

## BOOKS &amp; ARTS

# Changing your world view

Software that turns maps into landscapes reveals how cultural baggage can distort scientific images.

## Landscapes Without Memory

by Joan Fontcuberta

Aperture Foundation: 2005. 96 pp. £22, \$40

### Philip Ball

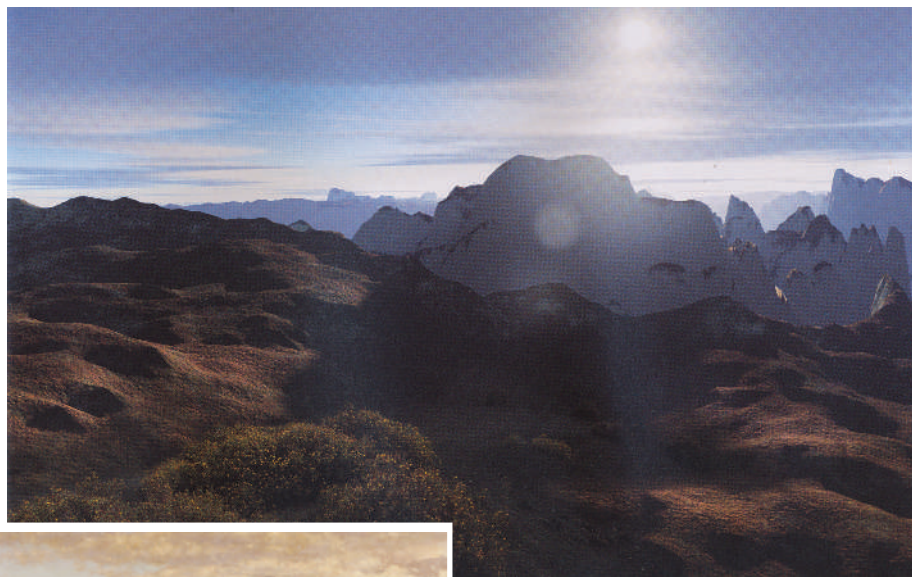
At first glance, Joan Fontcuberta's book of simulated landscapes looks like a straightforward attempt to extract a glossy coffee-table product from the marriage of science and art. Its padded cover, high-quality colour and landscape format add to the impression of indulgent luxury.

But it seems that the author's aim (if not, perhaps, the publisher's) is more postmodern. The 'art book' market seems to be the very arena that Fontcuberta, a Spanish artist and interpreter of the photographic image, wants at some level to challenge. The result is a perplexingly contradictory work — yet one that I think contains, whether intentionally or not, a potentially important message about visual representation in science.

This gallery of virtual landscapes has been generated by a fractal-based software package called Terragen, a tool used for turning maps into three-dimensional images that was originally developed for scientific and military applications.

Fontcuberta has subverted Terragen's purpose by feeding it 'false' data — not maps at all, but paintings of landscapes by famous artists and photos of his own body. By doing so, he demonstrates that Terragen can make a mountain out of anything (and will typically put a lake in the middle).

He points out that, although Terragen's advocates celebrate its 'realism' and its ability to capture the beauty of nature, running the program on the default settings gives a result that "tends to come very close to the kitsch of picture postcards". This is amply demonstrated in the book; indeed, in his introductory commentary, art historian Geoffrey Batchen speaks of the "relentless, banal, undemanding repetition of pictorial clichés" evident in these images, calling them "terrible in the way they give themselves up so easily to the demands of communal taste". In other words, he admits that, as art books go, this one is awful. And yet it is surely communal taste that will sell



A cultural landscape: the images produced by Terragen have the kitsch quality of the Romantic paintings of Frederic Edwin Church (left).



the book, whose readers may skip the text and simply bask in the 'beautiful' scenes that a computer has constructed from the raw pixels of paintings by Paul Cézanne, Georges Braque, Mark Rothko, André Derain and others.

Does Fontcuberta acknowledge this paradox himself? He hints, but doesn't quite come out with it. "Postmodernism, the society of the spectacle, the capitalism of fiction and this age of melancholy," he writes, have combined to consolidate "a mistrust of a reality composed of simulations, manifested in an avalanche of seductive, saccharine images — to which it is imperative that we respond critically." Is this an invitation to react with aesthetic horror to his pictures, to the way in which Terragen has turned great art (or biology) into a bland, kitsch vision of the Sublime? Or is he just hedging?

I think, however, that he may be identifying something more important than the mere fact that the computer geeks who created Terragen, probably weaned on bad sci-fi art, have

imbued their program with terrible taste. (Actually there is something rather enjoyable in letting your intuition interpolate between the 'map' and the Terragenized representation, noting how the colours and textures of Wassily Kandinsky and Thomas Gainsborough have been transmuted into these rugged slopes and brumal skies.)

The fact is that we have seen these landscapes before. Terragen has turned Braque's *The Fields* into something resembling Saturn's moon Titan, as recently unmasked by the Huygens probe, with its tawny skies reflected in petroleum lakes among ice-covered hills. Piet Mondrian's *The Grey Tree* has become red and barren Mars, and the heavy skies and golden peaks produced from Rothko are Venus as seen by the Magellan mission. It's a stark reminder that what NASA (or increasingly, as in Titan's case, an online army of sophisticated amateur graphics experts) is feeding us are visions of other worlds fed through a very particular stylistic filter.

