Babylon to *Voyager* and beyond: A history of planetary astronomy

by David Leverington

Cambridge University Press, 2003. ISBN 0-521-80840-5. Pp x + 558, £65.00 (hbk).

The history of planetary astronomy is a magnificent and oft-told story, which is increasingly reinforced nowadays by space scientists who, feeling the weight of history on their shoulders, give their spacecraft names like *Galileo*, *Kepler*, *Cassini*, and *Huygens*. This book recounts the story with considerable detail and authority. It begins with the arithmetic used by the Babylonians to predict planetary cycles, and by the Greeks to develop models of them; leads on to detailed accounts of how Kepler, Galileo and Newton developed their theories; gives good accounts of less familiar discoveries such as atmospheric refraction, aberration, and parallax; explains what was known and discovered about each of the planets in each century; reviews theories of the origin of the solar system; and finally, devotes most of the last 150 pages to the scientific results from spacecraft.

But was history really the steady march of progress to which it is often reduced? In spite of the author's good intentions in his preface, this book won't tell you. It does not convey the kind of excitement that is given by a personal anecdote, a historical picture, or a consideration of how intelligent people really felt about new ideas with limited evidence. Some of the famous controversies are indeed summarised – the discovery of Neptune, the Martian canals - and with considerable detail about who said what when, but the account remains one of facts rather than personalities. When it comes to spacecraft, the history is even more selective. There is no mention of *Ulysses* (surprising as the author was a British Aerospace director responsible for ESA projects), nor of *Mars Observer* (a billion-dollar explosion which has constrained NASA's schedule for Mars orbiter missions ever since); and all the traumatic saga of the *Galileo* spacecraft, spanning the *Challenger* disaster and the failure of the main antenna, is dismissed with the phrase 'launcher constraints'. Faithful to standard (NASA) history, there is only a brief mention of the Soviet *Venera 15* and *16* orbiters, although they produced the first global radar maps of Venus and discovered its extraordinary geography of rifts and coronae.

Nor does the book cover astronomy that was not at the cutting edge of scientific discovery. One might suppose that there were no visual observations after the Martian canals débacle around 1909, and no ground-based observations of any sort after the first spacecraft images of a planet in 1965 (with the sole exception of the comet crash.) In part this is because atmospheric dynamics is not within the author's concept of planetary astronomy. Thus the dust storms of Mars, and the currents of Jupiter, are mentioned only in passing as they related to theories about the physical constitution of the planets: even though those visual observations of Jovian currents in the 1890s produced more secure knowledge about the structure of its atmosphere than did the theories of the time.

As a reference on the history of planetary science, describing how today's scientific knowledge was attained, this book is very good. It is just what a graduate student would need to provide the obligatory historical introduction to his or her thesis. It would be nicely complemented by books that describe more of the human rough-and-tumble from which the discoveries emerged.

John H. Rogers

Dr John Rogers is Jupiter Section Director of the BAA, and has a longstanding interest in Babylonian astronomy.