
Skyguide

2020 - I

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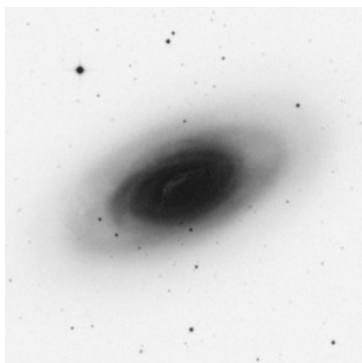
Skyguide - A Short Introduction

The Skyguide should mainly give you some suggestions for own observations and will briefly describe 5 objects annually for every season. It contains easy as well as difficult objects, which are sorted by ascending difficulty. How difficult an object is, depends on several factors, especially quality of sky, aperture of the used telescope and the experience of the observer.

For each object the most important information are given and if applicable a [DSS](#) image (Digitized Sky Survey). In addition you will find a chart, created by the free software [Cartes du Ciel](#) (Skychart), to get an overview of where the object is located. This chart shows stars down to a magnitude of about 8.0 mag. Telrad rings (0.5° , 2° , 4°) on the chart mark the position of the object. But basically I recommend creating your own finder charts. The visual descriptions are mainly based on own observations and only serve as a reference point.

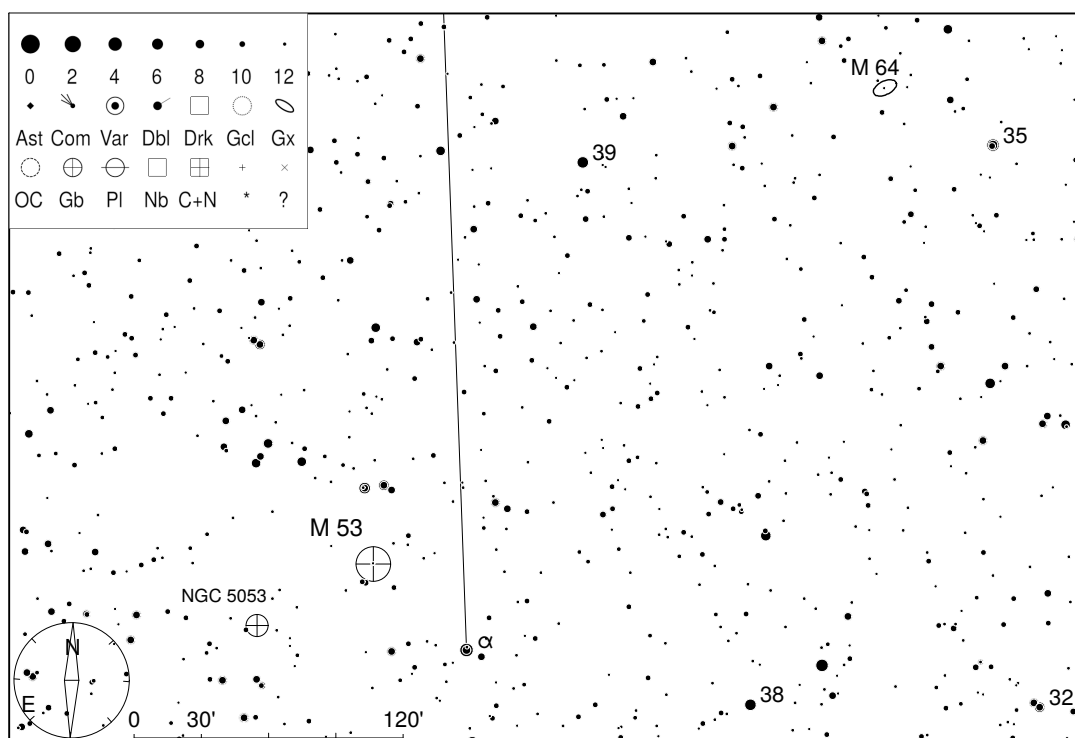
Constellation	Com
Coordinates	12h22m30.00s / +25°50'42.00"
Brightness	1.8 mag
Size	270×270'

Melotte 111 is a large and bright cluster, whose members are all brighter than 10m5. Because of its brightness and size it is known since ancient times. With an estimated 100 solar masses, the cluster is relatively low in mass and is loosely scattered. The gravitational binding of the members among themselves is therefore low. To prevent such a star cluster from dissolving prematurely, it must be located outside the galactic plane in a starless region. Melotte 111, like the Ursa Major group or the Hyades, is one of the motion clusters, whose members thus exhibit similar proper motion. For observation, a low-magnification binocular is perfectly fine, and under a dark sky even the unaided eye is sufficient. The star cluster also is ideal for a sketch.

