

December 2011 Sky Events – the Planets

- ★ **Venus** joins **Jupiter** as a bright beacon in the early evening sky – Venus in the SW and Jupiter in the SE.
- ★ These 2 bright planets outshine all the stars – Venus at magnitude -3.9 and Jupiter at magnitude -2.7.
- ★ This month find **Jupiter** near the Aries/Pisces border and **Venus** in the constellations Sagittarius and Capricornus.
- ★ As the month advances, Venus approaches closer to Earth and appears higher above the SW horizon.

December 2011 Sky Events – the Planets

- ★ Speedy **Mercury** reaches **inferior conjunction** (positioned between the Earth and the Sun) on Dec. 4th, and then races to greatest elongation west (22°) of the Sun on Dec. 23rd.
- ★ During the last 3 weeks of the month, you will find Mercury low in the SE in the pre-dawn sky.
- ★ As darkness approaches this month, both **Uranus and Neptune** are still in good viewing position in the early evening sky.
- ★ **Uranus**, at magnitude 5.8, can be found through a telescope **in Pisces**.
- ★ **Neptune**, at magnitude 7.9, can be found through a telescope **in Aquarius**.

December 2011 Sky Events – the Planets

- ★ **Mars** spends the month **in the constellation Leo**.
- ★ Mars rises just before midnight most of the month, but it won't be high enough in the sky for quality telescope observing until a few hours later.
- ★ Viewing **Saturn** this month requires a pre-dawn outing. It rises just a few hours after midnight.
- ★ **Saturn** spends the month **in the constellation Virgo**, not far from the bright star Spica, which it slightly outshines.
- ★ Saturn's ring system "tilt" increases to nearly 15° this month.

December 2011 Sky Events

The Moon, Jupiter and the Pleiades in the East

In the eastern sky on the nights of Dec. 5 – 8 (about 1 hour after sunset), find the waxing gibbous **Moon** dancing by the bright planet **Jupiter** and the **Pleiades** open star cluster → popularly know as the “Seven Sisters”.

