ved—a refreshing change indeed from several textbooks published in India. There could be minor differences in approach at some points; e.g. I certainly feel that the correct definition of a vector should be given right in their book. I am also not very comfortable, when in defining the gradient of a scalar field, the authors start with a scalar function $\varphi(\vec{r}(t))$ with time entering the picture. Apart from such minor disagreement, the presentation is excellent. Finally, the large number of solved problems and exercises are a very positive and distinct feature of the book. A few tougher problems marked out with an asterisk for the more intelligent students perhaps would have been even better.

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Statistical Physics. A. W. Guenault. Routledge, London. 1988. 186 pp.

This is a rather brief introduction to the subject, written in an engaging style by an active low-temperature physicist. It is designed for use in a physics honours (B Sc) degree course in Britain. The best feature of this book is, I think, the easy passage from theory to application, found in most chapters.

I would not call the text unsophisticated (although the author does, in the Preface) because the derivations it presents are terse with much of the argument condensed into a few lines of conversational prose. What is more, it expects the reader to be thoroughly familiar with basic quantum mechanics. These features, incidentally, make it unsuitable for B Sc programmes in this country. At the same time, it is limited in its coverage (as befits a beginning text), treating only the ideal gases and some non-interacting model systems, and touching briefly on the mean-field theory of the Ising model. This rules it out as a text for M Sc or Ph D courses in India. It will probably make useful supplementary reading for B Sc and M Sc students (and their teachers).

At a formal level, the main drawback of the book is its restriction (section 1.4) to non-interacting systems. The manner in which this is done will give the beginning reader the impression that entropy, temperature, etc. are meaningful only for such systems. The author would have done well to pose the general problem of statistical physics without such assumptions. Also, in the matter of phase transitions, the author treats only the rather non-representative case of the Bose gas, and (briefly) the second order transition in the Ising model in mean-field theory. A text which defines partition functions could easily demonstrate that ($B=0$, $T<T_c$) in the Ising model is a line of first order transitions.

Finally, a more serious shortcoming is the absence of any mention of computer simulation. Very illuminating demonstrations of equilibration, order–disorder transitions, diffusion, and even tests of the 'averaging postulate' (section 1.3) can be made on a PC using easily available programs.

Despite these shortcomings, the book remains a reasonable supplement to a first course in statistical mechanics.

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Horizons of Physics. A. W. Joshi. Wiley Eastern Limited, New Delhi. 1989, 383 pp.

The book is the first in the series planned by Indian Association of Physics Teachers to provide review articles in the frontiers of physics and related interdisciplinary areas. The authors have tried to describe recent developments with minimum of mathematics.

The series of three articles 'Fundamental particles and their interactions' by R. M. Godbole, 'A tale of two bricks: quarks and gluons' by B. K. Agarwal and 'Quark structure of hadrons' by S. P. Pandya and S. B. Khadkikar, depict the present status of elementary particles and the quark structure of matter. The astrophysical aspects of stars and the galaxies are discussed in articles 'The Sun and its family' by S. Chandra and U. S. Pandey, 'Astrophysics' by K. D. Abhyankar and 'Radio astronomy' by V. R. Venugopal. The series of articles provide the reader an up-to-date information in the relevant areas.

The articles 'Quantum mechanics' by P. M. Agarwal, 'The physics of X-rays' by S. I. Salem and A. Kumar, 'Development in nuclear physics and future challenges' by M. Z. R. Khan and 'Scattering in a generalized central potential' by H. C. Sharma will be useful even to M Sc students in view of the appropriate coverage of topics. For researchers in the field the articles 'Recoilless emission and absorption of gamma radiation or Mössbauer effect' by V. K. Garg and 'Amorphous and liquid semiconductors' by A. Kumar will serve as useful references.

For topics of general interest and for emphasis on the concepts, the articles 'The theories of relativity' by J. V. Narlikar, 'Understanding physics from a philosophical point of view' by A. W. Joshi and D. P. Khandelwal, and 'Comments on Faraday's Law' by H. S. Mani are strongly recommended for reading.

The articles are generally well written and are recommended for reading by all interested in obtaining a good understanding of physics. Perhaps a few comments may help in improving readability of the book. For example, the photographs in article 'Fundamental particles and their interactions' are not of good quality. Some reference books could have been included in the reading lists for articles 'The physics of X-rays', 'A tale of two bricks: quarks and gluons' 'Astrophysics' and 'Radio astronomy'. Page numbers can be provided on the contents of each chapter at the beginning.

On the whole the book serves as a good reference book and is recommended for reading by every student of science and physics in particular. It is recommended for purchase by the library of every University and College.

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