

Mountaineer Skies

Volume 14, Issue 3

<http://planetarium.wvu.edu/>

July – September, 2014

On Independence Day, **July 4**, the Earth will be farthest from the sun. This is called **aphelion**. Six months later, on January 4, 2015, the sun will be closest to the Earth or at **perihelion**.

The biggest appearing Moon of the year happens on **August 10** and is called the **Full Sturgeon Moon**.

During the night of **August 12/13**, the **Perseids Meteor Shower** will peak at 60 or more incidences per hour. For best viewing, look fairly low toward the NE between 11:00 P.M. and sunrise at 6:30 A.M. on August 13.

Early on the morning of **August 18**, just before sunrise (6:34 A.M.) look low toward the eastern sky. The two brightest planets, **Venus** and **Jupiter**, will be very close together, with Jupiter being the upper planet and Venus just below.

The **Autumnal Equinox** occurs on **September 22**. This is a day when the period of darkness and daylight are pretty much equal. **Equinox** means just that, and happens twice a year, the other being the **Vernal Equinox**, the first day of spring.

In The Sky This Quarter

Visible Planets in the Night Sky

Beginning of July, 2014

	Const	Rise	Transit	Set	Mag
Sun		04:56	12:24	19:51	-26.8
Mercury	Tau	04:06	11:14	18:25	2.1
Venus	Tau	02:59	10:15	17:30	-3.9
Mars	Vir	13:12	18:48	00:25	0.0
Jupiter	Gem	06:16	13:36	20:54	-1.8
Saturn	Lib	15:28	20:40	01:53	0.4

Beginning of August, 2014

	Const	Rise	Transit	Set	Mag
Sun		05:20	125:26	19:33	-26.8
Mercury	Cnc	04:42	12:04	19:14	-1.6
Venus	Gem	03:31	10:54	18:16	-3.9
Mars	Vir	12:26	17:42	22:58	0.4
Jupiter	Cnc	04:49	12:03	19:14	-1.8
Saturn	Lib	13:26	18:38	23:50	0.5

Beginning of September, 2014

	Const	Rise	Transit	Set	Mag
Sun		05:49	12:20	18:51	-26.8
Mercury	Vir	07:33	13:34	19:37	-0.2
Venus	Leo	04:38	11:28	18:19	-3.9
Mars	Lib	11:58	16:53	21:48	0.6
Jupiter	Cnc	03:20	10:25	17:34	-1.8
Saturn	Lib	11:27	16:41	21:51	0.6

Cnc	Cancer, The Crab
Gem	Gemini, The Twins
Leo	Leo, The Lion
Lib	Libra, The Scales
Tau	Taurus, The Bull
Vir	Virgo, The Maid

INSIDE THIS ISSUE

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About: **Pluto**

The subject of this article was suggested by Dr. Art Weldon of the West Virginia University Department of Physics.

Once upon a time, there were only six known planets: **Mercury, Venus, Earth, Mars, Jupiter, and finally Saturn.** They had been known since antiquity as a telescope was not necessary for their discovery, only exceptional eyes and patience. Then in 1781, Sir William Herschel, using a telescope which he designed, discovered **Uranus**, the seventh planet. The name comes from Greek mythology meaning father of Saturn, **Uranus.** Sixty-five years later **Neptune**, the eighth planet from the Sun, was first seen by 24 year old John Couch Adams. The newly discovered planet was named after the Roman god of the sea, Neptune.

The search for the next, the ninth, planet was actually started by Percival Lowell, of Martian Canals infamy, who wished to restore his professional credibility after being humiliated by other astronomers regarding his totally unsupported theory of intelligent life on Mars. Unfortunately, he died before this last planet was discovered. V. M. Slipher, director of the Lowell Observatory after Lowell's death, hired a young astronomer named **Clyde William Tombaugh** who ultimately found the very distant planet on February 18, 1930, later named **Pluto** after the Roman god of the underworld, not Walt Disney's dog. The discovery was confirmed by other astronomers and was made known, with great fanfare, to the general public, just under a month later on March 13 of that year. Since then every school age child has had to learn the name of all nine planets, and all was well.

Now comes the rub or mischief, if you will. Everything was fine in the solar system until August 24, 2006, when the august body of astronomers known as the **International Astronomical Union (IAU)** threw a wrench into the whole thing by voting, by a fairly close margin, on a new definition of "planet." It says, in essence, that in our solar system, for an object to be considered a planet, it must meet these three criteria.

