Binocular Universe:

A Few Hairy Objects

April 2014

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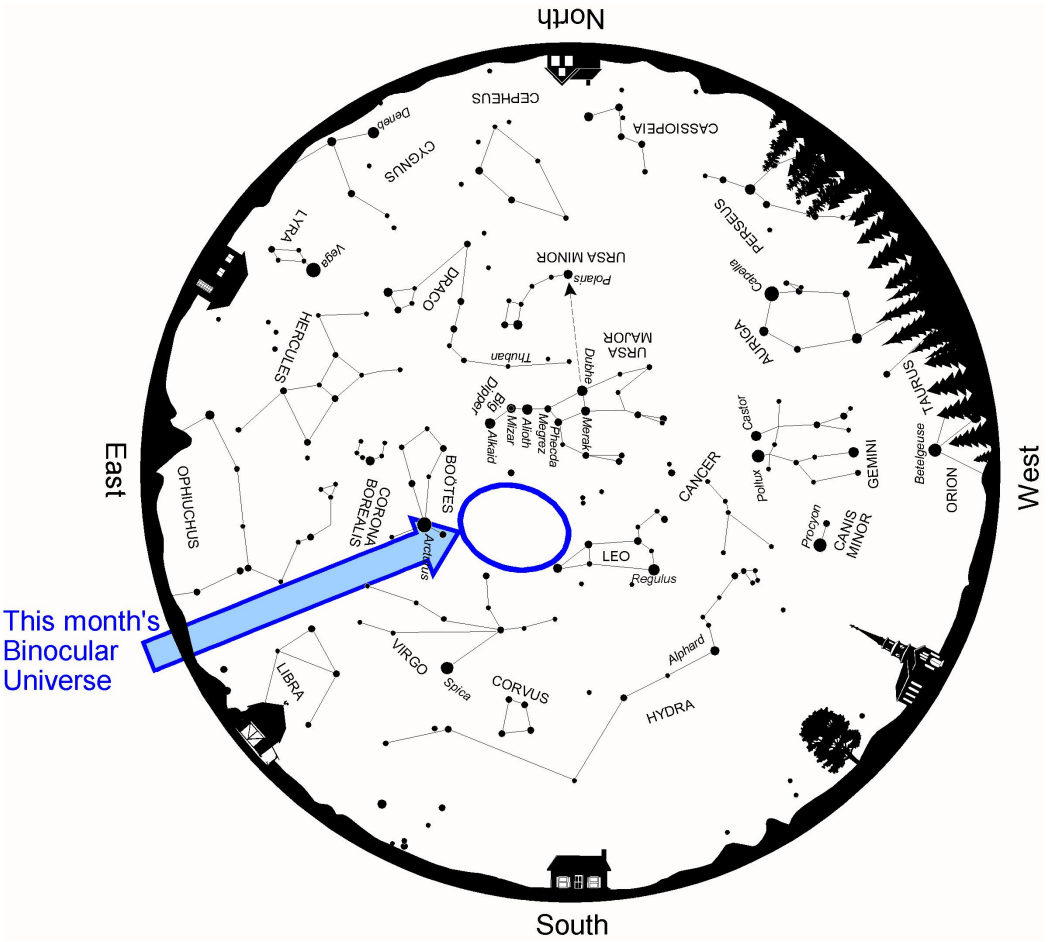
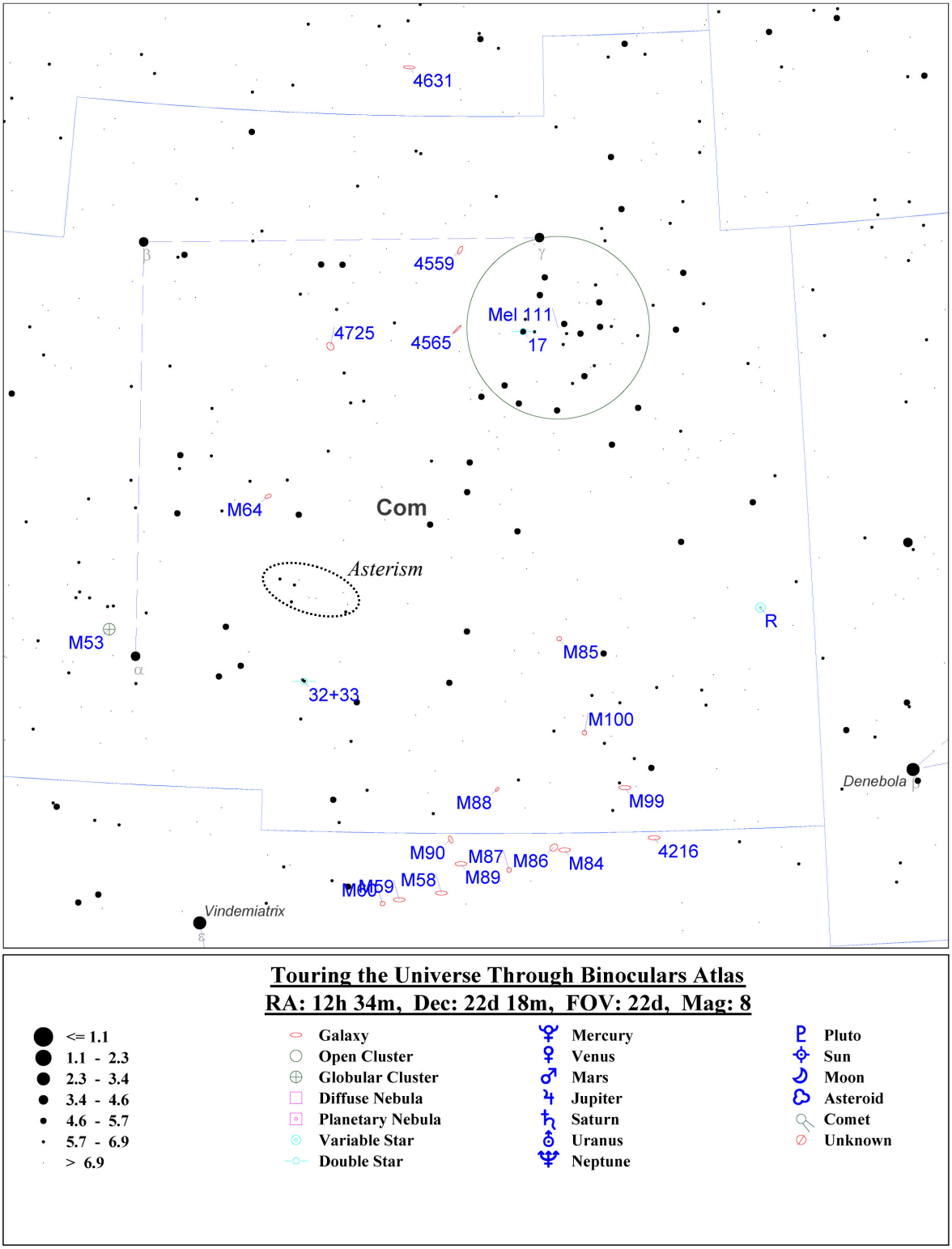
Clear skies come few and far between at this time of year, at least in my neck of the woods, so I like to take advantage of just about every one that happens along. The old saying that April showers bring May flowers is alive and well here in the northeastern U.S., as this is traditionally one of the cloudiest and wettest months of the year.



