The Epic of Gilgamesh is, perhaps, the oldest written story on Earth. It comes to us from Ancient Sumeria, and was originally written on 12 clay tablets in cuneiform script. It is about the adventures of the historical King of Uruk (somewhere between 2750 and 2500 BCE). The Epic speaks of “fire, brimstone and flood” with the arrival of a comet.

The ancient Sumerians were not alone in being fearful of these celestial nomads- almost all cultures were in awe of comets. The reasons are not difficult to understand: comets were by far the most spectacular and remarkable objects in the night sky. And what was more, their movements were unpredictable unlike the stars and the planets or even the Sun and the Moon. Thus the appearance of a comet terrified the people as it was thought to be a message from the gods! This correlation of unimaginable misery with comets continued till very recently in human history- as late as the 1835-36 appearance of Halley's Comet was blamed for the massacre at the Alamo and a huge fire in New York City!

With Newton and his friend Edmund Halley, we finally understood the motion of comets. And subsequent studies have revealed a lot about the science of comets. Comets are found in several parts of our solar system- from the distant Oort cloud (a spherical shell of comets located ten thousand times farther from the sun than the earth) to the Kuiper Belt, a disc-shaped region starting beyond the orbit of Neptune and extending out for several hundred earth-orbits.

Comets are like dirty snowballs- small balls of ice, rocklike dust and traces of other compounds. They are believed to have been formed together with the planets and other structures in the solar system, some 4 billion years ago. Most of the time they are far, far from the Sun. But sometimes, the orbit of a comet is changed due to some perturbation and the comet starts its long journey towards the Sun.

As it nears the orbit of Mars, the Sun's energy becomes strong enough to vaporize some of the ices at the surface, resulting in a cloudlike structure called the coma which then obscures the actual cometary nucleus. Nearing the Sun, some of the coma is pushed backwards by the Sun's wind, resulting in a tail that characteristically points away from the Sun. The nucleus is around 1-10 kilometers, while the coma could be as big as 50000 kilometers and the tail tens of millions of kilometers long! And since comets have spent most of their lives frozen, astronomers believe that the material that formed the comet originally lies frozen and within reach just below a relatively thin crust. And this is what makes the recent Deep Impact event important.

On July 4, 2005, a 360 kilogram mass of copper was made to hit an obscure Comet Tempel I, several million kilometers from the Earth. The object had been launched from Deep Impact spacecraft to crash into the comet’s surface creating a crater which would be almost as big as a cricket ground and about 50-100 ft

deep. The debris ejected by the impact would allow us to take a peek into the history of the solar system.

The effects of the impact would be studied by telescopes on the ground, by the Hubble Space telescope as well as sophisticated instruments on the Deep Impact Spacecraft. This, the astronomers believe, would give us a unique view of the material inside a comet- the cometary nucleus which presumably is made of primordial material of the solar system. This would allow us not only a window into the past but also tell us about the birth of the solar system and its evolution- questions of great importance in science.

For many people and certainly for astrologers, comets might still invoke a sense of impending calamity. But for scientists comets are possibly the most accessible places in the solar system for studying the solar system at its birth. In 2014, a spacecraft called Rosetta would actually land on another comet and study it. Like its famous namesake, the Rosetta Stone which allowed us to understand the language of the Pharaohs, the spacecraft might unlock the mysteries of the solar system. And like the Gilgamesh epic, which has its own creation mythology, we would finally be able to understand the original creation event- the birth of our solar system!