

# WHEN STARS FELL TO EARTH





## Himalayan and US meteor showers during 1860 are documented in poetry, art and astronomical accounts. **Douglas Palmer** ponders potential connections

**O**ne hundred and 59 years ago, on July 14<sup>th</sup> 1860, the people of the remote Himalayan hill station of Dharmsala in Himalchal Pradesh, north-western India were treated to the awesome sight of ‘shooting stars’ burning up as they plunged through the atmosphere into the surrounding landscape. The locals reported seeing ‘flames of fire, nine feet in length and clouds of dust as the incandescent fragments landed’ (Sedgwick Museum archives). Awed they may have been, but not too frightened to try to retrieve some of the heavenly bodies. On doing so, the locals were in for a surprise—though not in the way you might expect.

### **Empire’s reach**

1860 was just three years after the Indian Rebellion, the uprising against the British East India Company and the British Crown, and Earl Canning was still the British Governor General. The local population of Dharmsala had increased in number, with the newly garrisoned Gurkha Light Infantry along with the seasonal influx of colonial administrators and their families escaping the heat of Delhi. The British presence and their observation of the celestial drama drew the phenomenon to the attention of the Geological Survey of India, which was then directed by an Irish geologist, Thomas Oldham. An investigation was ordered.

### **Hot news!**

The investigating officer reported that eye-witnesses ‘ran to the spot to pick up the pieces. Before they had held them in their hands half a minute they had to drop them...’ (Sedgwick Museum archives). However, the reason was not what was expected. The report continued by saying it was ‘...owing to the intensity of the cold which quite benumbed their fingers...’. As surprised and puzzled as the locals, the officer continued ‘...considering the fact that they were apparently but a moment before in a state of ignition, is

very remarkable, each stone that fell bore unmistakable marks of partial fusion’ (Sedgwick Museum archives).

What the people of Dharmsala had in fact experienced was the intense coldness of deep space from where the meteorites originated. Despite their surface fusion, the low thermal conductivity and size of each rocky meteorite before they fragmented preserved their low temperature.

### **Poet, prince and president**

That might have been the end of the story, but for an unlikely combination of events in New York State. A few days after the Dharmsala meteorite, in New York on the night of July 20, 1860 the great American poet Walt Whitman [1819-1892] saw a ‘strange huge meteor procession, dazzling and clear, shooting over our heads’ and wrote of it in his poem *Year of the Meteors*. The brief description was tantalising, for what kind of meteorite event had he actually seen?

The full stanza of Whitman’s poem conflates the appearance of the meteors with three other major American events of 1860. There was the June arrival in New York of Brunel’s leviathan, the *Great Eastern* on her maiden voyage, the October state visit of the 18-year-old Prince of Wales and the November election of Abraham Lincoln to the presidency. For Whitman and many others, such an astronomical event was ‘*Year of meteors! Brooding year!*’ and filled with foreboding—which the subsequent outbreak of the American Civil War seemed to confirm.

### **And a painter**

Whitman was not the only observant artist on the night of July 20<sup>th</sup>. One of America’s most famous landscape painters, Frederick Church [1826-1900] was equally impressed by the same event. Influenced by Humboldt’s vision of the interconnectedness of nature and Ruskin’s emphasis on close observation, Church was greatly interested in the scientific portrayal of nature. By 1860, he was the most ▶

► famous and successful American painter and could afford to buy a farm in Hudson, New York. And, he was there on his honeymoon on the night of July 20<sup>th</sup> at 9.49 pm when the meteoritic fireballs passed horizontally overhead. They took some 30 seconds to cross the night sky, from the Great Lakes towards New York State and out over the Atlantic.

