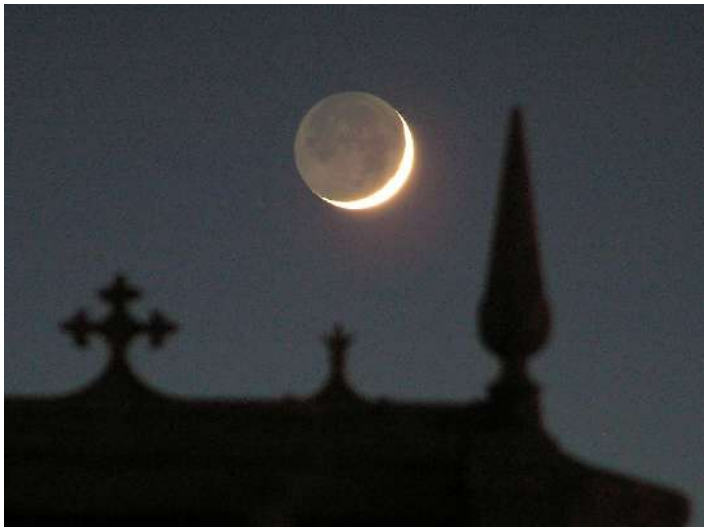
Caithness Skies

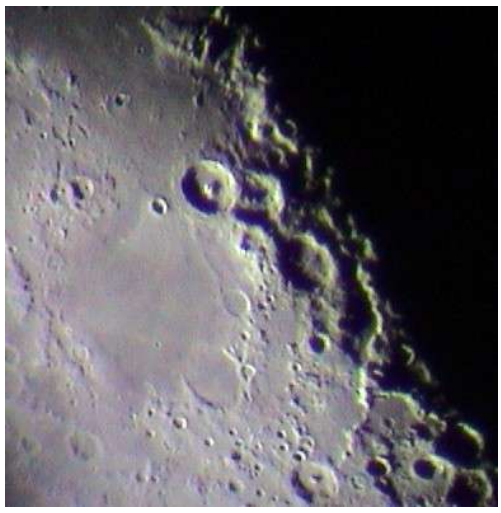
Moon Guide (Feb '07)



Crescent Moon showing "Earthshine"

Our Moon is our closest astronomical neighbour and because of this a lot of detail can be viewed by the amateur astronomer even with modest equipment. Indeed anyone with a small telescope or binoculars will be amazed by the amount of detail visible to them. Being so bright it is also the easiest object in the night sky to photograph.

I could provide many pages of details about the Moon, but as there are websites that describe the basics much more clearly and succinctly than I ever could, I'll point you in their direction (see links at the end) and leave you to look through them. Instead, in this guide I'll use some of my photos of the Moon to give a quick tour of some of the observable highlights. Hopefully this will inspire you to get out the binoculars or telescope next time the Moon is visible and see how much detail you can see.

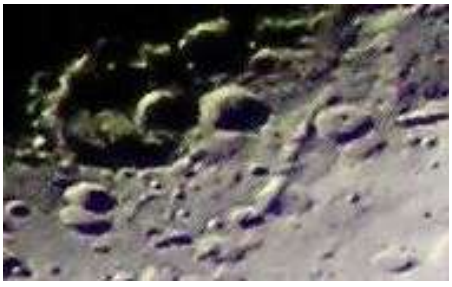


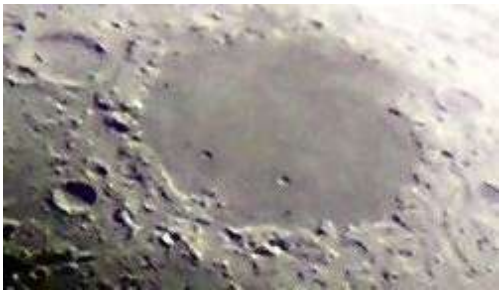
Mare Nectaris and crater Theophilus

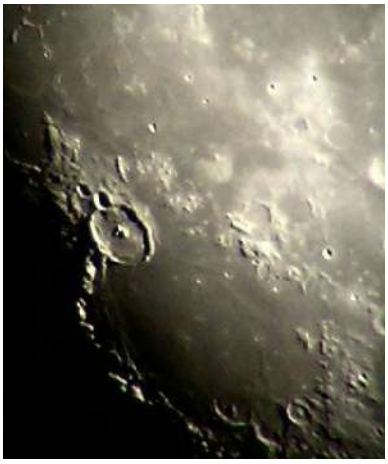
The Moon's surface varies in character with flat plains (maria), crater strewn areas and occasional mountain chains. The surface detail is often better observed when the sunlight hits the Moons surface at a low angle – this is at the area known as the terminator, which changes position from one night to the next as the Moon cycles through it various phases.

