Binocular Universe:

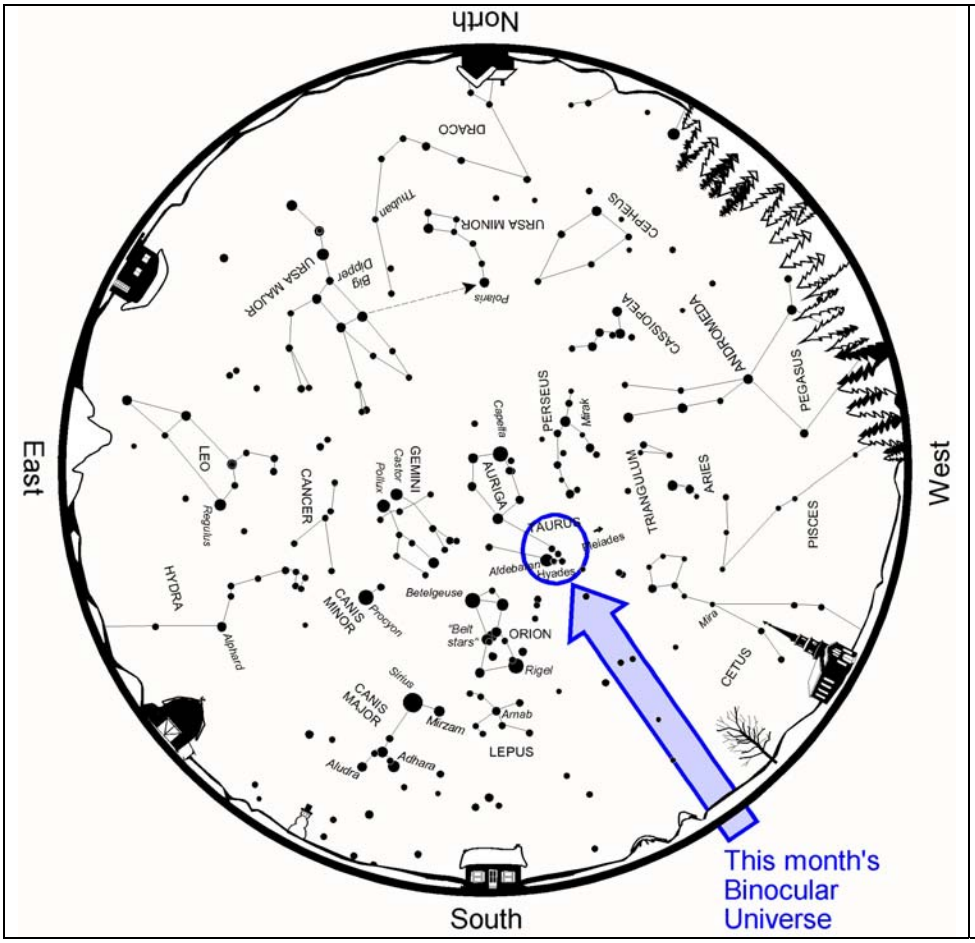
Oh, Bull!

