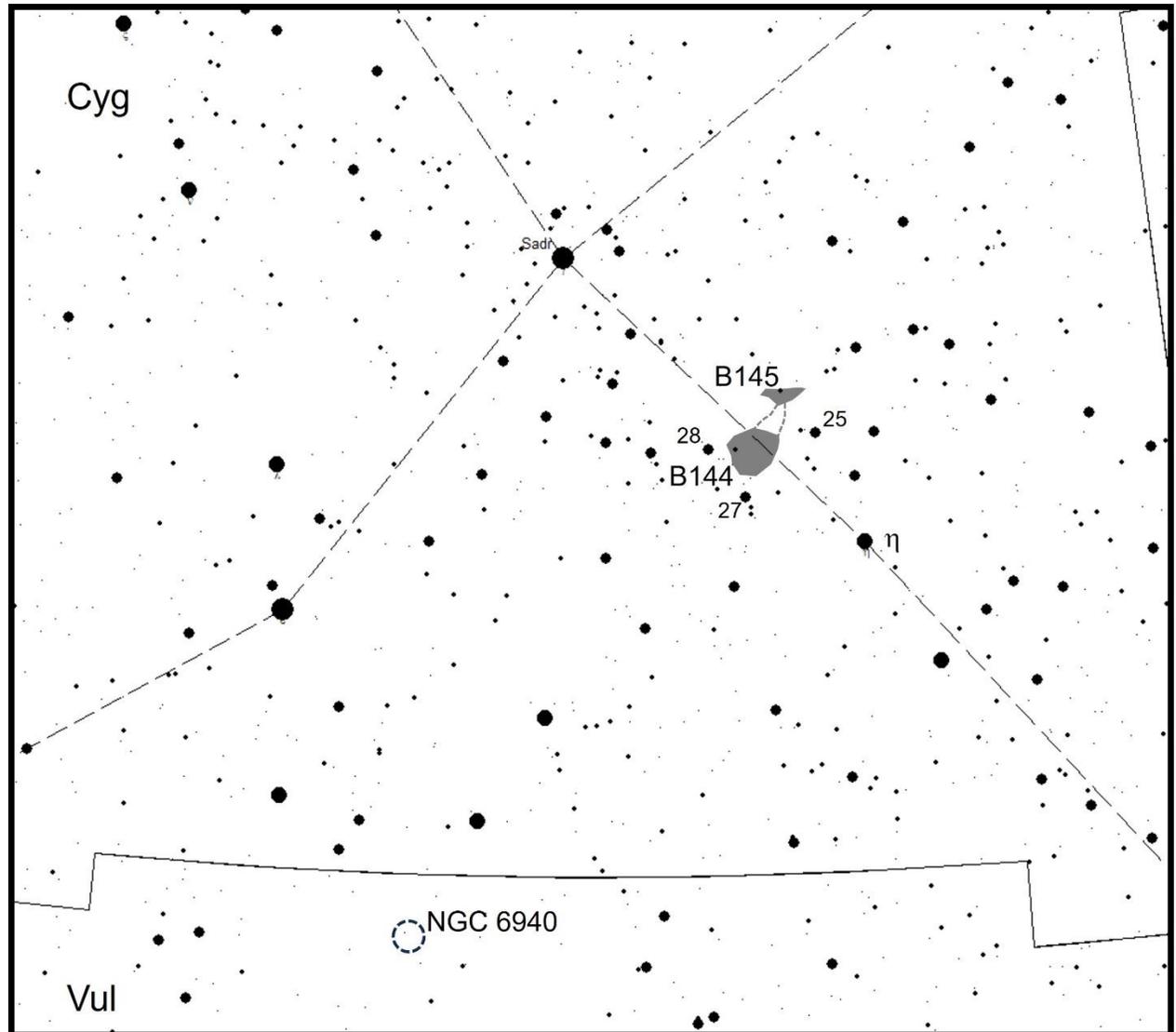


Chart 7. Amber Heart of Cygnus and Flying Bootlaces asterisms

The **Amber Heart of Cygnus** asterism was created by Buffalo, NY, amateur Hope Harle-Mould. Hope envisions that the central star in the Northern Cross, Sadr (Gamma [γ] Cygni), marks the position where the heart of Cygnus the Swan would be, and may appear a subtle amber to the eye. Binoculars reveal it is encircled by a halo of faint stars arranged into a distinctive heart shape. Amber Sadr at the top center resembles a jewel in a pendant.