Above: Spring 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

One of the reasons I'm so keen to observe the April sky is the **Coma Berenices Star Cluster**, one of my favorite binocular targets. It's one of those objects that does nothing through telescopes, but really comes alive through binoculars. That's because the star cluster spans more than 7.5 degrees of sky.

To find it, aim toward the center of the large, "empty" area framed by the constellations Boötes to the east, Leo to the west, and the arc of the Big Dipper's handle to the north. Scan back and forth slowly until you bump into a wedge-shaped group of stars that will likely fill the field of your binoculars. That's the Coma Star Cluster. In fact, if you are viewing from a dark site, you can see the Coma Star Cluster as a fuzzy patch of light without using any optical aid at all.

That misty appearance quickly dissolves into myriad points of distant starlight through even the smallest mini-binoculars. The brightest stars fall into a pattern resembling the Greek letter Lambda (λ).

Once you find the cluster, sit back and examine it carefully. You might notice, for instance, that the star at the Lambda's northern tip, 4th-magnitude **Gamma (γ) Comae**, glows with a warm, orangish glow. Lambda is a spectral type K orange subgiant star that is just starting to evolve off the main sequence. Astronomers use observational clues like this to approximate the age of star clusters. In this case, the Coma Cluster is estimated to be only about 400 million years old.

Follow the eastern side of the Lambda southward to **16 Comae**. Binoculars show it surrounded by three faint companions, standing at attention as if guarding a precious jewel.

Farther southeast still, **17 Comae** is an easy binary star to resolve through binoculars. This pair of white-hot stars appears separated by more than 2 arc-minutes, which is wide enough to be resolvable easily even through modest 6x field glasses.

Scanning the rest of the constellation, our next stop is globular cluster **M53**. M53 proves a tough test for any binocular smaller than 70 mm in aperture. Finding it is easy enough, however. From brilliant Arcturus [Alpha (α) Boötis], head west to Eta (η) Boötis. Eta is often shown as forming the "tail" of the Boötes "kite." Continue westward to 4th-magnitude Alpha (α) Comae. M53 is less than 1° northeast of Alpha. Look for a round, hazy disk, like a small interstellar ball of cotton set in an attractive star field.

Coma Berenices is probably best known for its wealth of distant galaxies. Unfortunately, most are beyond the grasp of binoculars. One that stands out from the rest, however, is **M64**, the famous Black-Eye Galaxy. To find M64, slide about half a field due west of Alpha Comae to the reddish star 36 Comae, and then northwest to 35 Comae. M64 is just to 35 Comae's northeast.

