BOOK & CD-ROM REVIEWS

It is a novel and refreshing idea to produce in hardcopy any series of lectures designed with the public listener in mind. This enables a wider audience to appreciate some of the thoughts from the ever-changing world of science and technology. In particular it permits a communication platform for some of society’s best speakers. The current volume contains much that will interest the reader who is interested in the broader picture of science. Arnold Wolfendale’s article, from which the book takes its title, is an excellent summary of our achievements and desires to find that allusive evidence for ET. He expounds the rationale behind the famous Drake equation and discusses at length the results of the Viking missions and the ALH84001 controversy. Will Wyatt’s article on the future of television is most enjoyable. After discussing the history of television he gives an eloquent vision of the coming digital TV age. The book is copiously illustrated with relevant material and gives interesting biographical details for all contributors.

This book is to be recommended to anyone who enjoys popular descriptions of all fields in science and technology.

THE PHYSICS OF FLUIDS AND PLASMAS
An Introduction for Astrophysicists
A. R. Choudhuri
CUP 1998
S/b xviii + 427pp. ISBN 0 521 55543 4 £19.95 (US$29.95)
H/b ISBN 0 521 55487 X £52.50 (US$74.95)

This volume, from A. R. Choudhuri, Associate Professor of Physics at the Indian Institute of Science in Bangalore, has just been published in hardback and softback editions by Cambridge University Press. The subject of fluid mechanics is a requisite area in much of astrophysics, having applications in magnetic topology, gas/plasma convection and turbulence and accretion processes. Likewise the field of plasma physics is important in almost all aspects of modern astrophysics. This book addresses both fluid mechanics and plasma processes in a single volume and has been written with the astrophysicist in mind. The topics covered include neutral fluids (hydrodynamics, ideal fluids, viscous flows, gas dynamics, linear theory of waves, instabilities, turbulence and rotation), plasmas (orbit theory, dynamics of charged particles, collisionless and collisional processes, magnetohydrodynamics, magnetic topology and dynamo theory). A useful epilogue has been included that both presents some of the basics in topics not directly covered in the main text and discusses some of the important astrophysical areas that have benefited from the theories of fluid mechanics and plasmas.

The text of this book has been set at the graduate student level. Unlike many advanced text books of mathematical physics the emphasis is on presenting the mathematical framework and then discussing its consequences, sometimes at length. This will ensure that the student will grasp not only the theory but will come to understand its significance in different physical situations. Many examples of applications from astrophysics are included, though no previous knowledge of astronomy is assumed. Choudhuri’s writing style is excellent and conveys a real feel for the science, often laced with metaphors and examples from our everyday experience. This is essential in a book of this kind because it retains the reader’s interest through the details of the theory. The author is to be congratulated on such a well-written book. This book will make an excellent course textbook at the graduate level in astrophysicists as well as being useful to the advanced student of physics or applied mathematics.

THE ASTRONOMERS’ UNIVERSE
Stars, Galaxies, and Cosmos
H. Friedman
W. W. Norton & Co. 1998
S/b ISBN 0 393 31763 3 £10.95

Originally published in 1990, Friedman has now updated his book giving a detailed guide to 20th century astronomy. The author considers the progress in our knowledge of the Sun, stellar objects such as novae and pulsars, extragalactic astronomy and cosmology. A useful introductory chapter discusses some of the instrumental techniques that have enabled the entire EM spectrum to be utilised in astronomy.

The book is written at a level to inspire the advanced amateur astronomer, sometimes relying on a grasp of fundamental scientific principles. This may mean that the beginner in the subject may become a little lost. Certainly the excellent illustrations and photographs help. Pencil drawings of leading figures in the development of 20th century astronomy (by the author’s son) which accompany short biographical details add a welcome digression from the story being told. Friedman has sought to illuminate his depiction of modern astronomy with excerpts of his own involvement in key moments in research. This is admirable but the reviewer feels the book would have benefited by the inclusion of other such anecdotes related by other researchers. However, there is nothing to prevent this reviewer from recommending the book to anyone intrigued by the development and results of 20th century astrophysics.

URANOGRAPHIA BRITANNICA
John Bevis (c. 1750)
CD-ROM by The Manchester Astronomical Society
©1998 Michael Oates
(http://www.u-net.com/ph/mas/)
£12.99 (US$ 30.00) +pp

In 1738 John Bevis, a physician trained at Oxford, began a series of observations with a view to producing an up-to-date atlas of the heavens along the lines of Flamsteed’s and Bayer’s atlases. Over several years he observed up to 180 star transits per night which formed the basis of the position tables in order to draw up the star charts. Once complete, Bevis raised funds for the production of the expensive engravings for his atlas by selling subscriptions to learned societies and interested benefactors in return for dedications to appear on the star charts. The engravings were completed between 1747 and 1749 and showed the entire celestial sphere down to eighth magnitude. Bevis’ atlas contained 600 more stars than Flamsteed’s Atlas Coelestis of 1727. But in the autumn of 1750, just as the atlas was about to be published, Bevis’ publisher, John Neale of...