Ophiuchus, the Herb Healer

by Magda Streicher
magdalena@mweb.co.za

Image source: Stellarium.org

Ophiuchus is one of these shady constellations that bring a feeling of mystique to the observer. Ophiuchus the Serpent Bearer was known in ancient times as the herb healer, but there is also a thought that the constellation was named after a Polish king. However, popular largely because the star formation is very large – eleventh in size out of the 88 constellations and home too many globular clusters. If you have to look for globular clusters in just about all the categories then Ophiuchus offers quite a variety. But it is also a constellation with a few surprises apart from being a globular home town. Let's explore this out-of-the-ordinary constellation which is perhaps neglected to some extent because of famous neighbours. *(It should also be one of the Zodiac constellations! - Ed)*

It is appropriate to start an article about this globular-rich constellation with a description of the globular cluster **NGC 6218**, also known as Messier 12, which is located towards the western part of the constellation, approximately 8° east of magnitude 2.7 delta Ophiuchi. NGC 6218 is a beautiful, bright globular cluster that is well resolved with varied-magnitude stars. The small core is special in the way that it is very dense when compared with other globular clusters in Ophiuchus. Clear star strings dance out from the dense core, with two outstanding short strings on the western edge of the cluster. With higher magnification a slight haziness towards the north-west indicates a few faint stars, which could explain the somewhat oval appearance. In the field of view towards the east of the globular cluster are a few bright stars arranged in a sort off square shape. Charles Messier discovered this beautiful object on the night of 30 May 1764.

The near twin neighbour, **NGC 6254**, also known as Messier 10, is situated 3.5° south-east of NGC 6218. NGC 6254 is a lovely star-rich globular cluster which displays a flimsy edge. The inner tight core is relatively large, bright and slightly oval in shape. Faint stars dotted the surface with a few dark and open patches in between. Higher magnification reveals an outer tenuous edge with a few dainty strings which seem to becoming busier with starlight towards the southern edge. It is an outstanding object that displays a handful of yellow stars in the glittering stardust.