Shining at 8th magnitude, M64 may just be glimpsed with 50-mm binoculars as an oval patch of light. If you are viewing through 20x80 or larger binoculars, you also might be able to catch the "black eye," a dark lane of dust clouds silhouetted in front of one of the galaxy's spiral arms. Interestingly, the "black eye" seems to mark a boundary separating two counter-rotating sections of the galaxy. Studies suggest that this bizarre situation is the aftermath of a collision between a small galaxy and a large galaxy, which is still in the process of settling down.

There is an interesting **asterism** of faint stars to the southwest of M64. They bear no physical relation to each other; instead, they just happen to lie along the same line of sight from our earthly perspective. I can't see any recognizable pattern among the stars of this asterism, so haven't given it a nickname. Still, it's a fun group to spot and enjoy.

M85 is one of the few galaxies belonging to the Coma-Virgo Realm of Galaxies that is bright enough to be visible through binoculars. Faintly visible through my 10x50 glasses from a rural observing site, it's a fairly easy catch in my 16x70 binoculars even from my light-polluted suburban yard. Look for a brighter stellar nucleus surrounded by a fainter halo.

Finally, start at Denebola and scan through your binoculars northeastward toward Alpha Comae. About a third of the way along, you'll come to a diamond of stars that, along with a couple of faint points to the south, remind me of a kite. Spiral galaxy **M99** is just south of the kite's tail. It glows dimly at 10th magnitude and is a tough test through binoculars. Can you spot it?

If you can, then try your luck with an even more challenging target. **M100**, another grand spiral, is rated a half magnitude brighter than M99, but that is misleading. Due to M100's larger apparent diameter, its surface brightness is quite low. Look for it just east of the kite. But be forewarned that both of these may require 70-mm or larger binoculars just to be suspected.

There are many more targets within this month's Binocular Universe, including several other member galaxies of the Coma-Virgo Realm that lie across the border in Virgo. How many can you find through your binoculars? The list below makes a great starting point.

Object	Con	Type	R.A. (2000)	Dec	Mag	Size/Sep/ Period	Notes
4631	CVn	Gx	12 42.1	+32 32	9.3	15'x3'	Sc
R	Com	Vr	12 4	+18 49	7.1-14.6	362.8 days	Long Period Variable
M99	Com	Gx	12 18.8	+14 25	9.8	5'	*TUB page 128* Sc NGC 4254
M100	Com	Gx	12 22.9	+15 49	9.4	7'x6'	*TUB page 128* Sc NGC 4321
Mel 111	Com	OC	12 25	+26 0	1.8	275'	*TUB page 128,129* Coma star cluster
M85	Com	Gx	12 25.4	+18 11	9.2	7'x5'	*TUB page 128-129* Ep NGC 4382
17	Com	**	12 28.9	+25 55	5.3,6.6	145"	*TUB page 128* 251°(1928);8568 (in Mel 111
M88	Com	Gx	12 32	+14 25	9.5	7'x4'	*TUB page 129* Sb+ NGC 4501
4559	Com	Gx	12 36	+27 58	9.9	10'x5'	Sc
4565	Com	Gx	12 36.3	+25 59	9.6	16'x3'	*TUB page 129-130* Sb
4725	Com	Gx	12 50.4	+25 30	9.2	11'x8'	SBb
32+33	Com	**	12 52.2	+17 4	6.3,6.7	95"	49°(1922)
M64	Com	Gx	12 56.7	+21 41	8.5	9'x5'	*TUB page 130* Sb- NGC 4826 Black-Eye Gal
M53	Com	GC	13 12.9	+18 10	7.7	13'	*TUB page 130* NGC 5024
4216	Vir	Gx	12 15.9	+13 9	10.0	8'x2'	Sb
M84	Vir	Gx	12 25.1	+12 53	9.3	5'x4'	*TUB page 255* NGC 4374 E1
M86	Vir	Gx	12 26.2	+12 57	9.2	7'x6'	*TUB page 255* NGC 4406 E3
M87	Vir	Gx	12 30.8	+12 24	8.6	7'	*TUB page 256* NGC 4486 E1
M89	Vir	Gx	12 35.7	+12 33	9.8	4'	*TUB page 256* NGC 4552 E0
M90	Vir	Gx	12 36.8	+13 10	9.5	9'x5'	*TUB page 256* NGC 4569 Sb+
M58	Vir	Gx	12 37.7	+11 49	9.8	5'x4'	*TUB page 256* NGC 4579 Sb
M59	Vir	Gx	12 42	+11 39	9.8	5'x3'	*TUB page 257* NGC 4621 E3
M60	Vir	Gx	12 43.7	+11 33	8.8	7'x6'	*TUB page 257* NGC 4649 E1

Until next month when we again meet under the stars, remember that for stargazing, two eyes are better than one.

About the Author:

Phil Harrington is a contributing editor to Astronomy magazine and author of 9 books on astronomy. Visit his web site at www.philharrington.net