

## BOOK REVIEW

GOPAL (E. S. R.): Statistical Mechanics & Properties of Matters: Theory and Applications. Pp. 302, Halsted Press, John Wiley & Sons, New York, 1974, \$ 27.50.

In the last 15 to 20 years statistical mechanics has experienced great progress. A number of important achievements have been made in equilibrium and non-equilibrium statistical mechanics. Various phases of these developments have already been well presented through a variety of publications. The present attempt is one such to the already existing publications in the field.

The book gives a self-contained and unified presentation of theory of statistical mechanics and properties of matter, with applications of the equilibrium and non-equilibrium theories to different fields such as thermal behaviour of solids, dielectric and magnetic phenomena, chemical reactions, polymers and biopolymers, etc.

There are three parts in the book. Part A deals with equilibrium phenomena. This is presented in three chapters, *viz.*, phase spaces and ensembles, properties of gases and Bose-Einstein and Fermi-Dirac statistics, Non-equilibrium theory forms part B of the book which is discussed under 4 chapters, namely, Kinetic Theory of gases, Fluctuations of Brownian Motion, Time Dependence on Fluctuations and Irreversible Thermodynamics. The last part chapter C discusses some applications of the equilibrium and non-equilibrium theories to different fields, such as gas phase reactions, dielectric and magnetic materials, etc.

It may be of interest to note that some topics have been treated so briefly that some of the logical steps have remained inconspicuous, for instance, linear response theory, 3-dimensional Ising model, the pressure fluctuations and fluctuations in a microcanonical ensemble, etc.

One of the merits of the book is indeed the fact that it includes the contributions of 10 famous theoreticians in the subject field. No single theoretician can master the whole range of the subject. Consequently, the author has chosen 10 significant instances from the wide spectrum of scholarly endeavours which can be rightly construed as instances of "Statistical Mechanics".

In our opinion the author has fulfilled his objectives excellently. This concise overview of a rapidly expanding field is not only suitable for physicists, chemists, metallurgists, material technologists, etc., but will also be a valuable and easy source of reference for many research workers and teachers in the field.

However a small flaw (printing error) has crept in, in this otherwise well printed and presented book. On the dust cover, the date of award of Ph.D. to the author is marked as 1951, while the correct date is 1960 according to the copy of his thesis available here.

Anyone who wants to gain a real understanding of the utility of statistical considerations in a variety of situations should own this book—only the high price would stand in the way.

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### ERRATA

On the back of the outer cover of the July 1975 issue of the *Journal of the Indian Institute of Science*, the paper by G. Narasimhan on "Steady state profiles and stability of adiabatic packed bed reactors", has been inadvertently shown as REVIEW ARTICLE. This should have been categorised as ORIGINAL PAPER.

## Calendar of events: Conferences/Symposia at the Indian Institute of Science Campus

Name of the School	Period	Sponsoring Department of the Institute
Summer Institute in Molecular Structures	1-24 May 1975	Molecular Biophysics
Indian National Science Academy	16-17 May 1975	Physics
Intensive Course on High Voltage Technique	25 May to 8 June 1975	High Voltage Engineering
Ferrous Foundry Technology	11-28 June 1975	Mechanical Engineering
Molecular Biology of Bacteria and Bacterial Viruses	16 June to 12 July 1975	Microbiology and Pharmacology Laboratory
Microwave and Millimeter Wave Communication	30 June to 12 July 1975	Electrical Communication Engineering
All India Symposium on Biomedical Engineering	22-25 July 1975	Electrical Engineering
Geo-physical Fluid Dynamic Workshop	7-20 July 1975	Centre for Theoretical Studies
Organization of UNESCO Conference	1-15 September 1975	Mechanical Engineering
Intensive Course on Fluid Engineering	20 October to 2 November 1975	School of Automation
Lecture Course on Cavitation	Nov. to Dec. 1975	Chemical Engineering
Crystal Chemistry for College Teachers	December 1975	Inorganic and Physical Chemistry

On the basis of the information received by the Editorial Office on 15th August 1975.