What's up in Astronomy By Eric Erickson

Offered Title: Strange Lights on the Moon

There have been reports of bright light and flashes occurring on the Moon. The technical name for this is Transient Lunar Phenomena (TLP) or Lunar Transient Phenomenon (LTP) and believe it or not, sightings have been reported since the sixth century.

The term Transient Lunar Phenomena was coined by amateur astronomer Patrick Moore while chronicling these phenomena in a NASA report he co-authored in 1968. They include mist, red, green, blue or violet coloration, brightening (white or color), and darkening. My focus for this article will be brightening phenomena.

Here are some interesting reports:

An early documented report was on June 18, 1178, by monks from Canterbury, England. They reported sparks, and twisting flames occurring on the Moon several times in succession that night. What did they see? One proposal was the possibility of a meteor crashing into the Moon, forming crater *Giordano Bruno*. Later research makes this very unlikely. A meteor impact of this magnitude would have created a huge plume of material, resulting in amazing meteor storms at Earth. No such meteor storms were reported. We don't know what they saw. Maybe volcanic activity?

In 1787 British astronomer William Herschel reported red glowing spots on the shadowed part of the Moon. He suggested the possibility of volcanic activity, hmmm. They were short lived and no one else reported it. His observation occurred during an aurora seen as far south as Italy, a rarity. It was subsequently dismissed by astronomers, claiming it was the result of atmospheric disturbances. In 1963 cartographers at Lowell Observatory reported bright red, orange, and pink spots in Aristarchus crater and nearby. Maybe Herschel was right? Just a few days after the Lowell Observatory report, astronomers at Observatoire du Pic-du-Midi in the French Pyrenees photographed a wide area luminescence. The photographs along with a paper were published in Scientific American.

In 1958 Russian astronomer Nikolai Kozyrev recorded with a spectrometer an "eruption" on the central peak of Alphonsus crater.

In 1969, Apollo 11 astronaut Michael Collins verified a bright glow near Aristarchus crater that had been seen by astronomers in Bochum, West Germany.

In 1992 strange brightening was seen in Langrenus crater by astronomers at the Observatoire de Paris.

In more recent years better technology and greater interest has resulted in the recording of numerous meteoroid impacts on the Moon. So, now we know flashes can be real, due to little meteors. The other brightening phenomena are not as easily confirmed. One possibility is due to outgassing from underground cavities, and the resultant cloud reacting with solar energetic particles, causing a white or colorful brightening. Another proposed cause is from electrodynamic effects, where fracturing events at the surface release gaseous radiogenic products that glow. Volcanism is being studied as well. So far, no smoking gun. Keep looking.

What's in the Sky?

November 29; before sunrise; south: A waning Moon and Leo's alpha star Regulus are close