Murray, J.D.: **Mathematical Biology. I. An Introduction.** 3rd Ed. – Springer for Science, New York – Berlin – Heidelberg – Barcelona – Hong Kong – London – Milan – Paris – Singapore – Tokyo 2002. ISBN 0-387-95223-3. Pp. 551, € 44.95, GBP 31.50, sFr 77.00, USD 59.95.

This book is the 17th volume of the series "Interdisciplinary Applied Mathematics" which consists of monographs devoted to the application of mathematics in other fields of science.

The volume starts with Preface to the 3rd and 1st edition. Table of contents includes not only this volume, but also an additional volume which deals with spatial models and biomedical applications and which is not reviewed here. At the end of the book, two Appendices have been included: A. Phase Plane Analysis, and B. Routh-Hurwitz Conditions, Jury Conditions, Descartes' Rule of Signs, and Exact Solutions of a Cubic. The volume ends with Bibliography (594 citations) and a very detailed Index.

The content of the book is well illustrated by the titles of the individual chapters: 1. Continuous Population Models for Single Species (43 pp.). 2. Discrete Population Models for a Single Species (34 pp.). 3. Models for Interacting Populations (39 pp.). 4. Temperature-Dependent Sex Determination (26 pp.). 5. Modelling the Dynamics of Marital Interactions: Divorce Prediction and Marriage Repair. (28 pp.). 6. Reaction Kinetics (40 pp.). 7. Biological Oscillators and Switches (38 pp.). 8. BZ Oscillating Reactions (20 pp.). 9. Perturbed and Coupled Oscillators and Black Holes (36 pp.). 10. Dynamics of Infectious Diseases (79 pp.). 11. Reaction Diffusion, Chemotaxis, and Nonclonal Mechanisms (22 pp.). 12. Oscillator-Generated Wave Phenomena (19 pp.). 13. Biological Waves: Single-Species Models (46 pp.). 14. Use and Abuse of Fractals (16 pp.). Nearly all chapters end with instructive exercices.

A very good knowledge of mathematics is required to study this text. For readers of Photosynthetica, there might be of some interest only parts devoted *e.g.* to enzyme kinetics, biological oscillators, or diffusion. Photosynthesis and its reactions are not discussed in this book.

For this reason I would recommend this volume only to those readers of the journal Photosynthetica, who are deeply involved in mathematic quantification and description of biological processes.

Nevertheless, I would like to take this opportunity and quote several sentences from the Preface to the 3rd edition. The following ideas are of general importance for biologists and it might be useful to mention them in this review. "The unifying aim of theoretical modelling and experimental investigation in the biomedical sciences is the elucidation of the underlying biological processes that result in a particular observed phenomenon, ... mathematics, rather theoretical modelling, must be used if we ever hope to genuinely and realistically convert an understanding of the underlying mechanisms into predictive science". It should also be emphasized that "The very process of constructing a mathematical model can be useful in its own right". And I would like to end with quoting the final sentence of the author's Preface: "Looking back on my involvement with mathematics and the biomedical sciences over the past nearly thirty years my major regret is that I did not start working in the field years earlier". Such a regret could be very stimulating for many younger readers of Photosynthetica when they decide about their future research.

I have to stress again that this volume will be of value for those biologists who acquired high level of mathematical formalism. Furthermore, there are no examples included from research on photosynthesis. Nevertheless, the general ideas of the extreme usefulness of the application of mathematics in biological sciences could induce or encourage many researchers and students in taking the decision to further cultivate one's knowledge of mathematics and apply it in his or her own field of biological research.

L. NÁTR (*Praha*)