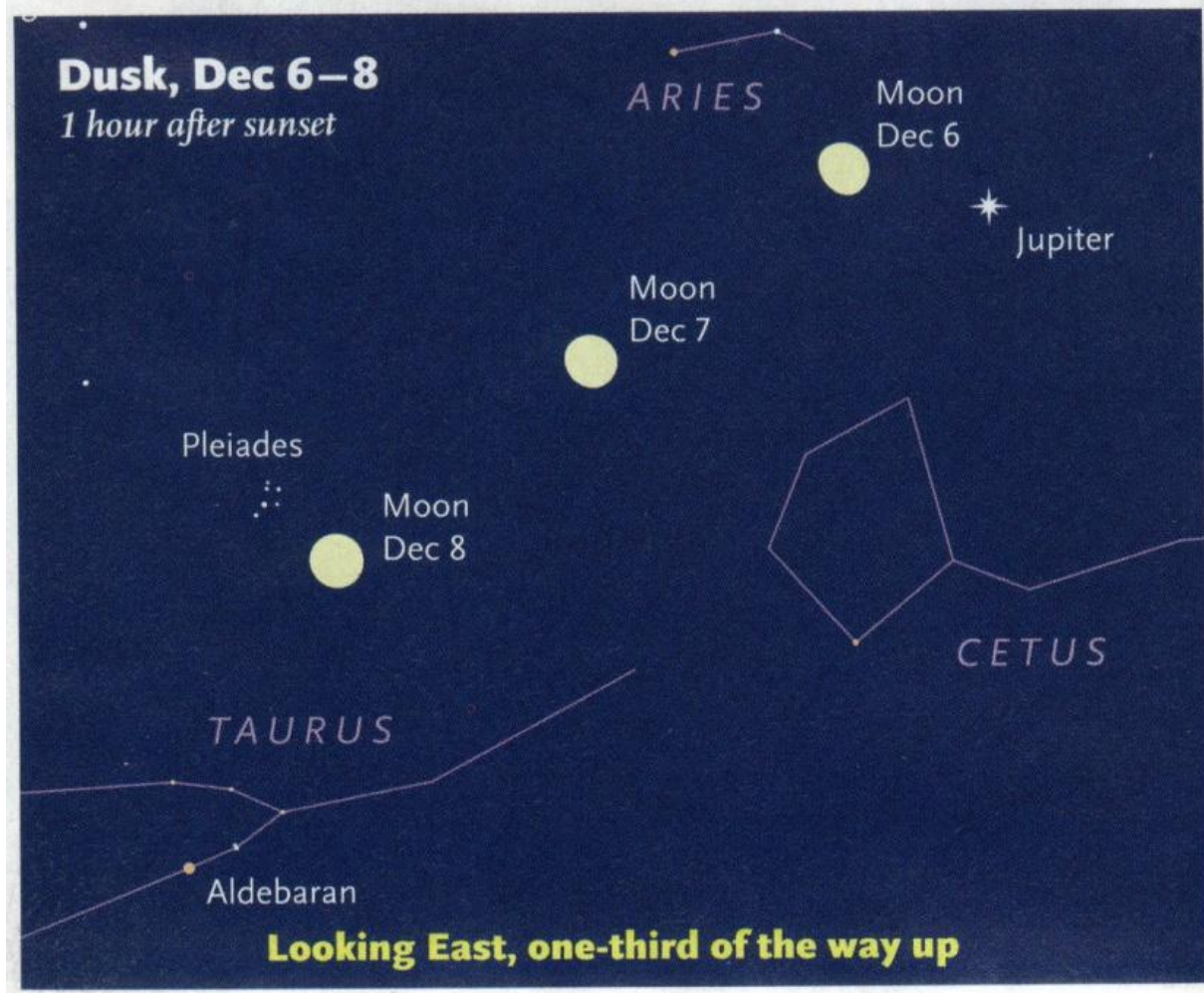


Image courtesy of Sky & Telescope

December 2011 Sky Events

Venus and the Crescent Moon in the SW

In the SW on the nights of Dec. 25 – 27, find the narrow, waxing crescent Moon climbing up past the brilliant planet Venus.