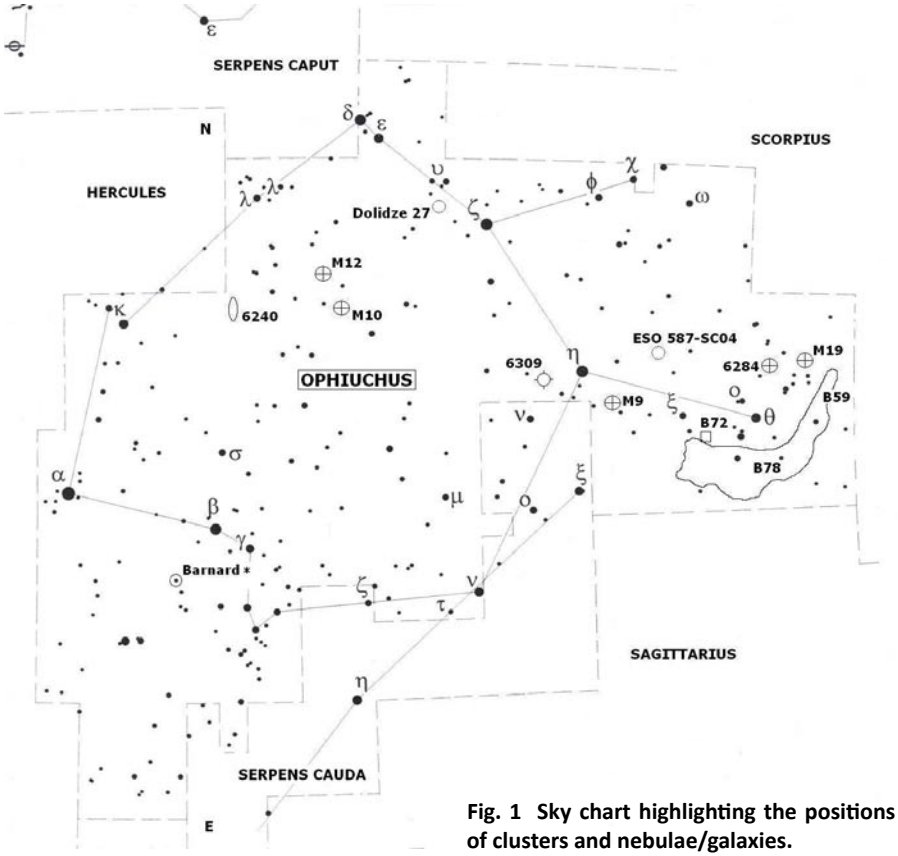

Fig. 1 Sky chart highlighting the positions of clusters and nebulae/galaxies.

Situated 4.5° north of NGC 6218 is the galaxy **NGC 6240**. Although this is only a very faint haze in a slightly north to south direction it is also a very interesting object. The Hubble picture of this galaxy displays a massive face-on spiral with looping arms and with what appears to be a double nucleus, the result of a collision between two progenitor galaxies. The shape reminds one of a butterfly familiar to planetary nebulae.

The magnitude 9.5 star TYC (4252502), better known as **BARNARD'S STAR**, was measured by Barnard in 1916. This famous star is situated 3.5° east of magnitude 2.7 beta Ophiuchi in the north-eastern part of the constellation. According to Wolfgang Steinicke, Barnard published a chart, made in June 1816, where his fast-moving star is marked by an arrow. The high proper motion of this magnitude 9.5 dwarf star, which could be 11 to 12 billion years old, is situated only

5.96 light years away, second to the alpha Centauri system. An arrow-head asterism in the western field of view points the way towards Barnard's star. The author observed the star's motion from 2003 to June 2010 and found its movement to be about 1.2′ in a 354° direction.

The magnitude 2.4 eta Ophiuchi points the way 3° north to the planetary nebula **NGC 6309**. An observer's first response on seeing it would be, "What a special sight." A lovely uneven glow with woolly edges sometimes referred to as the Box Nebula. One's first impression is that of an out-of-focus double star, but higher magnification and close investigation shows a magnitude 11 star on the northern rim of the planetary nebula. The slightly washed-out grey planetary nebula revealed a more defined south-south-eastern side.

The constellation Ophiuchus also has within its borders a few open clusters, which we do not expect to find there; one such object is **DOLIDZE 27**, situated in a triangle north with magnitude 2.5 zeta and magnitude 4.6 eta Ophiuchi in the south-western part of the constellation. The cluster displays only a few widely spaced stars in an east to west direction. Part of the cluster is four members visible in an uneven line towards the western part. The brightest star situated north in this group is the magnitude 6.8 (HD 149662). Most of the stars in this group display a yellow to deep orange colour.

Georgian astronomer Madonna V Dolidze concentrated on surveying emission-line stars, red stars and other objects from the late 1950s through to well into the 1970s. Most of her work was done using objective-prism plates with the Abastumani 70-cm Maksutov telescope, and star groups were reported only incidentally from these surveys.

The cluster **ESO 587-SC04** is situated further south and halfway along the western side of the leg between theta and eta Ophiuchi. The group displays five stars that vary between magnitude 11 and 13 in close proximity. They are mostly yellow to deep orange in a diamond cross shape with a possibly faint double star towards the middle area. Fainter stars flow away into the western part of the field of view.

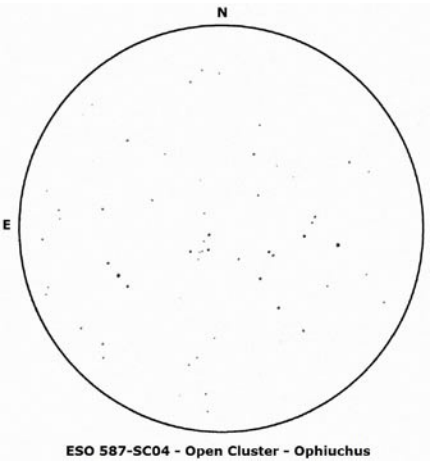

Fig. 2 This cluster displays a close group of five yellowish stars.

