



Deepsky Delights

by Magda Streicher

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Treasures of Orion

Not only is the end of the year a time for reflection, it is also a time to share and welcome in the New Year with friends. When Orion rises in the east this time of year it truly feels like an old friend's visit

with a bag full of treasures. Orion has it all: various objects, all types of nebulae, and many surprises. This is also the constellation which I share the most with dear astronomy friends. So let me walk with you down memory lane on the arm of the Hunter friend.

What more can be said about the great **Orion Nebula (Messier 42)**, a grand naked-eye object in the sky's greatest constellation? Almost 40 light years in di-

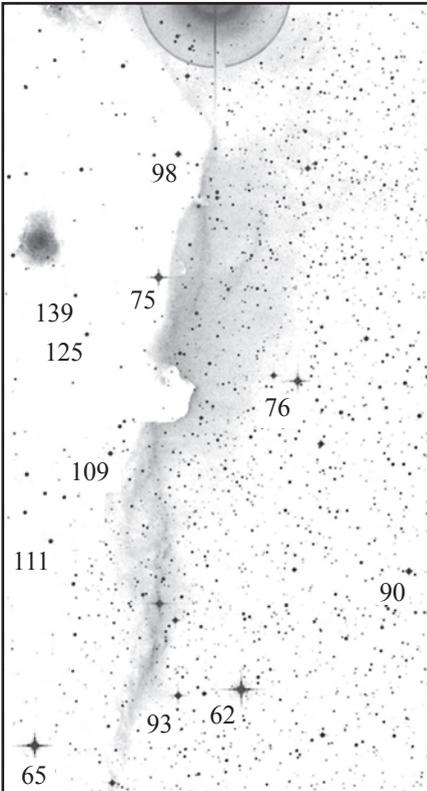


ameter, the nebula bathes in the light of the Trapezium, a group of stars including Theta Orionis. Here we see an emerging stellar embryo cradled in a soft womb of nebulosity. Steve O'Meara, award-winning visual observer and astronomy

popularizer, remembers many winter nights walking across snow-laden fields to see this nebula, in the middle of Orion's sword, looking like angel's breath against a frosted sky.

Slightly more than one degree south-southeast of M42 nestles the reflecting nebula **NGC 1999**. The annular form of this gaseous cloud can easily be mistaken for a planetary nebula. A 12-inch telescope shows a 10.8 mag star in nebulosity expanding slightly towards the north, giving the star an off-centre appearance. Careful observation brings out the slightly darker patch embedded in this nebula's northern edge. I took up my friend Derck's challenge to look out for bow shocks, stellar jets, or stars fainter than 14th magnitude at indicated positions around NGC 1999. To have a professor of astronomy as a friend is one thing, to discuss the Herbig-Haro objects with him another.

I think in every serious amateur's mind the elusive dark nebula the "Horse Head" lingers not only as a thought but a positive dream to come true. Year after year I spend countless hours searching for the dark horse from sunset to sunrise with various eyepieces and a million different techniques. This small dark nebula, also known as **Barnard 33**, is silhouetted against the soft emission glow of **IC 434**, which extends south from Zeta Orionis. My ultimate dream eventually came true in the summer of 2004. It is just not possible to describe the feeling of delight when I glimpsed the dark shaded figure coming in and out of view against the IC 343 glow with averted vision. The



(opposite page) A one-degree field, north up and east left, centred on the Horse Head. The bright star flaring off the northern edge is Alnitak (Zeta Orionis), the eastern-most Belt Star. The diagram above shows stars labelled with visual magnitudes with decimal points omitted for clarity. The images were retrieved from the Digitized Sky Survey, © 1993-1995 California Institute of Technology.

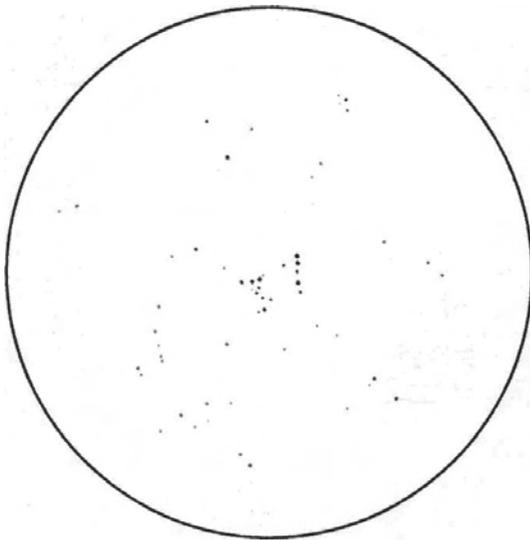
secret is that the constellation should be high up in a dark sky, you need to use a detailed sky map and low magnification, and make sure your eyes are well dark-adapted. A hydrogen-beta filter works well on this nebula and did the trick for me. Tim Cooper, a dear friend and working partner with whom I've been sharing deep sky, comets and meteors since my early astronomy days, was visiting me at the time. Needless to say I introduced the Horse Head with great fanfare to him, waiting anxiously to share in the joy when he acknowledged the sighting of this wonderful rare object.