January 2011

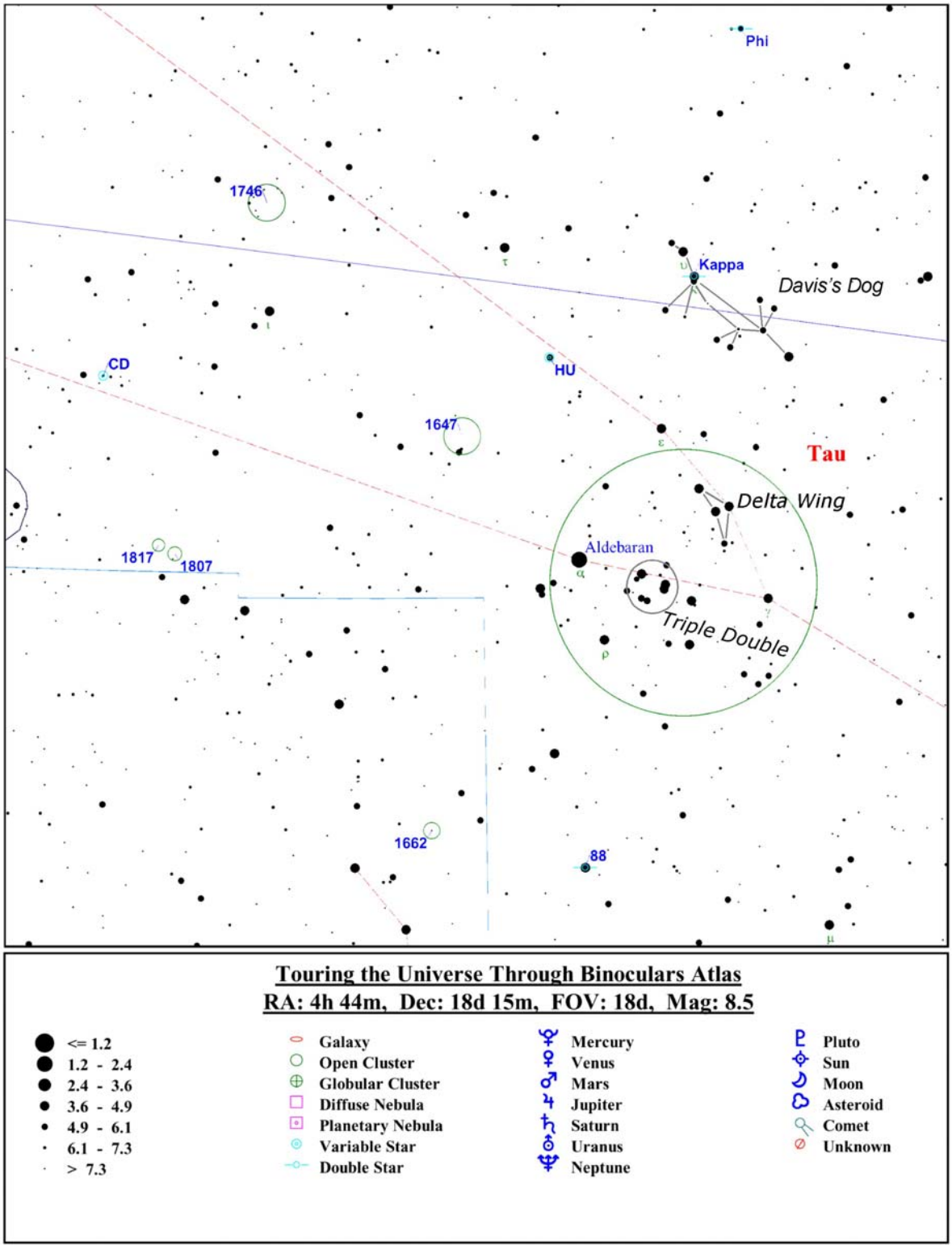
[Phil Harrington](#)

Tut tut, it looks like rain.

That's right, even on the clearest winter nights, it is raining in Taurus. How's that? It's raining in Taurus?



Left: Winter 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

Every time you look toward the V-shaped head of the Bull, you're looking at "rain." Today, we call Taurus's head the **Hyades**. In Greek mythology, the Hyades are sisters, the daughters of Aethra and Atlas and half-sisters to the Pleiades. They can be traced as far back as about 750 B.C., when the Greek poet Homer included mention of them in his Ilias poetry about the Trojan War.

The Hyades were seen as a sisterhood of nymphs traditionally associated with rain. The name undoubtedly comes from the fact that the Mediterranean region experiences rainy seasons in May and November, just as the Hyades are setting in the early evening and in the early morning, respectively.

Just how many of the Hyades sisters can you count by eye? There are 15 brighter than 5th magnitude, but binoculars quickly raise that number into the dozens. In fact, there are hundreds of stars inside the cluster's 5.5° span. More than 130 of them are brighter than 9th magnitude and so, should be visible in binoculars under reasonably dark skies.

