

# Modelled moons

**How do you bring a flat picture to three-dimensional life? Early photographers met the same visual challenges that confronted Galileo. They used ingenious methods to build relief models of the lunar landscape.**

## Martin Kemp

The problem of how to throw telescopic observations literally into relief had beset the representation of celestial bodies since Galileo's time. Galileo's own accomplished watercolours of the irregular light and dark blotches on the Moon, which cast them decisively as the highlights and shadows of mountains and valleys, set the standards for articulate looking. The advent of astronomical photography re-posed such challenges to seeing and knowing.

The first surviving image of the Moon of real quality was exhibited by John Whipple and George Bond at the Great Exhibition in 1851, to be followed by rival 'Moonscapes' by other photographers, including Lewis Rutherford, whose detailed masterpiece of tonal modelling in 1865 did much to silence critics of the camera as an adjunct to astronomical observation.

The most sustained exploration of photography in the context of other visual techniques occurs in Nasmyth and Carpenter's photographically illustrated book of 1874, *The Moon: Considered as a Planet, a World, and a Satellite*. James Carpenter was an astronomer at the Royal Observatory in Greenwich; James Nasmyth was an engineer whose father, Alexander, was regarded as the 'father of Scottish landscape painting'.

Nasmyth and Carpenter used a notable range of diagrammatic and representational modelling. They used prints of Nasmyth's wonderfully crisp drawings, a photograph of the Moon by Warren De la Rue and Joseph Beck, a 'picture map' with some shading, a 'skeleton map' of lines alone and an imaginative impression of an 'ideal lunar landscape'. In addition they illustrated a representation of an eclipse of the Sun as viewed from the Moon, plaster models of the lunar surface photographed under immaculately controlled lighting, and a photograph of a laboratory simulation of a live volcano.

**The authors claimed "upwards of thirty years of assiduous observation" during which "every favourable opportunity has been seized to educate the eye".**

**They resorted to exactly the same kind of visual analogies that had performed such a vital service for Galileo and the telescopists and Robert Hooke and the microscopists.**

To this end, Nasmyth and Carpenter illustrate striking photographic 'heliotypes' of an aged hand and a shrivelled apple under lateral illumination.



"Photograph of the Moon" by Warren De la Rue and Joseph Beck and "Back of hand and wrinkled apple" (below). Both images are from *The Moon: Considered as a Planet, a World, and a Satellite* by James Nasmyth and James Carpenter, 1874.



Their visual analogies involve both appearance and process, in the case of the wrinkles between the mechanics of the folding that occurs when the inner core acquires a surface area smaller than its covering skin. Their methods of modelling brought a compelling sense of the Universe and its parts in 'perpetual mutation', evolving from primeval matter. This conviction is nicely

expressed on the first page of their text. Since "the same laws work in the great as well as the smallest processes of nature, we are compelled to believe in an antecedent state of existence of the matter that composes the host of the heavenly bodies". □

*Martin Kemp is in the Department of the History of Art, University of Oxford, 35 Beaumont Street, Oxford OX1 2PG, UK.*