Brocken Spectre

Artist Charles Monkhouse writes about the elusive and mysterious Brocken spectre and how he created his own, leading to an installation at Rievaulx Abbey.

A Brocken spectre is an image projected by the sun on to cloud or mist. It has two components: the spectre, a shadow of the viewer; and the glory, an iridescent spectrum around the viewer's head. It is an apparition common in mountaineering folklore but a rare experience even for regular walkers. The glory is visually unlike anything else we see; science cannot fully account for its formation and an unexpected encounter on a mountain with a Brocken spectre can be charged with awe and significance.

Brocken Spectre is a light installation I started in X-church (formerly St John the Divine) in Gainsborough during a residency in 2011. It involved the light, the mist and a viewer, so is a universal experience that anyone, anywhere, could or might experience, and at the same time a singular experience that could not be shared; one can only see one's own glory. I continued working on Brocken Spectre before installing it in Rievaulx Abbey during Holy Week 2017.

I first became aware of Brocken spectres in the summer of 1964. My father and mother had been walking with a friend on Dow Crag near Coniston when they encountered a Brocken spectre. They returned from their walk, still excited, and told us what they had seen. My father, a journalist, wrote about the encounter.

> *"I called to my wife and my friend, who were a little behind me, and they came up with me and saw the spectre too. Then we became conscious of a curious thing. There were three of us, but we each saw only one shadow and one bow - our own. I made semaphore movements with my arms; I could see a dim shadow as of arms moving; but when they moved, their movements were not reflected in my bow. The Brocken bow is a solipsist world, in which only the observer exists.*" (Patrick Monkhouse 1964)

The glories of Brocken Spectres are related to rainbows; in both, water droplets reflect a light source directly behind the viewer's back to the eye while filtering the light into bands of colour ordered by wavelength. The

difference between the rainbow and the glory is their droplet size; raindrops are measured in millimetres, the droplets of mist in microns. The rainbow's larger droplet size allows sunlight a simple path through the droplet, refracting on entry, reflecting off the back, refracting again on exit. The angle of refraction depends on the wavelength of the colour. This can be calculated using the geometry of classical optics and results in a regular bow between 40 and 42 degrees.

But in mist, the droplet size is so small it interferes with the light as it travels through the droplet and the laws of classical optics cannot fully explain the glory. Calculations based on Mie Scattering can simulate glories, and some speculate that the light travels partly around the surface of the droplet, but there is no complete description of how a glory is formed. And unlike rainbows, drop size plays a significant role in glories; the scale of the glory is in inverse proportion to the drop size and the more consistent the drop size the stronger the glory is likely to be. Indeed, significant variations in drop size generate multiple glories of different sizes in which the different positions of the colours merge into white light.

The history of the Brocken spectre, in the West, officially started with Johann Silberschlag (1779), a German pastor and natural scientist, after an encounter on The Brocken in the Harz Mountains in Germany. The mountain provided the name and Silberschlag the first description. Within a century poets and writers were making reference to Brocken spectres (Coleridge 1828, Dickens 1855, Carroll 1869) and explanatory diagrams appear in books and journals (Flammarion 1888). Edward Whymper (1871), in his description of the first successful ascent of the Matterhorn on an ultimately disastrous expedition provides a first-hand wood engraving of what might be a glory; the crucifixes within the bow are a tribute to the four men lost on the descent. A difficult subject for Victorian photography, the Brocken spectre has been charmed by smart phone technology and images abound on the internet. And today's media regularly run with "*Speechless hiker spots rare Brocken spectre weather phenomenon*" (2021). In contrast Harry Griffin wrote with reverence of many Brocken spectres as in his Country Diary column in the Guardian in 2003.

But there are also words and pictures to suggest other cultures knew of the Brocken spectre. There are Biblical references to "a rainbow upon his head"

(Revelations 10.1). And “Buddha Light”, the Chinese phrase for a Brocken spectre, suggests a different interpretation of the halo in Standing Buddha of Gandhara (1st/2nd Century CE). And a Chitarman miniature of Shah Jahan, who expected to be painted with a halo, seems to show a glory around Jahan’s head. I wonder how a Brocken spectre appears to a Christian hermit or Buddhist monk, meditating in early sunlight as the cloud starts to melt from their mountain and their glory appears round their shadow. A message from God, a sign of enlightenment? And could this image become a universal symbol?

While this is scant evidence and conjecture to build up much of a theory, it was sufficient for me as an artist to place Brocken Spectre in a sacred context.

