

## The Night Sky Naturalist, by Bob Vickers

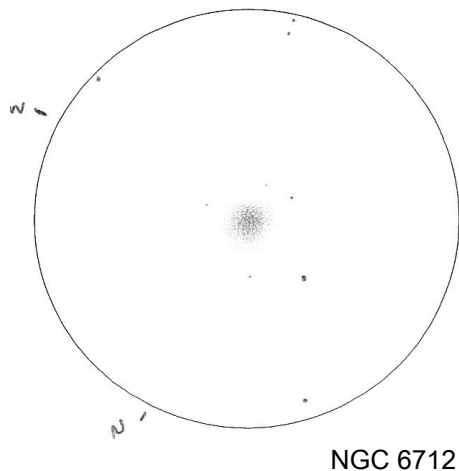
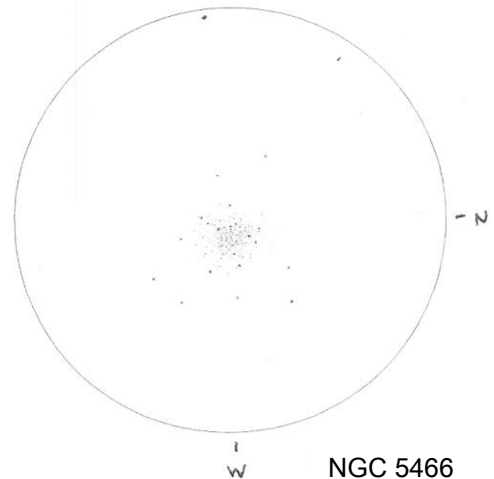
### Observing Globular Clusters

Copyright © 2010 Robert D. Vickers, Jr.

June is an excellent month to view globular clusters. In the early evening the view high to the south is just above the central hub of our galaxy. This is where globulars are concentrated like bees around a hive. There are over 150 known Milky Way globulars and each one is different – different brightness, different resolvability, different size, different star patterns, and different concentrations. That last category, concentration, has been classified by astronomers (beginning with Sir William Herschel) and varies on a scale of 1-12 with 1 being the most densely concentrated. Below, I have selected a representative sample of five globular clusters visible this month to demonstrate the range of concentration classes. The dimmest is magnitude 10.6 but it is also the most concentrated so none from this little group should be too much of a challenge to observe.

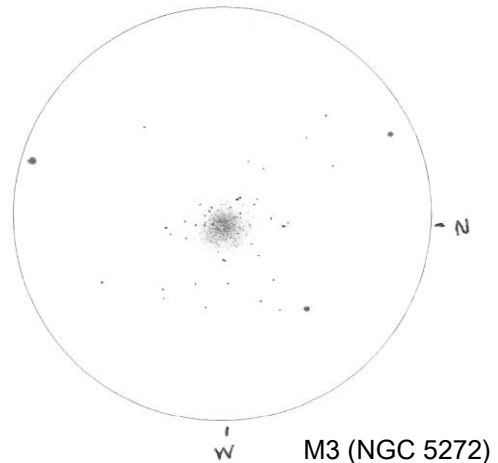
These “Globular Balls of Glitter and Fire,” as skilled observer Barbara Wilson describes them, are literally balls of hundreds of thousands of stars. They are typically over 100 light years in diameter and float in a halo around our galaxy that (like the clusters themselves) becomes more concentrated nearer the central hub.

Starting with the least concentrated globular, look about 9 degrees north-north-west of Arcturus and 5 degrees due east of M3 to find NGC 5466 in the constellation Bootes. At 9 arcminutes across, this globular is fairly large but has a very low surface brightness that belies its 9.2 magnitude. It has an accepted concentration class of 12 and has a fairly even glow throughout that is only slightly brighter toward its center. At 169x many dim stars are resolvable in the cluster even at the considerable distance of 52,000 light years. One of Sir William Herschel’s discoveries, NGC 5466 requires a night of good transparency to see well.

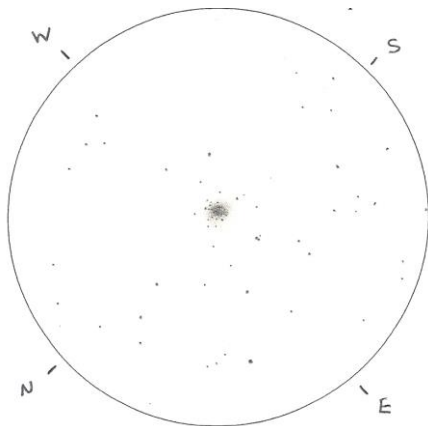


Somewhat more concentrated is NGC 6712 located just 2.5 degrees south-south-east of M11 in Scutum. It is a pretty large and bright cluster at 7.2 arcminutes and magnitude 8.1. Having a concentration class of 9 it becomes gradually brighter toward the center but is still without a concentrated core or nucleus. At 122x it has a grainy texture in its halo and at 169x the edges begin to resolve. One of the nearer clusters at 22,000 light years, it was discovered by de la Galaziere in 1749.

Close to the middle of the concentration class range is the grand globular M3 (NGC 5272). A near equal to M13, M3 becomes gradually brighter toward its center which has a large, fairly concentrated core. The cluster is located about 11 degrees northwest of Arcturus (and 5 degrees west of NGC 5466, which we visited above.) At 169x there are many stars resolvable from halo to core. M3 is large at 18 arcminutes and bright at magnitude 6.3. Discovered by Charles Messier in 1764, it has a concentration class of 6.



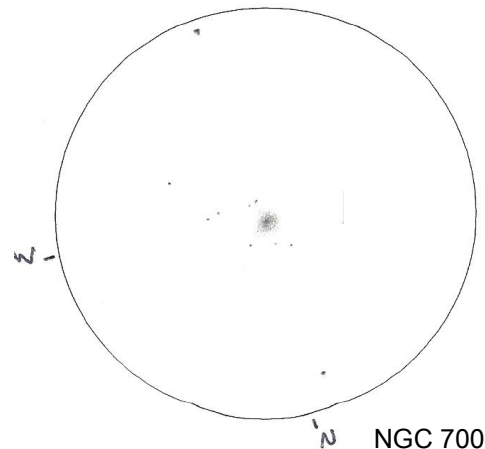
M3 (NGC 5272)



On the more concentrated side is the well know M92, the “other” globular in Hercules besides M13. It is located 6 degrees north of Pi Herculis. M92 is also fairly big and bright at 14.0 arcminutes and magnitude 6.5. Even at 60x it is fully resolved into many dim stars and has a highly concentrated and bright core. Its central condensation is marked, almost stellar, and its accepted concentration class is 4. This fine cluster was discovered by J.E. Bode in 1777 and is about 26,000 light years distant.

M92 (NGC 6341)

Finally, with the highest concentration class of 1, we come to NGC 7006 just 3.5 degrees east of the nose of Delphinus. This compact cluster doesn't have much of a halo and becomes rapidly brighter toward the center with a nearly stellar nucleus. It is fairly faint at magnitude 10.6 but has a higher surface brightness due to its smaller 3.6 arcminute size. The most distant of our sample group at 185,000 light years, it was discovered by Sir William Herschel in 1784.



NGC 7006

There are many more summer globulars, each a distinct cluster with its own “personality.” All you have to do is seek them out. Use the samples I have shown you here and estimate their concentration classes for yourself. Doing this will give you a feel for the challenges that Sir William Herschel faced in classifying these objects for the first time. If you enjoyed observing this small sample of globular clusters, consider the Astronomical League’s Globular Cluster Observing Club. Their list runs the gamut from the easy and spectacular to the nearly impossible.