The late, great observer and Stellafane regular John Davis (1932 – 2018) also had an eye for asterisms. Here's one that he called the **Flying Bootlaces**. Focus your attention on 4th-magnitude 39 Cygni, which lies 8° due south of Sadr. Stay centered on 39, but then glance to its south and west for two strings of fainter stars cascading away. Those are the bootlaces.

Here's John's original sketch of his flying bootlaces along with his Cowboy Boot asterism.

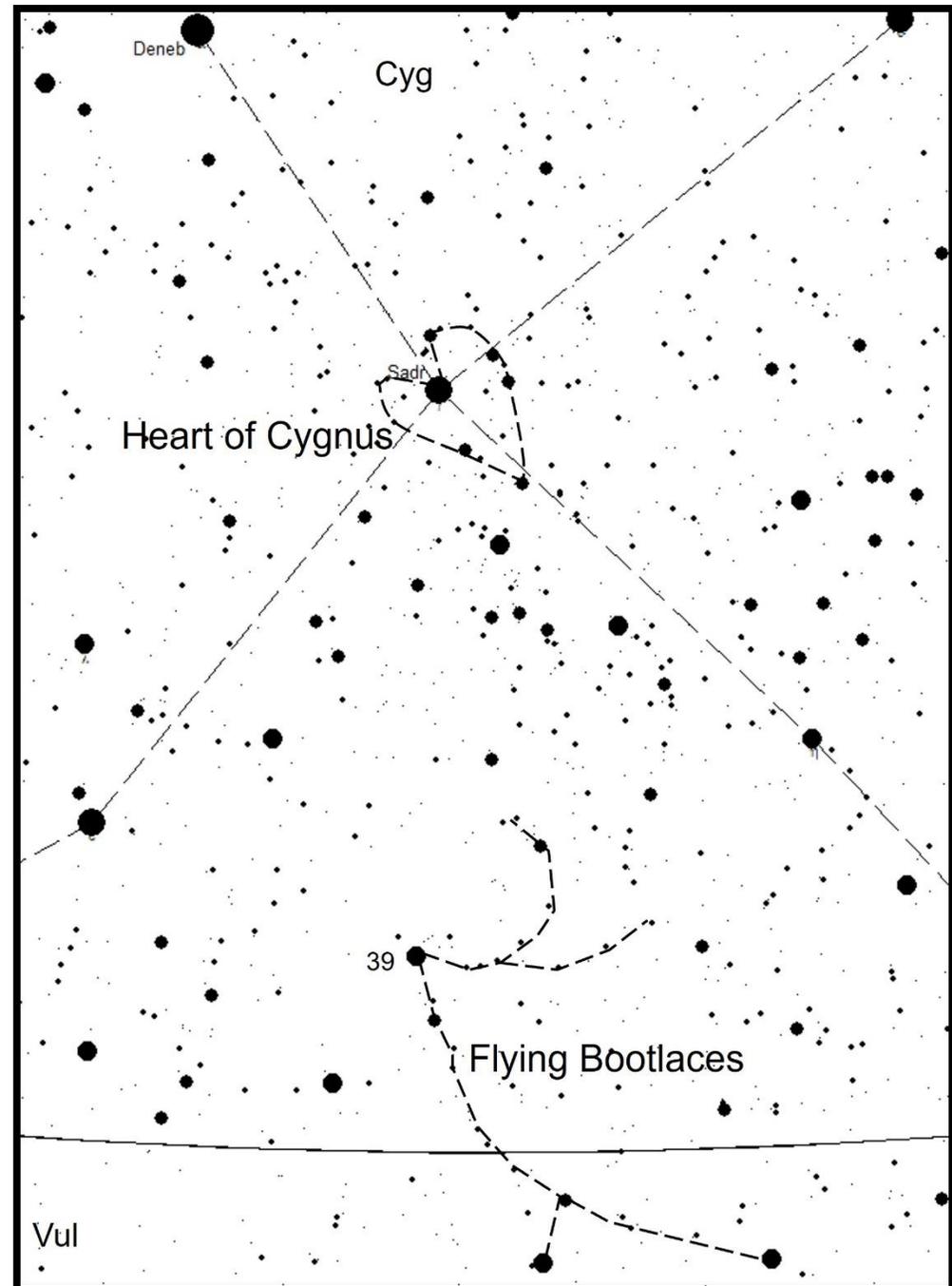
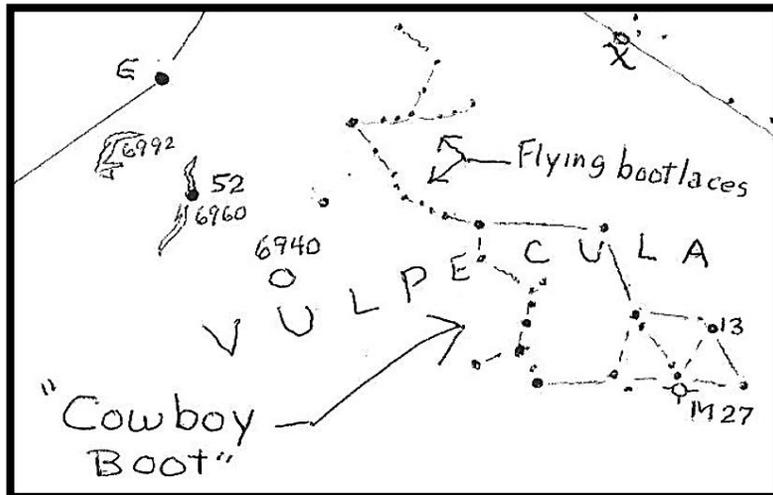