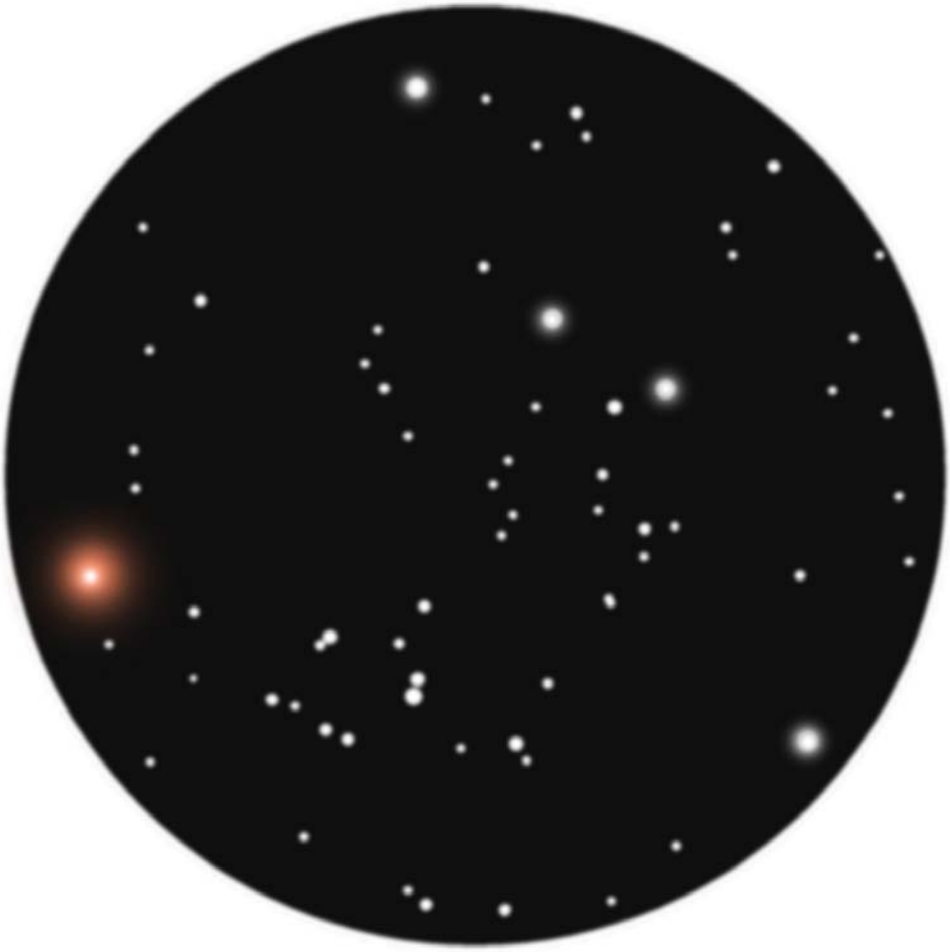
If you scan various deep-sky catalogs, you may find the Hyades referred to by their catalog designation **Melotte 25**. This designation originated in 1915 when Philibert Jacques Melotte published his Catalogue of Star Clusters Shown on the Franklin-Adams Chart Plates. Seven years earlier, American astronomer Lewis Boss (1846-1912) discovered that the Hyades form a true open star cluster. His studies found that all of the stars are moving in the general same direction and speed within the Milky Way. Later studies also clearly show that the Hyades share a common origin, as the stars are an average of 790 million years old. The stars in the nearby Pleiades, by contrast, are only about 100 million years old.

The cluster's large apparent size poses some problems when trying to view it. It's so large that telescopes can't take it all in at once. Even some binoculars can't squeeze the cluster's full extent into their field of view. The best view of the Hyades will be through binoculars that have real fields of view between 7° to 9° in diameter. Anything less and the clustering effect will be lost; sometimes in stargazing, you can't see the forest for the trees.

Don't look now, but one of the Hyades "sisters" is an imposter! That celestial fraud is none other than brilliant Aldebaran itself. Aldebaran does not actually belong to the Hyades, despite appearances. Instead, it lies in the foreground, in between us and the cluster. It just happens to fall along the same line of sight. The Hyades are 150 light years from Earth, making it one of the closest clusters to us, but Aldebaran is only about 65 light years away.

The brightest true cluster star, therefore, is Theta^2 Tauri at magnitude 3.4. Theta^2 teams with 3.8-magnitude Theta^1 Tauri to form a wide naked-eye double star set just southwest of brilliant Aldebaran. Can you make them both out by eye alone? Theta^2 is classified as a white giant star, which means that it is both hotter and larger than our Sun. Theta^1 is a yellow star, like the Sun. But since Theta^1 is a yellow giant, it is actually much larger than our Sun.