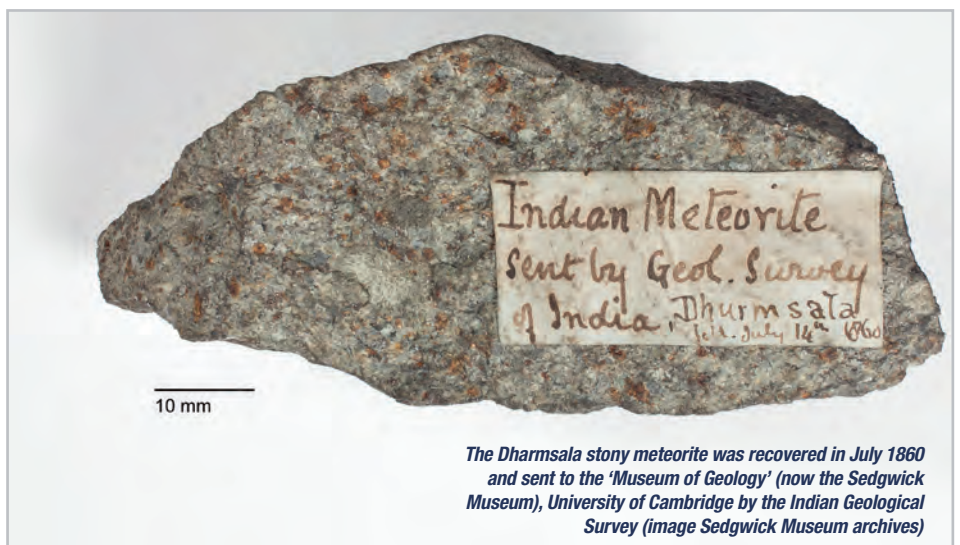
Church saw enough of the unexpected and dramatic succession of bright fireballs to paint 'The Meteor of 1860'. In this painting, Church clearly shows a train of fireballs following the same trajectory across the night sky with such brightness that their incandescence is reflected in the lake waters below. But despite his fame, Church's painting did not become widely known because he kept it in his farmhouse bedroom for many years. The painting was not connected with Whitman's poem for another 150 years. Whitman scholars had been puzzling over what had prompted his poem until 2010, when rediscovery of the Church painting allowed the connection to be made (*Olson et al., Sky & Telescope Magazine* 2010).

## Great Meteor Procession

The rare and remarkable astronomical event observed in the USA is now recognised as 'The Great Meteor Procession of 1860'. It was the result of a meteor breaking up as it entered the atmosphere and forming a train of fireballs all following similar paths. In this event, the meteor is thought to have entered the atmosphere at such a low angle that it became what is known as an 'Earth-grazing' meteor. It glanced through the upper atmosphere and returned to space.

The extraordinary sightings in Dharmsala and New York took place less than a week apart. This intriguing coincidence does not appear to have been previously commented upon, but prompts the question of whether the events were in anyway related. Fragments of the Dharmsala meteorites are preserved in the University of Cambridge's Sedgwick Museum, and appear to be the only tangible evidence of the incident. But, given the New York meteors merely passed through our atmosphere, is unlikely we'll ever know whether these falling stars were sourced from similar parts of our Solar System.

**Douglas Palmer is Communications Officer at the Sedgwick Museum of Earth Sciences, Cambridge; e-mail: dp315@cam.ac.uk**



*The Dharmsala stony meteorite was recovered in July 1860 and sent to the 'Museum of Geology' (now the Sedgwick Museum), University of Cambridge by the Indian Geological Survey (image Sedgwick Museum archives)*

