

## The Messier globulars of Hercules

Despite being the greatest hero of ancient Greece, Hercules is in the sky with a rather insignificant constellation. Only a couple of stars are brighter than 3rd magnitude and the majority are closer to mag 4. This often causes newcomers difficulty in locating Hercules, particularly from a dark site where many more stars are visible and the constellation outline tends to disappear into the stellar background.

The most prominent part of Hercules is undoubtedly the central region known as the Keystone, delineated by the stars Pi, Eta, Zeta and Epsilon. Zeta, like many of the stars in Hercules, is a double star – a yellow subgiant with an orange dwarf companion (although some references call them yellow and green). Probably the best double star for small telescopes, and also one of the most beautiful, is Alpha Her, which lies in the extreme south of the constellation close to the border with Ophiuchus. Consisting of an orange-red primary with an apple-green companion the colours are, unfortunately, lost on the Director who is red-green colour blind! The brighter of these two stars is also a semi-regular variable, discovered by Sir William Herschel in 1795. It ranges in brightness from 3rd to nearly 4th magnitude over a period of about ninety days.

Although Hercules may lack bright stars, it makes up for it in deep sky objects, containing two of the best globular clusters in the northern sky, M13 and M92. M13, often known as the Great Northern Globular, is easy to locate. At position RA 6h 41.7m and Dec. +36° 27.6' (2000.0), it lies one-third of the way down the western side of the Keystone from Eta to Zeta. Just visible to the naked eye

from a dark site as a hazy spot, it is said to have been discovered by Edmund Halley in 1714 – although as with any naked eye object it is impossible to determine who first saw it. Halley wrote '...this is but a little patch, but it shews itself to the naked eye, when the sky is serene and the Moon absent.' Charles Messier observed it on 1764 June 01. He reported it as '...a nebula which I am sure contains no star. Round and brilliant: centre brighter than the edges.' We now know that Messier was wrong. Globular clusters are giant stellar balls containing probably hundreds of thousands of very old stars, and are distributed in a halo around the Galaxy. About 150 are known in the Milky Way and many have been identified in other galaxies.

If M13 is a difficult naked eye object in urban skies, it shows up well in binoculars as a concentrated hazy ball – probably similar to how Messier saw it. A 150 or 200mm telescope shows it very well as the power is increased, but a 250 to 350mm telescope is really needed to turn it into a brilliant sparkling globe: the view through a large telescope can make it seem almost 3-dimensional. At high power M13 does not appear round; I always find it flatter on its northern edge. As with many globular clusters the stars also appear to be arranged in chains with extended 'legs' of stars coming away from the main bulk of the cluster. Some people also see a Y- or propeller-shaped star-poor region in the core of the cluster. These effects are much more noticeable visually than in photographs, so are possibly due to the eye/brain combination forming patterns where none really exist. M13 is a relatively concentrated globular with a Shapley–Sawyer classification of

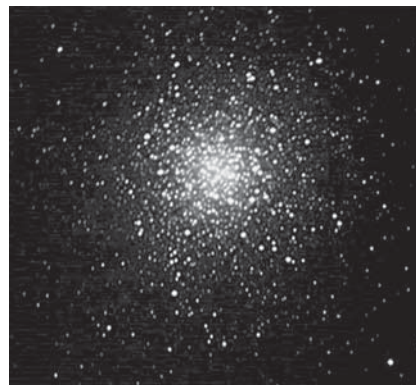


Image of M13 by Nigel Bryant, Uddington, Glasgow. 300mm Meade LX200 GPS SCT with Atik focal reducer. 6x5 minute stacked images, Starlight Xpress MX7C CCD camera and IDAS light pollution filter. Processed with Astro Art 3 and Photoshop 6.

