



# **STARRY TRAILS**

**DECEMBER 2016**

On December 31<sup>st</sup>, as we prepare to ring in the New Year, the planets Mars and Neptune will be the closest in 700 years!! Also on that same evening, Venus and Mars will be 12 degrees apart (Illustration 1)! Other highlights for December include, brilliant Venus in the southwest after sunset, the Winter Solstice, the dazzling stars of winter and the return of our magnificent Orion, the Hunter! So, head out about 40 minutes after sunset and look west, and no mistaking, you will see Venus shining like a gem!

Around 7:00 pm we will begin our hike. We need to put on our winter coats, hats, gloves, and boots. Grab your Starry Trail map and binoculars and let's enjoy the brightest stars of the year and fabulous star hopping! Face west (where the sun sets), and you will see the three bright stars which make up the Summer Triangle, Vega, Deneb and Altair. We shall say farewell until next summer. Now look directly overhead for the four stars that form the Great Square of Pegasus (Illustration 2). Trek up and to the right and you will see a group of stars that are in the shape of a "W". This is the constellation Cassiopeia. Grab your binoculars. From the bottom point of the W shape, scan slowly to the left (about halfway to Pegasus). Do you see a fuzzy circular shape? That is the Andromeda Galaxy (M31). It is 2.5 million light years away! Find the top point of the W. Scan once again to the left and up slightly. You will come upon the Double Cluster in Perseus.

Turn to the right to face north. Journey down to the northern horizon and you will find the Big Dipper. Head to the cup of the Big Dipper. Take the two stars at the end of the cup and draw an imaginary line to the next bright star. You have reached the North Star! The North Star, or Polaris, is at the end of the handle of the Little Dipper (Illustration 3). The bright star up and to the right of Polaris is Capella. If you scan with your binoculars to the right and slightly up from Capella, you may spy a few lovely star clusters!

Continue to turn to the right, slightly, to face east. You will notice a small cluster of stars. These stars are the Pleiades or the Seven Sisters. The Pleiades has to be my favorite group of stars to gaze at through my binoculars. Take a look! Spectacular!! Hike down from the Pleiades and you will see a V shape in the stars. This is the face of Taurus, the Bull. The bright red-orange star is Aldebaran (Illustration 4).

As you trek down from Taurus, you have arrived at the most magnificent picture in our stars, Orion, the Hunter! The three stars in a row make up the belt of Orion.

The bright red-orange star up and to the left of the belt is Betelgeuse. The bright blue-white star down and to the right of the belt is Rigel. Now with your binoculars scan just below the belt. You will notice a small fuzzy area. That is the Orion Nebula (M42). New stars are forming in that hydrogen gas cloud! We call this a stellar nursery. The two stars to the left of Orion, that look almost identical, are Gemini, the Twins.

Time to head inside and warm up. Best wishes for a wonderful holiday season!

**Next month, Orion, the Hunter's best friend.**

## Highlights:

**December 3** – The spectacular pairing of Venus & the Crescent Moon after sunset.

**December 4** – Fantastic grouping of Venus, Mars & the Crescent Moon in the southwest after sunset.

**December 7** – First Quarter Moon.

**December 10** – Fantastic grouping of the inner planets Venus, Mars & Mercury in the southwest after sunset.

**December 13** – Geminid Meteor Shower peaks.

**December 13** – Full Moon. According to folklore this is the Full Cold Moon.

**December 20** – Last Quarter Moon.

**December 21** – Longest night of the year. Winter solstice occurs at 5:44am.

**December 22** – Ursid Meteor Shower peaks.

**December 29** – New Moon.

**December 31** – Mars & Neptune less than a degree apart! Venus & Mars 12 degrees apart!

**Brightest Stars:** **West:** Vega, Deneb, Altair. **South:** Fomalhaut. **East:** Capella, Aldebaran, Betelgeuse, Rigel, Castor, Pollux.

**Binocular Highlights** The Moon, Milky Way from Capella through the Summer Triangle, Andromeda Galaxy (M31), Double Cluster, Pleiades, Orion Nebula (M42).

**Telescope Highlights** The Moon, Mars, Uranus, Neptune, M1, M2, M31, M15, M42, M81, M82, M35, M36,37,38 (near Capella), NGC869 & 864.

[Starry Trails](#) is a fun & easy way to explore the night sky as it appears from your own backyard! Journey over to [StarryTrails.com](#) & get everything you need to navigate the night sky! Starry Trails is a free publication & your able to make copies to pass along to your friends & family so they can learn and enjoy the night sky with you!

You can Follow [Starry Trails on Facebook](#) for weekly discussions & special sky events!

Night Sky Illustrations created by Suzie Dills using Starry Night Backyard & Stellarium.

Illustrations courtesy of [www.CassandraDills.com](http://www.CassandraDills.com)

*Written by Suzie Dills – Remember to download your Illustrations & Star Map!*