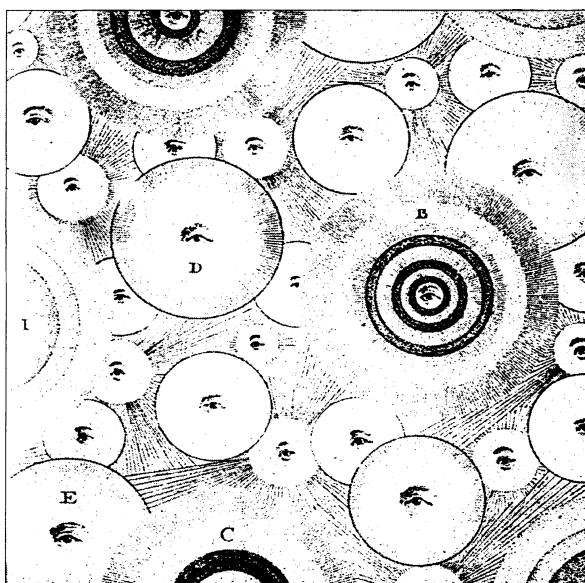


Cosmic imagination

Giovanni F. Bignami

Imago Mundi: La rappresentazione del Cosmo attraverso i secoli. By Francesco Bertola. *Biblos, Padua: 1995. Pp. 231. L80,000.*

It is always a good idea to go back to the etymology of a word to appreciate its full meaning. 'Mundus' is Latin for 'clean' and 'beautiful', as well as referring of course to our world. And the Greek 'kosmos', the common root of 'cosmic' and 'cosmetic', also includes the idea of order: rather like saying, in one word, that the beauty of the



Thomas Wright's star systems and the eye of God (1750).

Universe lies in its own order. The concept could be a fitting subtitle to Francesco Bertola's beautiful book dedicated to "imaging the cosmos over the centuries".

The title *Imago Mundi* itself has a fascinating history, worthy of a fiction by Umberto Eco. It first appeared in the Middle Ages in a codex by Onorius of Autun, somewhere between 1100 and 1150. Less than a century later, however, a treatise by Walter of Metz entitled *Image du Monde* became a big success, well before the invention of print. Hand-copied and richly illuminated, and rendered in both prose and verse (6,600 verses, all told), this work on astronomy and geography circulated in Hebrew, German and English as well as in the original mediaeval French. With the advent of printing, the book remained on the bestseller list for more than three centuries, despite fierce competition from the *Imago Mundi* (1483) of Pierre d'Ailly, Bishop of Cambrai, also a learned imager of astronomy and geography. Christopher Columbus is said to have been a keen reader of this book, but then he took astronomy very seriously,

not to mention geography.

Bertola's *Imago* is a superb addition to this rich heritage. The author uses the continuum of cosmology, a constant of human interest, to view scientific culture as part of culture as a whole, including some of the finest examples of visual art. Take, for instance, the fresco by Giusto de' Menabuoi on the dome of the baptistry in the Scrovegni Chapel, Padua, not so far from Giotto's painting of comet Halley. Dating to 1300, it is a complete cosmo-logical representation of the Earth and its system of celestial spheres. And little more than a century later, at the beginning of the Renaissance and the Copernican 'revolutionary' era, Raphael paints in the Vatican the splendid "Allegory of Astronomy". Not only does he accurately depict the starry sky and its constellations, but he does so with a master's touch, endowing his heavenly picture with a sense of stereoscopic depth. Of the same period, and included in Bertola's book, is a paper woodcut by Albrecht Dürer of the constellations of the southern sky. Some of them are accurate and complete, but ample spaces remain at the extreme south (at the antipodes of Nuremberg). The woodcut was done, we learn, four years before Magellan's departure on his voyage of southern discovery. One and a half centuries later, astronomical knowledge had increased

greatly, as can be seen in the representation of the same portion of the sky by the Dutchman Andreas Cellarius. The book also contains an illustration from Kepler's *Astronomia Nova*, technical yet aesthetically pleasing, as well as, more recently, Escher's endlessly repeating symmetrical fishes (1959) and Seicker's violent picture of cosmic radiation (1990).

In his text, which is in both Italian and English, Bertola describes the history of ideas about the cosmos. By necessity this amounts to a list of contributions from individual thinkers, with each personality set in a historical context. The secret of easy and captivating reading is to let the individuals speak for themselves, and here they stand out vividly in their quotations. These range from Plato ("the true astronomer must be the wisest of all men") and Ptolemy through to Dante and the Copernican revolutionaries. The real revolutionary of that era, however, was Giordano Bruno, the first person to imagine that the "bodies which are beyond Saturn" are like the Sun, innumerable and surrounded by fainter planets. Or consider Thomas Wright (1750), with his mod-

ern view that stars are organized in vast systems, each of which contains an eye of God and is thus a "finite vision of infinity". The profound link between cosmos and mankind is apparent in the "Starry Self-Portrait" of Pistoletto (1973) which concludes the book. The artist's profile is etched on a true deep-sky star field: art and science live together in the human vision of cosmology. □

Giovanni F. Bignami is at the Istituto di Fisica Cosmica, 15 via Bassini, 20133 Milano, Italy, and Università di Cassino, Italy.

Eclipsed star

Owen Gingerich

The Correspondence of John Flamsteed, First Astronomer Royal. Edited by Eric G. Forbes, Lesley Murdin and Frances Willmoth. *Institute of Physics: 1995. Pp. 955. £140, \$280.*

IN 1835, Francis Baily, vice-president of the Royal Astronomical Society, shocked the British scientific establishment with the publication of *An Account of the Revd. John Flamsteed*. Perhaps the first scientific biography based on archival sources, Baily's account of Flamsteed, the first Astronomer Royal, showed Isaac Newton in a less than adulatory light. Newton's near-piracy of some of Flamsteed's astronomical observations revealed that the demigod of physics could play the part of the leviathan when it came to lesser mortals. "I am not fond of war", wrote the dour Astronomer Royal to a confidant.

Meanwhile, in the past few decades, Newton, who remains undisputed as the greatest natural philosopher and one of the three greatest mathematicians of all time, has been celebrated by a magnificent seven-volume edition of his correspondence and eight even thicker magisterial volumes of his mathematical papers, as well as several excellent biographies. Flamsteed remains, along with Halley, Hooke and Wren, a lesser light in that epoch-making era, but nevertheless an outstanding figure who founded the Greenwich Observatory and pioneered telescopic positional astronomy. Now, in the first of three thick volumes, Flamsteed's correspondence has been organized, translated when in Latin, and provided with a succinct commentary. The series is the work of the late Edinburgh historian Eric G. Forbes, and has been skilfully completed by the archivists Lesley Murdin and Frances Willmoth.

The years 1666 to 1682 take the young Flamsteed from his home in the North Country — Derbyshire — to London (where he temporarily resided in the Tower with his patron, Sir Jonas Moore)