



## Mapping the Universe: the interactive history of astronomy

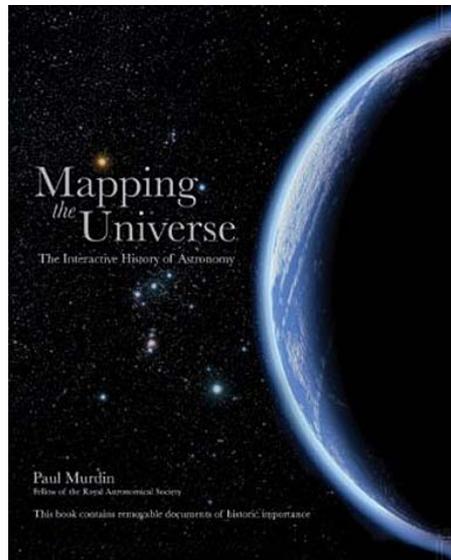
by Paul Murdin

Carlton Books, 2011. ISBN 978-1-84732-885-4. Pp 124, £30.00 (hbk).

Both the title and the subtitle of this book have the potential to confuse its readership. Paul Murdin's narrative does not really address the mapping of the night sky in any literal sense, and the experience of reading that narrative – although undoubtedly pleasurable – is not interactive in any way that would be readily understood by the contemporary reader. Instead we are presented with a straightforward and engaging popular history of how humankind's perceptions of the universe have been progressively modified both by the development of ever more complex technologies and by the dramatic shifts that such technologies have forced upon our understanding of the universe we inhabit.

The tale that Murdin tells is, of course, the grandest and most inspiring of narratives, and his treatment of it is both secure and deft, as one might expect from an astronomer and writer of his stature and experience. It is also firmly centred on the personalities that have contributed so much to the history of astronomy. Even as the technologies become ever more sophisticated and compelling – from Galileo's application to the sky of his rudimentary optical tube to the remarkable triumphs of the Hubble space telescope and interplanetary probes – Murdin never loses sight of the human achievement.

Inevitably, any outline account of the rich history of astronomy must be selective and partial, and the present book is no exception. Yet Murdin has been remarkably judicious in his selection of what to include and what to pass over, and the book never loses impetus or focus. Neither does it sell short the grandeur of the tale it has to tell.



The 'interactive' element of this book consists of a selection of facsimile documents from the history of astronomy, contained in document envelopes throughout the text. These range from a watercolour of the great comet of 1532 and Galileo's telescopic observations of Jupiter and the Moon in 1610 through to the remarkable imagery produced by the HST, the *Mars Reconnaissance Orbiter* and the *Cassini* probe. They are beautifully reproduced, but the reader expecting a truly interactive experience will be disappointed.

In summary, this volume is a coffee-table book designed for the general reader. However, unlike many such books, it is accurate, authoritative and well written. The newcomer to the history of astronomy will gain much from it.

**Bill Leatherbarrow**

*Professor Bill Leatherbarrow is President of the BAA and Director of the Lunar Section.*

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The CMB temperature maps doesn't contain photons emitted by stars. It only represents the residual photons from when the universe was 300,000 years old. On average, CMB temperature is -273.15 degrees Celsius. This means only microwave antennas can pick up the frequency. According to the theory, CMB radiation should appear the same everywhere. At 10<sup>-34</sup> seconds: Universe undergoes rapid inflationary expansion. Because the universe expanded at faster the speed of light, the light from those parts of the universe can never catch up to us. At this point, there was only intense energy and no particles. At 10<sup>-32</sup> seconds: First subatomic particles that made matter started forming. From 10<sup>-11</sup> seconds: Four forces of the universe are entirely separated. Astronomy is one of humanity's oldest and most fascinating sciences, beginning with the practices of the early astronomers and their assumptions. It explained the prograde and retrograde motions of the planets. It took Earth out of its spot as the center of the universe. And, it expanded the size of the universe. In a geocentric model, the size of the universe is limited so that it can revolve once every 24 hours, or else the stars would get slung off due to centrifugal force. So, maybe the Church did fear more than a demotion of our place in the universe since a deeper understanding of the universe was changing with Copernicus's ideas. While it was a major step in the right direction, Copernicus's theories were still quite cumbersome

Astronomy throughout History. The study of planets, stars, galaxies, and intergalactic and interstellar space falls under the field of astronomy. Thousands of years ago, the earliest civilizations observed the heavens. Because astronomers of the past set the foundation for today's astronomy, it is an interesting journey to take a look through the history of astronomy. How did they figure out how big around the Earth is? Who was the first astronomer to recognize galaxies outside our own? What must've it been like to look through Galileo's first telescope to see the craters on the

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