

## The Pleiades

The other evening, to entertain some friends, I turned my little telescope on the famous Pleiades. The Pleiades, or Seven Sisters, is a fuzzy cluster of stars prominent in the evening sky on winter evenings. If you find Orion, the Pleiades are a blur to the right and up a bit. With the naked eye you should be able to make out six or seven stars. People with exceptional eyesight may see more. Maistlin, the tutor of the sixteenth century astronomer Johannes Kepler, is said to have been able to see fourteen. With the telescope a wonderful display of hundreds of blue stars opens up. There are about five hundred stars in the cluster, most being fainter than the eye can see. It is what is known as an *open cluster*, a loose aggregate of massive stars formed about sixty million years ago. So in astronomical terms these are very young stars. With the Hubble Space Telescope the stars are seen to be surrounded by wisps of gas, the remnant of the cloud from which they formed.

The earliest recorded reference to the Pleiades is in the Chinese annals of 2357 BC. In Greek myth they were the half-sisters of the Hyades and were saved by Zeus from pursuit by the giant Orion by being transformed into a flock of celestial doves. For the Maya and the Aztecs of Central America, the Pleiades was the most important constellation in the sky. The moment in November when the Pleiades reach their highest point in the sky at midnight, the *midnight culmination*, was especially significant. Every fifty-two years when the Maya's sacred and secular calendars once again came into coincidence, this midnight culmination of the Pleiades was a moment of particular dread and the signal for horrific human sacrifice. The fear was that the sun would not return.

Interestingly, in Europe there is also a festival of the midnight culmination of the Pleiades. It is the night of the Witches' Sabbath, when the dead return to earth, still observed today as Halloween. The traditional date of the culmination, November 1<sup>st</sup>, has been preserved, though the midnight culmination of the Pleiades now occurs on November 21<sup>st</sup>, due to the precession of the equinoxes. The giving of sweets to the children on Halloween, and curiously also the giving of presents at Christmas, derive from winter rituals intended to propitiate the dead and persuade them to return to their graves. It's strange that both European and Meso-American cultures should attach such fearful importance to the night when the Pleiades reaches its highest altitude at midnight. The Pleiades, and the children knocking on the door at Halloween, should send a little shiver down our spines.

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