- (1) The object must be in an orbit around the Sun.**
- (2) It must be of such a size that its own gravity will form the body into a nearly spherical shape. (Just how spherical was not specified.)**
- (3) It should be the biggest, most gravitationally dominant object in its own orbit. The body must have cleared its own neighborhood using its gravity on other objects in its orbit. This means that the body in question has, over many orbital cycles, absorbed other smaller bodies into itself or has gravitationally moved them to another orbit.**

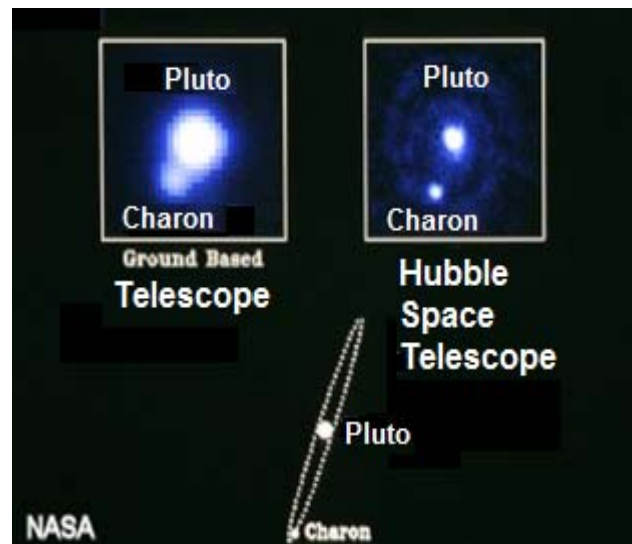
If a particular solar system body meets the first and second criteria but not the third, it is now defined as a **dwarf planet** and so, by the change in definition, Pluto was demoted to a dwarf planet. It should be noted that the vote regarding Pluto was not unanimous. The contrarians' position, and there are many who disagree with the new definition, say that

- (1) Pluto cannot clear its own neighborhood because about every 228 years it crosses the orbit of the eighth planet, the gas giant, Neptune.
- (2) However, this also makes Neptune unable to clear its orbit, as Neptune cannot clear Pluto, so by the new definition, Neptune is also a dwarf planet.

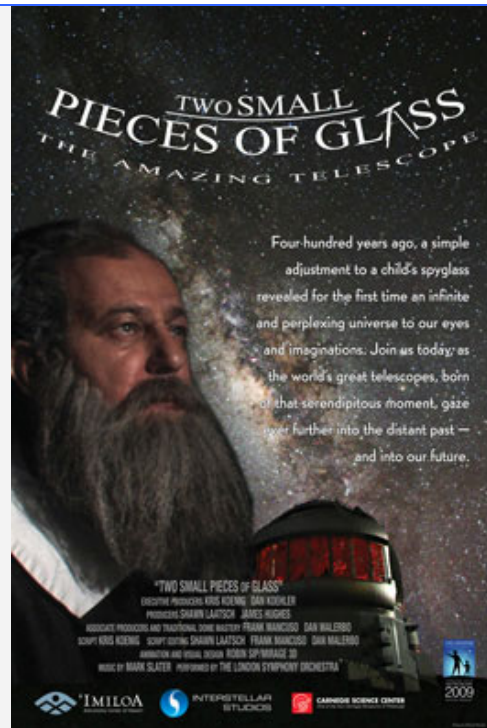
If you want even more confusion, and you probably do not, please note that the states of Illinois and New Mexico passed a resolution that says within their borders, Pluto is still defined as a planet.

I suspect that many members wish the subject had never been raised. School teachers are mad, as well as book publishers. The whole process should have been better thought out. I personally think that Pluto should have been demoted, but a better definition should be fabricated.

In January, 2006, about eight months before Pluto's change in status, NASA launched a space craft called **New Horizon** toward Pluto with an expected rendezvous sometime in July, 2015. That is a three billion mile trip taking nearly 10 years to complete. Photography will begin in January, 2015. We already know that Pluto has at least five moons: Charon, the largest by far, followed by Hydra, Nix, Kerberos, and finally Styx. Once the space craft reaches Pluto and starts exploring, I think we can expect surprises.