Brocken Spectre started to emerge during a residency at X-church in Gainsborough in 2011. But working light and mist proved fickle so, despite some encouraging tests back at my studio, I switched to projecting the light on to minute glass beads on an improvised rood screen. It was a form of Heiligenschein, holy light, observed and described by Benvenuto Cellini (1563): light around the head’s shadow sharing the same solipsistic effect as the Brocken spectre. But I'd learnt enough to know Brocken Spectre was in reach and I returned to it again in 2015 with an agreement with English Heritage to install Brocken Spectre at Rievaulx Abbey two years later. I worked with photographer Carl Whitham and regularly consulted atmospheric optics expert Les Cowley (atoptics.co.uk 2022). The glories came easily during balmy summer evenings and still chilly winter nights, using little more than a wallpaper stripper and a theatre spot.

The installation at Rievaulx was exhilarating but problematic. For three evenings the Abbey was lit up for the occasion, sound artist Michael Davis filled the space with gentle ringing chimes and the recorded voices of local primary school children chanted stories from the monks’ refectory. Brocken Spectre was projected along the chancel, the glories appearing over the main altar. As the numbers swelled, the English Heritage staff marshalled the crowd as they queued to see their glory, many to capture them with their phones. Targets were met, the selfies looked spectacular, but it really wasn't as it was supposed to be. It was only at the end of each night, once everyone had gone and only a few friends and helpers remained in front in

the altar, that we realised what we had created, and what we had missed; a Brocken spectre is an intimate and personal experience. What we had created was a fair ground peep show.

It's five years since I left Rievaulx, and it's taken a long time before I could write anything about the installation. But recently I found myself thinking about Brocken Spectre again and different approaches I could take. I've bought a bit of new equipment, planned a few discussions with helpers and started to identify new sites. Glades in woods, a view from an old steamer pier, an open door of an old barn; nothing special, just quiet, sacred sites.

Charles Monkhouse 2022

References

Patrick Monkhouse, The Guardian, 1964

Lewis Carroll, Phantasmagoria, 1869

Samuel Taylor Coleridge, Constancy to an Ideal Object, 1828

Charles Dickens, Little Dorrit, 1855

Les Cowley, www.atoptics.co.uk, 2022

Camille Flammarion, L'atmosphère météorologie populaire, 1888

Edward Whymper, Scrambles amongst the Alps, 1871

Benvenuto Cellini, The Autobiography of Benvenuto Cellini, 1563

Harry Griffin, The Guardian, 5 May 2003

Evening Standard (North Wales), 2021
https://www.standard.co.uk/news/uk/north-wales-bangor-met-office-charles-dickens-german-b925557.html

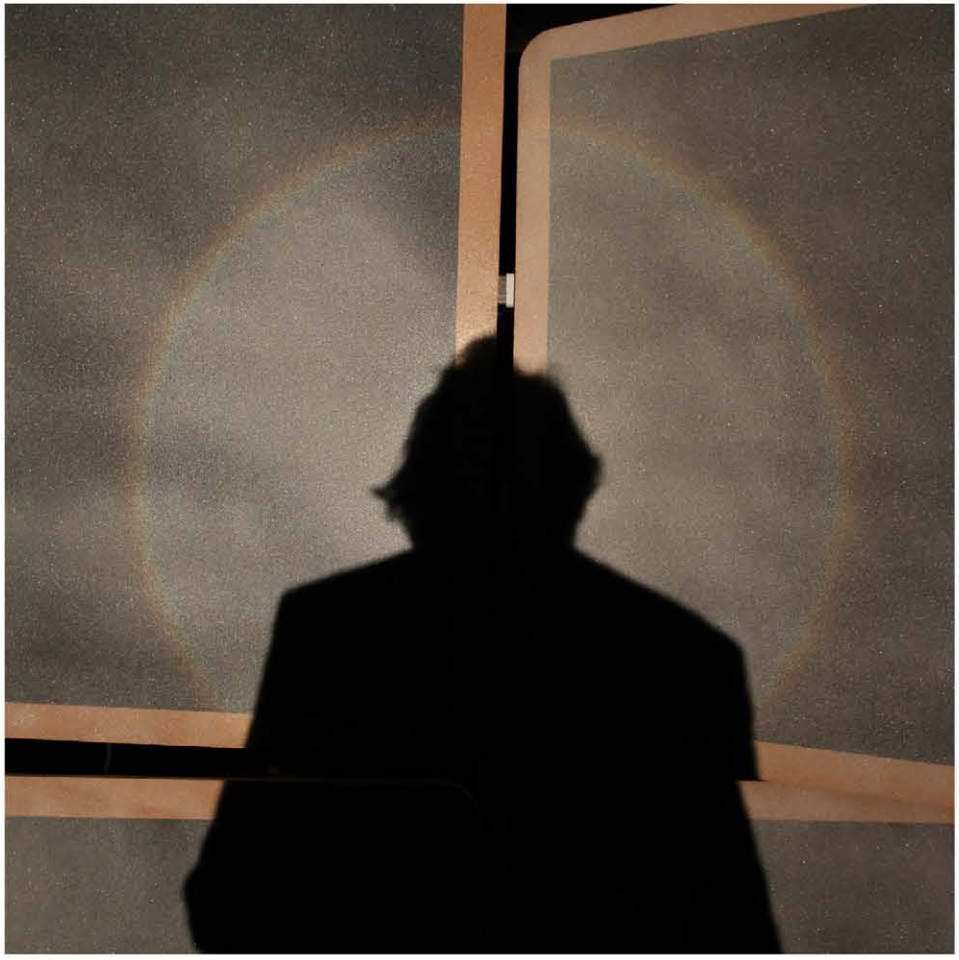
Bible KJV (1611) (Rev 10.1) "And I saw another mighty angel come down from heaven, clothed with a cloud: and a rainbow was upon his head, and his face was as it were the sun, and his feet as pillars of fire".

