Stars over Sisters

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The realization that various types of celestial objects are not distributed uniformly throughout the night sky usually comes to nascent observers sooner rather than later. The constellations of winter contain many of the finest open star clusters that are comprised of relatively young, nearby stars.

Two well-known examples are the Pleiades in Taurus and the Bee Hive in Cancer.

Conversely, there is another category of stellar groupings that populate summer skies in greater numbers than at other times of the year. Called globular clusters, they are densely packed collections of much older stars that exist, in most cases, on the outer edge of our Milky Way galaxy.

Two of the biggest and brightest are found in the constellation of Hercules.

Approximately one-third the distance from Eta Herculis southward to Zeta Herculis in the Hercules "Keystone" lies M13, the biggest and brightest globular cluster north of the celestial equator. Sometimes referred to as the Great Hercules Cluster, this object was discovered by Edmond Halley in 1714, and catalogued by French astronomer Charles Messier on June 1, 1764. Later Sir William Herschel turned his superior telescopes on this body and in 1787 he wrote, "…M13 is a most beautiful cluster of stars. It is exceedingly compressed in the middle and very rich."

This magnificent cluster contains about 300,000 stars packed into a volume of space equal to 145 light-years in diameter. Astronomers estimate its age to be about 11.6 billion years (more than twice as old as the sun), while its distance from the earth is some 25,000 light-years.

Hercules' second impressive globular cluster, M92, is situated some 12 degrees to the northeast of M13. It was discovered by German astronomer Johann Bode in 1777; Messier found the cluster in 1781 and made it the 92nd entry in his catalogue of non-stellar objects.

As ancient as M13 is, M92 is even older. Based on the cluster's extremely low metal content, astronomers believe that it probably formed just after the Big Bang as primordial material yielded the first galaxies. The distance to M92 is measured at about 26,700 light-years.

Due to the precession of the earth's axis of rotation, M92 occasionally passes to within one degree of the North Celestial Pole (NCP). The last time this occurred was about 12,000 years ago and the next time will be around the year 16,000 AD. So instead of a star marking the location of the NCP, as Polaris does today, M92 will become the "North Cluster" object.

Both M13 and M92 are a favorite targets for summertime star gazers. Venus was squarely behind the sun on June 6; Mercury will do the same on July 6. As a result, it won't be until the end of the month before the two inferior planets make an appearance very low on the western horizon.

Still in Leo, Jupiter's brilliance dominates all other luminaries in the western sky. But it continues to sink lower in the west, and by the end of July the interval between sunset and Jupiter-set shrinks to less than two hours.

After spending the entire month of June in retrograde motion through Libra, Mars will reverse its path and begin moving eastward again. It will be near the head of the scorpion by month's end. The Red Planet sets at 12:41 a.m. on July 31.

Saturn is in southern Ophiuchus this month, still well-placed for observation. Although it dims slightly as the month progresses, almost any backyard telescope will reveal the planet's glorious ring. The best time to view Saturn is when it's near the meridian, about 9 p.m. local time as the month expires.

As the month begins, a fading moon goes dark on July 4. Between Independence Day and July 19 (the Full Buck Moon), the night sky gradually brightens. The waxing first quarter moon occurs on July 11; the waning last quarter on July 26.

If you would like to learn more about the night sky, or share what you already know with like-minded folks, consider coming out for the next Stars Over Sisters starwatch to be held on Saturday, July 30. Proceedings begin at 9 p.m. with a presentation in the SPRD building. After the talk, all are invited outside to observe the night sky through telescopes provided by local amateur astronomers, weather permitting. The event is free.

PHOTO BY ADAM BLOCK/MOUNT LEMMON SKY CENTER/UNIVERSITY OF ARIZONA

Located in the constellation of Hercules, globular star cluster M92 is one of the oldest objects visible in our part of the universe.