In other words, these computer-generated images from space missions come laden with cultural baggage. The methods for generating these pictures from raw data have been imbued with what is probably a largely subconscious bias about how a landscape should look. And

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it is not hard to discern the origin of that bias. Unquestionably, as Batchen points out, much of it stems from the German Romantics, particularly Caspar David Friedrich (whose *Wanderer Above the Sea of Fog* was, appropriately, Fontcuberta's first victim). But the form that this aesthetic takes in Terragen's creations is most clearly reminiscent of the American Romantics such as Thomas Cole (who was deeply influenced by Alexander von Humboldt's descriptions of the Andes) and his student Frederic Edwin Church. For generations of Americans, Church's heightened (in all

senses) landscapes were the way nature 'really' looked. That influence is clear in the planetary paintings that pre-date the current computer-generated versions, as well as in the vistas seen in any 'space opera' Hollywood movie.

But the influence of such artistic traditions on scientific imagery does not stop at real landscapes. Stock representations of the Sublime can also be discerned in company photographs of chemical plants soaring like tubular mountain ranges into coppery skies, and in the 'atomic landscapes' that can now be constructed from scanning probe microscopy. Even the

interpretation of the periodic table recently produced by Britain's Royal Society of Chemistry, with its crags thrusting out of a placid lake, has a Terragenic air.

More than 40 years ago, art historian Ernst Gombrich pointed out in his seminal book *Art and Illusion* (Pantheon, 1960) that no human depiction of the world (and this surely now includes photography) escapes our culturally acquired stereotyping. Maybe Fontcuberta's book will serve to remind scientists that the same applies to them too. ■

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## Taking flight

### Birds of South Asia: The Ripley Guide

by Pamela C. Rasmussen & John C. Anderton  
Smithsonian Institution/Lynx Edicions: 2005.  
Two volumes, 384 and 688 pp. £55

### Richard Grimmett

S. Dillon Ripley is a titan of twentieth-century Indian ornithology, having written three major works: *Synopsis of the Birds of India and Pakistan* (Bombay Natural History Society, 1961), the ten-volume *Handbook of the Birds of India and Pakistan* (Oxford University Press, 1968–98), and *A Pictorial Guide to Birds of the Indian Subcontinent* (Oxford University Press, 1983), the last two in collaboration with Indian ornithologist Salim Ali. As secretary emeritus at the Smithsonian Institution, Ripley initiated a new bird guide for the Indian subcontinent, intended as his final major work on the region. To his credit, he engaged Pamela Rasmussen and John Anderton to work on the task. Ripley was taken ill shortly afterwards and died in 2001. But the project lived on and the long-awaited result has now been published.

The two-volume *Birds of South Asia: The Ripley Guide* covers the avifauna of the entire Indian subcontinent and includes 1,441 species. It expands on similar work by including Afghanistan and the Chagos Archipelago. *Volume 1: Field Guide* is portable and comprises 180 colour plates by John Anderton and other renowned bird illustrators, with brief adjacent text on field identification and distribution maps. The plates are generally good to excellent, with comprehensive coverage of plumage, although the illustrations of a few birds, such as the common nightingale, have suffered from an over-reliance on museum specimens rather than observations in the field. Several recently described species have been illustrated in a field guide for the first time here. *Volume 2: Attributes and Status* is a dense, comprehensive work that contains masses of new information on bird identification, variation, occurrence, habits, vocalizations and taxonomy.

The book's greatest value is that Rasmussen has taken nothing for granted, even informa-

tion published in Ripley's own works. Everything from bird distributions, measurements, vocalizations and identification features has been reviewed from scratch. The species list for the region has also been completely revised. Quite a few species are conservatively listed as 'hypothetical', with many previously published and significant records being regarded as 'insufficiently proven' (to the disappointment, no doubt, of many a living bird-watcher). Two well respected ornithologists from the first half of the twentieth century, E. C. Stuart Baker and Richard Meinertzhagen, are taken to task for their carelessness or fraudulent work (see *Nature* 437, 302–303; 2005). Their records — which underpinned Ripley's previous books on the subcontinent — are either treated with caution or dismissed.

Most significantly, and bravely, Rasmussen has given full species status to many forms for the first time in any modern guide. The common blackbird, for example, is treated as three species, with the Himalayan and south Indian forms elevated to full species. On this



Bird identification on a plate: magpies, jays and treepies, as illustrated in *Birds of South Asia*.

she is almost certainly correct, although readers will have to wait for further justification in the scientific literature before her judgements can be fully assessed. ■

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## Tracing the history of art

### Optics, Instruments and Painting, 1420–1720: Reflections on the Hockney–Falco Thesis [Early Science and Medicine Vol. 10 no. 2]

edited by Sven Dupré  
Brill Academic: 2005. 214 pp. \$74

### David G. Stork

Readers of *Nature* were among the first to learn of an intriguing theory proposed by artist David Hockney. He suggested that as early as 1420 some leading European artists used concave mirrors to project optical images on to their canvases, and traced them during the execution of their paintings (see *Nature* 400, 524 (1999); 412, 860 (2001); 417, 794 (2002)). The claim is sometimes called the Hockney–Falco thesis to acknowledge the technical efforts of physicist Charles Falco. Hockney thinks the procedure

was a key source of the naturalism, or 'optical look', arising in early Renaissance painting.

This special issue of *Early Science and Medicine* is a product of a four-day symposium in Ghent in November 2003. It is the first work to provide independent evidence on the material culture and documentary record, and analyses of optical knowledge, of the fifteenth century.

Did artists or scientists have access to suitable mirrors? Sara Schechner, curator of historical instruments at Harvard University, explores the state of optical fabrication at the time. She concludes that "Renaissance mirrors were far from offering the painter a short-cut to a detailed and naturalistic image of his subject." Early mirrors, she argues, "could not reflect or project clear, undistorted, 'photo-realistic' images, as Hockney and Falco suggest."