BOOK REVIEWS

Topics in Algae by N. D. Kamat (published by Saikripa Prakashan, Aurangabad 431 003) 1983, Pages 250, Price Rs. 40/-

Algae are receiving International attention recently in view of their diversified uses, compared to the interest in floristic and chemotaxonomical approach in earlier years. Algalogists have now found greater application of algal forms in biofertilizers, biofuels, biochemicals and food-feed applications. In this context the book, 'Topics on Algae' will be of great interest. There are 22 diversified heads under which the subject matter is presented. These include, economic importance, morphological characteristics, reproduction, culturing to pollution detection. The author has not followed any specific scheme in presenting the various topics, which is distracting, nevertheless many of the themes are of great topical interest. Since the field of algology has expanded so rapidly it is difficult to do justice to all topics in a comprehensive book.

Details on economic importance of algae, synchronous cultures, Cyanophages, control of algae and algae in water supplies contain useful information. Though lot of work has been carried out in India on the soil nitrogen fixation, algal technology to produce biomass for feed-food uses, sewage treatment with algal systems etc, and good part of it has gone into field application, these aspects do not find a place in this book. The references cited generally are quite old and recent works have not been reviewed. The author could have brought out the major centres in India where basic and applied aspects of algal work are carried out under different subject heads which would have been useful to research students.

The matter throughout the book has been in narrative form with very few tables and figures only. This pattern is currently changing in Biological writing. The author in his preface has stated that the book is intended to create interest and provide information to B.Sc and M.Sc students in Algology at the University. If this has been the primary purpose the author has succeeded in his efforts.

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Plant Disease Epidemiology by S. Nagarajan (published by Oxford & IBH Publishing Co, 66, Janpath, New Delhi 100 032) 1983, Pages 267, Price Rs. 80.00.

This book contains 10 chapters *viz* Introduction, pathogen and the disease, pathogen variability and fitness parameters, the host and host population, weather, climate and plant disease, space, time and chance, pathometry, epidemic growth and analysis, systems approach in epidemiology and epidemic avoidance by means other than chemicals.

The plant disease epidemiology has not received much attention so far. Epidemiology of plant diseases came in to picture only about two decades back. The branch of epidemiology has greater relevance in this era. The chapters and topics have been arranged in sequence to understand the subject clearly. The author has explained the principles of plant pathology in the first few chapters. He has used the mathematical models to explain the several factors inter-related in epidemics. He has also clearly shown the use of satellite as a 'Remote Sensing Tool' in studying plant disease epidemiology.

This book is very useful to chalk out the course details to introduce epidemiology in the post-graduate level. This book will also provide a most useful information to all those interested in the field of plant disease epidemiology. Major emphasis on tropical crops and use of simple language throughout, will help the students and the readers to understand the subject clearly.

There are a few printing mistakes here and there, but they do not detract the value of the book. This is a good introductory book on epidemiology and a source for future references also.

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Adaptability—The significance of variability from Molecule to Ecosystem by Michael Conrad (published by Plenum Publishing Corpn., 233, Spring Street, New York 10013) Pages 370, Price not given.

This book is an attempt to synthesize the evolutionary theories with the newer concepts related physical systems, since the war. The basic task, the author sets to do, is to show the conceptual connectivity between thermodynamics, information theory, its statistical basis, dissipative systems, the concept of irreversible systems and so on. Conrad starts with a closed ecosystem in a flask, emphasizes its 'open'

behaviour in terms of heat fluxes and goes on to trace the meaning of environmental perturbations in the sense of more formal quantum considerations. He defines 'adaptability' as the ability to cope with the unexpected disturbances and the ability cope up with the internal noise as 'reliability'. The concept of entropy is introduced (implicitly) as a recursive notion such that behaviour of systems at various levels can be made to conform to a (notional) thermodynamic description, albeit of increasing complexity.

How readable a book is also depends on what the reader is looking for in the book. Conrad's treatment of biological theories and concepts is actually secondary to his primary concern to show the feasibility in mapping such ideas into a set of more rigorous physical notions. There have been several attempts in the past (D. W. Thompson, Bertallanffy, Waddington and so on), often of a scintillating nature. Considering the changing emphasis in biology today, Conrad has taken considerable care to illustrate his 'cosmology' with examples from modern biology. His efforts are directed towards conformity rather than any startling revelations. The book is an excellent starting point for nonbiologists with a good mathematical/physical background. For the biologist, exposure to such a theme would aid in obtaining a clear perspective. However, the biologist and the nonbiologist alike should be wary of confusing the map with the territory, as neither the physicalist approach nor the biological models and theories used in the book are the last word, despite Conrad's deceptively straightforward description.

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Physics for Rural Development by D. G. Swift (published by John Wiley & Sons, West Sussex, England) Price $ 15.95.

Physics developed as a subject of understanding nature and natural phenomena. Like any exact science, it has to rely on observations, model building, interpretation, verification and generalization. While doing so, many reasonings in physics led to applications which were practical and useful. Industrialization is a classic example Of this. In addition to this, many of the basic principles find important applications in the home environment and in the community environment. Even in our villages, most of the artisan knowhow is based on simple physics principles. In the book 'Physics for Rural Development', author has attempted to discuss various aspects of physics applications appropriate to rural technology. By this he feels, the basis of science will be more relevant to the learner and to the community. This is a laudable effort.

In order to make the book clearly understood the author has classified the subject into 10 chapters (1) Teaching rural physics (2) Designing a water tower (an exercise in statics and hydrostatics) (3) Designing a solar water heater (an exercise in thermal physics) (4) A wind generator (an exercise in dynamics and electrodynamics) (5) Making use of biogas (an illustration of energy conversion) (6) Designing a hydraulic ram installation (an exercise in fluid dynamics) (7) The physics of art and music (illustrating applications of vibrations and waves) (8) Making a low cost radio (an application of electric circuits) (9) Designing a solar cooker (an exercise in optics) and (10) Fighting cancer (an illustration of the practical use of high energy physics).

Each of these chapters is adequately discussed with the emphasis on applications. There are a number of numerical problems, easy to answer questions and further activities are suggested. As the emphasis is largely on practicalities and design features, the basics of physics are not emphasised. There are instances of some statements being vague and inaccurate. But this is understandable. There are a large number of physics books dealing with principles and applications of physics in a conventional way. But to illustrate the vitality of physics principles and their role in rural development is a very important effort. The author has succeeded in this job very well. As a source book for teachers and extension workers in developing countries, the book will be invaluable:

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