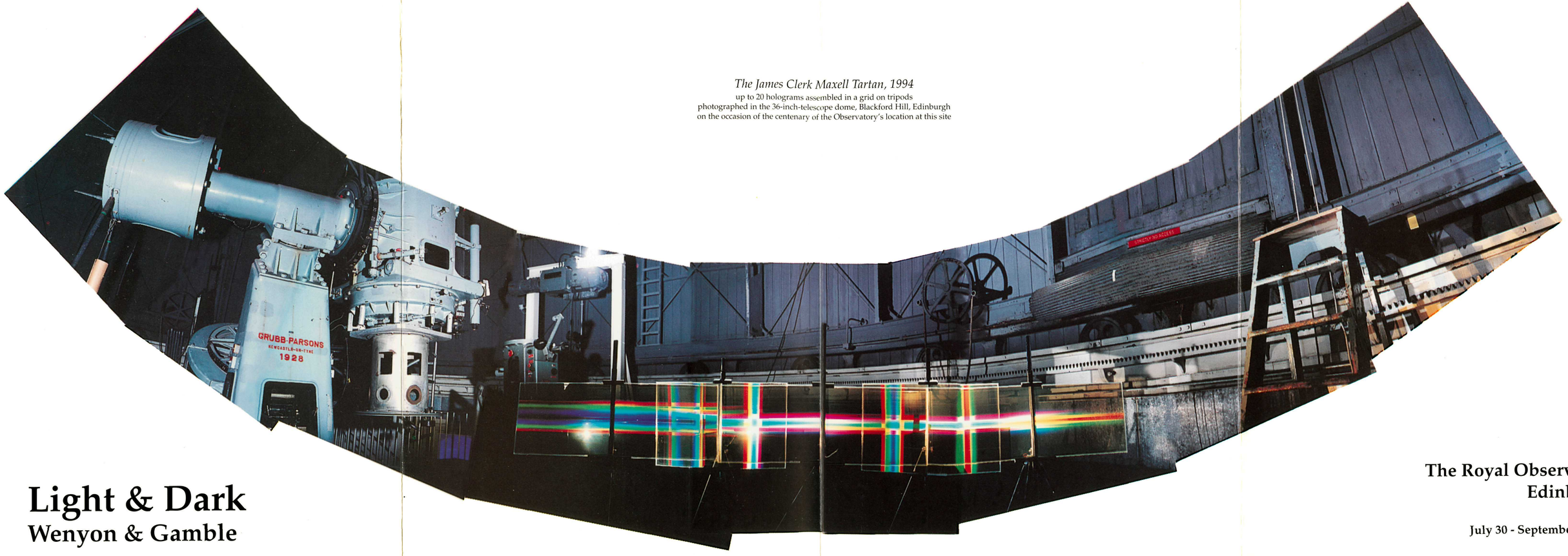


The James Clerk Maxell Tartan, 1994

up to 20 holograms assembled in a grid on tripods
photographed in the 36-inch-telescope dome, Blackford Hill, Edinburgh
on the occasion of the centenary of the Observatory's location at this site

Light & Dark

Wenyon & Gamble

The Royal Observatory
Edinburgh

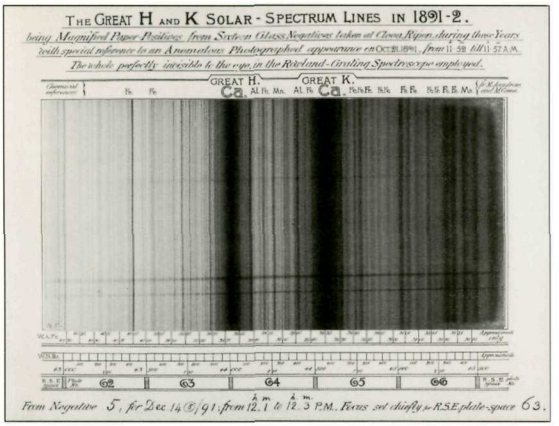
July 30 - September 4, 1994

The *James Clerk Maxwell Tartan* is named after Scottish scientist James Clerk Maxwell, born in Edinburgh in 1831. Maxwell published his theory of the electromagnetic spectrum in 1873, proving that other forms of radiation exist which are not visible to the eye, such as ultra-violet light and radio waves, and that visible light is part of electromagnetic radiation.

Unlike a 19th-century painter capturing an image of a rainbow as it appeared in the landscape, we are attempting here to generate a rainbow itself. The hologram acts like a prism and breaks up the light illuminating it into the visible spectrum. This spectrum is the natural phenomena, not a portrayal of it.

The Eildon Hills and Tweed, 1807, by James Ward,
(reproduced with permission from the National Gallery of Scotland)

James Clerk Maxwell's discoveries about the electromagnetic spectrum have had little effect on art in the 20th century. Relating to colours found in pigment, artists have continued to pursue colour symbolically, seeing white as representing purity and black as an emotional darkness or evil. In this artwork, light is the medium, not pigment. White occurs in a hologram when all colours mix, in contradiction to its painterly reputation as 'pure'. Black exists where the eye is unable to respond. In this work you can see a black that could never have been created with paint — for us it is the most interesting colour here, blacker even than the darkest abstract



Spectrum of the sun by Piazzi Smyth

painting, defining the limits of our own vision.

Astronomers have been analysing colour (the electro-magnetic spectrum) since the 19th century in order to learn about the objects they are observing, for example, how fast a star is moving or its surface temperature.

