

BOOK REVIEW

Molecular Systematics, 2nd ed. Edited by David M. Hillis, Craig Moritz, and Barbara K. Mable. Sinauer, Sunderland, MA, 1996. xvi + 655 pp. Paperback, \$49.95.

According to Faith Popcorn, the most fashionable economic guru in recent years, a novel type of customer is emerging throughout the world. This consumer is not easily impressed by the label “new and improved,” but demands proof for this claim and requires “significant” added value to be persuaded to let go of the old product and purchase the new one. Let us therefore analyze the second edition of *Molecular Systematics*, an immensely successful book in its previous incarnation, in light of the advice of this “Nostradamus of marketing.” In this comparative analysis I shall deal with two major questions: (1) Has this new edition been significantly improved over the first one and (2) can it replace completely the functions of the first book? In practical terms, do I need it and can I throw away the old book?

In quantitative terms, the second edition of *Molecular Systematics* provides its readers with an increase of about 35% in text length, four new authors, and an additional editor. A new (and very comprehensive) chapter on PCR has been added; however, one on immunological methods has been dropped. With multi-authored books, it is usually very difficult to maintain a uniform standard of quality. The second edition of *Molecular Systematics* is unusual in this respect, and the editors should be congratulated for producing a volume that contains little variation in the quality of its chapters. All the chapters have been revised to varying extents. Most have been expanded and updated extensively and as a consequence have been improved significantly. One such example is the chapter on molecular cytogenetics by Stanley Sessions, which now includes an illuminating discussion of chromosome painting. At the other extreme, a few chapters have been amended only slightly, and the chapter on isozyme electrophoresis has been hardly touched.

I agree with the editors' statement that during the six years between the first and second editions, much progress has been made in the field of molecular systematics. (A trivial example is this review that appears in a journal entirely devoted to the subject, but did not exist at the time of the publication of the first edition.) I must, however, add that much of this progress

is due to the appearance of the first edition of *Molecular Systematics*, which served as an impetus for hordes of molecular biologists to look at their data from an evolutionary and phylogenetic perspective. In general, the growth in theoretical and empirical knowledge and methodology in molecular systematics is adequately documented and covered in the second edition, and the book should continue to maintain its “indispensable” status at all stages of phylogenetic inquiry. However, some of the chapters in this version seem to differ so greatly in emphasis, purpose, and priority from their homologues in the first edition that those of us who possess the old book will benefit from keeping it (or parts of it).

It is no secret that the most useful chapter in the first edition was the chapter “Phylogeny Reconstruction” by David Swofford and Gary Olsen. To date, this chapter has been cited in approximately 500 scientific publications, and in defiance of copyright laws countless samizdat copies of this chapter have been spotted in many universities and institutions. I therefore approached Chapter 11 in the new edition, now titled “Phylogenetic Inference” and written by two additional authors, with a great deal of trepidation. Could they improve perfection? Well, they did! General principles are outlined even more clearly than before, specific methods are presented in detail, and illuminating examples greatly abet our understanding of the subjects that are being dealt with. Seemingly disparate topics are brought together in insightful and terse syntheses, and one cannot help but envy the talent of the authors in summarizing such a vast body of knowledge in less than 100 pages. The addition of an appendix containing a list of software packages, including basic descriptions of the applications and suppliers, rounds up what can only be described as a *tour de force*.

In terms of editing, style, quality of reproduction of photographs, graphics, and binding, the second edition is indisputably improved. The frequency of spelling errors has decreased, the fonts are readable, the formulae are clearly set, the glossary has been enriched by useful acronyms and abbreviations, and a list of measurement symbols has been added. The stylistic deletions should also be regarded as significant improvements, and I am particularly happy with the disappearance of such linguistic monstrosities as “ACR”

for “amino acid replacement.” I hope that in the third edition, MPR, NISH, and NPH will follow suit. Finally, I thank the publishers for not using spirals or other “innovative” petroleum-derived contraptions that caused my copy of the first edition of *Molecular Systematics* to fall apart soon after I purchased it.

So, the answers to the two questions posed at the beginning of this review are (1) yes, I need it and (2) no,

I shall have to keep my tattered and crumbling first edition on my desk, albeit less prominently than before.

DAN GRAUR

Department of Zoology

George S. Wise Faculty of Life Sciences

Tel Aviv University

Ramat Aviv 69978, Israel

graur@ccsg.tau.ac.il