

Review

Oliveira-Pinto, F. & B.W. Conolly (1981). *Applicable mathematics of non-physical phenomena*. – Chichester, Ellis Horwood, 269 pp., cloth £ 19.50; paper £ 6.00.

The title of this book conceals a collection of newly edited and/or translated papers applying mathematics to population biology, which were originally published between 1908 and 1940. At least two comparable books have appeared in the last few years: Smith and Keyfitz (1977) and Scudo and Ziegler (1978). These two books are directed to relatively specialized professional audiences, however. Smith and Keyfitz deal with the origins of mathematical demography and Scudo and Ziegler concentrate on the history of mathematical population dynamics and especially on the work of Volterra and Kostitzin. The present book first of all tries to give a general mathematical audience a glimpse of some fascinating early examples of the application of their trade in an at-that-time novel area. It contains four papers on population dynamics written by the mathematicians Volterra, Kolmogorov and Feller, two papers on population genetics by the mathematicians Hardy, and Kolmogorov, Petrovsky and Piscounov, two papers on epidemics by the physician McKendrick the second with the biochemist Kermack, and a paper on warfare by Lanchester.

All papers are outstanding for their elegance. Moreover they give a good idea of the infusion of novel ideas from mathematics into biology. It is interesting that some of the relatively sophisticated mathematical techniques were developed *de novo* by the non-mathematicians Kermack and McKendrick. For this same reason it is a pity that the editors did not also insert one or more papers by Sewall Wright foreshadowing the development of stochastic processes of the diffusion type. The only reason for this omission I can think of is that these papers are relatively difficult reading for the biologically untrained. However, this is my only criticism of an otherwise marvellous job. I am particularly happy that quite a few papers which I have found very difficult to obtain copies of are now available at a relatively modest price.

Scudo, F.M. and J.R. Ziegler (1978). *The Golden Age of Theoretical Ecology: 1923–1940*. – Berlin, Springer, vii + 490 pp.

Smith, D. and N. Keyfitz (1977). *Mathematical demography; selected papers*. – Berlin, Springer, xi + 514 pp.

J.A.J. Metz
Institute of Theoretical Biology
State University
Leiden