Last fall, after he studied the Hyades through his binoculars, CN reader Bill Zmek dropped me a line that told of an interesting pattern involving the two Theta stars. He wrote, "I saw in the eyepiece field an asterism that still never fails to interest me. I call it the **Triple Double** because it consists of three double stars arranged roughly in an equilateral triangle. Each double is aligned at right angles to a line running from that double to the triangle's center." Theta-1 and Theta-2 mark the asterism's western corner. The fainter stars SAO 93975 and SAO 93981 are at the northeastern corner, while 80 and 81 Tauri are at the southeastern corner.



Left: Aldebaran and the Hyades, as portrayed through the author's 10x50 binoculars.

North is up.

A careful study of the Hyades through binoculars will also reveal several other stellar duets and trios. For instance, I also see a **Delta Wing Fighter** formed from the stars Delta, 63, 64, and 68 Tauri to the west of Aldebaran.

Return to Aldebaran and extend a line to the star Ain (Epsilon [ε] Tauri), marking the western tip of the Hyades "V." Continuing that line an equal distance farther northwest puts you right in the middle of a bright, but loose gathering of 3rd- to 5th-magnitude stars. From west to east, the group consists of Omega (ω), 51, 53, 56, 65, 67, 69, and 70 Tauri, along with a scattering of fainter suns. They all stand out nicely in 50-mm binoculars. Take a look. See any recognizable pattern among the stars? The inventive eyes of my buddy, John Davis from Amherst, Massachusetts, see a "cute little dog whose nose got caught in a pencil sharpener!"

Omega marks the tip of the dog's nose, 53 represents one of its eyes, while 51 and 56 Tauri lie at the tips of the dog's pointy ears. The tail of **Davis's Dog** is outlined by the arc of 65, 67, 69, and 72 Tauri, while its body and legs are formed from a pair of fainter triangular patterns to the south.

Left: Davis's Dog, as portrayed through the author's 10x50 binoculars. Compare this sketch with the map above, which shows the dog's outline.

North is up.

Take a look at the list below for other targets in the general area. Four NGC clusters – NGCs 1647, 1746, 1807, and 1817 -- lie to the east of the Hyades, and while they are a far cry from the daughters of Aethra and Atlas, they are still fun to hunt down in binoculars. Give each a try. And, of course, *always* enjoy the view of the Pleiades just to the west!

Object	Con	Type	R.A. (2000)	Dec	Mag	Size/Sep/ Period	Notes
1662	Ori	OC	4 48.5	+10 56	6.4	20'	
Phi	Tau	**	4 20.4	+27 21	5.0,8.4	52"	250°(1925);3137
Kappa	Tau	**	4 25.4	+22 18	4.4,5.4	340"	173°(1923)
Mel 25	Tau	OC	4 27	+16 0	0.5	330'	*TUB page 238* Hyades
Theta1+2	Tau	**	4 28.7	+15 52	3.8,3.4	337"	*TUB page 238* 346°(1921)
88	Tau	**	4 35.7	+10 10	4.3,8.4	70"	299°(1920);3317
HU	Tau	Vr	4 38.3	+20 41	5.9-6.7	2.056 days	Eclipsing Binary
1647	Tau	OC	4 46	+19 4	6.3	45'	*TUB page 238*
1746	Tau	OC	5 3.6	+23 49	6.0	45'	*TUB page 238*
1807	Tau	OC	5 10.7	+16 32	7.0	17'	*TUB page 238*
1817	Tau	OC	5 12.1	+16 42	7.7	15'	*TUB page 238*
CD	Tau	Vr	5 17.5	+20 8	7.3-7.9	3.435 days	Eclipsing Binary

Great stuff, eh? It's always fun to bump into a pattern of stars that reminds us of something here on Earth. Have you ever found an interesting asterism like that? If so, I'd love to hear about it and possibly include it in a future column. Send an e-mail to me at phil@philharrington.net with particulars, or with any comments and suggestions you might have for this e-column.

Next month, we return to enjoy more of the magnificent winter sky. Until then, remember that 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. His latest book, Cosmic Challenge, includes a chapter devoted to binocular challenges. See an excerpt on his web site.