The photo opposite is a closeup showing Mare Nectaris with the prominent crater Theophilus above it. This crater is 104km across and 4400m deep and has an imposing 1400m high central peak.

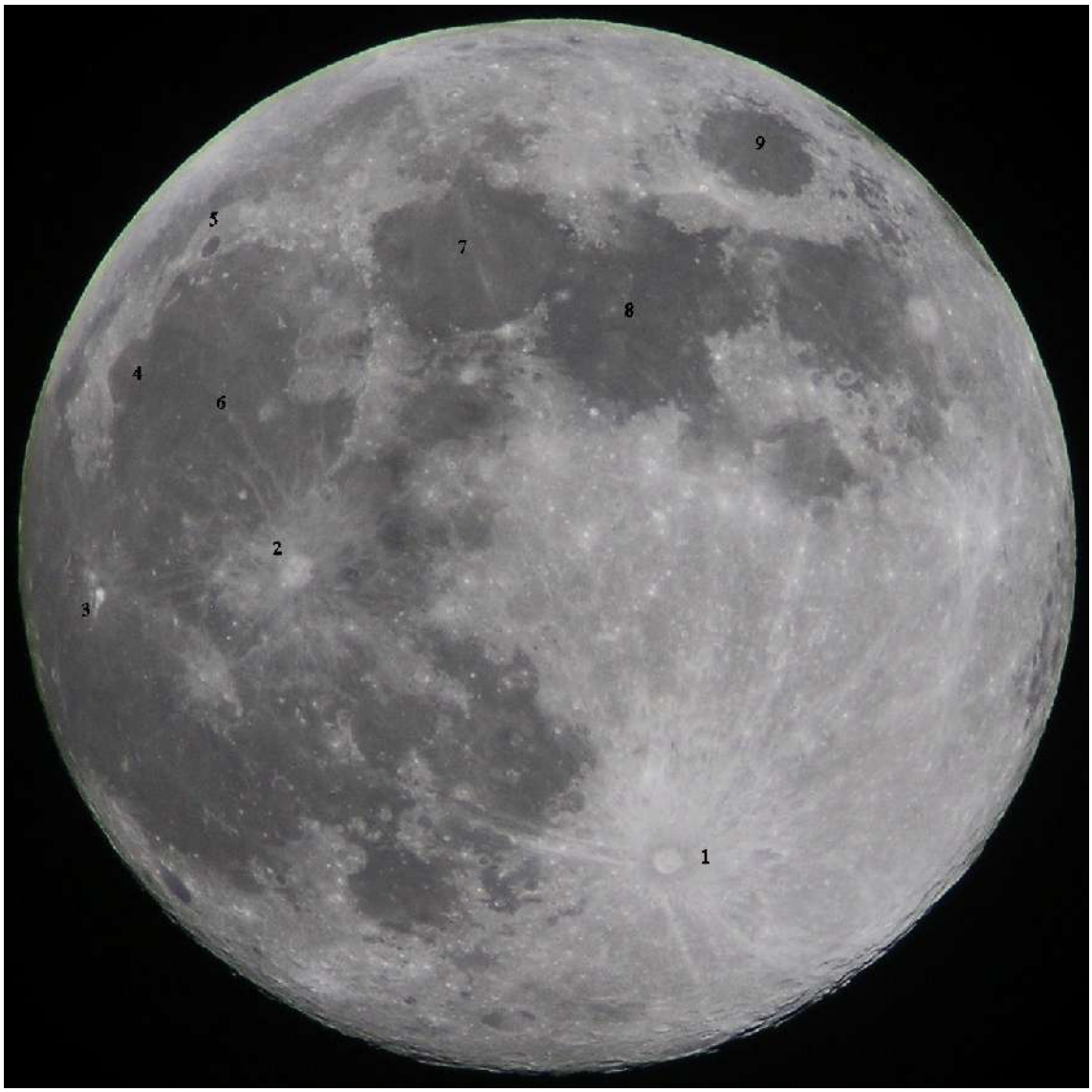
The closeup photos below give further examples of the detail that can be captured through a small telescope. The left photo shows Rheita Valley, a secondary crater chain that is believed to be a by product of the huge impact that formed Mare Nectaris. The middle photo shows two small craters *only* 20km in diameter in Mare Crisium and the right photo shows Mare Humorum & the walled plain Gassendi (which has a central peak 1200m high).



