

Double Full Moons

— Howard L. Cohen

The month of May 2007 will have two full Moons for the USA. According to modern traditions, some people will call May's second full Moon "Blue" but modern research interprets Blue Moons otherwise

Every so often, in fact, about every 2.7 years on the average, a second full Moon appears in a Gregorian calendrical month. This happens, of course, since the average time between full Moons (a synodic period) is about 29.53 days whereas all of our calendar months have at least 30 days except February. (Therefore, February cannot have a second full Moon and sometimes has only three named lunar phases.)

The last time we had a second full Moon in a month was July 2004 and the next after this year is December 2009. Also, in 1999 both January and March had two full Moons, a much rarer occurrence that will not be repeated until 2018 when February will have no full Moon.

The month of May this year is an example of a double full Moon month for the USA — full Moons occur both on May 2 and May 31 for people living in most of the Western Hemisphere at least one hour west of Greenwich.

May's second full Moon actually occurs June 1 at 1h04m Universal Time (UT), the time at Greenwich (longitude zero). However, for western time zones such as Eastern Daylight Time (EDT), four hours earlier than UT, the date of this full Moon is the previous day, May 31 at 9:04 p.m. EDT. For Greenwich and time zones east, it is June that will have two full Moons, June 1 and 30. So, second full Moons of the month are *time zone dependent*.

Thus, for us and the rest of the Americas, we will celebrate a second full Moon in May, a full Moon some will say is also "Blue."

In recent years much has been discovered about the origin of the term, "Blue Moon," which is now understood to have several meanings going back many centuries. These include rare, visibly colored blue Moons, which may not be full, due to extensive particulate matter in the air from major forest fires or massive volcanic eruptions

Much more common is the now widely held idea that a Blue Moon is the second full Moon in a calendar month. Therefore, we will have a "Blue Moon May."

However, Roger W. Sinnott, Donald W. Olson, and Richard T. Fienberg, writing for *Sky & Telescope*, point out that the trendy definition of a "Blue Moon" as the second full Moon in a month is a mistake. They note that folklorist Philip Hiscock (*Sky & Telescope*, March 1999) traced the original calendrical meaning of the term "Blue Moon" back to the *Maine Farmers' Almanac* for 1937. Further research showed that the old meaning of a Blue Moon was quite different from today's conventional use of Blue Moons to represent a month's second full Moon.

In fact, they showed the *Maine Farmers' Almanac* used the phrase Blue Moon to represent the *third full Moon in a quarter of the year when there were four full Moons*. (Usually a quarter year has only three full Moons!)

They further noted that this original calendrical definition apparently was lost and replaced by the second-full-moon-in-a-month idea, especially when James Hugh Pruett, an Oregon amateur astronomer, wrote a *Sky & Telescope* article (March 1946) called "Once in a Blue Moon." Pruett, who may not have seen the *Main Farmer's Almanac*, wrote, "Seven times in 19 years there were — and still are — 13 full Moons in a year. This gives 11 months with one full Moon each and one with two. This second in a month, so I interpret it, was called Blue Moon."

Pruett's interpretation ultimately became the traditional or conventional meaning of a Blue Moon usually cited today although Hiscock and *Sky & Telescope* researchers have now shed new light on its probable, original, calendrical meaning.

Readers who are fascinated by Blue Moons and want more details should read "What's a Blue Moon?" at:

<http://skytonight.com/observing/objects/moon/3304131.html?page=1&c=y>

If interested in why the Moon can be "truly blue" in appearance, see

http://science.nasa.gov/headlines/y2004/07jul_bluemoon.htm

It is also worth reading Philip Hiscock's original article (also titled, "Once in a Blue Moon") if one has access to the March 1999 issue of *Sky & Telescope*.

So, will 2007 May (or June depending on your time zone) have a Blue Moon? Say yes if choosing to use today's popular cultural meaning—the second full Moon in a calendar month.

Otherwise, those preferring the more complex "traditional" meaning reckoned by the seasons, should wait until 2008 May 19 (or May 20 depending on the time zone). On this date a third full or "Blue Moon" of a four full Moon spring season will fall.

The traditional meaning is more complex because it can depend on the length of the year and when the year begins. For example, the *Maine Almanac* used the *tropical* not a calendar year to mark the seasons starting with the winter solstice. Moreover, traditional or old style Blue Moons, since set by the seasons, occur about a month before equinoxes and solstices, in February, May, August, or November.

Note: A *tropical year* is the time for the Sun to return to a fixed point along its path on the sky (the ecliptic) such as from vernal equinox to vernal equinox.

(The rationale for the traditional meaning given in the *Maine Almanac* ensures that other named full Moons fall at their proper places during the year such as the "Moon before Yule" or the "Easter Moon" just before Easter, etc.)

Of course, the term "Blue Moon" can still carry other "meanings" including *Blue Moon*, a Belgian-Style white beer from the Molson Coors Brewing Company! Many relate blue moons to sad, lonely, depressed, gloomy, etc., as expressed in numerous songs. An early reference apparently also connects blue with "absurd" through a 1528 proverb that states,

“If they say the moon is blue, then we must believe that it is true.”

Of course, we also have the popular phrase, “once in a blue moon,” meaning infrequent, hardly ever, rare or now and then. How this connects to actual lunar events is unclear, especially since second full Moons in a month are not very uncommon!

In 1991, I suggested a hypothetical, farcical connection between lunar events and the idea that blue relates to unlucky. A second full Moon in a calendar month or four in one season gives 13 full Moons in a calendar year. Since some consider the number 13 unlucky, the occurrence of this “extra” full Moon in a year might be viewed with displeasure or gloom. Therefore, because people often connect the word “blue” with hopelessness, melancholy or despair, it is possible that this extra full Moon became associated with the color blue!

Celebrate May’s second full Moon or not, but take time to ponder the many interesting meanings associate with “Blue Moons.”