Young-Moon Hunting in 2005  What's your record for spotting the thinnest crescent Moon? By Alan MacRobert and Roger Sinnott

The crescent Moon in a twilight sky is always a beautiful thing, but when the crescent is very thin — a mere curling hairline — it looks positively eerie, almost supernatural. Perhaps this is because we see such a crescent so rarely. The thinner the Moon, the closer it appears to the Sun — so the more it's hidden by twilight glow, atmospheric extinction, and obstructions near the sunset or sunrise horizon.

Few people ever see a crescent less than 30 hours old (less than 30 hours from the moment of new Moon) unless they plan for it. But much younger crescents can be sighted. Hunting them has long been an amateur-astronomy pursuit in the Western world, and it gets more attention in Islamic societies, where an actual sighting of the hilal (new crescent) determines the starting date of each month. Because the thin Moon's visibility depends not just on astronomical factors but also on the clarity of the air and the visual acuity of witnesses, the start of the lunar month for a given region is not always predictable in advance.

The absolute limit of thin-Moon visibility is believed to be when the Moon is about 7° from the Sun. When the Moon is closer than this Danjon limit, none of its sunlit surface whatever should be in view, due partly to shadowing by irregularities on the lunar limb. But several other factors enter the visibility equation too. For the Moon to be as young as possible when seen, it should be near perigee (so it's moving rapidly away from the Sun on the celestial sphere) and also near its greatest ecliptic latitude north or south (which increases its elongation from the Sun at a given age). Viewing from a high altitude helps greatly: the less air there is along your line of sight, the darker the twilight will be and the less the Moon will be dimmed by atmospheric extinction. These factors are explored in the comprehensive article "Seeking Thin Crescent Moons" in the February 2004 issue, page 102.

The reliability of borderline crescent sightings can be a touchy subject, especially when the setting of the civil calendar is at stake, and we can't claim to know the definitive world record. But in the opinion of many naked-eye viewers, the sighting to beat is the one made by Stephen James O'Meara at Mount Wilson Observatory in California on May 24, 1990. The Moon was just 15 hours 32 minutes old and 9.1° from the Sun.

For sightings with optical aid, the record is apparently held by Mohsen Ghazi Mirsaeeed of Iran, who used giant 40

The winning crescent Moon was just 20.6 hours from new when Luis Carreiro of Leiria, Portugal, caught it last October 13th at 6:12 Universal Time. The Moon was only 3° above the horizon, and the Sun was 7° below the horizon. "I was extremely lucky," Carreiro writes, "since in my area, dawn is clear and unfogged are quite rare." He used a 90-millimeter f/5.6 refractor as the lens on a Nikon D70 digital camera.
These are the best places to catch the year’s young crescent Moons. Given excellent sky conditions, the Moon can be seen if you’re left (west) of a visibility arc. The farther left you are, the less difficult the sighting will be. The arcs show where the Sun is 5° below the true (sea level) horizon and the Moon is 2.5° above the horizon, not counting atmospheric refraction. The small cross marks the most opportune position on each arc: where the Moon stands directly above the Sun and is therefore 7.5° from it. Marked at each cross is the Moon’s age at this point. Some months clearly offer better record-setting opportunities than others – even if you could travel anywhere in the world.

In Esfahan, Iran, Alireza Mehrani captured the waning crescent Moon about 30.7 hours before new on the morning of December 22, 2003. He used a Sony DSC-F717 digital camera and 1/10-second exposure.