Chart 8. Herman's Cross

Famous as Baltimore's "street corner astronomer" for setting up a telescope and explaining the starry skies to thousands of curious stargazers for decades, Herman Heyn (1930 – 2021) is best remembered by amateur astronomers for finding a 4-star asterism that now bears his name. Back in 1986, Herman was photographed with Halley's Comet in the background. When he later looked at the photo, Herman spotted a cross-like asterism in eastern Sagittarius near the ecliptic. It's now known as **Herman's Cross**.

Herman's Cross is made up of four 5th-magnitude stars: 59, 60, 62, and Omega (ω) Sagittarii. It lies 11.5° east of Tau (τ) Sagittarii, the easternmost star in the Teapot's handle. Look carefully and you'll be able to spot it faintly with just your eyes.

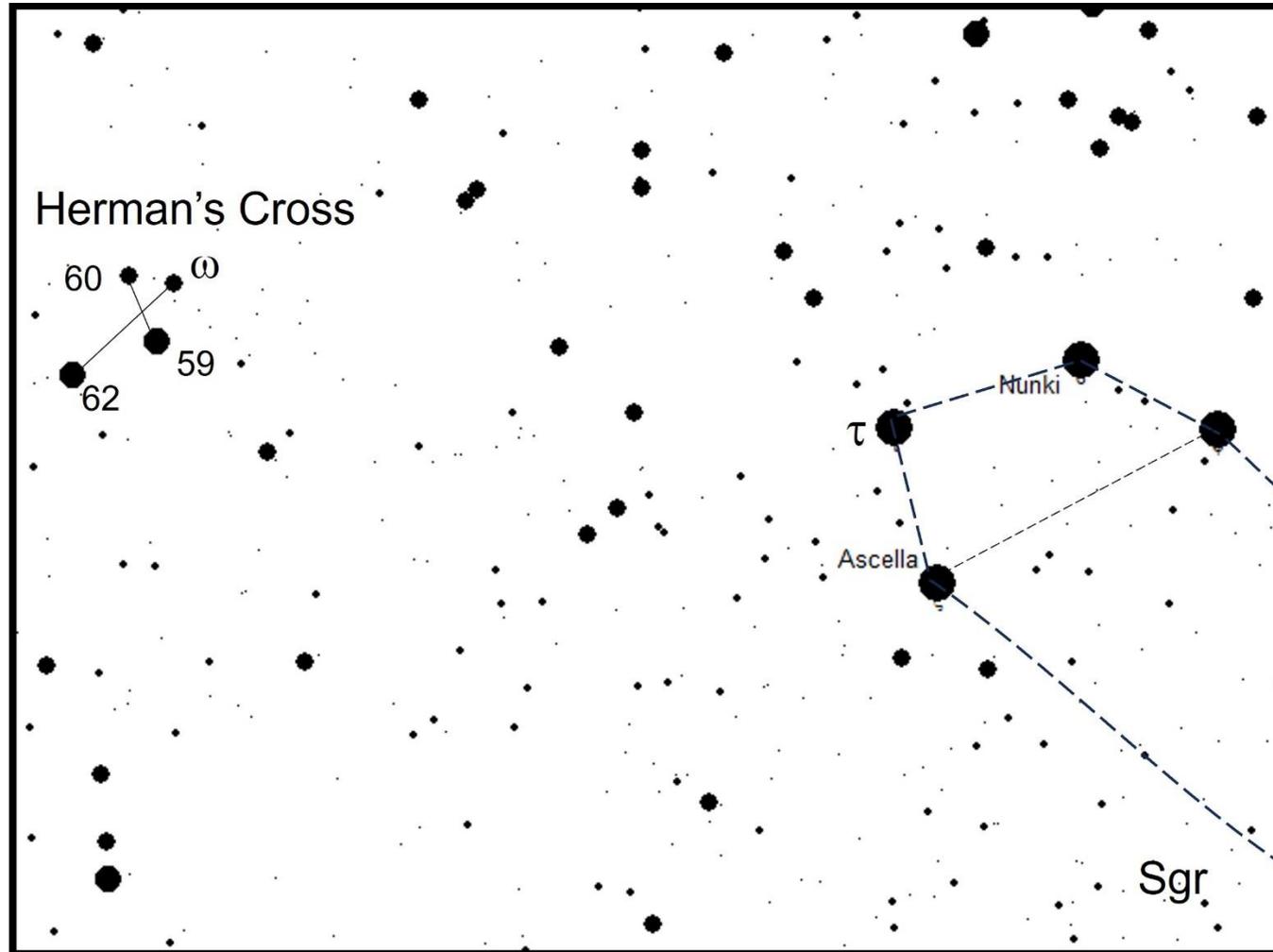
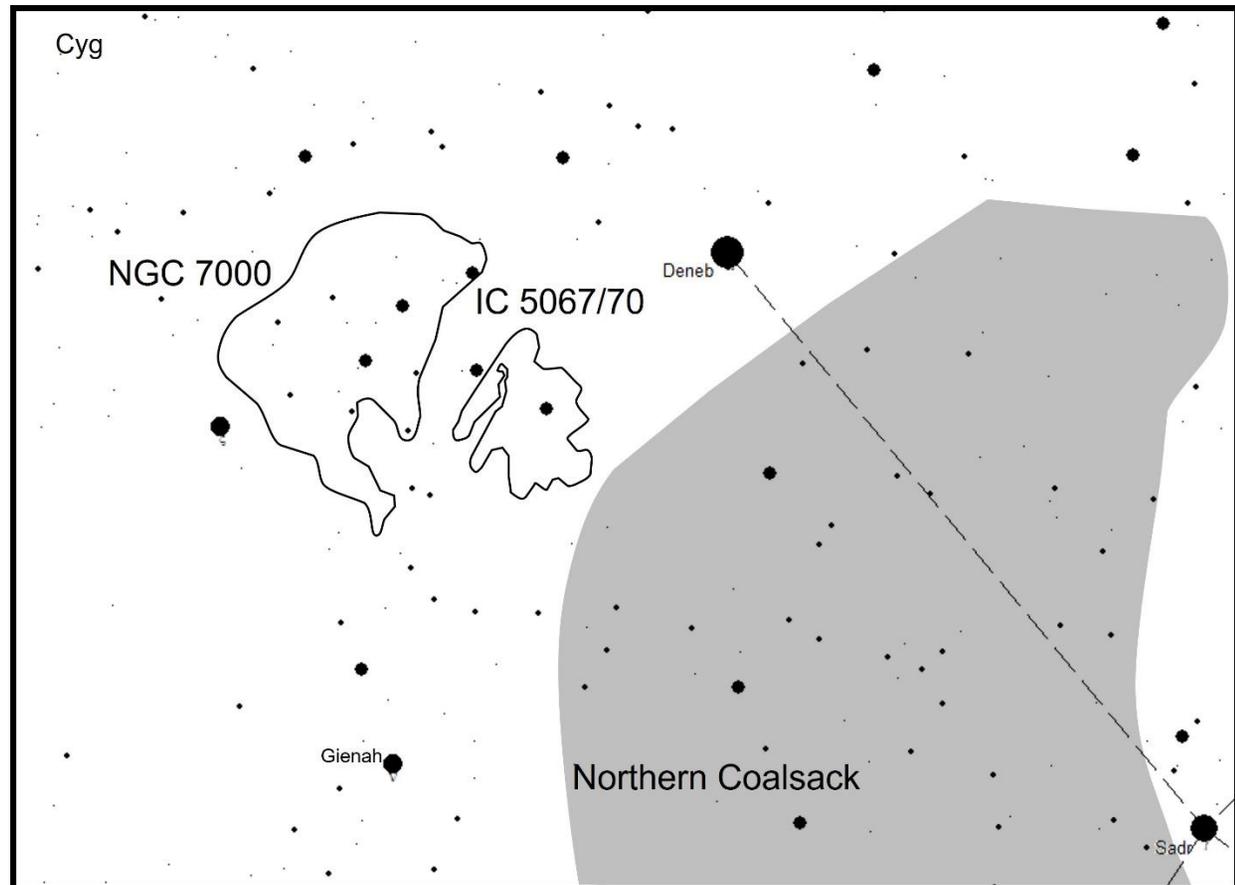