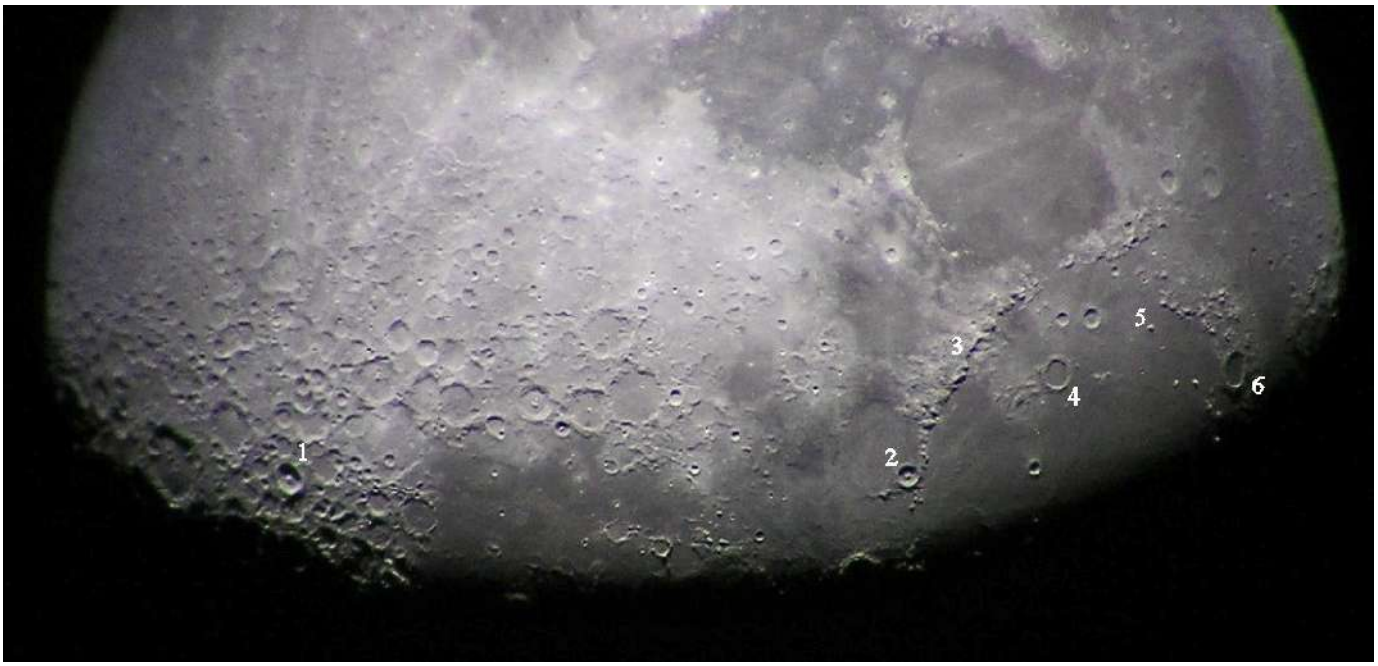




Below is a labelled photo of the full moon showing some of its more obvious features – ie the maria and the main ray centres of Tycho and Copernicus.



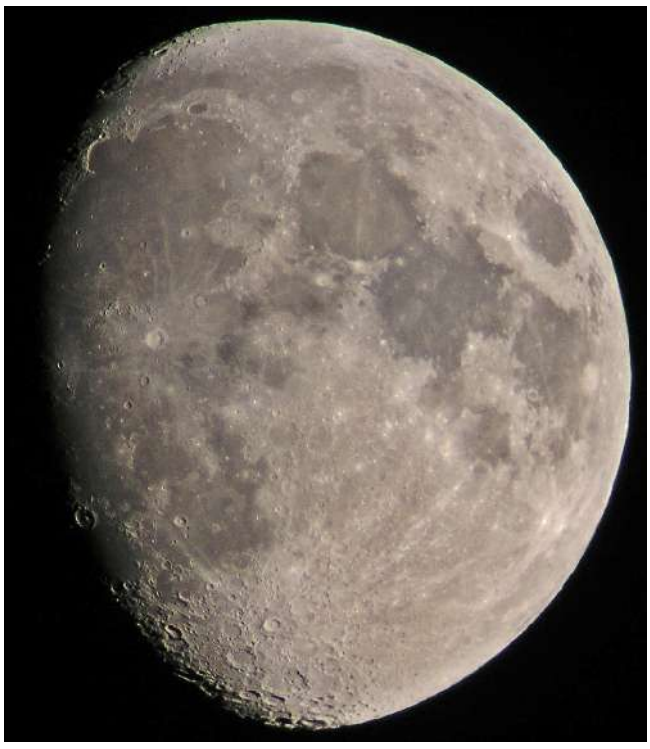
No	Feature Name	Information on feature
1	Tycho	Prominent rayed crater
2	Copernicus	Another crater that's a prominent ray centre. 92km in diameter.
3	Aristarchus	Young, highly reflective, (hence bright) crater. It was mistaken for an active volcano a few hundred years ago by the renowned astronomer Sir William Herschel.
4	Sinus Iridum	Very large crater with missing rim. The SE wall has been covered up by a lava flow from the Mare Imbrium. The mountains that make up the north wall of this bay are known as Montes Jura.
5	Plato	Large flat floored walled plain
6	Mare Imbrium	Name means “Sea of Showers”
7	Mare Serenitatis	Name means “Sea of Serenity”
8	Mare Tranquillitatis	Name means “Sea of Tranquility”. Site of Apollo 11 moon landing in 1969.
9	Mare Crisium	Name means “Sea of Crises”