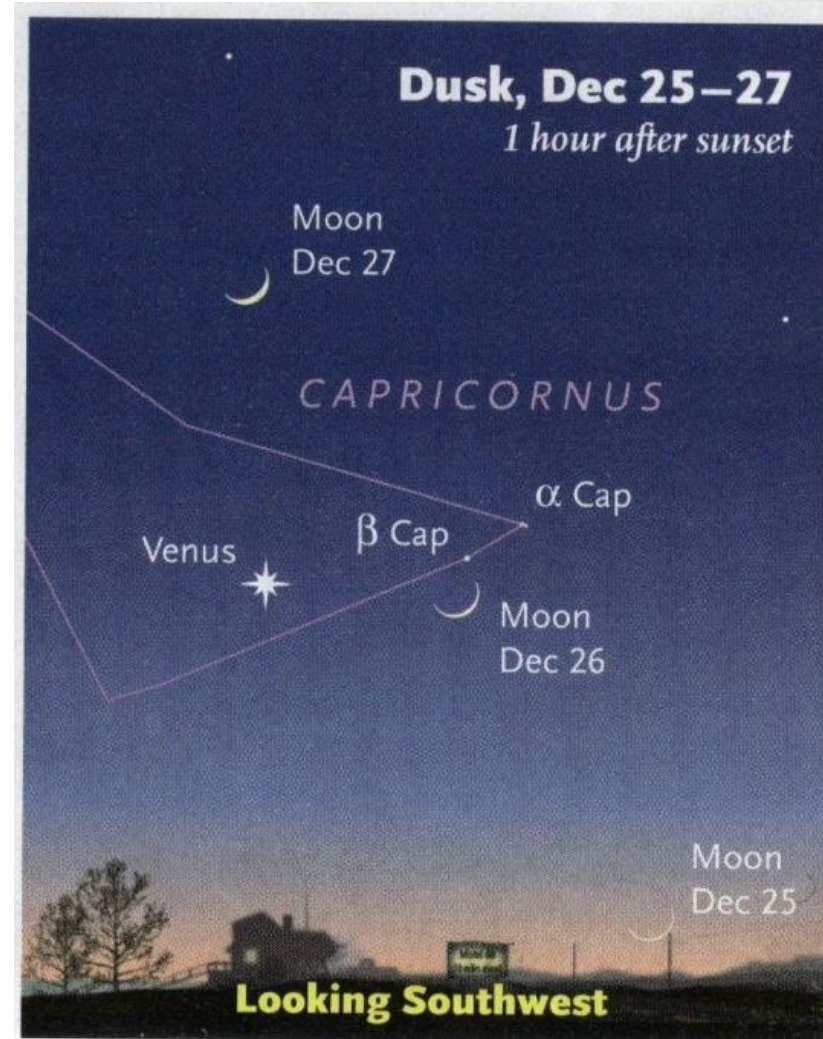


Image courtesy of Sky & Telescope

Dec. 2011 Planet Highlights

<u>Planet</u>	Avg. Distance from Earth	Constellation(s)	Avg. Diameter in arc seconds	Avg. Magnitude	Comments
Mercury	0.9 AU _s	Ophiuchus & Scorpius	7.8	1.5	Find it low in the SE at dawn
Venus	1.4 AU _s	Sagittarius & Capricornus	12.2	-3.9	Find it low in the SW at dusk
Mars	1.2 AU _s	Leo	8.0	0.5	Rises just before midnight

Dec. 2011 Planet Highlights

<u>Planet</u>	Avg. Distance from Earth	Constellation(s)	Avg. Diameter in arc seconds	Avg. Magnitude	Comments
Jupiter	4.3 AU _s	Aries & Pisces	45.5	-2.7	Still well positioned for observing this month
Saturn	10.2 AU _s	Virgo	16.3	0.7	Find it in the pre-dawn sky
Uranus	20 AU _s	Pisces	3.5	5.8	Observe it before 11:00 p.m. this month

Dec. 2011 Planet Highlights

<u>Planet</u>	Avg. Distance from Earth	Constellation(s)	Avg. Diameter in arc seconds	Avg. Magnitude	Comments
Neptune	30 AU _s	Aquarius	2.2	7.9	Observe it before 8:00 p.m. this month

December 2011 Sky Events

- ★ On Dec. 10th the Full Moon will be totally eclipsed with mid-totality occurring at 9:36 a.m. EST.
- ★ Unfortunately the Full Moon will have already set at 7:27 a.m. in the Asheville area – shortly before the Moon enters the Earth's umbral shadow, when the partial phases begin.
- ★ The Pacific region and eastern Asia will experience the entire total eclipse.
- ★ The winter solstice (summer solstice in the southern hemisphere) occurs in the opening hour of Dec. 22nd at 12:30 a.m. EST.
- ★ In the northern hemisphere it marks the longest night of the year.

The Moon this month – December 2011

☾★First Quarter – 2nd at 4:52 a.m.

☾★Full Moon – 10th at 9:36 a.m.

☾★Last Quarter – 17th at 7:48 p.m.

