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## One Day Old Moon (Thin Waxing Crescent)‡

Viewing the Moon on this day is a challenge. The Moon is very close to the Sun, as a slender crescent against a bright sky. As a result of this, the young Moon requires viewing during twilight hours, when it will be low in the sky, near sunset. These facts result in increased undesirable atmospheric problems, and difficult seeing. As a result, it is rare to be able to use high magnification on this phase. Be ready to observe as soon as the Sun sets.

The dark side can nearly always be seen on this phase day, glowing with a gray light; it is often very obvious with the naked eye, and binoculars will show some vague detail in the night hemisphere. This phenomenon, known as *Earthshine*, is caused by sunlight reflected from the Earth relieving the stark blackness of the lunar night. As the Earth's reflected light is only about 1/10,000 that of the direct Sun, the Moon is only dimly lit. When there is a dense cloud cover over the sunlit hemisphere of the Earth, the reflection is greater, and Earthshine observations can actually serve as an indication of atmospheric conditions.

The best time of year for observing the early phases of the Moon is the Spring, when the Moon is highest. Even then, it will be most rewarding when lunar libration is favorable, that is, when the eastern edge is turned towards the Earth (librations occur because the Moon's orbit is slightly elliptical, so we see different part's of the limb come in and out of view, especially near the Lunar equator).

**Key Features to Observe Tonight**

It is difficult to be certain which features will be visible tonight due to libration effects. If the libration is favorable, it will be the eastern side of the Moon; otherwise the crescent may be tipped towards the north or south of the lunar equator.

When it first becomes visible in the evening sky, one large feature dominates the crescent: the elliptical **Mare Crisium**, which is always near the eastern limb. The Mare Crisium is a useful guide for revealing the amount of lunar libration. At one observation the Mare Crisium may almost touch the limb, while twelve days later it will have moved well away from the edge. This slow shift, once it is known to the observer, can be easily detected even with the naked eye.

Approximately 300 miles across, Mare Crisium is one of the smaller maria; nevertheless it is probably the most interesting of all. Binoculars will just reveal its mountainous border, and the best time to look at it is actually just after Full, under evening illumination. In a powerful telescope the apparently smooth surface of the mare is seen to be pimpled with tiny craterlets a couple of miles across, winding ridges running their way among them.

Down south of the Mare Crisium is a prominent line of four craters (listed in order): **Langrenus**, **Vendelinus**, **Petavius** and **Furnerius**. They are all eighty to one hundred miles across. Vendelinus, on the shore of the Mare Fecunditatis, has been broken down by once molten lava-one of the many lunar Pompeus to be seen all over the surface. The most interesting is Petavius, which has a fine central mountain and a deep valley running to the southeast wall. Another conspicuous crater is **Cleomedes**, just north of the Mare Crisium.

**Humbolt** (**Humboltium)** will lie somewhere between the midpoint and halfway to the southern cusp. **Hecataeus**, a smaller crater, lies immediately to the north of Humbolt. **Phillips** is a still smaller crater between Hecataeus' western edge and the terminator.

About a quarter of the length of the terminator north from Hecataeus you may also see the similarly sized **Neper**, very close to the limb and foreshortened so that it appears as little more than a dark streak.

About half as far again north, and itself about half as large, is the old crater **Plutarch**.

‡with permission from **Lunar Discoverer User's Manual** by Robert Duvall, 2013

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