

book reviews

name will be able to follow the sequence in the photos. These include many with scenic foreground views boasting of the comet in the background sky. Exposure information is a useful guide to photographing new comets.

Burnham includes a chapter that not only surveys great comets of the past but also looks at the several space missions that met Hale-Bopp. It is not, incidentally, properly called "the Hale-Bopp Comet", the name that was used in the popular press and radio discussions preceding the suicides of the Heaven's Gate cult. Burnham relates

the story of the mistaken, hasty identification of a supposedly trailing object by an amateur astronomer and its premature description to a radio talk-show host. Although the object was soon identified as a normal, though faint, star that was not in the sky-mapping program used by the amateur astronomer, this explanation was not believed by cultists. I was interested to see reproduced the colour photograph showing the home page of the Heaven's Gate website.

The book ends with a discussion of near-Earth objects, from the Tunguska impact of

1908 to the Spaceguard plan to set up a network of automated telescopes to detect Earth-threatening asteroids. I hadn't known that spaceborne detectors reveal that, about ten times a year, there are kiloton-energy impacts of meteoroid material.

Burnham's book provides an overview of comet observation accessible to every reader, with enough indications of the science involved to show the vitality of the research. I recommend it to a wide range of readers. ■

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Science in culture

Mannerists' monsters

The More Than Meets the Eye exhibition at the Victoria and Albert Museum in London

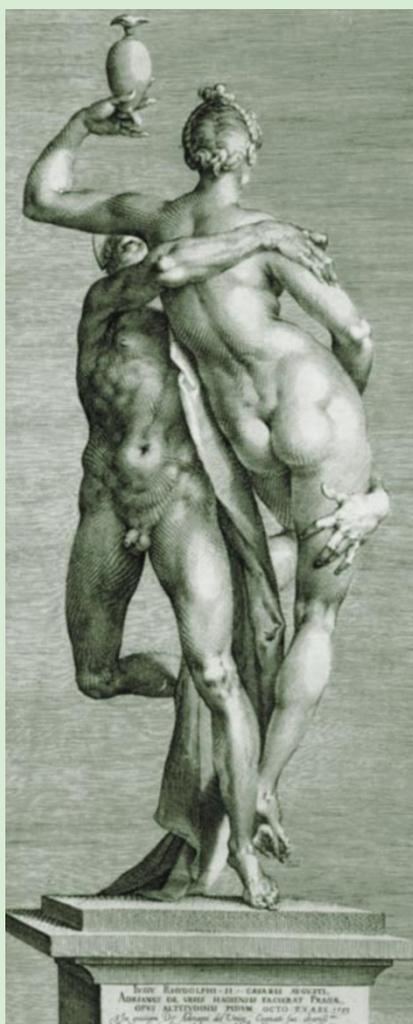
Philip Ball

One of the objections to the idea that art and science share common principles is that science is cumulative whereas art is sequential. In science, new knowledge builds on and refines the old. In art, according to common caricature, the new eclipses the old and rewrites all the rules. Although it would be difficult in practice to find examples of art that were not informed by the past, one could nevertheless make a good case that artists have sometimes dealt with new technical knowledge in an arbitrary manner, accepting or discarding it as current fashion dictates.

Skills in handling paints as chemical substances gradually deteriorated between the Baroque era and the nineteenth century, and had catastrophic consequences for the longevity of some works. In a quite different context, the much-praised determination of Renaissance artists to paint "true to nature", which required a study of perspective, anatomy and proportion, did not even outlive some of its greatest masters. By the late sixteenth century, mannerist artists such as Parmigianino and El Greco were introducing bizarre and often grotesque distortions to the human form.

The relationship between mutation in nature and that introduced by artists is one of the themes explored in the *More than Meets the Eye* exhibition running during 6–30 September at the Victoria and Albert Museum in South Kensington, London. The exhibition, a collaboration between the Royal Society, *Nature* and the Victoria and Albert Museum, and sponsored by L'Oréal, is part of the "Creating Sparks" festival of science and art organized by the British Association. It takes the form of a self-guided trail through the museum, where ten displays explore science-related aspects of the collection.

The theme of mutations is suggested in part by the several chimaeras of human and animal in the collection of Indian sculpture. In Indian and Middle Eastern mythology such figures



Distorted view: the mannerists exaggerated the human form for dramatic effect.

commonly depict deities. In Greek mythology these chimaeras symbolize animalistic passions, more bacchanalian or lascivious than transcendental: the satyr, the minotaur, the mermaid. Either way, such hybridization is a badge of the supernatural, a proclamation that mixtures that cross the species barrier lie outside the natural order.

But the elegant 'monsters' created by the mannerists raise perhaps more pertinent questions about the extent to which science has informed art. Mannerism arose from a Renaissance debate about the nature of 'truth' and 'beauty' in art.

There was by no means universal agreement in Renaissance Italy about how the natural world should be portrayed. Most artists agreed with the Genoese architect and theorist Leon Battista Alberti (1404–72) that the foremost aim was to achieve beauty. According to Alberti, rational principles such as perspective were simply a means to this end.

Yet what is beautiful? To Alberti the rational humanist, it was almost a calculable quantity: "a kind of harmony and concord of all the parts to form a whole which is constructed according to a fixed number, and a certain relation and order, as symmetry ... demands." Yet as nature was often imperfect, Alberti proposed that the artist select only its most pleasing aspects.

Leonardo da Vinci had a similar conviction that artistic judgement should be rational. But he saw little need to censor nature's 'ugliness', as his sketches of people with deformities show. He felt that the imperfect provided a foil to make beauty shine more brightly.

Michelangelo, on the other hand, pre-empted the decline of humanist objectivity into the arbitrary conventions of mannerism. Scientific principles, he maintained, were of little account in creating beauty: "all the reasonings of geometry and arithmetic, and all the proofs of perspective were of no use to a man without the eye." It is then but a small step to the élitist criterion of 'taste' (*grazia*) championed by mannerists such as Federico Zuccarro, president of the Academy of Drawing in Rome. In 1593 he pronounced that "the art of painting does not derive from the mathematical sciences, nor has it any need to resort to them to learn rules or means for its own art".

Mannerism became a period of wild experiment, of flashiness parading as originality to catch the courtier's eye. And science took a back seat. ■

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