The rho Ophiuchi region situated in the south-western corner of the constellation stretches into the neighbouring Scorpius and is surely one of the most outstanding parts of the Milky Way. Different types of objects reside in this cloud of nebulosity and are definitely worth a mention.

Well into the southern part of the constellation are a whole bunch of globular clusters situated close to one another. **NGC 6284** found its home 4° west of the magnitude 3.5 theta Ophiuchi and half-way to the constellation Scorpius border. Not all globular clusters are bright, large or rich in stars, and NGC 6284 displays only a small, faint puff of light. With the utmost care and high magnification few specks of starlight can be seen in the soft outer edge. The object creates in one a very strong sense of the truly enormous distance between the deep starry skies and the eye of the observer. It is striking that the star field to the north-west of this globular cluster is generously scattered with stars, in contrast with the relatively bare south-eastern star field. William Herschel discovered this object in 1785.

Barely 1.5° south is **NGC 6273**, also known as Messier 19, and by contrast a typical, rich globular cluster with a pleasant character. It brings along a special feeling with its frosted, concentrated look and the impression of a fleecy, speckled edge as if the faint stars are being blown away in a breeze. Higher magnification reveals an unusual star-like core slightly

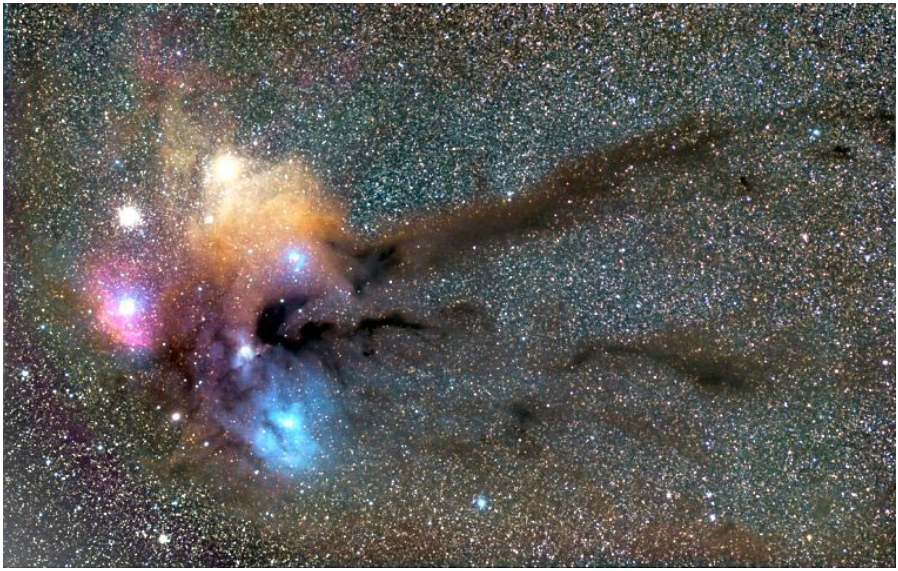

Fig. 3 Rho Ophiucus is one of the most unmistakable and colourful nebula in the sky. Photo credit: Dieter Willasch.

Fig. 4 The Snake Nebula, officially known as B72 or LDN 66. The clearly S-shaped dust lane is on the northern edge of B78. Photo credit: Dieter Willasch.

off centre, the reason for the elongated north-south direction. In shape NGC 6273 gives the impression of being one of the largest ovals as far as globular clusters are concerned and almost appears to double in size with averted vision. Several long chains of faint stars can be seen, and more so towards the north-western part of the globular cluster. The object was discovered by William Herschel on the night of 5 June 1764.

