

## Heart Nebula shows off for month of love

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The Heart Nebula is located 7,500 light years from Earth.

Carlos Rotellar

During the month of February we celebrate Valentine's Day when lovers show their affection with expressions of love. In celebration of this day, space greets us with the biggest heart in the universe, the Heart Nebula.

The Heart Nebula has a radius of 160 light years and it is located at a distance of 7,500 light years from Earth, in the constellation Cassiopeia, which we visited in October when we presented the Ghost of Cassiopeia.

The Heart Nebula is in close proximity to the Soul Nebula which we discussed in November (see small image in upper right corner). On the bottom part of the image we can see the Fish Head Nebula.

The bright red color of the Heart Nebula is due to the hydrogen gas being activated by the open star cluster located in the center of the nebula. This star cluster is known as Melotte 15 and contains very young, blue, hot super giant stars about 1.5 million years old with masses 50 times of that of our Sun.

The Heart Nebula is a stellar nursery where stars are born. Stars form from large clouds of gas and dust. As these clouds collapse under their own gravity they become very dense creating hydrogen fusion reactions and leading to the birth of stars.

There are different historical accounts of the Valentine's Day holiday. I prefer the legend of St. Valentine which goes as follows. Valentine was a priest during the rule of Emperor Claudius II during the third century in Rome. The emperor decided that single men were better soldiers; therefore he outlawed marriage within his troops. Valentine defied the decreed and continued to perform marriages in secret.

Once the emperor discovered Valentine's actions he sentenced him to death. During his imprisonment he fell in love with his jailer's daughter, who he had healed from blindness, and before his execution he sent her a letter signed "from your Valentine." He was executed on Feb. 14.

*– Dr. Carlos Rotellar is a Bowling Green nephrologist who has had an interest in astrophotography and has been taking images of the universe from his driveway for several years. Website: [Skyastrophotos.com](http://Skyastrophotos.com).*