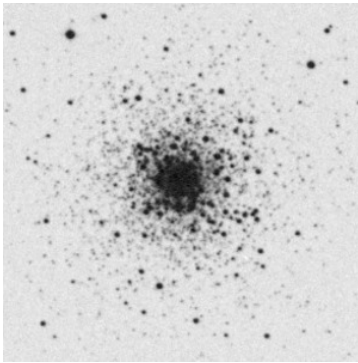


Constellation	Com
Coordinates	12h56m43.70s / +21°40'57.57"
Brightness	8.5 mag
Size	10.0×5.4'

DSS II (blue) - 10.0×10.0'

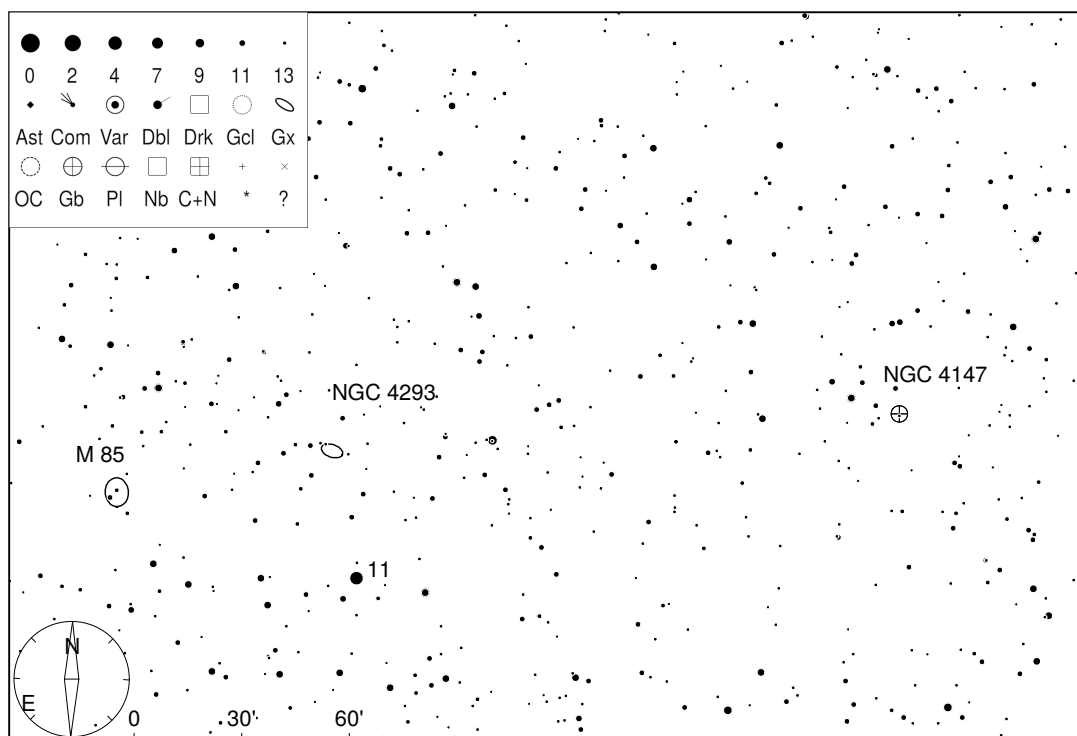


Messier 64 is the brightest galaxy in the constellation Coma Berenices and offers photographically and visually beautiful details. A special feature is a dark cloud near the center. It is assumed that it was formed by a fusion with a much smaller, dusty galaxy. The dark cloud was first seen by William Herschel. In a joint observation with the physicist Charles Blagden, he compared the view with a black eye, hence the nickname. Visually, this galaxy can already be observed under a suburban sky (Bortle 6) with small 8x40 binoculars. Under the same conditions a telescope with 102mm aperture shows the galaxy easily and the dark cloud can be guessed. With 150mm telescope aperture the dark cloud is then already visible well with averted. The fainter outer areas need a rather darker land sky.