Several dark nebulae can be seen in the constellation, but as we know by now, light pollution stops us from seeing many wonderful objects, which can be found only in ideal dark star-filled night sky conditions. Ophiuchus is famous for a number of well-known dark nebulae discovered by Edward Emerson Barnard. He used wide-field lenses and the 24-inch Bruce telescope to take superb photographs of the Milky Way. They showed dark cloud structures, rifts and holes where there were only few stars visible. Perhaps one of the best known is **B59**, better known as The Pipe Nebula, with the stem of the pipe in an area 1.8° south of magnitude 3.2 theta Ophiuchi. Adjacent north-east is **B78**, which can be seen as the larger dark area also known as the bowl of the pipe. The two objects also go under the names of LDN 1773 and LDN 42 in the *Lynd's Dark Catalogue*.

Another very impressive dark nebula regularly seen on photographs is **B72**, or LDN 66, more popularly known as The Snake Nebula. This clearly defined S-shaped dust lane is situated on the northern edge of B78. The whole area is about 7° in extent. The best way to observe it is to use binoculars for the dark areas, but a dark and transparent sky is definitely a prerequisite.

Just 3.5° south-east of magnitude 2.4 eta Ophiuchi **NGC 6333**, or Messier 9, can be found, with perhaps a nice tale to reveal. This globular is bright, large and roundish in shape with a large, even bright core, but not star-like. The core of the object is not round, but displays a somewhat uneven shape. With careful observation faint stardust can be seen scattered on this round haze of light. High magnification brings to the fore faint stars

loosely gathered towards the fringy and grainy edge. A short string of four stars swings out on the western edge of the globular cluster (see sketch). The dark nebula B64 is situated a few arc-minutes away towards the western field of view. On the night of 1 May 1935, Cyril Jackson discovered his first comet (Comet C/1935 M1) barely 12′ south of NGC 6333 at RA: 17h19m3, DEC: -18° 42′. It can be assumed with reasonable certainty that Jackson was observing M 9 when he discovered the comet.

In April 1929 Jackson discovered his first minor planet, which he called Catriona, a remarkably productive career followed during which he discovered 72 new minor planets. Apart from Comet C/1935 M1, he discovered two more comets known as 58P Jackson-Neujmin and comet 47P Ashbrook-Jackson.

A night sky filled with starry splendor brings with it a feast of satisfaction and a veritable healing for the weary soul, without medication from the herb doctor ... or so we hope! ☆

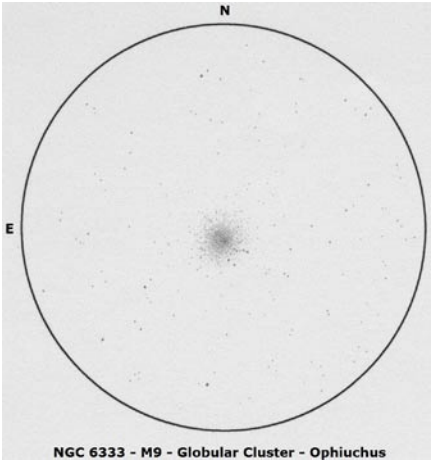

Fig. 5 This globular cluster, NGC 6333 also known as M9 has an asymmetric core.

Object	Type	RA (J2000.0)	Dec	Mag	Size
DOLIDZE 27	Open Cluster	16^h36^m5	-08°56′	7	25′
NGC 6218 - M12	Globular Cluster	16 47 2	-01 58	6.8	14.5′
NGC 6240	Galaxy	16 53 0	+02 24	12.9	2.0′x0.8′
NGC 6254 - M10	Globular Cluster	16 57 1	-04 06	6.6	15.1′
NGC 6273 - M19	Globular Cluster	17 02 6	-26 16	6.7	13.5′
ESO 587-SC04	Open Cluster	17 04 4	-19 27	11	2.5′
NGC 6284	Globular Cluster	17 04 5	-24 47	8.9	5.6′
B 57	Dark Nebula	17 08 3	-22 50	6	5′
NGC 6309	Planetary Nebula	17 14 1	-12 55	10.8	16″
NGC 6333 - M9	Globular Cluster	17 19 2	-18 31	7.6	9.3′
B 78	Dark Nebula	17 21 1	-26 47	6	-
B 72	Dark Nebula	17 23 5	-23 38	6	4′
BARNARD'S STAR	Star	17 57 8	+04 44	9.5	-