Charles Piazzi Smyth, Astronomer Royal for Scotland from 1846 to 1888, experimented by observing natural scenes through filters made of coloured glasses, wine and port. He published his findings in *Colour, in Practical Astronomy, Spectroscopically Examined,* in the Transactions of the Royal Society of Edinburgh (1879).

> I made several coloured sketches this last summer in Lisbon, first as seen direct or simply by my natural tri-chroic eye, and then as seen by looking through the dark-green di-chroic bottle: and if the trees at an old mill door, did stand up in this latter case like gigantic red corals, there were magnificent shades of dove-coloured gray behind, and pale sea-green sky above them to satisfy the most fastidious eye as to abstract theory, and splendour of effect, though not as to ordinary terrestrial experience.

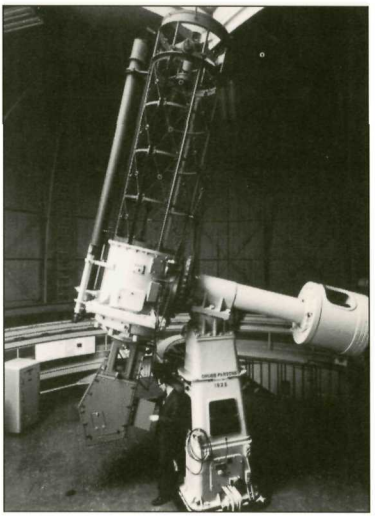
Understanding both painting technique and physics, Piazzi Smyth was also aware how they differed in their treatment of colour,

> Take for instance a weak, and therefore to the world at large, a slatey-blue solution of Oxalate of Chromium and Potash and look through it at the reds, whether of flowers or brick-fields in the landscape. In place of their being dulled — as they would infallibly be if mixed up with so much impure blues as colours on an artist's palette — they now start forth brilliantly, gorgeously, red; perhaps even three times more red than they ever were before!

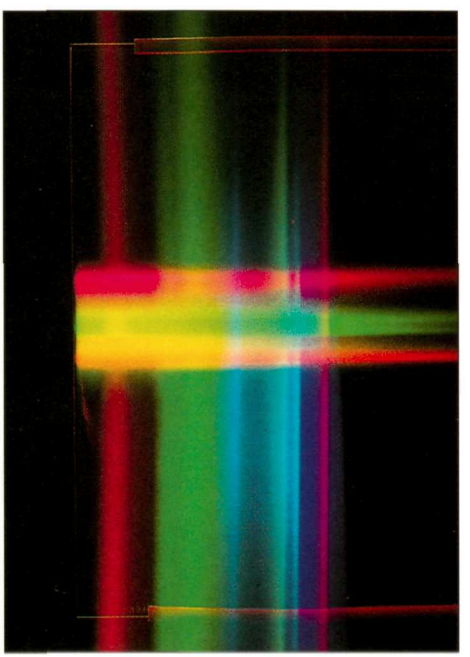
The 36-inch telescope in Edinburgh was in use until the early 1980s. Attached to it was a spectrograph, a device that splits a star's light through a slit and prism to record the resulting spectrum on a photographic plate.

Astronomy has to deal objectively with the physical processes involved in seeing and to extend and develop 'perception' wherever possible. The spectrograph and the latest telescopes are part of that process. We visited the James Clerk Maxwell Telescope and the United Kingdom Infra Red Telescope, both operated in Hawaii by the Royal Observatory, Edinburgh. These contemporary telescopes use instrumentation and computers to extend 'vision' into regions of the spectrum beyond the eye's natural ability.

Susan Gamble
Michael Wenyon
Edinburgh, July 1994



36-inch telescope with spectrograph, 1962

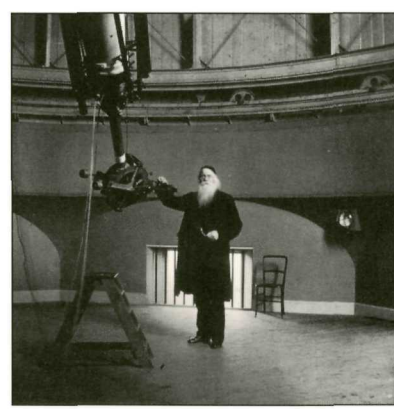


Susan Gamble and Michael Wenyon have been collaborating as Wenyon & Gamble since 1983. *Light and Dark* is the first presentation of works resulting from a period they have spent on a Leverhulme Fellowship at the Royal Observatory, Edinburgh, 1993–1994. These works have been made in a studio that the artists set up in an old seismic vault underneath the Observatory.

In 1993 Wenyon & Gamble were awarded a cultural prize from UNESCO for their development of art using new media, including holography. They were visiting professors of art at Tsukuba University in Japan, 1990–1992. In 1987 they were artists in residence at the Royal Greenwich Observatory. Their work is in the collection of The Victoria & Albert Museum, London.

Individual exhibitions by Wenyon & Gamble since 1990 include *Volumes*, The Photographers' Gallery, London (1992) and Collins Gallery, Glasgow; and *Bibliography*, the Art Tower Mito, Mito, Japan (1991). Their work has also been presented at The Tokyo Metropolitan Museum of Photography (1992), and The Whitney Museum, New York (1991).

The artists' would like to thank Dr. Paul Murdin, OBE, for his original invitation to work at the Observatory. They would also like to thank the many individual staff at the ROE in Edinburgh and Hawaii who gave their support.



Ralph Copeland, Astronomer Royal for Scotland in 1894

ROYAL OBSERVATORY

EDINBURGH
1894~1994