spectral calibration. The last twenty-six pages are devoted to some astrophysical applications, the sun, planets, nebulae, the interstellar medium, and extragalactic sources. The reviewer does not find that the book would satisfy the professional astronomer as the bookcover suggests, and certainly could not be of assistance to the amateur astronomer. Rather it would be useful to undergraduate students of physics wishing to brush up their atomic theory and read briefly about the application of spectroscopy in astrophysics.

COLOR AND LIGHT IN NATURE
D.K. Lynch, W. Livingston
Cambridge University Press 1995
S/b xii +254pp. ISBN 0 46836 1 £17.95 (US$ 29.95)
H/b ISBN 0 521 43431 9 £40.00 (US$ 69.95)

Rare atmospheric phenomena, unexpected prismatic colours and natural illusions fascinate us all. There have been several excellent books written on the subject, e.g. Können's *Polarized Light in Nature, CUP 1985* and Minnaert's *The Nature of Light and Colour in the Open Air, Dover 1954*, but rarely has the sheer beauty been conveyed better than in this new book, *Color and Light in Nature*. Written by two astronomers who were captivated initially separately at the Mt Wilson and McDonald Observatories, the text succeeds admirably in describing, illustrating and explaining a host of natural wonders. With so much air travel, so many coastal or mountain drives and excursions to exotic places today, there is an increasing number of folk asking questions about our Planet's glory. Dave Lynch and Bill Livingston have compiled a scholastic summary of natural phenomena, many complex meteorological and other physical effects, and produced answers which should be widely understood. Illustrated frequently in colour, with clear diagrams, the book explains nearly two hundred phenomena. Contrail shadows, the spectre of the Brocken, the Bishop's ring, the twilight arch, the green flash, mirages (inferior, superior and lateral), the aurora borealis, red tide and phosphorescent seas, moon circles, primary, secondary, tertiary and supernumerary rainbows, irisation, parhelia, Parry-, heliac- and anthelic-arcs, noctilucent and nacreous clouds, are all discussed in connection with ice, water, light and air. The authors give a few hints, too, on naked-eye astronomy in day and night (misprints: nightline in contents, and from part 6.9 = night astronomy!), and tell a little about artificial satellites, cameras, polarizers, observations from an airplane, and give a glossary and good indexing. This is a highly commendable book..... let's have more from Lynch and Livingston!

OBSERVATIONAL ASTROPHYSICS
R. C. Smith
Cambridge University Press 1995
S/b 443pp. ISBN 0 521 27834 1 £16.95 (US$ 34.95)

This book from R. C. Smith at the University of Sussex is ideally suited as the textbook for an introductory astronomy course at the undergraduate level. In over 400 pages the author presents a modern perspective of astrophysics beyond the solar system in simple language and with clear illustrations. Smith gives a good account of modern astronomical techniques with his descriptions of telescope optics, spectroscopic and photometric principles, area detectors and other instrumentation including radio, X-ray, gamma-ray and cosmic ray techniques. The basic principles of spherical astronomy are then given which, however, does not include a complete mathematical treatment as is essential in any textbook designed for undergraduate study. After discussing the magnitude system Smith then expounds the basic properties of stars, including binary stars, variables and cluster members before discussing at some length the theory of stellar structure and evolution. Galactic and extragalactic astronomy are also covered with some competence and several appendices are given including a very helpful list of references and further reading.

Smith's volume lacks the mathematical treatment that would make this book a primary source for many undergraduate courses but it does contain much of the background material, simpler mathematical formulations and discusses the concepts in clear language. It would be hoped that the student could graduate quickly to more comprehensive treatments of the many topics covered in this book and to help them on their way each chapter is appended with a small number of exercises. Rather than a book designed for physics graduates entering advanced research this book is more suited to the physics undergraduate considering options in astronomy. For such students this book is to be highly recommended as part of their familiarisation.

OUR EVOLVING UNIVERSE
M. S. Longair
Cambridge University Press 1996
H/b 185pp. ISBN 0 521 55091 2 £24.95 (US$ 34.95)

From one of the UK's most eminent astronomers, this superbly written and illustrated modern account of the evolving Universe is most welcome. This book does not simply inform us once again of the remarkable discoveries and searches made in modern times, black holes, dark matter and gravitational lensing, but provides the reader with the next questions, the next steps required in our understanding of the Universe. The book is a coffee-table production of superb quality. Philosophy and Science are harmoniously brought together, *physics provides us with a* **description** *of nature, descriptions of the working of nature* **not explanations**. One picture which the reviewer has never seen before is the photograph (a Talbo-type or photogenic drawing?) by John Herschel (1839) of his father's great 40-foot telescope (exposure time 2 hours). Herschel was, of course, an experimenter in his own right. Professor Longair's book blossomed out of his 1990 Royal Institution Lectures for Young People on television, and is highly recommended to all.

THE BEHAVIOUR OF CHEMICAL ELEMENTS IN STARS
C. Jaschek & M. Jaschek
Cambridge University Press 1995
H/b 324pp. ISBN 0 521 41136 X £50.00 (US$ 69.95)

The spectrogram is one of the most revealing imprints of the nature of stellar objects. The analysis of stellar spectra involves close inspection of absorption and emission lines due to atomic and molecular species. By analysing such features in the spectrum the astronomer can deduce information on stellar motions and pulsations, temperature, luminosity and chemical composition. Of course, the vast amount of basic and more detailed