☾★New Moon – 24th at 1:06 p.m.

Unless otherwise indicated, all times are EST

Friday evening, Dec. 30th

Monthly club stargaze

- ★ **Sunset:** 5:26 p.m. EST
- ★ The 37% illuminated, 6 day old, waxing crescent **Moon** will set about 11:45 p.m. on this night.
- ★ Find **Venus** low in the SW in the constellation Capricornus just after sunset. In a telescope you should be able to detect its **gibbous** shape.
- ★ **Jupiter** can be found well above the SE horizon at sunset, and all 4 of its Galilean satellites will be in view tonight.
- ★ Jupiter's "great red spot" transits its central meridian at 8:00 p.m. tonight. Can you detect it?

December 30, 2011 Star Gaze

Jupiter's "great red spot" transits tonight

- ★ Jupiter's "great red spot" transits (crosses in front of) the center of the planet's disk about 8:00 p.m. EST tonight.
- ★ Under clear steady skies and using medium to high magnification, a telescope should make it visible for you.



The scene around 8:00 p.m. EST with the "great red spot" crossing the central meridian.

Friday evening, Dec. 30th

Monthly club stargaze

- ★ This would be a good night to locate and observe the 2 most distant solar system planets (**Uranus and Neptune**), and the closest dwarf planet (**Ceres – also the largest asteroid**).
- ★ All 3 of these solar system objects are well above the South horizon about an hour after sunset, but view them in the early evening before they set.
- ★ To observe these 3 objects you will need a telescope along with a good location chart, digital-setting-circles, and/or a go-to telescope.
- ★ You will find Uranus in the constellation Pisces, and Neptune and Ceres both in the constellation Aquarius (although some 27° apart).

