

Deep Sky Reports

The Galaxies of Orion

by Steve Gottlieb

Now wipe that silly grin off your face because I'm quite serious about this topic. Say the word "galaxies" and it's unlikely that Orion is going to come to mind. Most observers rightly think of Orion in terms of its beautiful emission, reflection, and dark nebulae, but it is also home to quite a number of faint galaxies and even some unexpected treats. So follow along and you'll discover there is much more to the Great Hunter than just M42 and the Horsehead Nebula. You won't find any of these objects plotted on Tirion's *Sky Atlas 2000.0* because they fall just below the magnitude cutoff. Instead, you'll need to use the more detailed *Uranometria 2000.0* as your guide. Most of my observations were made with a 13.1-inch Odyssey 1 at 144x and I later returned to pick up some of the fainter galaxies with my 17.5-inch f/4.4 Dobsonian operating at 220x. The best place to start hunting for galaxies is to the west of the galactic plane in the southwest portion of the constellation where Orion blends into the rich galaxy fields of Eridanus.

The barred spiral **NGC 1691** can be easily found 50' north of 8 Orionis (also known as Π^5 Orionis), a 4th-magnitude star. At 166x, it appeared faint and very small with either a bright stellar core (magnitude 12 to 13) or else a foreground star is superposed. Backtracking to 8 Orionis and moving 50' south brings you to a much fainter elliptical galaxy, **NGC 1690**. Dominating the field is a magnitude 6.6 star 7' to the southwest and several faint stars surround the galaxy, including one at the western edge. At B magnitude 15, this object was very dim in my 13-inch but held steadily with averted vision and appeared as a very small, round, featureless disk.

Just over 2° southeast you'll find a trio of faint galaxies. The brightest is **NGC 1713**, a fairly faint and small elliptical with a gradually brighter center surrounded by a faint halo. In 1854 Lord Rosse discovered a very faint companion located 2.7' west-northwest that was missed by both John and William Herschel. As **NGC 1709** is both dim and diminutive, it's easy to see why, but a 13th-magnitude star just 45" west can help pinpoint its location. Moving 20' northeast will bring you to **NGC 1719**. This faint spiral is also

very small yet clearly elongated east-west. Look for a faint star, magnitude 14 or 15, at the west end.

In the southwest corner of Orion, you'll find a group of six NGC galaxies located less than 2° east of Mu Eridani. **NGC 1670** was easy to see and hold steady with direct vision. Although small and round, it contains a brighter core and a magnitude 14 star is close southeast. Moving 28' east-northeast you'll come to **NGC 1678**, a slightly fainter oval galaxy with a small bright core. A brighter magnitude 12 star sits prominently just 40" to the west.

Travel 30' southeast and you'll arrive at a clump of four faint galaxies, **NGC 1682**, **NGC 1683**, **NGC 1684**, and **NGC 1685**. The brightest in the group, **NGC 1684**, appears as a fairly prominent oval oriented east-west with a large bright core. A magnitude 9 star 3' south highlights the field. Second brightest is the close neighbor **NGC 1682**, 3' to the west. Although fairly faint, it had a bright core and a stellar nucleus. The faintest member of the group, **NGC 1683**, is 5' further north. This dim, low surface brightness galaxy was found hiding among an elongated group of five magnitude 14 stars. Finally, **NGC 1685** is also located in the same field 5' to the northeast. Look for a slight elongation northwest-southeast and a magnitude 14 star off the southeast edge.

While you're here near the Eridanus border, let's locate **NGC 1661** to the northwest. This faint, small spiral appears roundish and contains a brighter core. Look for a line of four stars oriented east-west situated just 2' south. As a side trip, you can cross the Eridanus border just 20' to the west and take a peek at the pair of galaxies, **NGC 1654** and **NGC 1657**.

Now head back to the **NGC 1684** group and then turn your scope about 2° east-southeast. You'll come to a loosely knit trio whose brightest member is **NGC 1729**. In my 17.5-inch at 220x, it appeared elongated roughly north-south and was bracketed by an 11th-magnitude star off the east end and a 13th-magnitude star off the northwest side. About 25' east you'll find a similar galaxy, **NGC 1740**, which is elongated northeast-southwest and contains a small bright core. At the southwest edge is positioned a star between

12th and 13th magnitude. Finally, look just 10' east and you may glimpse the very dim **NGC 1753**. This galaxy required averted vision to see well and a close, faint double star, perhaps composed of magnitude 13 and 15 components, was visible 3' southeast.

If you now return to 8 Orionis, where we started, and then move 80' southeast, you'll come to the 4.5 magnitude star 10 Orionis. Another hop 50' east brings you to **ADS 3623**, a pleasing magnitude 6.5 and 7.7 duo with a separation of 14". **NGC 1762** can then easily be found by drifting 1.6' from this pair (or moving 24' due east). The drifting method works perfectly on altazimuth scopes and floating through my field was a faint, small oval galaxy, extended north-south with a magnitude 13 or 14 star attached at the east end. Another spiral, **NGC 1819**, is located 43' west of a magnitude 5.5 star about 4° northeast of **NGC 1762**. This small galaxy was elongated southeast-northwest (position angle 120°) and contained a noticeably brighter core.

