

increases. Explanations of the role of higher dimensional catastrophes as organizing centres and of the importance of compact catastrophes in applications would not come amiss; neither would some discussion of (or at least references to) recent vociferous criticisms of some applications of catastrophe theory in the social and biological sciences.

In a rapidly expanding subject it is inevitable that any book will be out of date as soon as it is published. However, much of this book could have been written four years ago. Whilst there is no claim to define

the "state of the art", it is an uneven treatment, to say the least, that for some applications covers material from one or two expository works of several years ago, but for others refers to a quantity of very specialized material of recent date. One is forced to conclude that the author has made no great effort to acquaint himself with recent work outside his own particular interests, which is a pity, because as a result he has written a good book when he could have written a superb one. □

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where, although the relationships may be equally close and complex, they can be non-obligate and accidental, as with dipterous flies and many bacterial plant pathogens.

The book clearly points out the wide gaps in our knowledge and understanding of this subject. Many chapters end with questions for the reader or indicate need for further study. One contribution is even devoted to the search for the vector of a disease (lethal yellowing of coconut palm) where the very nature of the pathogen is still uncertain, although the reader may assume it to be a mycoplasma-like organism (MLO); a cixiid bug appears to be the most likely candidate as the vector.

The 13 chapters are written by different specialists, or groups of specialists who were clearly given a free hand and who have very different styles of writing. This variation in style adds to the interest but perhaps the editors might have tied the volume together a little more closely.

This thought-provoking book contains many references and will be of value and interest to researchers as well as to students and teachers. For example, how many of us have considered the possibility of a link between the use of mustard gas in the First World War and the recent spread of Dutch elm disease? The book suggests one. □

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## Potpourri of nuclear structure theory

J. M. Irvine

*Nuclear Spectroscopy. Lecture Notes in Physics, 119.* Edited by G. F. Bertsch and D. Kurath. Pp.250. (Springer-Verlag: 1980.) DM33, \$19.50.

THE Gull Lake workshop on nuclear spectroscopy, held in the summer of 1979, reviewed most of the basic topics in theoretical nuclear structure physics. This book is a record of the deliberations of the participants.

The opening chapter by Gerry Brown takes us through the familiar analysis of the meson exchange nature of nuclear forces, linking it to the quark structure of the nucleon in the "little bag model" of Brown and Rho. The Brueckner-Bethe and Landau-Migdal theories of effective interactions are developed and the predictions for the bulk properties of nuclear matter presented. In other interesting papers, Dieter Kurath presents an introduction to the nuclear shell-model which is novel in that it includes a short discussion of the current shell-model computer codes, and George Bertsch discusses nuclear vibrations — both in the random phase approximation and Landau formalisms — and presents an up-to-date account of the new giant resonances.

Amand Faessler gives a unified account of deformed and transitional nuclei. Concentrating first on high spin states in deformed nuclei, he discusses the "back-bending" phenomena and the nature of Yrast traps, and goes on to give an account of the breakdown of pairing due to the Coriolis force in transitional nuclei. Franco Iachello describes the use of group theory in the analysis of nuclear spectroscopy with a natural emphasis on the successes of the interacting boson approximation.

The use of statistical analysis in describing complex spectroscopies has been advocated for a long time. At last there are signs that it is being put to use in nuclear physics and it is appropriate that the field should here be reviewed by J. B. French. Finally, there is an interesting appendix by Bertsch, Zamick and Mekjian which highlights some of the unsolved theoretical puzzles which abound in nuclear structure physics.

I found this an exceptionally readable account of current topics in nuclear theory. The level of presentation of the material is remarkably uniform for a multi-author volume. I am sure that students and research workers in the field will find this a useful addition to their bookshelves. □

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## Various vectors and plant diseases

G. D. Heathcote

*Vectors of Plant Pathogens.* Edited by Kerry F. Harris and Karl Maramorosch. Pp.467. (Academic: 1980.) £27, \$48.

THIS book succeeds admirably in what it sets out to do, providing much detailed, up-to-date information on the inter-relationships of many plant pathogens, their plant hosts and various vectors. It is

third in a series of four volumes being published on this general topic. The earlier volumes were concerned with aphids and leaf-hoppers, and, although the first chapter of this volume is devoted to pathogen-vector relationships within these groups of insects, most of the current book is concerned with other, generally less well-known vectors. These range from mealybugs, to fungi and to nematodes

## Seabird synthesis

J.B. Nelson

*Behavior of Marine Animals. Vol.4, Marine Birds.* Edited by J. Burger, B.L. Olla and H.E. Winn. Pp.515. (Plenum: 1980.) £28.35, \$54.

STUDENTS of seabirds will warmly welcome this fine and wide-ranging compilation of data, ideas and references. Many important aspects of breeding biology such as choice of habitat, mate-selection, various factors and strategies relating to breeding success and the nature of communication behaviour are excellently reviewed. These articles form the core of the book but three others (seabirds at sea, the distribution of gulls in North America and, somewhat oddly placed, chemoreception in seabirds) stand outside this major theme.

Systematic use of headings and sub-headings produces welcome internal consistency within the volume but, in view of inevitable omissions in such a wide-ranging and essentially review work (references average 148 per article, excluding that by Southern), space could have been saved by editorial restrictions on the text authors devote to their own research. As it is, several contributors suddenly abandon the