

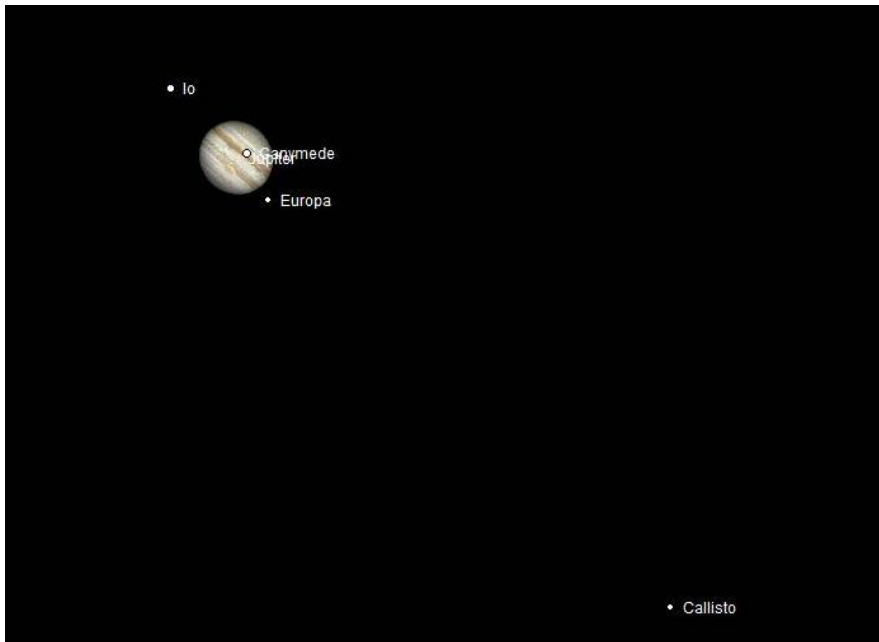
**Answers to the Questions contained in the Article
“Galileo and the 400th Anniversary of the Telescope”
as printed in the Evening Telegram, Jan 9, 2009.**

1. *What are the names of these four moons of Jupiter?*

These four brightest moons of Jupiter are named Ganymede, Callisto, Europa and Io. Galileo referred to these moons as the “Medicean Stars” in honour of one of his patrons. Much later they became known by the names above which come from mythology.

2. *On which of these moons is there thought to be a sea of liquid water under a cover of ice?*

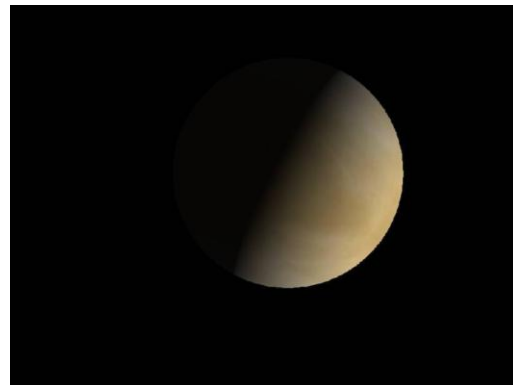
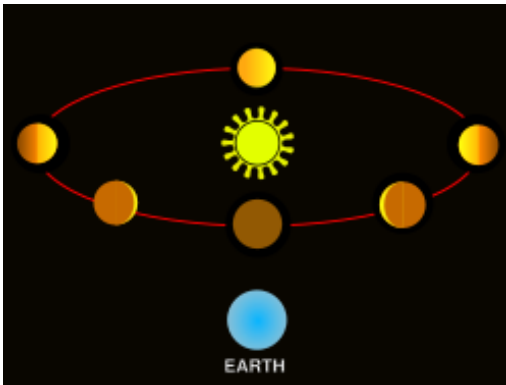
Jupiter’s moon Europa is thought by scientists to have a sea of water under a cover of ice, and is therefore believed to be one of the most likely places in the solar system (other than Earth) for life to be discovered. If life were found on Europa, it would most likely be microbial in nature and this possibility is still speculation.



Moons of Jupiter Jan 9, '09

3. *See if you can identify the current phase of Venus. Why can't you see any features on Venus with your telescope?*

Venus at present is just about at right angles with the Sun as compared with the Earth (see diagram at lower left) and therefore is a little more than 50% illuminated (as shown at lower right). In a telescope it would appear much like the moon does at about the first quarter. It's not possible to see surface details on Venus because the planet has an atmosphere primarily made up of carbon dioxide with very thick clouds of sulphuric acid which make the planet incredibly hot. The surface has only been photographed by a few probes (e.g. Soviet Venera 9/10), that which parachuted down through the clouds. None of which survived very long due to the intense heat and pressure.



