Celebrating Observe the Moon Night, October 20th 2018

By Dario Giannobile

Encounter At Segesta Temple. The Moon And Its Importance In Greek Culture

In ancient Greek culture, which spanned from Turkey to Sicily and even further in Asia, the Moon had a very important influence. All Greek calendars were based on the Moon cycle. Each lunar month lasted from 29 to 30 days as, for instance, in the Attic Calendar. One year consisted of at least 12 months.

In order to synchronize the lunar based calendar with the solar one, after two years of 12 months followed a third year of 13 months. This succession of 12 and 13 months brought the average duration of the year at 364 days, very close to the solar year which lasts 365 and ¼ days.

This was just an example of the Greek calendar but every city and culture had their own variation.

The Moon was so important in the Greek culture that we refer to it when speaking about the Metone cycle.

According to Greek and Roman astronomers, the Metone cycle was discovered by the Athenian Metone in 432 BC and then improved by Cizico in 330 BC Metone discovered that 19 solar years (almost) correspond to 235 lunar months (6940 days). The Metone cycle, however, was known also in Mesopotamia at least from the 6th century BC.

This picture was taken at Segesta Temple in Sicily a beautiful example of a Doric Temple nestled in a valley enclosed by small mountains. Upon the mountain close to the temple, was

Camera: Canon 6d Sigma 20 mm, ISO 200, 10 sec, f2.8, single real shot. Credit: Dario Giannobile

built the old city of Segesta with its incredible theatre that is the location of ancient drama representations every year.

That night at the temple, amateur astronomers organized an event with telescopes and other gear to allow people to enjoy the night sky just a few meters away from the ancient structure. During this event the lights around the temple were switched off and a projector illuminated the Doric frontal colonnade with an image of the Moon. This image was taken some minutes before clouds partially covered the Moon and Jupiter conjunction on the left hand side of the temple.

The final image becomes then a perfect summary of the Greek culture and the importance of astronomy and Moon for them.

International Observe the Moon Night October 20, 2018

October 20th is International Observe the Moon Night, which we featured last month (See September issue page 6). There will be events held around the world to celebrate and view the Moon and we will hold our own special Moonwatch at our headquarters in Blanchardstown. Everyone is welcome to come along to this free event and see our nearest neighbour through powerful telescopes. We welcome any memories or photos you have of the night and also any drawings or paintings by young people for our Kids' Page. Do send to **magazine@astronomy.ie**

Cosmic Collision Forges Galactic One Ring

Astronomers have used NASA's Chandra X-ray Observatory to discover a ring of black holes or neutron stars in a galaxy 300 million light years from Earth.

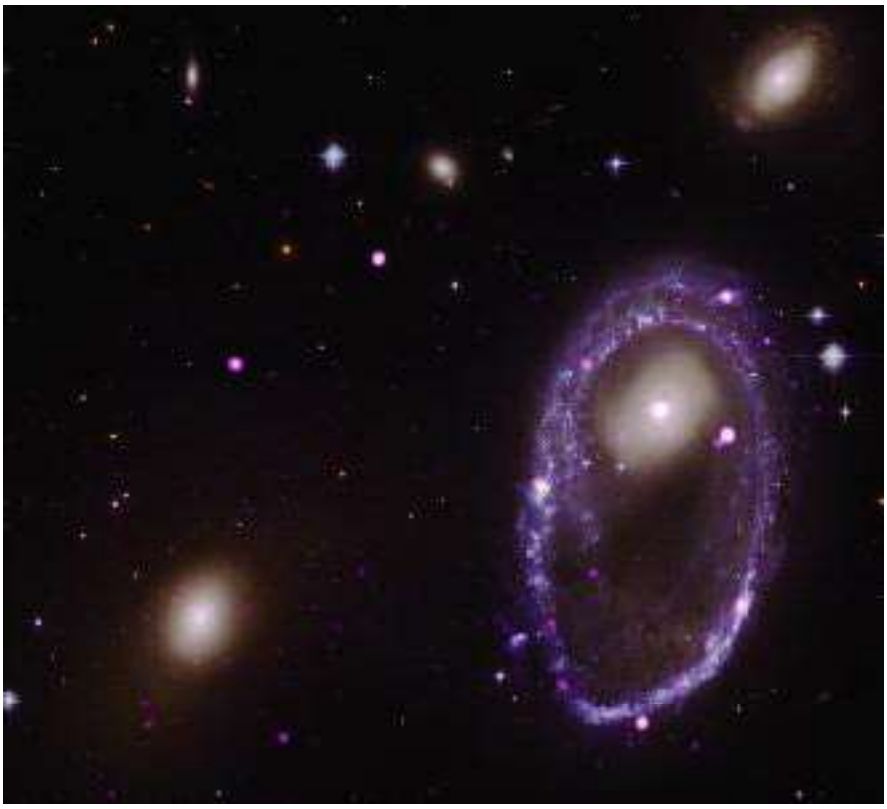

Image credit: X-ray: NASA/CXC/INAF/A. Wolter et al; Optical: NASA/STScI

In this new composite image of the galaxy AM 0644-741, X-rays from Chandra have been combined with optical data from NASA's Hubble Space. The Chandra data reveal the presence of very bright X-ray sources, most likely binary systems powered by either a stellar-mass black hole or neutron star, in a remarkable ring.

Astronomers think that it was created when one galaxy was pulled into another galaxy by the force of gravity. The first galaxy generated ripples in the gas of the second galaxy, AM 0644, located in the lower right. These ripples then produced an expanding ring of gas in AM 0644 that triggered the birth of new stars. The first galaxy is possibly the one located in the lower left of the image.

The most massive of these fledgling stars will lead short lives of millions of years. After that, their nuclear fuel is spent and the stars explode as supernovas leaving behind either black holes with masses typically between about five to twenty times that of the Sun, or neutron stars with a mass approximately equal to that of the Sun.

Some of these black holes or neutron stars have close companion stars, and siphon gas from their stellar partner. This gas falls towards the black hole or neutron star, forming a spinning disk like water circling a drain, and becomes heated by friction. This superheated gas produces large amounts of X-rays that Chandra can detect.