Chart 9. Northern Coalsack and the Pelican Nebula

The **Northern Coalsack** in Cygnus, officially cataloged as Lynds 906, creates a 5° x 6° oval “hole” in the triangle framed by Deneb [Alpha (α) Cygni], Sadr [Gamma (γ) Cygni], and Gienah [Epsilon (ε) Cygni]. Given clear Stellafane skies, the Northern Coalsack is easily visible through small pocket binoculars, and even by eye alone. Its large span will more than fill the field of most 50mm and larger binoculars, however, so you’ll need to scan slowly to define its edges.

The famous North America Nebula (NGC 7000) lies just 3° east of Deneb, and can also be seen naked eye under clear Stellafane skies. If you can see the North America Nebula easily, see how you do with the **Pelican Nebula**.

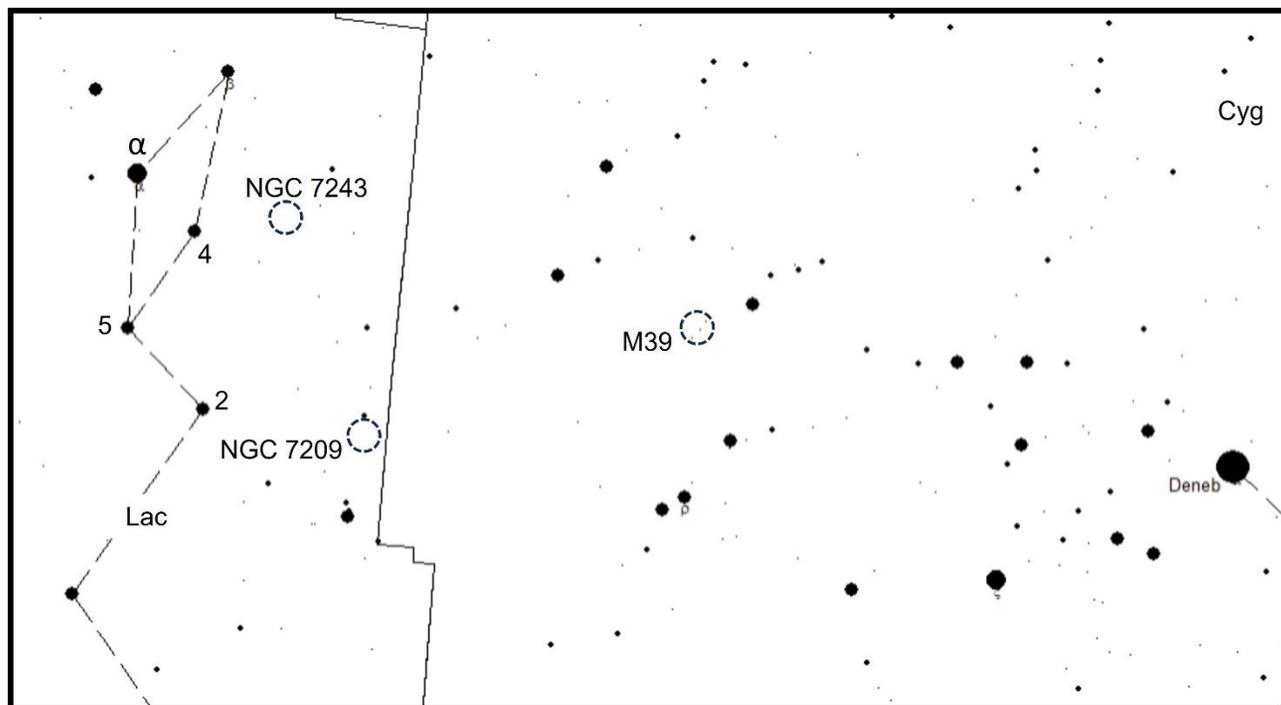


The Pelican and North America Nebulae are both part of the same huge complex of glowing hydrogen gas. An opaque cloud of interstellar dust, Lynds 935 (LDN 935), slices in front of the background emission nebula gives the illusion that we are looking at two different entities.

The Pelican carries two catalog designations -- **IC 5067** and **IC 5070** -- that point to two portions of the nebula. The eastern edge of LDN 935 carves out the outline of the North America Nebula's (terrestrial) east coast, while its western edge forms the long beak and pointy head of the celestial pelican (IC 5070). Two small, circular dark dust clouds mark the bird's eyes, while a brighter tuft to their northwest, IC 5067, suggests the curved shape of its head and neck.

Chart 10. M39, NGC 7209 and NGC 7243

