

A Better Galaxy Guide: Part 2, Late Spring

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Those of you who enjoyed my first installment on this subject (in last month's issue) will, I hope, find this second part to be even better. Three constellations are covered on the accompanying list of recommended objects and two—Virgo and Coma Berenices—feature the grandest, richest assortment of galaxies bright enough to be seen in small-to-medium aperture instruments of all constellations in the sky, period. This “Virgo-Coma” cluster of galaxies is so crowded with objects that trying to “zero-in” on only the best among them can be a daunting challenge, but I've made it much simpler by listing (with very few exceptions) only the brightest and easiest to work with for your deep-sky hunting.

I observed and/or researched catalog data on nearly 35 galaxies in Virgo, 20 in Coma Berenices, and 15 in Canes Venatici in order to develop notes from which a much-reduced final number—suitable for this issue—could be culled. We don't have the space here to print my entire notebook listing, so be advised that what you see represents about the best of the best. Only four Messier galaxies are omitted: M58, M59, and M89 in Virgo, plus M98 in Coma Berenices. (Three of these are referenced in my “notes” section, so you won't miss them entirely.)

Regarding the notes that follow my list of 31 objects (most of them being galaxies): I chose to omit notes for the 8 objects in Canes Venatici, both to save space and because all of them are basically easy to find in a sky region much simpler to navigate around. Also, you'll see a column in the table showing page numbers in *Burnham's Celestial Handbook*. I hope many of you either already own this classic 3-volume set, or can obtain it somehow. Although some of the information in *Burnham's* is over 30 years out of date, the entries I've flagged in the Burnham's column will give you a wealth of information on things of greatest interest—if possible, reference this material. By the way, pairs of galaxies that lie close together on the sky are indicated by asterisks. You'll be able to observe a few such pairs using low power, wide

field eyepieces.

Many of my choices here can be seen in a 4-inch telescope and some are doable in 50mm or larger binoculars, but in general, I'd suggest using telescopes of 6-to-8 inch aperture, at least for the galaxies. If you don't own a scope of that size range, just pick-out

the brighter objects listed and use what you've got. In closing, you might find it advisable to take another look at my article in last month's issue. The introductory section explains why I chose to come up with these observing lists and also how they are planned. I hope you'll find my notes useful for star-

Object	Type	R.A.	Dec.	Mag.	Size	Burnham's
Virgo						
M61	Sp Gx	12h 21.9m	+04° 28'	9.7	6.0x5.6'	v3, p. 2089-91
*M84	El Gx	12h 25.1m	+12° 53'	9.2	5.1x4.3'	v3, p. 2091-92
*M86	El Gx	12h 26.2m	+12° 57'	9.1	9.7x6.5'	v3, p. 2091-92
M49	El Gx	12h 29.8m	+08° 00'	8.4	8.5x7.3'	v3, p. 2086
M87	El Gx	12h 30.8m	+12° 24'	8.6	7.2x6.9'	v3, p. 2092-96
M90	Sp Gx	12h 36.8m	+13° 10'	9.5	10.0x4.6'	v3, p. 2097
M104	Sp Gx	12h 40.0m	-11° 37'	8.2	8.0x4.2'	v3, p. 2097-2100
M60	El Gx	12h 43.7m	+11° 33'	8.8	7.2x6.1'	v3, p. 2088-89
NGC 4697	El Gx	12h 48.6m	-05° 48'	9.2	5.6x3.7'	
NGC 4699	Sp Gx	12h 49.0m	-08° 40'	9.5	4.1x3.0'	
*NGC 4754	Sp Gx	12h 52.3m	+11° 19'	10.6	4.6x2.6'	
*NGC 4762	Sp Gx	12h 52.9m	+11° 14'	10.3	8.9x1.9'	
Coma Berenices						
M99	Sp Gx	12h 18.8m	+14° 25'	9.8	5.0x4.5'	v2, p. 685
M100	Sp Gx	12h 22.9m	+15° 49'	9.4	6.5x5.8'	v2, p. 685-86
Mel 111	OC	12h 25.0m	+26° 00'		4.7°	v2, p. 668-73
M85	Ln Gx	12h 25.4m	+18° 11'	9.2	7.3x5.5'	v2, p. 678-80
NGC 4494	El Gx	12h 31.4m	+25° 47'	9.8	4.6x4.1'	
M88	Sp Gx	12h 32.0m	+14° 25'	9.5	6.6x3.5'	v2, p. 680-81
M91	Sp Gx	12h 35.4m	+14° 30'	10.2	5.2x4.3'	
NGC 4565	Sp Gx	12h 36.3m	+25° 59'	9.6	15.5x2.3'	v2, p. 688
NGC 4725	Sp Gx	12h 50.4m	+25° 30'	9.4	11.0x8.1'	
M64	Sp Gx	12h 56.7m	+21° 41'	8.5	9.2x5.1'	v2, p. 677-78
M53	GC	13h 12.9m	+18° 10'	7.6	12.5'	v2, p. 673-77
Canes Venatici						
M106	Sp Gx	12h 19.0m	+47° 18'	8.3	19.0x8.2'	
Y CVn	var red star	12h 45.1m	+45° 26'	5.0-6.5		v1, p. 361-63
M94	Sp Gx	12h 50.9m	+41° 07'	8.1	12.0x10.0'	v1, p. 377
α CVn	DS	12h 56.0m	+38° 19'	2.9,5.5	sep. 20"	v1, p. 359-60
M63	Sp Gx	13h 15.8m	+42° 02'	8.6	12.7x7.8'	v1, p. 373-77
*M51	Sp Gx	13h 29.9m	+47° 12'	8.4	10.0x7.2'	v1, p. 369-73
*NGC 5195	Ln Gx	13h 30.0m	+47° 16'	9.6	6.0x4.7'	v1, p. 371-73
M3	GC	13h 42.2m	+28° 23'	6.2	16'	v1, p. 363-67