V. In this system, class I are the densest clusters and class XII the most open.

An image of M13 taken by Nigel Bryant with his 300mm SCT is shown above. This clearly shows the condensed core and 'legs' of stars radiating outwards. If you are observing M13 through a reasonable size telescope, nudge it just under half a degree to the north-east and the 11th magnitude galaxy NGC 6207 should pop into view. Appearing about 1.5x0.5 arcminutes in size, NGC 6207 lies around 46 million light years distant – about 2,000 times further away than the cluster. In a wide field eyepiece the galaxy and cluster, along with many 10th and 12th magnitude field stars, makes a dramatic visual impression.

Also residing in Hercules is the globular cluster M92 at position RA 17h 17.12m and Dec. +43° 8.2' (2000.0). Often overlooked because of its more illustrious neighbour, this is nevertheless a very fine object and deserves to be observed more. Appearing slightly more condensed and considerably smaller than M13, it is a class IV object 14 arcsec in diameter. It was discovered by the German astronomer Johan Bode (of Bode's Law fame) in December 1777. Charles Messier observed it on 1781 March 18 and remarked that it '...resembled the nucleus of a large comet.'

Although M92 is well away from the main Keystone stars, they still form a useful aid to locating the cluster for people without GoTo telescopes. Continuing the line forming the eastern side of the Keystone from Epsilon to Pi upwards by the distance between these two stars (6.5°) and then moving westwards by the same amount that Epsilon is west of Pi (3°) will lead straight to the cluster. This is far easier to do than to describe, as a glance at a star map will show.

Visually the core of M92 appears much more concentrated than that of M13, and much more so than its official classification would suggest. I also find the distribution of

## A digital camera image of the Triesnecker area



It is not often that circumstances combine to produce ideal conditions for observation. On the evening of 2006 April 5, I was observing the Moon through my 16.5-inch [420mm] telescope and was surprised to see that the atmosphere was particularly steady. The lighting conditions on the Moon were also ideal around the area of the crater Triesnecker, revealing considerable detail in the extensive cleft system. Accordingly I took a series of images using an ordinary digital camera, a Canon Powershot, taking them afocally through the eyepiece. Subsequent examination of the images revealed that much of the observed detail was recorded.

Doug Daniels



Campaign for Dark Skies

## Join CfDS at the Sixth European Dark-Skies Symposium

On Friday September 15 and Saturday September 16 this year, the BAA Campaign for Dark Skies will host the Sixth European Dark-Skies Symposium in Portsmouth. The venue will be the Royal Sailors' Home Club, a splendidly outfitted building close to Nelson's *Victory*. CfDS committee members have been working for many months with Pete Seiden, the venue organiser, to ensure that this will be a first-class event, with experts from Britain and abroad discussing many aspects of the subject of light pollution, in comfortable and well-equipped surroundings. Both the BAA and Abacus Ltd have offered valuable sponsorship for the event, and there will be displays of astronomical and technical material connected with the theme.

Earlier dark-sky symposia have been held in Venice, Lucerne, Stuttgart, Paris and Genk (Belgium). These gatherings provide an opportunity for dark-sky campaigners from many countries, not just in Europe, to meet and discuss strategies, and for other interested parties to investigate light pollution, a subject whose profile climbs ever higher on the environmental agenda as time passes. Delegates will include astronomers, bringing themselves up to date with the latest developments in the battle for better skies; professionals involved in the manufacture, selection and installation of exterior lighting, ready to debate further the issues surrounding its misuse; and members of the legal and administrative communities, who have to deal with the continuing progress of legislation in the field. Although amateur astronomers will find much to interest and, it is hoped, inspire them at this Symposium, CfDS' aim is not just to preach to the converted. It is to

attract anyone concerned with good lighting practice, and safeguarding the environment, who wishes to find out more about the issue. Top-class speakers from many disciplines will air the environmental, legal and moral aspects of light pollution.

The opening session of the two-day symposium will be chaired by Lembit Öpik MP. Mr Öpik takes a great interest in many aspects of astronomy: for example, his voice is always among the first to be heard in parliamentary discussions of the possible hazards to this planet

posed by near-Earth objects. He is the grandson of Estonian astronomer Ernst Julius Öpik (1893–1985), who spent many years at the Armagh Observatory, and is best known for his work on statistical studies of meteors, comets, and asteroids.