M39 is one of my favorite summer and early autumn open clusters. It lies 9° , or about 1.5 binocular fields, northeast of Deneb [Alpha (α) Cygni]. To find it, center your binoculars on Deneb and then slowly move northeastward along a meandering row of six irregularly spaced 4th- and 5th-magnitude stars. M39 is just beyond the easternmost star in that line. Look for a small, triangular grouping of



about a dozen faint points. But don't just spot it and move on. The rich surroundings demand that it be savored slowly.

Move along the Milky Way from Cygnus toward Cassiopeia to find the faint constellation Lacerta, the Lizard. Its brightest star, Alpha (α) Lacertae, shines at only magnitude 3.8. Imagine a line connecting Deneb and Caph (Beta [β] Cas); Alpha Lacertae lies just south of the midpoint. Nearby, open clusters **NGC 7243** and **NGC 7209** are visible with binoculars.

NGC 7243 is west of 4 Lacertae. Look carefully after bracing your binoculars for support and you will be able to resolve a few feeble points of light peeking out from the cluster. Through my 16x70s, the star count increases to 10. The remaining members in the cluster's inventory of 40 lie below binocular limits.

To find NGC 7209, glance southwest of 5 Lacertae to the blue-white 5th-magnitude star, 2 Lacertae. NGC 7209 is just 2° to its west and just south of an orange 6th-magnitude star, HD 209857. NGC 7209 is a full magnitude fainter than NGC 7243, so spotting it may require some extra effort. Although NGC 7209 is credited with containing nearly 100 stars, only a half dozen are bright enough to be visible through my 16x70s.