Friday evening, Dec. 30th

Monthly club stargaze

Coordinates for Uranus, Neptune and Ceres
on the night of Dec. 30th, 2011:

Object	RA	DEC	Magnitude
Uranus *	0h, 4m	-0°, 24'	5.9
Neptune	22h, 4m	-12°, 26'	7.9
Ceres	23h, 54m	-11°, 2'	8.1

* Uranus is presently located near the point of the Vernal (March) Equinox where the celestial equator and the ecliptic cross in Pisces.

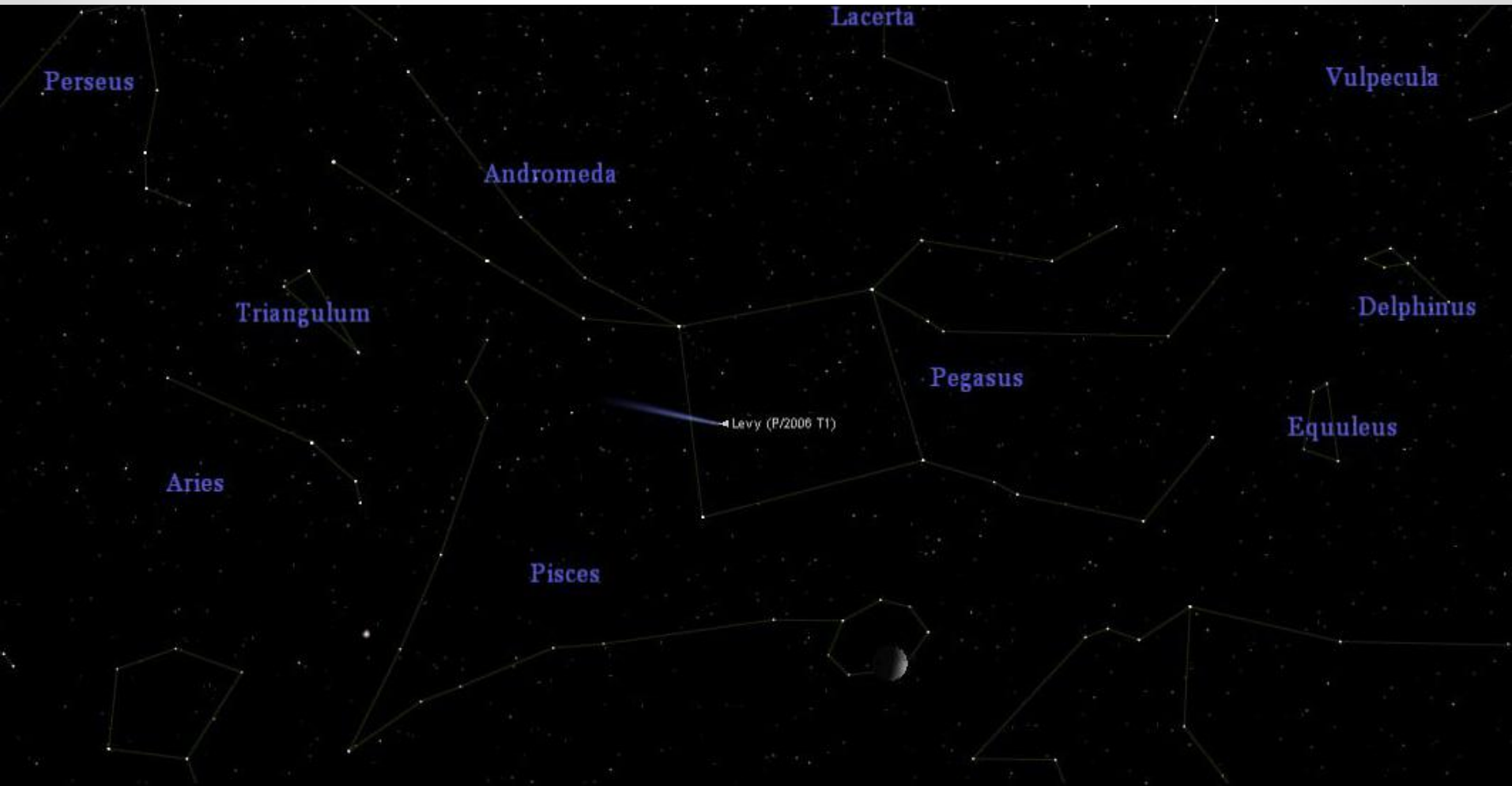
Friday evening, Dec. 30th

Monthly club stargaze

- ★ Here's a challenge for folks tonight: Locate and observe **Comet Levy P/2006 T1** – discovered by David Levy in Arizona in October 2006.
- ★ This comet has a short orbital period of only 5.24 years – this is its first return since its discovery, and it will reach closest approach to Earth in January 2012.
- ★ As of October 20, 2011, there have been no recorded sightings of this returning comet, but astronomers are expecting it to quickly brighten in December → no guarantees here!
- ★ It's located inside the Great Square of Pegasus tonight, and it is forecasted to be 7.7 magnitude.
- ★ Because it is located only 21 degrees above a 37% illuminated waxing crescent Moon tonight, it will be even more challenging.
- ★ Comet Levy coordinates tonight:

Coordinates: RA 0h, 03m & DEC +21°, 37'

Friday evening, Dec. 30th - Monthly club stargaze



Location of **Comet Levy P/2006 T1** – as seen looking overhead about 7:30 p.m. EST. You will need a telescope or binoculars to view this faint 7.7 magnitude comet.

December 2011 Highlight:

Two meteor showers this month

Meteor Shower	Zenithal Hourly Count	Peak Night
Geminids (1)	120	Dec. 13/14 & 14/15
Ursids (2)	10-12	Dec. 22/23

(1) Light from a waning gibbous Moon will severely diminish the observation of these meteors this year.

(2) The radiant is near the star Kochab in the constellation Ursa Minor. Moonlight will not interfere.

December 2011 Telescope Highlight: Galaxy NGC 253 in Sculptor

Finding 7th magnitude galaxy **NGC 253** in December requires a very clear, dark and transparent sky with a good view low to the South.

Located about 12 million light years away, this nearly edge-on spiral galaxy appears cigar-shaped.