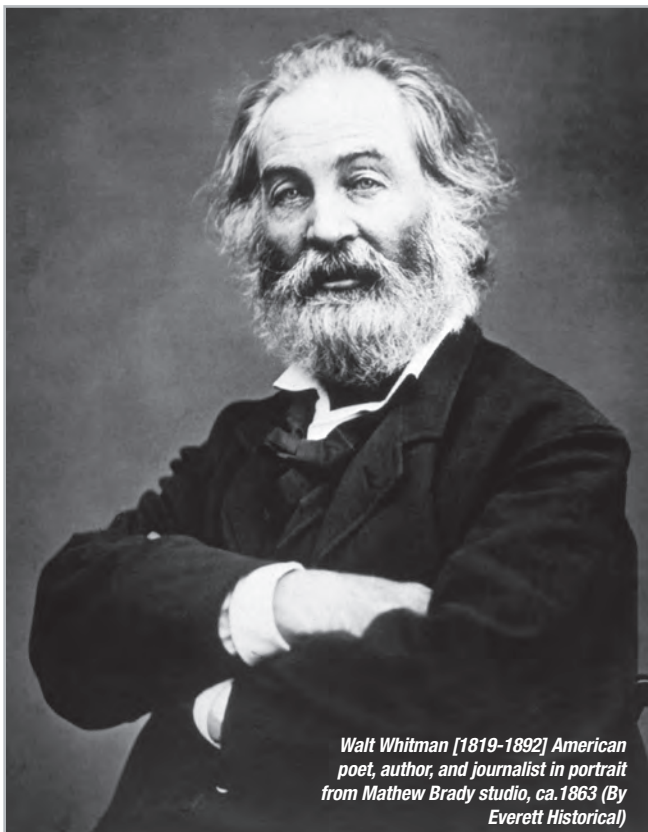
## FURTHER READING

◆ *Olson, D. et al. (2010) Walt Whitman's "Strange Huge Meteor Procession" Sky & Telescope magazine <https://www.shopatsky.com/sky-telescope-july-2010-digital-issue>*

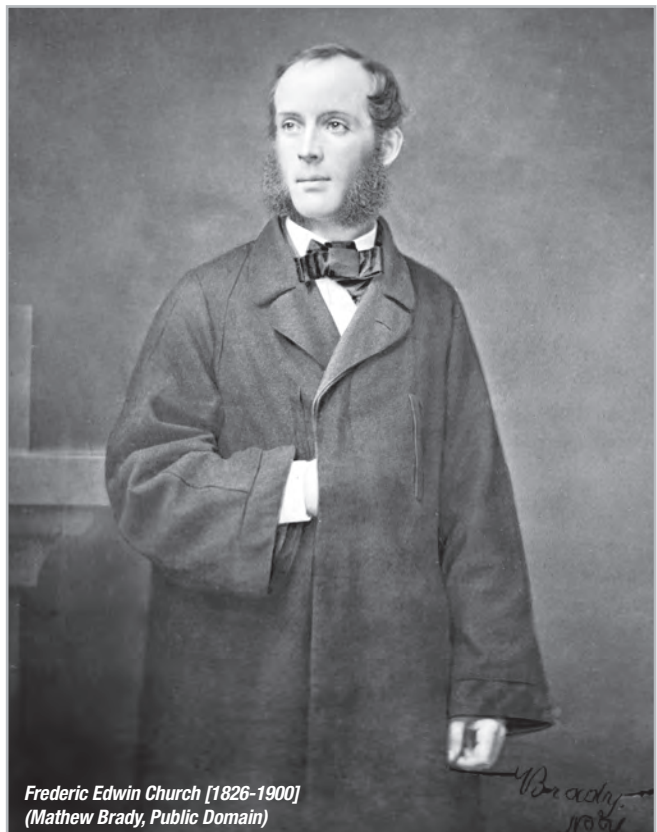
◆ *Whitman, W. Year of Meteors (1859-1860) in Leaves of Grass. Philadelphia: David McKay, [c1900]; Bartleby.com, 1999. <https://www.bartleby.com/142/100.html>*



*The Meteor of 1860 by Frederic Edwin Church [1826-1900] (Courtesy of Judith Filenbaum Hernstadt. Public Domain)*



*Walt Whitman [1819-1892] American poet, author, and journalist in portrait from Mathew Brady studio, ca.1863 (By Everett Historical)*



*Frederic Edwin Church [1826-1900] (Mathew Brady, Public Domain)*