structure of dark clouds, etc.). (This may have been due in part to the extremely unfortunate timing of the summer school, which overlapped with the NATO ASI on star formation at Whistler, and tied up many of those who would otherwise have attended.) Whilst one could argue that these topics have been dealt with exhaustively elsewhere, the purpose of a summer school is surely to cover the major topics in the field, at a level which is perhaps less sophisticated and more detailed than a typical symposium proceedings.

Of course the waveband chauvinism I was looking for would tend, if carried through to research projects, severely to limit the science that could be done. I am not advocating this, but I feel that a little more such might have been justified in a volume about millimetre-wavelength astronomy, to emphasize the rôle that the new mm and sub-mm telescopes can play in the various fields of astronomy: without this emphasis the book rather loses its way. Given these reservations, I think only the very keen or rich would be likely to put up £54 for this volume, although any institution supporting research in mm-wave or sub-mm astronomy should have a copy, both for the technical material and as a useful adjunct to other recently published volumes on specific astrophysical problems.—RACHEL PADMAN.


The field of solar physics is now so large and diverse that a single book of length less than 170 pages cannot hope to give a comprehensive account of current knowledge. Durrant recognizes this limitation and aims instead to set out some basic physics underlying solar phenomena, at the level of a student text. This approach succeeds to some extent.

After a brief Introduction, chapter 2 reviews the various ways in which energy is transferred in the solar interior and near the solar surface. The basic theory used should be familiar to a final-year physics student and more detailed mathematical arguments are sensibly relegated to the Appendix. Durrant’s solution to the tricky problem of how to distinguish between ‘quiet’ and ‘active’ phenomena is to divide the photosphere into ‘magnetic’ and ‘non-magnetic’ components. Given the pervasive nature of the solar magnetic field and its intimate relationship to the surface velocity fields I find the distinction forced. However, in practice, chapter 3 on ‘The non-magnetic photosphere’ gives a clear account of basic radiative transfer theory and of simple semi-empirical models. But the discussion of the dynamical photosphere and wave motions is split between chapter 3 (non-magnetic) and chapter 4 (magnetic). Although the arrangement of material may not be ideal, the sections on wave motions that appear in chapters 2, 3 and 4 together give a good account at an understandable level.

Chapter 5 treats the chromosphere, corona and chromosphere–corona transition region. The section on physical processes in low-density gases is marred by a fundamental confusion between the collision cross-section (m²) and the collisional rate coefficient (m³ s⁻¹). Ω is defined as the cross-section but in fact Ω is used as the collisional rate coefficient. The treatment of the transition region and corona is not entirely consistent with Durrant’s aim of presenting underlying physics. The morphology is described but there is no discussion of how the emission-line spectrum is used to determine physical models. However, Durrant is again on firmer ground in his accounts of wave motions and possible heating processes.