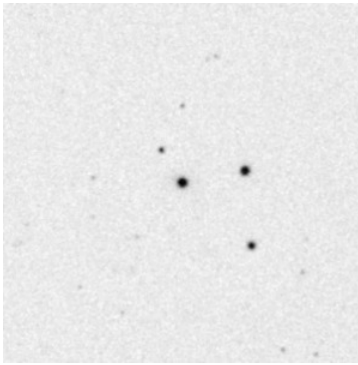


Constellation Com
Coordinates 12h10m06.15s / +18°32'31.78"
Brightness 10.3 mag
Size 4.0×4.0'

DSS II (blue) - 5.0×5.0'

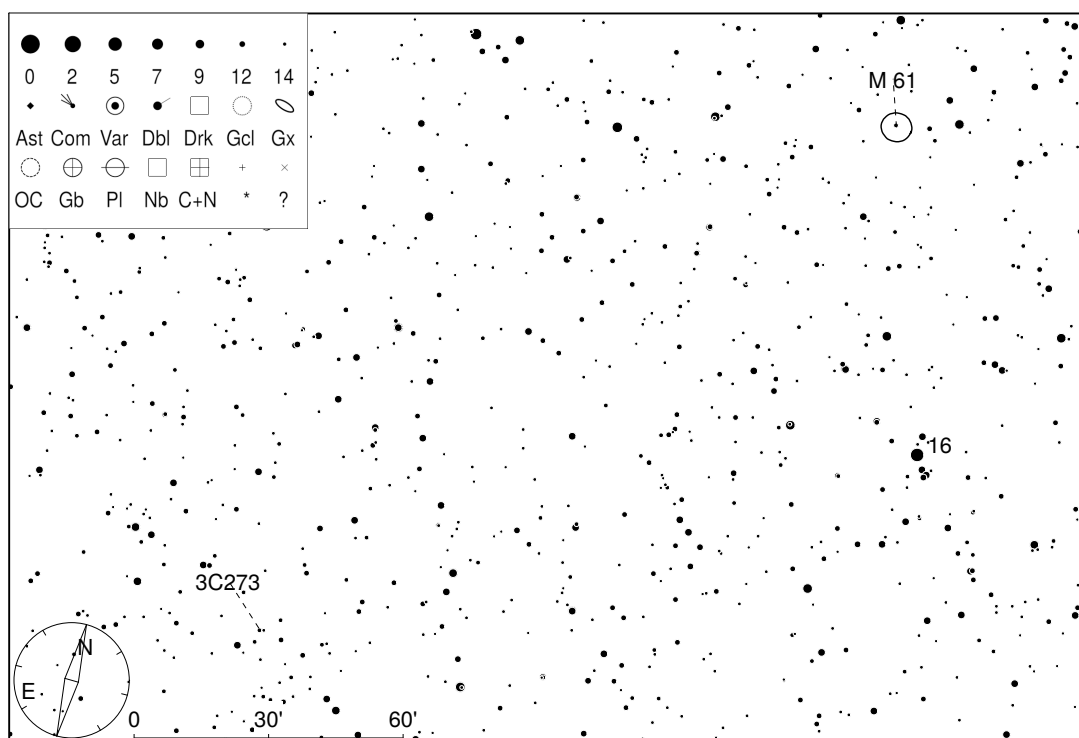


In the constellation Coma Berenices there are exactly three globular clusters, which are listed in the New General Catalogue (NGC): Messier 53 (= NGC 5024), NGC 5053 and NGC 4147, which is rather small and poor in stars compared to other globular clusters, since its total mass is only about one tenth of the mass of an average globular cluster. Due to its small angular size, its surface brightness is pretty high and can therefore be successfully observed with smaller instruments, even from the city. Is a medium-sized binocular sufficient for an observation under a dark rural sky? At which telescope aperture does the globular cluster show individual stars?

