

The World in Space United Nations
1982 London: Prentice-Hall xiv+689 pp
price £39

Who better to put in the by-line of a book called *The World in Space* than the nearest that world has to a global government? A pity though that that government didn't dare take the risk of making the price of its product closer to the means of its populace! Mind you, this is not a 'popular' publication, not one that would attract *Reader's Digest* or Penguin Books, though maybe the former might consider a detechnicalised condensation.

UNISPACE 82 was a big beanfeast last year, the second UN conference on the Exploration and Peaceful Uses of Outer Space (Vienna, August). The object now under the microscope is the (slightly updated) set of background papers issued before UNISPACE got under way. It is a quite marvellous survey of past ideas and development, current technologies and future potential. Edited by Ralph Chipman, it apparently involved input from 177 scientists of 28 countries. The UN, however, has over 150 member countries, and most of those remaining (157-28) are concerned with problems and expenditure needs rather closer to the ground as it were. Many sections of the book are concerned with benefits accruing to less developed countries, yet this reader had an unmistakably bitter aftertaste, and a feeling that the North was trying a little too hard to push the South into dubious expenditure.

It would be an interesting task (another winter holiday) to study the proceedings of UNISPACE 82 in that light.

E Deeson

The Sun, Our Star Robert W Noyes
1982 London: Harvard University Press
259 pp price £16

This book is marketed as the successor to D Menzel's *Our Sun*, an excellent but now somewhat 'long in the tooth' standard text. The need for a new book is highlighted by the good, up to date discussion of solar neutrino studies and solar oscillations; it is also good to see a clear account of the elementary principles of quantum mechanics in a book aimed at a nonspecialist audience.

Noyes, who is Professor of Astronomy at Harvard University, writes with a clear and easy style, following the conventional approach based on observations, describing the sun from the outside inward and only attempting to put the sun in its evolutionary perspective as a star in the final chapter. His occasional predilection for the exclamation mark intrudes into the easy flow of the text,

but overall the book succeeds admirably as the latest of the 'Harvard Books on Astronomy'. It works as a 'popular' text for the interested intelligent layman, and also as an introductory text for students. Very well illustrated, both photographically and with clear informative line drawings, adequately indexed, but perhaps a little on the expensive side, it is a book which can be wholeheartedly recommended.

John Gribbin

By Jupiter: Odysseys to a Giant Eric Burgess
1982 New York: Columbia University Press 156 pp price \$32

Our new understanding of the Jovian system in the wakes of Pioneer and Voyager is the subject of three books currently competing for the popular market. Weighing up their respective merits is, for once, a remarkably easy task. The front runner is unquestionably *Voyage to Jupiter* by D Morrison and J Samz (NASA 1980), well conceived and teeming with colour photographs, but virtually unobtainable in the UK. Next comes *Jupiter* by G Hunt and P Moore (Mitchell Beazley 1981), attractively packaged with a sheaf of colour images in the centre. It is hardly a discredit to the science writer Eric Burgess to comment that his *By Jupiter* is outflanked by the competition. In the arena of popular science journalism Burgess stands out as exceptionally competent, but he simply cannot claim the same intimacy with the subject that the other authors can. Moreover, in its total absence of colour illustrations his book looks unappealing by comparison; nor is it graced with the surface maps of the other two. Inexplicably it is the most expensive of the three. One interesting titbit: in the epilogue Burgess reveals that it was his idea to place an interstellar message aboard Pioneer 10.

Jon Darius

Grave analysis

Geophysics in the Affairs of Man
Charles C Bates, Thomas F Gaskell and Robert B Rice 1982 Oxford: Pergamon
xiii+492 pp price £30 (£12.50 paperback)

Too little has been written about the history of modern science. This is more the pity in geophysics, since the subject has seen such rapid expansion and developments. Accounts of specialised topics, such as plate tectonics, have been written, but not of the broad spectrum of exploration geophysics (including seismology and oceanography).

This book is about the people who were actively involved in this expansion and the reader can share their

excitement and spirit of adventure. The impact of their research is far-reaching, covering such diverse fields as economic geology, military warfare and nuclear arms control. Of particular interest are the photographs and personal recollections of many of those who took part in this major scientific development. Every practising geophysicist should read this book.

J A Jacobs

Image Analysis and Mathematical Morphology J Serra 1982 London: Academic xvii+610 pp price £48.40

The techniques of microscopy and remote sensing produce two-dimensional images on scales inaccessible to unassisted human perception, and the important problem arises of extracting quantitative objective information from such images. Are there well-defined separate 'objects'? What are the distributions of their sizes, curvatures, number of facets etc? This substantial book gives a thorough discussion of such questions, combining set theory, topology and the integral geometry of curves and surfaces with random functions and sampling theory into a new and powerful 'Mathematical morphology'. Philosophical aspects of the subject are discussed carefully and with insight. An attractive feature is the use of numerous examples to illustrate the rather difficult theory; these range from Caucasian dolerite, through sections of wood, to cervical smears and the histology of the eye. There is an extensive bibliography.

M V Berry

The Lighter Side of Gravity Jayant V Narlikar 1982 Oxford: W H Freeman
194 pp price £13.95 (£6.95 paperback)

The aim of this book is to give the nonspecialist a serious but readable account of the successes of the Newtonian and Einsteinian theories of gravitation. The first third of the book introduces the essentials of Newtonian dynamics and gravitation and finishes with an account of the role of gravitation in the evolution of stars. The rest of the book is devoted to topics from the much richer field of general relativity: black holes, white holes and finally relativistic cosmology.

Unfortunately the treatment of the topics is uneven in quality. The Newtonian theory is well presented, but the crucial introduction of the reader to the special and general theories of relativity in chapter five is inadequately thought out and will lead to much bafflement of the uninitiated. For example, the author plunges into curved space-time with no mention of the equivalence principle. Thus the book is best suited to the reader who has had some previous initiation into relativity theory.

E G Thomas