Of course, no trip to Orion would be complete without a deep, long gaze at the breathtaking Orion Nebula, M42. Take your time but when you're done move your scope just 2° west for a big surprise — **NGC 1924**. I'm amazed that a fairly bright galaxy this close to M42 has not been mentioned often before. **NGC 1924** appeared moderately bright and large (the best of the Orion galaxies) with a slightly brighter core. It was bracketed by a magnitude 9 star 4' northwest and a magnitude 8 star 4' east. Next time you're gazing into the sword of Orion, take a look at this neglected galaxy.

The northeast portion of Orion flows into the dusty Milky Way where galaxies are generally blotted out from view but 4.5° north of Betelgeuse, you'll run across the solitary galaxy **NGC 2119**. As expected, the star fields are rich here but the galaxy was not too difficult to pick out in my 17.5-inch scope at 220x. A small oval oriented northwest-southeast with a bright core was visible and a 10th-magnitude field star was positioned 2' northeast.

For the last leg of our journey, head straight to Bellatrix (Gamma Orionis), the upper right star in the outline of the hunter. Just under 1° west-northwest you may pick up a very small, round

object catalogued as **NGC 1875**. A faint stellar nucleus was visible and a 14th-magnitude star could be seen about 1' west. I later noticed on the *POSS* that an interacting triplet of galaxies is located just southeast. Anyone want to give these a try?

We've now run across several small groups. Just over 1° west of NGC 1875 you'll run into a very different animal, a rich cluster of galaxies. First catalogued in 1957 by George Abell as number 539 in his list of 2712 galaxy clusters, its brightest members shine at only 15th magnitude (photographic). But this cluster is worth the effort because eight members were located in my 17.5-inch in one small field. None of these galaxies are listed in either the *NGC* or *IC* and so you'll need to refer to Zwicky's *Catalogue of Galaxies and Clusters of Galaxies (CGCG)* for identifications. The brightest member, **Z421-18**, is actually a triple system and is part of VV 161, a chain of five or six galaxies. With close scrutiny, I could resolve two objects, oriented north-south. In addition, several other nearby members of this chain were visible with averted vision. Search this field carefully, as these objects are quite small and dim and could be passed over for extremely faint stars even at moderate power.

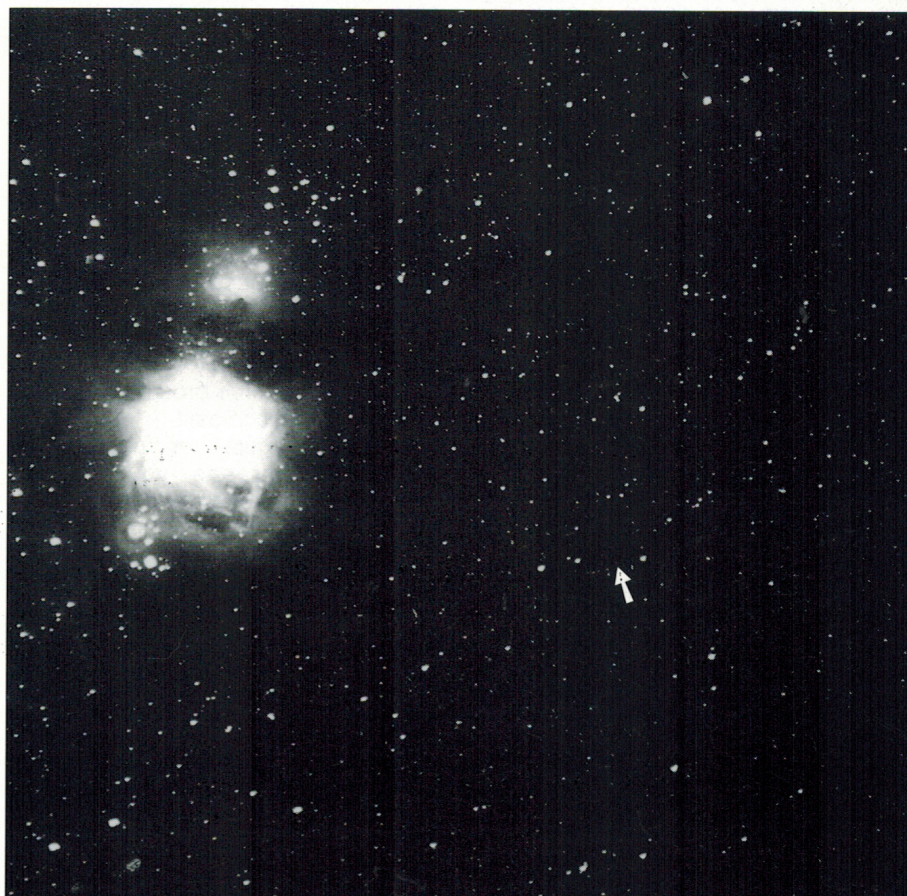
The next clear night you're observing, why not take a break from the usual fare of open clusters and nebulae along the winter Milky Way and head out into Orion for some galaxy hunting? I guarantee it will spice up your evening and if the transparency is good you should find success with most of these galaxies in a 10-inch or 12-inch scope.