2014 Planetarium Shows



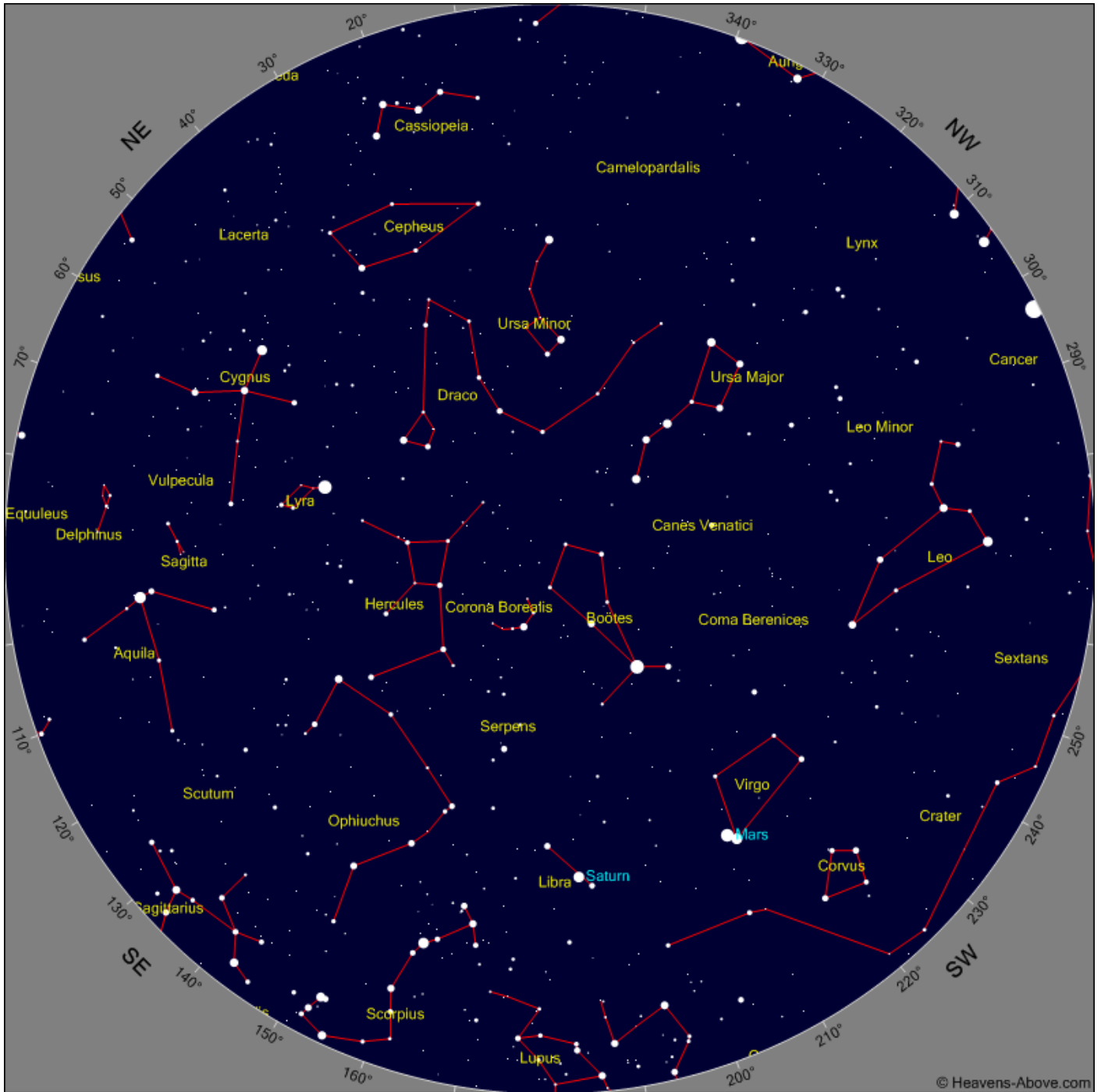
July 2014 Closed	August 22 8:00 P.M. Back to the Moon 9:00 P.M. Two Small Pieces of Glass	September 12 & 26 7:00 P.M. Back to the Moon 8:00 P.M. Two Small Pieces of Glass
October 10 & 24 7:00 P.M. Back to the Moon 8:00 P.M. Two Small Pieces of Glass	November 14 & 21 7:00 P.M. Back to the Moon 8:00 P.M. Two Small Pieces of Glass	December 5, 12, & 19 7:00 P.M. 'tis the Season 8:00 P.M. 'tis the Season

For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings. For further information or reservations, please call John Hopkins at (304)293-4961, or by email at: jghopkins@mail.wvu.edu

Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Jul 5	5:58 A.M.	8:51 P.M.	1:50 P.M.	12:44 A.M.	First Qtr
Jul 12	6:02 A.M.	8:49 P.M.	8:50 P.M.	6:20 A.M.	Full Moon
Jul 18	6:07 A.M.	8:45 P.M.	12:06 A.M.	1:21 P.M.	Last Qtr
Jul 26	6:13 A.M.	8:39 P.M.	6:05 A.M.	8:13 P.M.	New Moon
Aug 3	6:20 A.M.	8:32 P.M.	1:39 P.M.	NA	First Qtr
Aug 10	6:27 A.M.	8:24 P.M.	8:09 P.M.	6:18 A.M.	Full Moon
Aug 17	6:34 A.M.	8:14 P.M.	NA	2:17 P.M.	Last Qtr
Aug 25	6:41 A.M.	8:03 P.M.	6:46 A.M.	7:52 P.M.	New Moon
Sep 2	6:48 A.M.	7:51 P.M.	2:31 P.M.	NA	First Qtr
Sep 8	6:54 A.M.	7:41 P.M.	7:20 P.M.	6:18 A.M.	Full Moon
Sep 15	7:00 A.M.	7:30 P.M.	NA	1:59 P.M.	Last Qtr
Sep 24	7:09 A.M.	7:15 P.M.	7:29 A.M.	7:24 P.M.	New Moon

July 2014 Sky Chart* for:
10:00 P.M at the beginning of the month
9:00 P.M in the middle of the month
8:00 P.M at the end of the month



*Sky Chart used with the kind permission of **Heavens-Above** at <http://www.heavens-above.com/>