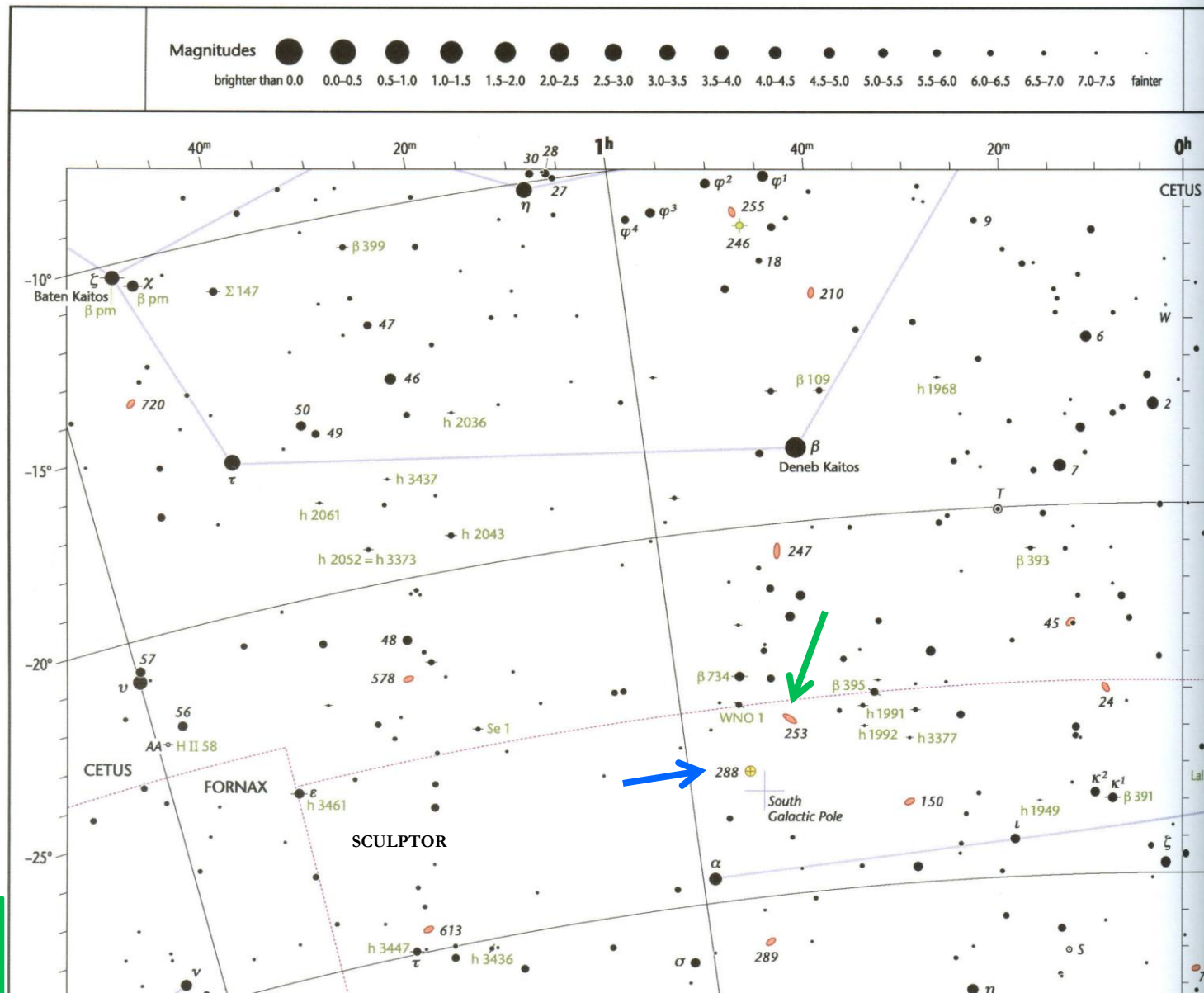


NGC 253 is sometimes referred to as the Silver Coin Galaxy, the Silver Dollar Galaxy or merely the Sculptor Galaxy.

December
2011
Telescope
Highlight:

Because it is
half a
degree long,
use
binoculars or
a telescope
at low power
to view
galaxy
NGC 253.

Coordinates:
RA 0h 48m &
DEC -25° 17'



Find the faint 8.1 magnitude globular star cluster,
NGC 288, less than 2 degrees SE of NGC 253.

December 2011 Telescope Highlight: Open Star Cluster M34 in Perseus

This 5.2 mag. open star cluster is located some 1,400 light years away, and it is an easy object for small telescopes at low power.

M34 is located about 5 degrees W-NW of the eclipsing variable star “Algol” in Perseus.

The cluster’s approx. 60 stars cover an area about the size of the full Moon.



Coordinates: RA 2h 42m & DEC +42° 47'

December 2011 Telescope Highlight: Two Bright and Striking Binaries in Cygnus

- ★ Two wonderful binary stars in Cygnus, the Swan, are easily visible in small telescopes this month: **16 Cygni** and **61 Cygni**.
- ★ View both of these stars about 1½ hours after sunset this month and before they set in the W-NW.
- ★ Both are true binary stars.
- ★ **16 Cygni** is a bright wide pair of 6th magnitude whitish-gold stars located 71 light years away.
- ★ The separation for the **16 Cygni** stellar pair is 800 AUs.

December 2011 Telescope Highlight: Two Bright and Striking Binaries in Cygnus

- ★ A Jupiter-size exo-planet was discovered orbiting the smaller of the **16 Cygni** stellar pair in 1996!
- ★ Find the 8th magnitude “Blinking Planetary Nebula” (NGC 6826) just 29 arc minutes East of **16 Cygni**.
- ★ Located only 11.4 light years away, **61 Cygni** was the first star to have its “parallax” measured by the German astronomer Friedrich Wilhelm Bessel in 1838.
- ★ This **61 Cygni** binary pair of 5th and 6th magnitude stars is separated by only 86 AUs.

December 2011 Telescope Highlight: Two Bright and Striking Binaries in Cygnus

- ★ **61 Cygni** is also known by the moniker “**Piazzi’s Flying Star**”.
- ★ Italian astronomer Giuseppe Piazzi discovered 61 Cygni, and astronomers have since observed its huge “proper motion”.
- ★ “Proper motion” is the movement of a star relative to more distant stars – that is, its intrinsic motion.
- ★ Piazzi's Flying Star moves across the sky so rapidly that it covers a distance equivalent to the apparent diameter of the full Moon (about 30 arc minutes) in a swift 340 years!