This first day will focus on the mechanisms of light pollution, and its technical, social and environmental aspects. Speakers will include Dr John Mason (BAA, CfDS, South Downs Planetarium), Michael Simpson (past President of the Institution of Lighting Engi-



A pristine night sky over Dorset (photo: Bob Mizon).

neers) and Dr Chris Baddiley, who has just completed a technical overview of the mechanisms of skyglow which has been published in the lighting industry press.

The second day deals with the astronomical side of the problem: David Crawford and Bob Gent of the International Dark-Sky Association (USA) will open the proceedings, and among other speakers are astrophotographer Philip Perkins ([www.astrocruise.com](http://www.astrocruise.com)), Martin Morgan Taylor (BAA council, CfDS) and representatives of dark-sky movements in other European countries. Part of the day's proceedings

will be chaired by indefatigable Belgian campaigner Friedel Pas, whose Werkgroep Lichthinder (Light Pollution Committee) has done so much to alert Belgians to the value of what so many of them have lost.

The closing remarks on the second day will come from Robert Key MP, another parliamentarian who speaks for the stars. Mr Key was a forthright and valuable member of the House of Commons Science and Technology Select Committee which strongly supported CfDS' efforts in 2003, and whose deliberations were largely responsible for the limited though welcome legislation on poor-quality lighting in the Clean Neighbourhoods Act of April 2005.

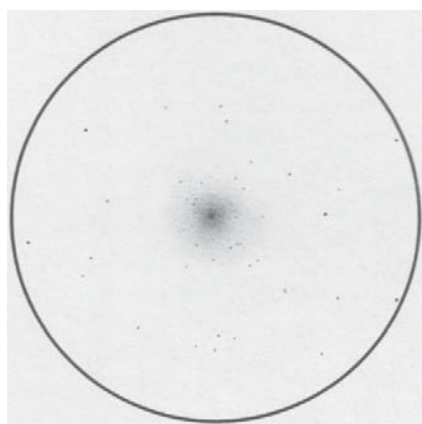
Other attractions associated with the two-day event include trips to Hampshire Astronomical Group's Clanfield Observatories, and the South Downs Planetarium at Chichester. Outings will also be arranged to sites of local interest such as the new Spinnaker Tower and the Historic Dockyard.

Entry to the Symposium is by ticket only, and attendance fees for individuals not representing professional organisations are £3.00 per day or £5.00 for two days, with additional charges for the above-mentioned trips. An application form is available by e-mail from [cfds@nightlife.demon.co.uk](mailto:cfds@nightlife.demon.co.uk), or by post from Pete Seiden, 31 Paignton Avenue, Portsmouth PO3 6LL.

For all information see the link on the first page of [www.dark-skies.org](http://www.dark-skies.org)

**Bob Mizon**, Co-ordinator, BAA Campaign for Dark Skies

▶ stars outside the core of the cluster much more uniform than with M13. As these two



Drawing of M92 by Lee Macdonald, Newbury, Berkshire. 222mm f5.0 Newtonian,  $\times 107$ . Field size 26 arcmin. South up.

clusters are relatively close together in the sky, an interesting exercise, certainly for binocular observers or the owners of easily moved Dobsonian telescopes, is to switch quickly between them noting how they compare. A sketch of M92 by Lee Macdonald with a 222mm f5 Newtonian is given here. Lee commented that the cluster appeared slightly elongated northeast–southwest at  $\times 54$  and  $\times 107$ . Stars were resolvable, even to the core at  $\times 268$ . The outer regions showed a scattering of bright easily resolvable stars and a mass of very faint ones, many of them an unresolved glow.

Both clusters are currently well positioned in the June sky with Hercules almost overhead around midnight. So, when the sky is serene and the Moon absent, do have a look at them.

**Stewart L. Moore**, Director, Deep Sky Section