

selection pressures on the organisms. Interestingly, the authors give credit to a physicist, E. Schrödinger, for being the first to indicate (in the book *Mind and Matter*) that the organism–environment is a coupled system and organisms stay alive at the expense of the biotic and abiotic environment. This ‘feedback’ process has been gaining considerable ground over the years and the organism and environment are considered to co-evolve where they act as both causes and effects. This has grown more important since the role of learning and cultural transmission of information and the large scale alteration of environment by human actions have been major areas of study in social anthropology and ‘memetics’ – an area where all three authors have contributed significantly. The chapter on culturally transmitted niche construction in hominid evolution is particularly interesting and potentially controversial as there are strong critics of these ideas among both biologists and anthropologists.

The appendices consider several increasingly complex population genetic models of diploid individuals with two di-allelic loci where the consequence of the niche construction activity in resource depletion or creation are included as functions of the allelic frequencies. There is an interesting model of the altruistic behaviour in niche constructing activities (such as, nest building and maintenance) in social insects (Hymenoptera species), which predicts a more female-biased sex ratio as is seen in nature. There is much material for interested persons here to work on. The book concludes with chapter 10 in which an assessment of the contributors’ arguments and a clear description of what are the compelling reasons for considering an alternative to the standard evolutionary theory are given. They discuss the different positions taken by other evolutionary theorists in describing different types of change and clearly state why they ‘seek to describe evolutionary change in terms of both of the properties of environments that affect organisms and of the properties of organisms that affect environments’. The discussions on adaptation, environmentally-mediated genotypic associations, phenotypic plasticity, and, of course, the uniquely powerful human cultural niche construction provides much food for thought. The book under review clearly has made a serious and powerful attempt

to include niche construction and ecological inheritance as important processes in evolution along with natural selection and genetic inheritance.

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Bioinformatics – A Practical Approach.
K. Mani and N. Vijayaraj. Aparnaa Publication, Coimbatore 641 015. 2004. 112 pp. Price: Rs 165.

This book is apparently a follow-up to the authors’ previous effort titled *Bioinformatics for Beginners* which was an attempt to address the shortage of affordable books on the subject that existed then. Since then, several very good, low-priced Indian editions of American and European books have been published and price alone cannot be an USP anymore. The authors evidently realized this, and the book under review is therefore an effort to go beyond being just a cheaper version of some expensive publication.

The entire book is written in the style of a tutorial, or rather several tutorials. The topics addressed include searching for information on the Internet, bioinformatics databases, molecular graphics, analyses of nucleic acid and protein sequences and structures, and phylogenetic trees. For each of these topics, the book chooses a simple example and demonstrates the use of a program or a server. For instance, the first chapter demonstrates the use of the Internet to obtain all types of information regarding a given topic. This is illustrated using the word ‘Cortisol’. This chapter shows how it is possible to download reports, slides, papers and even books pertaining to the topic. The chapter, however, does not discuss a major problem that accompanies such easy access to information. All the downloaded material is completely useless unless one *actually* reads it. I know students who spend hours of Internet time and gigabytes of disk space, obtaining and storing stuff they will never use. I wish the authors had spent some time

explaining that clicking on the mouse is no substitute to actually reading the downloaded information.

This somewhat superficial approach is seen throughout the book. In one of the later chapters, the authors discuss the use of the SWISS-MODEL server to build a ‘homology’ model structure for a protein. Too few cautionary notes have been added, and the impression is created that if one knows the sequence of a protein, it is not too difficult to know its structure. In a recent seminar, a fairly senior scientist in the audience asked me about the need for X-ray crystallography and other expensive experimental structure determination techniques when programs such as SWISS-MODEL were available. I had to explain that the state-of-the-art in structure prediction and modelling was far, far away from being able to replace experiment. Chapters such as the one I have just discussed may only add to this kind of confusion, particularly in the impressionable minds of young students.

The book is full of annotated screen shots, which is good, but it also has many spelling and grammatical errors, which is bad. There are a few colour plates that add to the overall ‘look and feel’ of the book (and perhaps to its price), but do not really contribute to the substance. Though the authors have not specifically stated this, and though the style of writing is informal, they probably intend their effort to serve as a reference book in a ‘Bioinformatics practicals’ course as part of a M Sc or B Sc (Biological Sciences) programme. In my opinion this is where the book will be most useful. Finally, a CD containing some of the programs and data, similar to the one distributed by the Bioinformatics Centre, Pondicherry University, would be a useful accompaniment to the book.

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