Nearly all the information in the table is from the *Third Reference Catalogue of Bright Galaxies (RC3)* by Gérard de Vaucouleurs, Antonette de Vaucouleurs, Harold G. Corwin, Jr., Ronald J. Buta, Georges Paturel, and Pascal Fouqué (Springer-Verlag, New York, 1991). A few approximate sizes and magnitudes are from the *UGC*, *CGCG*, and *MCG*. The magnitudes are total B magnitudes; as you can see for the three objects with V magnitudes given in the last column, the visual magnitudes will typically be a magnitude brighter. There are still moderately faint, but all the objects have high surface brightnesses, making them relatively easy to pick up at high power. □

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Galaxies in Orion

Designation	R.A.(2000.0)Dec.	Type	Size	Mag.	Sfc.	P.A.	Chart
NGC 1661	4h47.1m -2°03'	SA(s)bc:II-III	1.4' by 0.9'	14.0	14.1	35°	224
NGC 1670	4h49.7m -2°46'	SA0 ⁰	2.1' by 1.0'	13.7	14.3	112°	224
NGC 1678	4h51.6m -2°37'	SA0 ⁰ ? pec	1.1' by 0.8'	14.2	13.8	110°	224
NGC 1683	4h52.3m -3°01'	—	—	—	—	—	224
NGC 1682	4h52.3m -3°06'	—	0.3'	14p	—	—	224
NGC 1684	4h52.5m -3°06'	E+: pec	2.5' by 1.7'	13p	—	—	224
NGC 1685	4h52.6m -2°57'	SB(r)0/a	1.3' by 0.9'	14.5p	—	—	224
NGC 1690	4h54.3m +1°38'	E:	1.0' by 0.3'	14.8	13.5	116°	224
NGC 1691	4h54.6m +3°16'	(R)SB(s)0/a:	1.7' by 1.5'	13.0	13.9	85°	224
NGC 1709	4h58.7m -0°29'	SB0 ⁰ :	0.9' by 0.7'	15.2	14.6	10°	224
NGC 1713	4h58.9m -0°29'	E+:	1.4' by 1.2'	13.7	14.3	—	224 (V=12.6)
NGC 1719	4h59.6m -0°16'	Sa: sp	1.1' by 0.3'	14.5	13.2	102°	224
NGC 1729	5h00.3m -3°21'	SA(s)c I-II	1.6' by 1.3'	13p	—	150°	224
NGC 1740	5h01.9m -3°18'	S0-:	1.5' by 1.2'	15p	—	125°	224
NGC 1753	5h02.5m -3°21'	(R')SBa? pec	1.4' by 0.6'	15.5p	—	15°	224
NGC 1762	5h03.6m +1°34'	SA(rs)c: II	1.7' by 1.1'	13.3	13.9	175°	224 (V=12.6)
NGC 1819	5h11.8m +5°12'	SB0	1.7' by 1.2'	13.4	14.0	120°	225
NGC 1843	5h14.1m -10°38'	SAB(s)cd: II-III	1.6' by 1.2'	13.3	13.8	50°	270
Z421-15	5h16.3m +6°26'	—	—	15.5z	—	—	180
Z421-16	5h16.5m +6°23'	—	—	15.6z	—	—	180
Z421-17	5h16.6m +6°30'	—	—	15.6z	—	—	180
Anon	5h16.6m +6°29'	—	—	16:p	—	—	180
Z421-18a	5h16.7m +6°26'	—	—	15.1z	—	—	180
Z421-18b	5h16.7m +6°26'	—	—	15.1z	—	—	180
Anon	5h16.8m +6°29'	—	—	16:p	—	—	180
Z421-19	5h17.0m +6°33'	—	—	15.6z	—	—	180
NGC 1875	5h21.8m +6°41'	Sa0-:	1.6' by 0.4'	14.6	14.1	—	180
NGC 1924	5h27.9m -5°19'	SB(r)bc II-III	1.6' by 1.2'	13.3	13.8	50°	225 (V=12.5)
NGC 2110	5h52.2m -7°27'	Sa0-	1.7' by 1.3'	—	—	20°	271
NGC 2119	5h57.4m +11°57'	E	(1.2' by 1.0')	15:p	—	—	181



Did you know about the bright galaxy NGC 1924, an object located just 2° west of the Orion Nebula? Jack Marling's photo shows the galaxy's position (arrow). Exposure data: 200mm f/2.8 lens, hypersensitized Tech Pan film, hydrogen-alpha filter, 40-minute exposure.