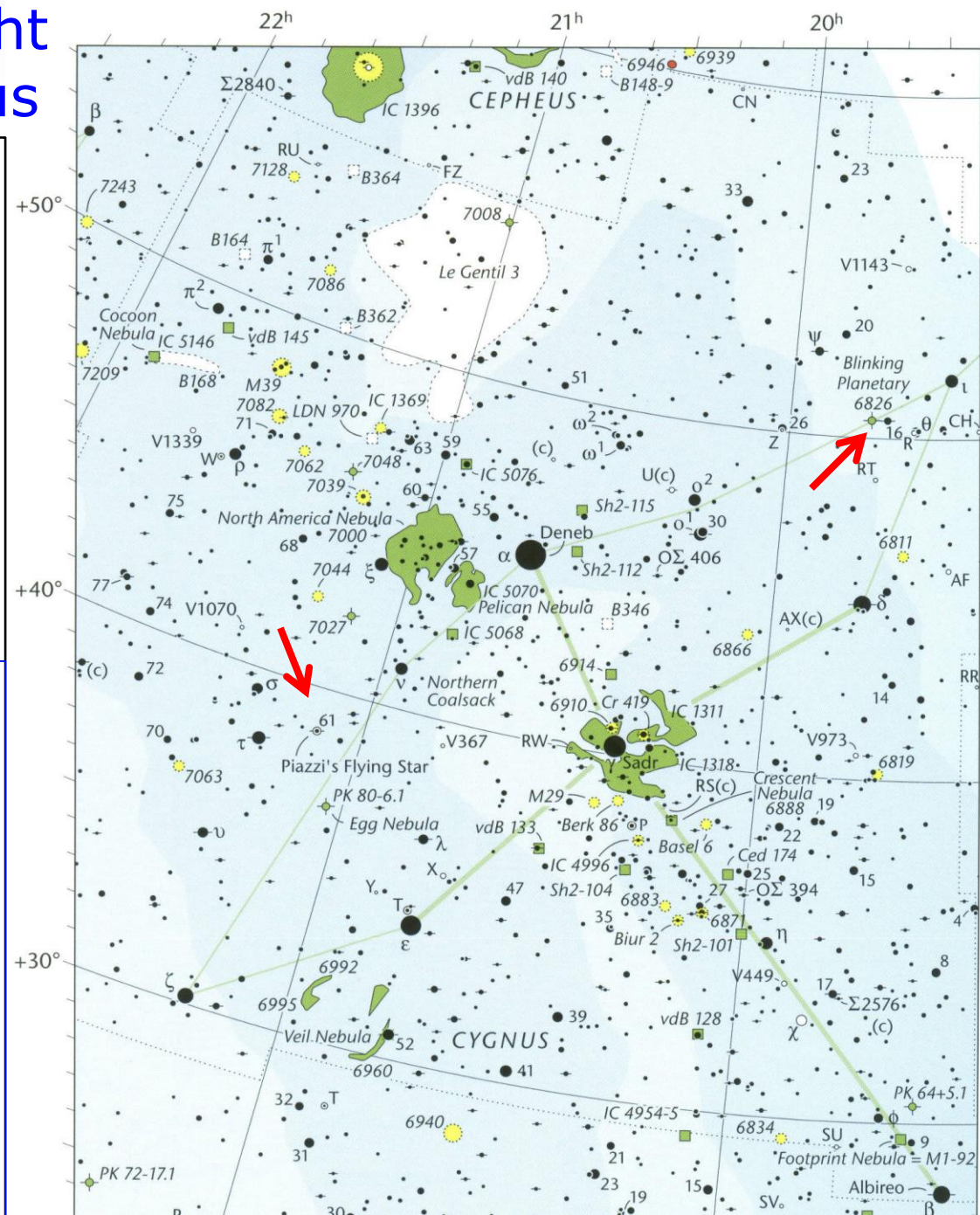
December 2011 Highlight 2 Binary Stars in Cygnus

16 Cygni and **61 Cygni** are easily located in northern region of the constellation Cygnus.

Coordinates:

Star	RA	DEC
16 Cyg	19h, 42m	+50°, 31'
61 Cyg	21h, 07m	+38°, 45'

Use high power and “averted vision” to view the Blinking Planetary nebula (**NGC 6826**) and its easily visible central white dwarf star - located very near 16 Cygni in 2-dimensions, but actually some 3,200 light years away!



End