Types: Sp Gx = Spiral Galaxy, El Gx = Elliptical Galaxy, Ln Gx = Lenticular Galaxy, OC = Open Cluster, GC = Globular Cluster, DS = Double Star, Var = Variable Star

hopping, too. (Double star enthusiasts will find some good information in the notes.)

Much has been written on the “Virgo-Coma” galaxy cluster and, to save space here, I’d recommend seeking out more information on this highly important “Realm of the Nebulae.” (Yes, Robert Burnham devotes a wonderful section to this galaxy group in his chapter on Virgo.) Are you ready to look 60 million light-years away?

Notes:

M61: Mid-way between the double star 17 Vir (mags 6.6, 9.4, sep 20”) and mag 5 16 Vir. 16 is halfway between Beta and Delta Vir, both about mag 3.5; M61 is 0.8° SSW of 17 Vir.

M84 & M86: Fine pair oriented W-E, separated by 1/4° and visible together in a low power, wide field view. Locate halfway between mag 2.1 Beta Leo (Denebola) and mag 2.8 Epsilon Vir (Vindemiatrix). M84 is W of M86.

M49: Second-brightest galaxy in Virgo. Located roughly slightly W of the middle of a triangle marked by mag 4.1 Omicron Vir (at W tip), Epsilon Vir (at E tip), and mag 3.4 Delta Vir (at SE tip).

M87: Famous giant elliptical galaxy having one to a few thousand globular clusters bound to it and a powerful jet of energy and matter blasting outward from its core beyond the halo; length of jet may be thousands of light years. M87 is found about 1.3° ESE of M84 & M86, and is also known as “Virgo A”.

M90: Located about 2.7° E of M84 & M86. Galaxy M89 (mag 9.8 but not listed here) lies about 0.6° to the SSW.

M104: This is Virgo’s brightest galaxy but it won’t seem so. It lies almost exactly on the border with Corvus and your star-hop should initially involve noting the prominent triangle marked by mag 3.0 Delta Corvi, Algorab, at the SW tip—this is an attractive double star with a mag 8.5 companion at 25” separation. Star Alpha Vir, Spica, mag 1.0, marks the E tip. The famous double star Gamma Vir, Porrima, mag 3.5, marks the N tip. (Porrima is a pair of mag 3.5 components currently separated by only about 0.75” and is therefore rather difficult to resolve for most amateur astronomers, even at very high powers.) M104

is well-known as the Sombrero Galaxy, so named for its remarkable appearance on images taken by very large telescopes—a conspicuous dust lane neatly bisects this galaxy in a striking manner. Finalize your star-hop by using the RA and Dec coordinates on a star atlas, but be sure to take note of the nice multiple star Struve 1664 (looks like a small arrow having 3 of its brightest members in a short, straight row) positioned only about 0.4° W of the galaxy. This “arrow” points E to M104 and a wide field view can show both.