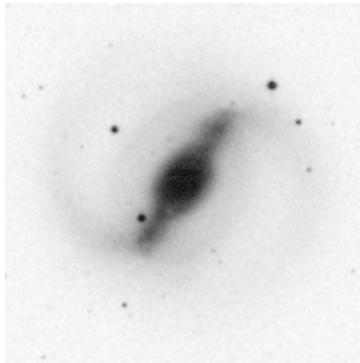


Constellation Vir
Coordinates 12h29m06.70s / +02°03'08.66"
Brightness 12.8 mag

DSS II (red) - 5.0×5.0'

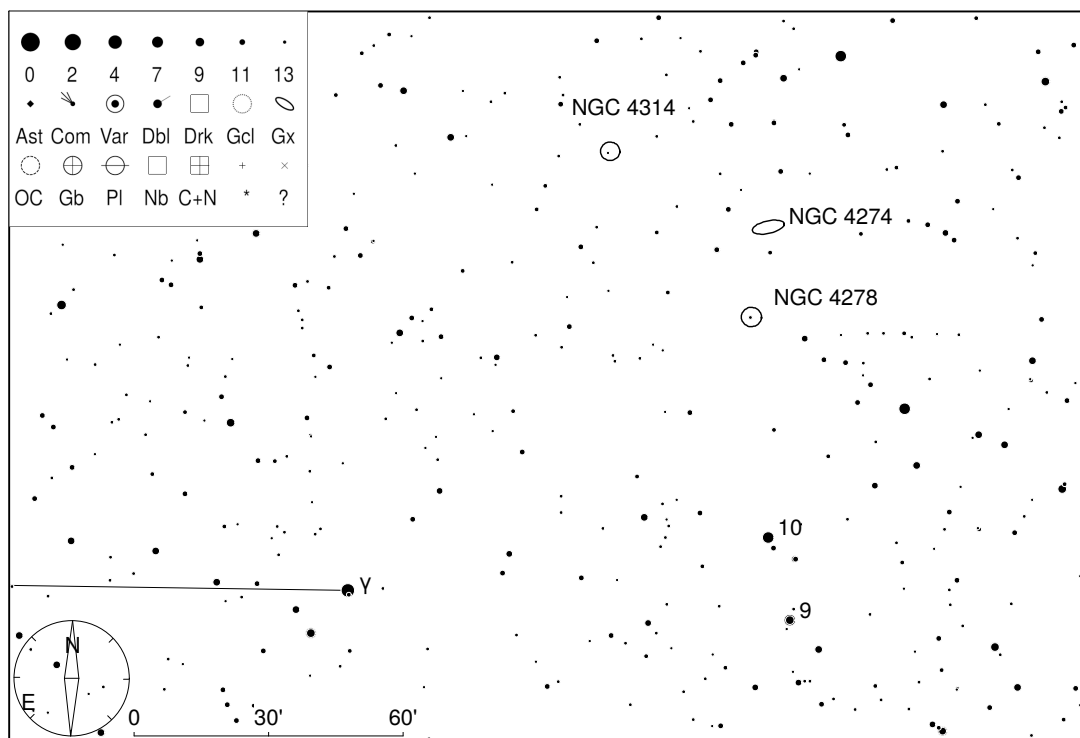


Quasar 3C273 is apparently the brightest representative of its type in the starry sky. Quasars belong to the group of active galactic nuclei (AGN). These are galaxies with a supermassive black hole at their center, which emits enormous amounts of energy and is thus responsible for a very high luminosity. If an active galaxy nucleus reaches an absolute brightness (apparent brightness at a distance of 10 parsecs) of more than -23 mag, it is called a quasar. The absolute brightness of 3C273 is about -26.7 mag. This quasar is therefore about 300 times brighter than our Milky Way. Since active galaxy nuclei, and therefore quasars, are comparatively small objects on the scale of our solar system, you will only be able to see them star-like. A telescope aperture of about 100mm under a dark sky should be sufficient.



Constellation Com
Coordinates 12h22m31.98s / +29°53'43.09"
Brightness 10.6 mag
Size 4.2×3.7'

DSS II (blue) - 5.0×5.0'



NGC 4314 is a beautiful barred spiral galaxy, which is easily observable even with medium sized telescopes due to its apparent brightness. A special characteristic of this galaxy is a ring of comparatively young stars in the interior of the galaxy. Normally such star forming regions are mostly located in the spiral arms. Visually most striking are the particularly bright center and the bar, which makes the galaxy appear elongated. The much fainter spiral arms require dark skies. At which telescope aperture do the first signs of the spiral structure appear?