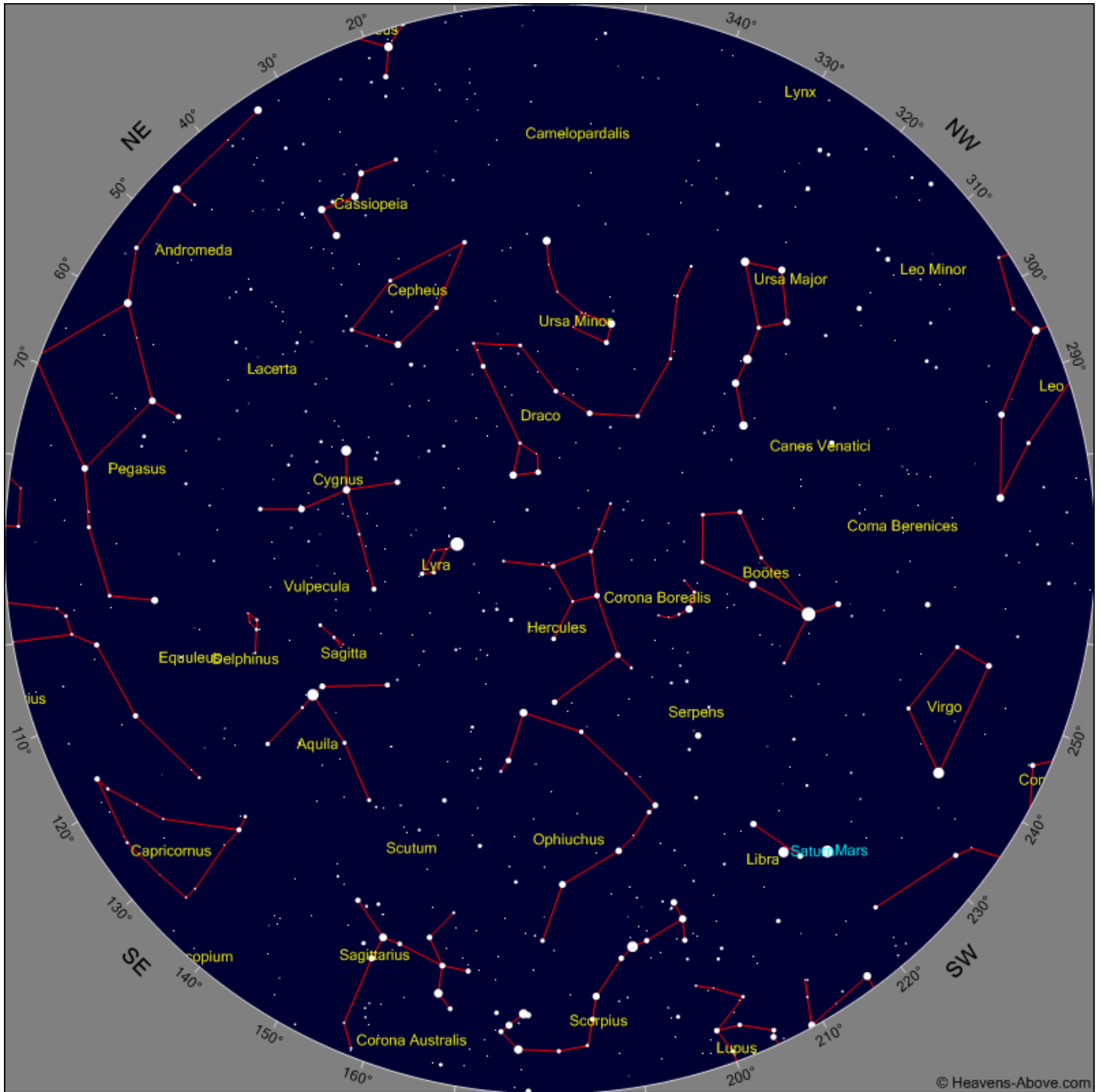
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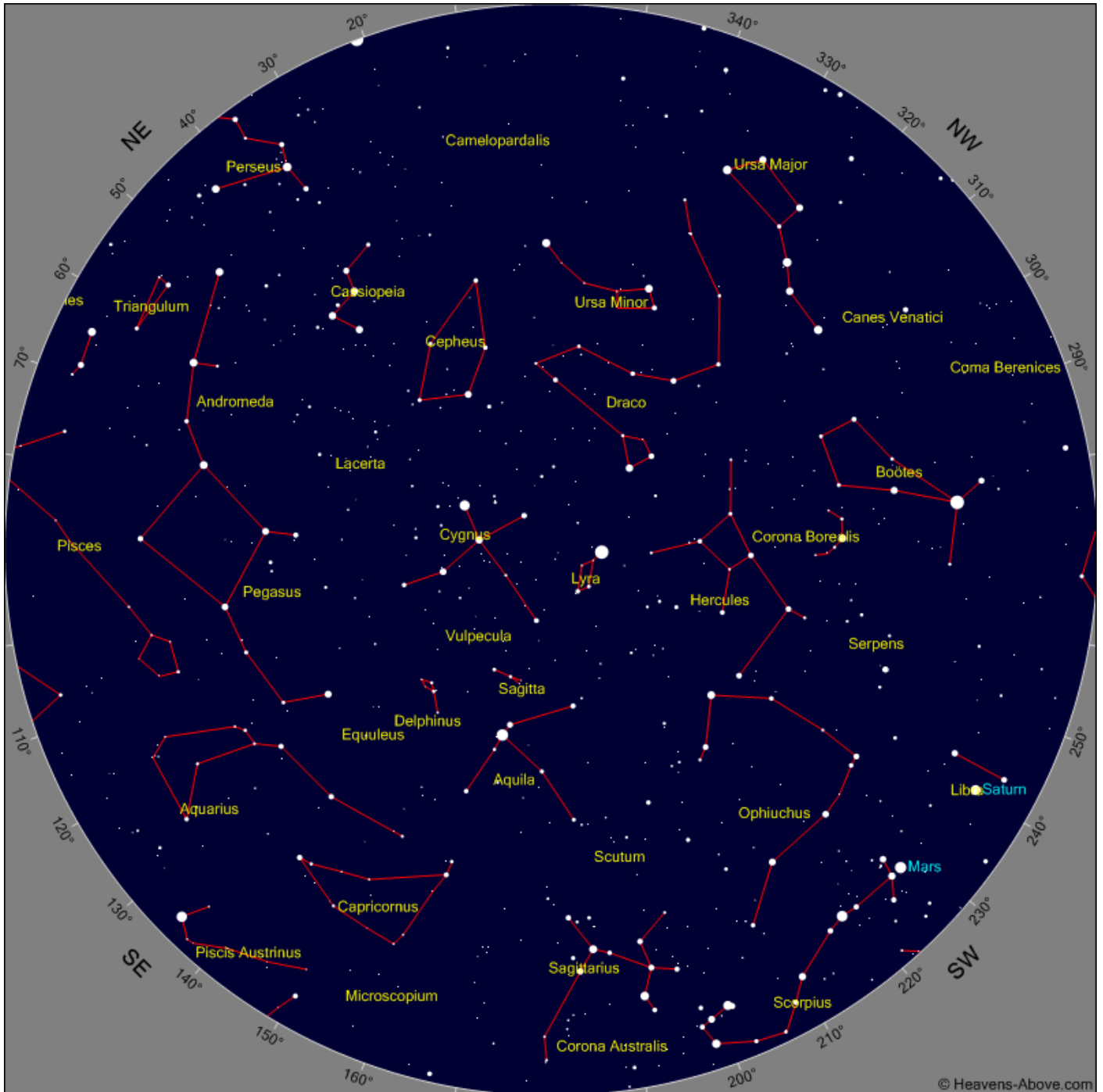
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