Chitarman, Shah Jahan on a terrace, holding a pendant set with his portrait, 1627
https://www.metmuseum.org/art/collection/search/451270

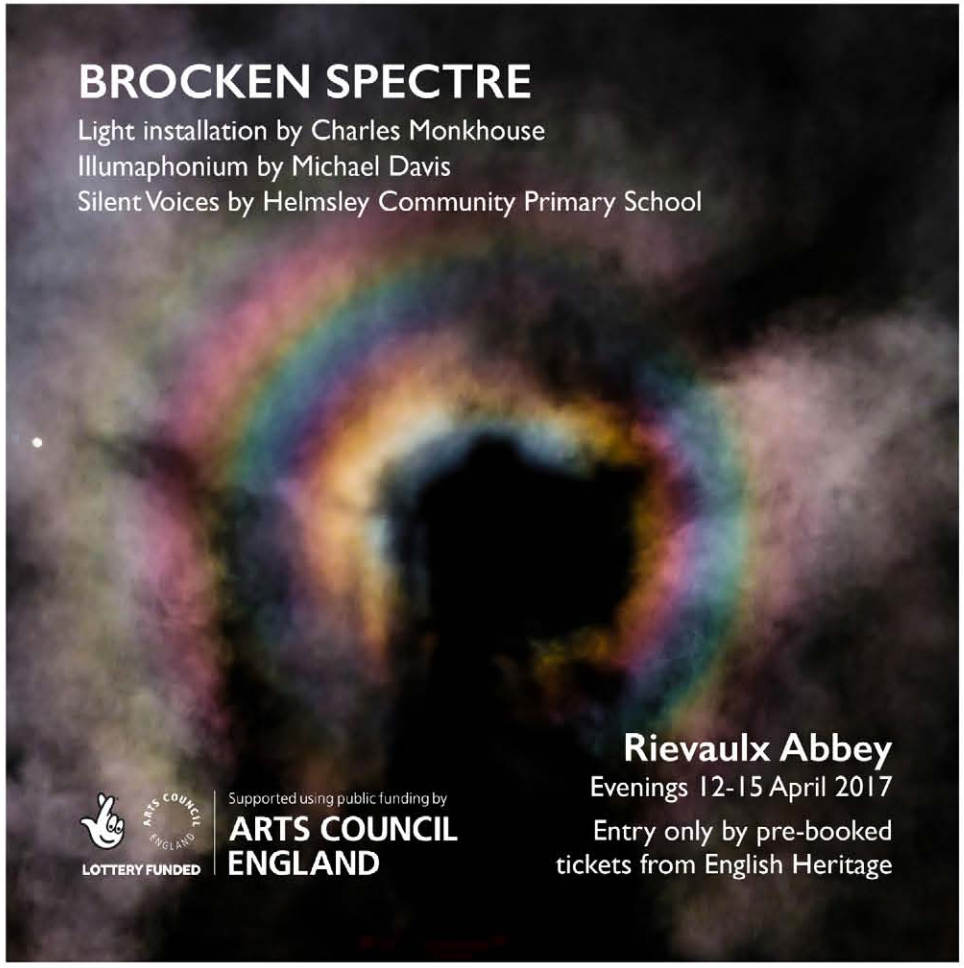
Standing Buddha form Gandhara (1st or 2nd century CE)
https://en.wikipedia.org/wiki/Standing_Buddha_from_Gandhara,_Tokyo

Brocken Spectre, Hayfield, Derbyshire by John Finney

Heiligenschein, Charles Monkhouse, 2010



Rood Screen at X Church, (Heiligenschein), Charles Monkhouse, 2011



Rievaulx Poster, Charles Monkhouse, 2017

Brocken Spectre, Charles Monkhouse, 2017

Shah Jahan on a Terrace, Chitarman, 1627

Standing Buddha from Gandhara, 1st or 2nd c.