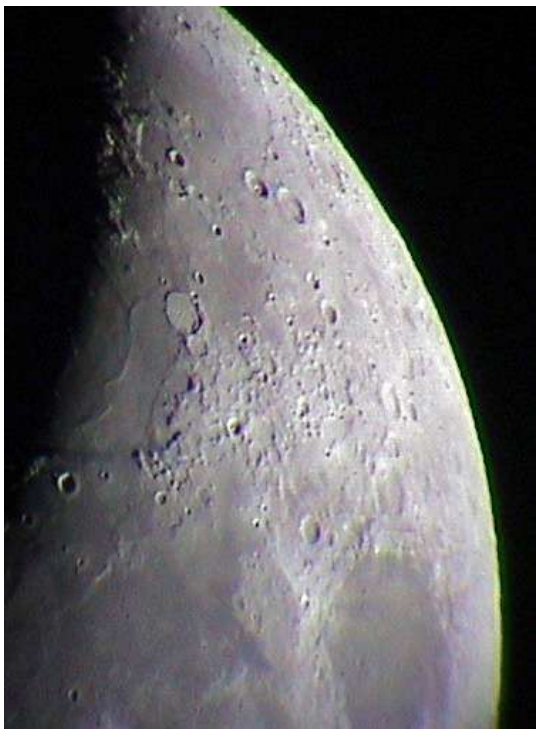


The features marked in the above photo are identified in the following table:

No	Feature Name	Information on feature
1	Tycho	A young (relatively speaking) crater 88km across and 4800m deep with a central mountain 1500m high. This crater is the main ray centre on the Moon. The photo of the full Moon above better shows the rays of ejected material that emanated from this crater.
2	Eratothenes	A crater 60km across and 3570m deep with very steep slopes.
3	Montes Apenninus	Mountain range 978 km long with highest point being 5400m
4	Archimedes	A crater 85km across and 2150m deep with a flat lava filled floor.
5	Mons Piton	Mountain - 2250m high
6	Plato	Walled plain in a mountain chain (104km wide). Flat lava filled floor.

And finally two more photos to show off the Moon's beauty further:





As you can see, the Moon has much to show anyone who has access to a telescope or binoculars, so if you get the chance why not have a look.

G Mackie, February 2007

Related Web Links

http://www.nmm.ac.uk/server/show/nav.00500300l005007	*All about the Sun and Moon – webpages from the Royal Greenwich Observatory – well worth looking at*
http://www.astronomygcse.co.uk/AstroGCSE/Unit2/Features.htm	*Features you might see on the Moon*
http://skytonight.com/observing/objects/moon/3308811.html	*Top 100 things to look for on the Moon*
http://www.nineplanets.org/luna.html	*Moon info and links*
http://www.inconstantmoon.com/inconstant.htm	*Online Moon atlas and other info*
http://moon.google.com/	*Another Moon Atlas*
http://www.noao.edu/education/phases/phases_demo.html	*Animation explaining Moon phases*
http://science.nasa.gov/headlines/y2005/04oct_leonardo.htm	*Earthshine or "Da Vinci Glow"*
http://www.astronomy.net/articles/21/ & *http://www.photoastronomique.net/geant/0505-0604wb_800.html*	*Moon Libration explained*
http://astrosurf.com/avl/UK_index.html	*Moon Atlas software (free)*
http://www.solarviews.com/eng/moon.htm	*Misc info about the Moon*
http://www.astropix.com/HTML/G_MOON/TOC_MOON.HTM	*Many Lunar images*
http://sunearth.gsfc.nasa.gov/eclipse/OH/OH2007.html *http://www.mreclipse.com/Special/LEprimer.html*	*Lunar Eclipse Info*

http://history.nasa.gov/SP-4214/contents.html *Where No Man Has Gone Before: A History of Apollo Lunar Exploration Missions*

http://www.hq.nasa.gov/office/pao/History/ap11ann/FirstLunarLanding/toc.html *The First Lunar Landing - As Told By The Astronauts*

http://www.apolloarchive.com/apollo_archive.html *Photos & Video from the Apollo missions to the Moon*