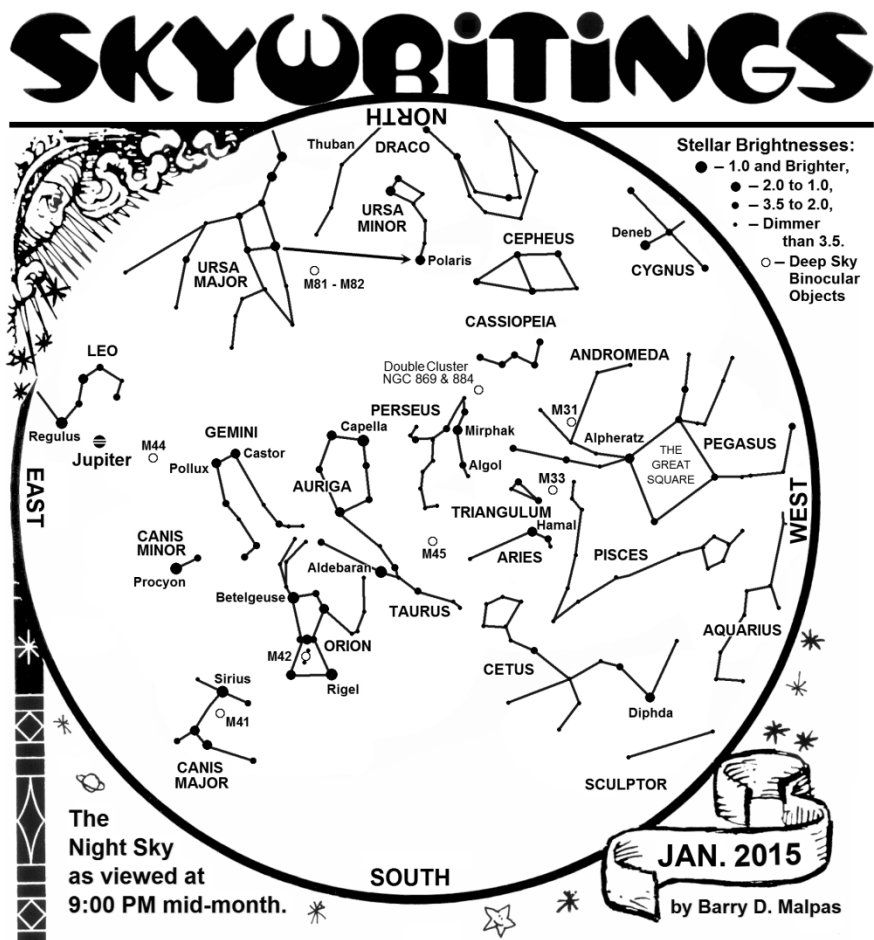


Hunting Orion – The Winter Skies Wonder Constellation

By Barry D. Malpas – Special to the Williams-Grand Canyon News – 2015 January

Orion is the most prominent and easily recognized constellations in the winter sky. To the ancient Greeks and modern western mythology, he is the Hunter, while the Navajo call him 'Átsé'ets'ózí, "First Slim One", an asterism associated with agriculture. To the Arabs he is "Al Jabbar," the giant, and to the ancient Egyptians, he was "Sahu," the soul of Osiris, god of the underworld referenced in the "Book of the Dead." The Hawaiians see this grouping of stars as a "cat's cradle" and the Australians view it as a canoe. In fact, Orion is visible from every inhabited area on Earth, and is represented in almost every mythology.

Looking south in late evening, Orion appears high in the sky and contains two very bright stars. His right shoulder is demarked by the red giant Betelgeuse (Bay-tel-jewz), while his left leg is defined by brilliant blue-white Rigel (Rye-gel). Between these two are three less luminous stars arranged in a row that represent Orion's Belt. Just below the center star of the belt hangs his sword, appearing as three slightly dimmer stars.



Betelgeuse is one of the largest and most luminous stars of its type. Compared to the sun, its average luminosity is about 10,000 times as great, with a diameter in excess of 500 times. Were it to occupy the sun's position, its surface would extend to about the orbit of Jupiter. However, while the sun has a surface temperature of 5800 °K (10,500 °F), the red giant Betelgeuse is a "cool" 3300 °K (5400 °F). Betelgeuse is also one of the few stars close enough to us (about 600 light-years) where we are able to obtain images using orbiting space telescopes such as the Hubble.

The other bright star, Rigel, is determined to be about 900 light-years from Earth. Even though it is at such a vast distance, it still appears about as bright as Betelgeuse. This is because it is a highly compact blue-white super-giant having a luminosity of 120,000 times that of the sun, with a diameter about 80 times (about the orbit of Mercury.) The surface temperature of Rigel is a "very hot" 12,000 °K (21,600 °F). Were Rigel as close to Earth as the brightest star Sirius (9 light-years away) it would be about one-fifth as bright as the full Moon.

However, the true gem of Orion is neither of these two prominent stars. Rather, it is the "Great Nebula", M42, located in the middle of Orion's sword, a bright patch of gas and dust that is one of the most magnificent objects in the winter sky. Even in moderately light-polluted skies, the nebula is one of the few "deep-sky objects" that can be seen in dark skies even without a telescope or binoculars. It was known to the ancients and appeared in Ptolemy's sky map, "The Almagest", nearly two millennia ago. However, through a small telescope or binoculars, M42 appears as a faint grey-green haze that spreads out, wing-like, from a group of four stars known as the "Trapezium". But its opalescent beauty and glory become most evident when

photographed, showing the distinct red and blue colors of the gas streamers, indicative of excited ionized Hydrogen gas, along with reflected dust, and sprinkled throughout with young stars and star systems. This breath-taking object is the closest of its type to us, being only about 1300 light-years distant. The “Great Nebula” in Orion is a stellar nursery, a place where new stars and solar systems are being born.