Nebulosity in this constellation is well presented, and comes in a variation of sorts. Observing partner Mary

FitzGerald and I spent endless hours before seeing **Barnard's Loop** (formed by ionized wind) on our way to M78 a mere 2° northeast of Alnitak. When this well-informed deep sky observer, who has walked the astronomy road with me over many years, joins me for a star gazing evening I usually love to surprise her with a deep sky delight.

Messier 78 (NGC 2068), an emission and reflection nebula, appears as a diffuse glow with a strong core. The southeast flimsy side breezes away from the nebula with a well-defined north-north western edge. What makes this object striking and one to remember are the two 10th magnitude stars embedded in it, which gives the impression of a ghost staring back at you (12-inch, 95x). American amateur astronomer and skilled observer Jay McNeil recently noticed that some images of the M78 region contained a new nebula.

Orion also hosts a few galaxies and I fondly remember showing the surprise to fellow observers Dave Gordon and Mary FitzGerald one night while the mosquitoes were competing for a spot to draw blood. Draw an imagery line from M78 north-west to Bellatrix, the shoulder star of Orion, and continue on the same distance and make a triangle to the south west to **NGC 1762**. The galaxy displays a soft round glow with a strong star-like



NGC 2169, "Cluster 37" in Orion, sketched by Magda Streicher using a 12-inch SCT at 95x. North is up, east to the left and the field of view is about 38 arcminutes across.

nucleus. The softer outer envelope extends slightly further to the northwest.

Orion contains more bright stars than any other constellation and within its boundaries lies Betelgeuse, one of the most outstanding red giant stars known.

NGC 2180 became the first cluster in Orion I laid eyes on through a telescope. Look for it midway between Betelgeuse and Epsilon Monocerotis. Here, the 7th magnitude star HD 42203 lies in the cluster centre, with an offspring of stars swinging westwards. The grouping is slightly elongated in a north-south direction. The western side is busy with members, and obviously cut down with starlight on the eastern periphery. My immediate thought was that it bore a strong resemblance to a golf putter (12-inch, 95x).

The planetary nebula **NGC 2022** is situated two-thirds of the way from Betelgeuse in the direction of Meissa, the head star of the Hunter. I was fortunate to observe this gray-green smoke ring from the northern hemisphere. It is slightly elongated in a north-northeast to south-southwest direction and is slight-

ly darker towards the middle (12-inch, 200x). Faint stars to the north of the nebula, in the shape of a miniature dipper, will always remind me of the constellation Ursa Major and my northern astronomy friends.

Living up to one's fame is sometimes not easy, but if there is one cluster that deserves full credit it can only be **NGC 2169** ("Cluster 37") situated in the club held in the Hunter's raised northeast arm. Seventeen various magnitude stars clearly form the number 37, although up-side down for us in the southern hemisphere. One group of stars, to the southeast, make the number "3", while the northwest group forms the "7". This asterism is a treasure trove among a star-sprinkled field. Auke Slotegraaf introduced me to this bright, square-shaped, loose cluster years ago when he sent out a circular. Thanks Auke, not only are you our deep sky director, you have become a close friend always willing to answer and unravel all our various astronomy questions. Astronomy friends, go seek out Orion, this Mighty Hunter has a great deal to offer!

Object	Type	RA (J2000.0)	Dec	mag	size
NGC 1762, PGC 16654	galaxy	05 ^h 03.6 ^m	+01°34'	13.5	1.8'x1.1'
Barnard's Loop, Sh 2-276	bright neb	05 20	-04 00	-	6.5°x40'
NGC 1976, Messier 42	bright neb	05 35.5	-05 28	3.7	90'x60'
NGC 1999, IC 427-8	bright neb	05 36.4	-06 43	10	2'x2'
IC 434, Sh 2-277	bright neb	05 40.7	-02 27	-	2°x30'
Barnard 33, Horse Head	dark neb	05 41.1	-02 27	-	6'x5'
NGC 2022, PN G196.6-10.9	planetary neb	05 42.1	+09 05	11.9	28"x27"
NGC 2068, Messier 78	bright neb	05 46.8	+00 04	8.0	8'x6'
NGC 2169, "Cluster 37"	open cluster	06 08.4	+13 58	5.9	6'
NGC 2180	asterism?	06 09.5	+04 45	9.0	6'