M60: Located about 1.3° NNE of a wide pair of stars involving mag 6.2 27 Vir (at N end of pair) and mag 4.9 30 (Rho) Vir, which is the southern star of the pair. These stars are about ¼° apart. Galaxy M59 (mag 9.7 but not listed here) lies about 0.4° to the WNW; a dim NGC galaxy is paired closely with M60, just 3’ NW.

NGC 4697: Located just under 5° SSE of Gamma Vir, Porrima.

NGC 4699: Located slightly N of an imaginary line running from mag 4.7 Chi Vir ESE down to mag 4.8 Psi Vir. The galaxy lies a bit closer to Psi than Chi.

NGC 4754 & NGC 4762: A close pair of markedly different-shaped spirals separated by under ¼°, NGC 4754 lies WNW of NGC 4762. Find this pair about 2.3° WNW of Epsilon Vir, Vindemiatrix.

M99: Find mag 5.1 6 Com on star atlas; M99 lies about 0.8° to the SE. Galaxy M98 (mag 10.1 but not listed here) is even closer to 6 Com at just 0.5° due W of the star.

M100: Marks E “crook” of a coathanger-shaped triangle involving 6 Com at SW end and mag 4.7 11 Com at N end.

Mel 111: (Melotte Catalog listing) The so-called “Coma Star Cluster” is the third-closest such object to our own Sun and recent sources cite a distance of 288 light-years. (The center of the Hyades group in Taurus is figured to be 151 light-years from us.) On dark, clear nights you can spot this large, straggling group with naked eyes at a point mid-way between Beta Leo (Denebola) and Alpha CVn (Cor Caroli, a famous and easy double star). The large angular size of nearly 5° makes this a low-power binocular object only, and the lower the power the better. A very

wide field of view is critical for seeing this cluster in its entirety. The very wide double star 17 Com marks the E vertex of a roughly V-shaped arrangement which forms the main outline of the Coma Cluster; 17 Com is a pair of mag 5.2 & 6.6 stars separated by 146” and oriented E-W. You can use 17 Com to star-hop E to galaxy NGC 4494, just 0.5° away. The worthwhile double star 12 Com is also a member of this group and lies about 1.4° due W of 17, along the S side of the “V”. 12 Com is a pair of mag 4.8 & 8.6 stars separated by a generous 65”.

M85: Check star atlas and first find 11 Com, then go E by 3.5° to the fine double star 24 Com, a mag 5.1 & 6.6 pair separated by 20”. Note position of M85 just N of a line joining these two stars, 11 and 24 Com. A dimmer galaxy, NGC 4394, is paired rather closely with M85; it lies just 9’ to the E.

NGC 4494: See references to double star 17 Com in notes for Mel 111, the Coma Star Cluster.

M88 & M91: Check star atlas; plan star-hop initially by spotting Beta Leo and Epsilon Vir—these galaxies are NE of the mid-way point between the two stars.

NGC 4565: One of the most superb and classic “edge-on” galaxies, it is justly famous for its appearance on photos or CCD images. In fact, NGC 4565 may qualify as the first or second-best among such objects. Star-hop using an atlas—it lies about 1.7° due E of 17 Com.

NGC 4725: Star-hop from an atlas—it lies several degrees E of Mel 111, the Coma Cluster.

M64: The brightest galaxy in Coma Berenices is known as the “Black Eye” Galaxy and is easily found 0.9° NE of the mag 5.0 triple star 35 Com, which involves a very tight pair at 1.2” plus a third mag 9.5 member at 27” sep.

M53: I’d rank this as among the top dozen or so globular star clusters in (perhaps?) the entire sky, northern and southern hemispheres. However you rate M53, it’s a great object found very easily—just go 1° NE of mag 4.5 Alpha Com, an extremely tight binary pair which rapidly changes in separation. (Only you experienced double star observers stand the slightest chance!)