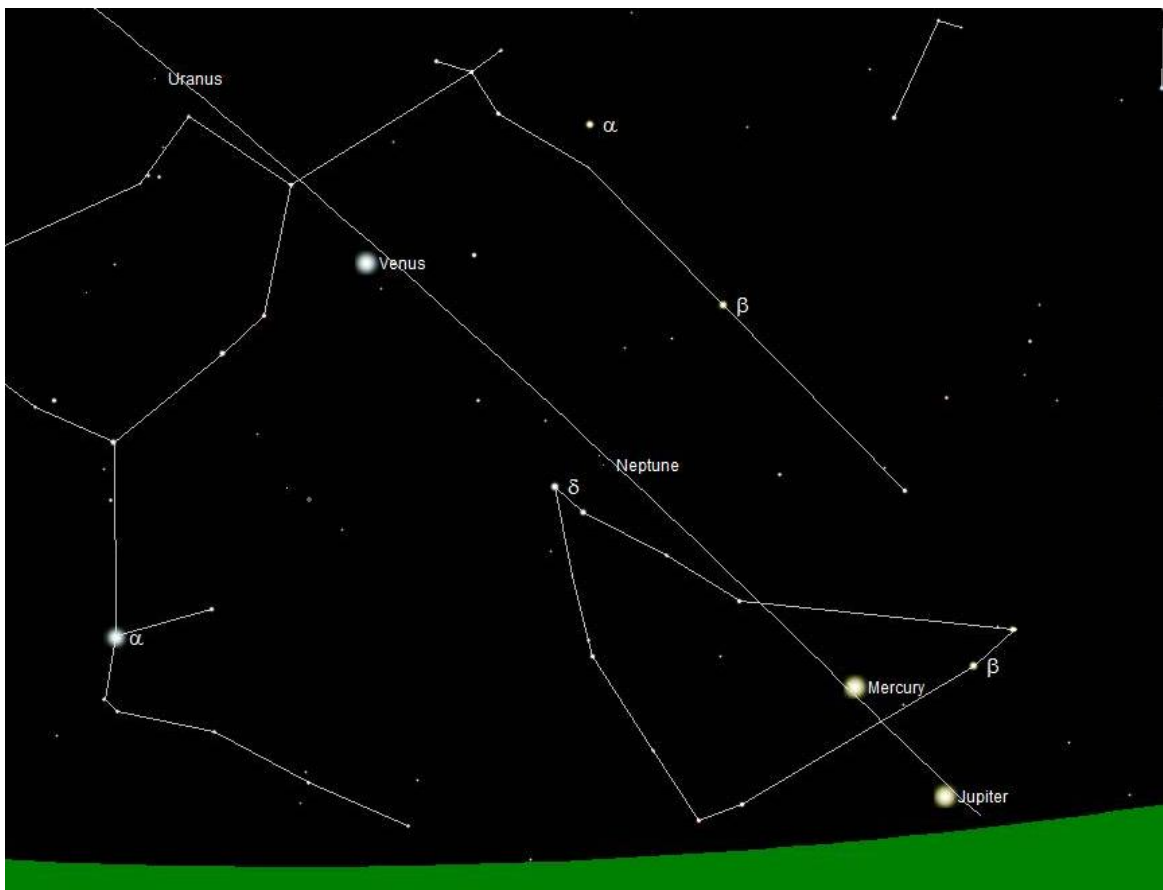
Phase of Venus Jan 9, '09

4. *Did you notice that the moon and all the planets fall on the same line in the sky? What is this line called and why is this true? What other planets appear in the sky at this time?*

This question leads into next month's article about Orbital motion. The line in the sky where all of the planets are (approximately) located is called the ecliptic. This is also the apparent path which the Sun traces out in the sky through the year. The reason all the other planets in the solar system can be located near the ecliptic is because all of the planets formed from a common disc of material around our Sun which spread outwards in the plane of the Sun's equator (much like the rings around Saturn). All of the planets are in approximately the same plane thus we see them move along the sky in same path as the Sun as they travel around the Sun in their own orbits. The other planets which appear in the sky at this time (approximately 5pm -8pm on Jan 9, 2009) are Neptune and Uranus. This is a bit of a trick question because they can't be seen with the unaided eye as they are too faint to be seen from earth. They can only be seen by a fairly high powered telescope and are targets for advance amateur astronomers with either detailed charts or computerized telescopes. To know what objects are in the sky at a certain place, date and time you can learn how to use a planetarium or sky charting program.

The links below go to the sites of a few well known and 100% freeware programs where they can be downloaded. You could also have noticed that both Uranus and Neptune were mentioned in the What's Up section in the article, and this was the easiest way to answer this question!

You might be wondering where are Saturn and Mars? At this time of year Saturn is also visible at night but it doesn't rise until about 11 pm. In a few months time it will be visible shortly after sunset. Mars right now is almost directly opposite the Sun from us. The next time Mars will be available for viewing will be during the winter months next year when it makes a close approach to Earth.



Screenshot from Sky Charts for Jan 9, '09

"Cartes du Ciel - Sky Charts" (English) <http://www.stargazing.net/astropc/index.html>

"Stellarium" <http://www.stellarium.org/>

"Microsoft Worldwide Telescope" <http://www.worldwidetelescope.org/Home.aspx>