

## Dance of the Constellations: The Hunter Rising

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The year of 2012 initiates a series of Heavenly News articles entitled “Dance of the Constellations” starting with the chilly evenings of January that herald the arrival of the winter constellations rising above the eastern horizon. One of the most recognizable of these constellations is Orion, the Hunter. Orion is easily found by looking for the line of three bright stars that make up Orion’s belt. From east to west, the stars are named Alnitak, Alnilam, and Mintaka. Although the belt stars appear to be close to each other, what we see is merely an accidental stellar alignment. Alnitak is about 800 light years from our solar system, Alnilam is about 1340 light years away, and the distance to Mintaka is about 915 light years. Keep in mind that a light year is about 6 trillion miles!

Two of the brightest stars in the evening sky lie at opposite corners of the constellation. Looking south from the Belt we see bright white Rigel, representing Orion’s left foot. Rigel is a zero-magnitude star located about 800 light years away. It is 17 times more massive than our Sun, and produces 85,000 times more light! Astronomers tell us that Rigel is actually a triple star system, with two smaller stars locked in an orbital dance with it.

Looking northward from the belt we see the vivid orange 0-magnitude star, Betelgeuse. In mythology Betelgeuse represents Orion’s right shoulder. But Betelgeuse is far more fascinating from a scientific point of view. The star is a red super-giant about 640 light years away that is nearing the end of its life. This stellar giant has expanded to become so large that, if placed in the center of our solar system, its surface would extend out past the planet Mars. When death arrives in a million years or so it will be in the form of a massive supernova explosion that will be visible in daylight.

Second magnitude Bellatrix represents the hunter’s left shoulder. Residing at a distance of about 245 light years. Bellatrix is a blue giant star about 8 times more massive than our Sun, but it produces more than 6400 times more light. It is noteworthy that, while the constellation of Orion represents a lone male hunter, Bellatrix is Latin for the ‘Female Warrior’.

The most outstanding object in the constellation, however, is found just below Orion's belt. Suspended from the belt are three faint stars that represent Orion's sword. A close look at the center star in the sword will reveal that, instead of a stellar point of light, it is a hazy patch of light known as Messier 42, the Great Orion Nebula.

The nebula is a vast cloud of faintly glowing gas about 1500 light years away, with a diameter of 40 light years. Near the center of this enormous cloud resides a group of four massive young stars, called the Trapezium, producing over 99% of the energy illuminating the surrounding gas. Through a modest telescope, the Orion Nebula is a vast, maelstrom of glowing gas, with tendrils outlining the shape of a fan. However, the most thought-provoking aspect of the Great Orion Nebula is that, hidden within the depths of the cloud, are more than 1,000 unseen, newly forming stars still swathed in a primordial gaseous womb. In coming millennia, these stars will blow away the surrounding gas and become visible to our distant offspring.

To learn more about Orion and its gigantic star factory you are invited to visit the Cameron Park Rotary Community Observatory to observe it through one of our large telescopes and talk to our knowledgeable Docent staff. Admission is free, but the view is priceless. For information regarding location and visiting hours you may "LIKE" us at the Community Observatory on Facebook, or find us on the Web at [www.communityobservatory.com](http://www.communityobservatory.com).