
Though the phenomenon of life remains one of the most challenging enigmas of nature, teaching biology in schools and colleges in India remains less exciting than a peep into the port or starboard deck of Noah’s Ark. Rather than presenting the thrill and excitement of the intricacies of the life process, in most cases, biology curriculum in the country remains merely a catalogue of life-forms. Any effort to rectify the situation will involve the availability of good textbooks, particularly indigenous, which can serve as the link between the lab bench and the classroom. But most of the textbooks currently available hardly ever deviate from the standard approach of presenting the ‘Parade of Life-forms’. Even the pictures are so stereotyped, many books even use the same printing blocks! In this context, Sandhya Mitra’s efforts to present an integrated view of biology to cover the entire spectrum of biological research is commendable. In writing the book The Business of Living: An Acquaintance with Biology, she attempts to present a good textbook which can serve as a backdrop for an introductory biology course. Though the effort is laudable, the final product falls short of expectation. The book could do with a lot of improvements particularly the early and late chapters.

The major stumbling block is lucidity. In many sections, though the title is appealing, it fail to convey what the author intends. A good example is the first chapter itself which is supposed to give a historical survey of the evolution of major concepts in biology. Most of the chapter is irrelevant to biology. At the same time, the history of emergence of major concepts such as heredity is not given sufficient attention.

In an attempt to be dramatic, Mitra makes innumerable factual errors. In her introduction to Dalton’s atomic theory, she states ‘Atoms were proposed to be the ultimate discrete units of matter that could be interconverted to energy and vice versa’ (page 19). Dalton has apparently preempted Einstein! To state that ‘This knowledge became the founda-
tion of all physical and biological science' is taking reductionism to the limits. In the same style, she writes: 'The individual is a reflection of the blueprint which encodes the information for its development. The more complex the individual, greater the information content in the DNA.... (page 31). This rather simplistic interpretation of development and complexity of living organisms is misleading. Unfortunately, statements such as these are not isolated incidences. In the same chapter, the theme is stressed again: 'As the DNA embodies all information about structure and development of an organism, the DNA in a eukaryote has myriad more subtle features that are absent in prokaryotes'. Without being explicit about what these 'myriad subtle features' are, the statement contradicts recent observations which show that basic molecular mechanisms are conserved to a considerable degree among prokaryotes and eukaryotes. Since these are introductory chapters that set the trend of the book, it is essential to maintain factual accuracy.

The strongest chapters are the middle chapters that deal with the real business of life. Mitra has done a commendable job of presenting the salient features of life starting from thermodynamic principles to behaviour. The presentation is a far cry from the conventional textbooks. A new-comer is introduced to major concepts such as basic biochemistry, molecular genetics, immunology and oncology, neurophysiology and behaviour. The chapters can also act as a guideline to a basic biology course.

The shortcomings of the early chapters seem to make a come-back towards the end of the book. Biology is essentially an experimental science. Major breakthroughs in biology have come from asking a fundamental question and trying to find the answer by making crucial observations and by designing simple but elegant experiments. The discovery of the principle of heredity, the laws controlling the development of a fertilized egg, the theory of evolution, and more recently, the discovery of the chemical nature of the gene all fit into this simple pattern. Mitra's writings leave one with the impression that most of the excitement in modern biology stems from growth in physical, sciences and technology, particularly electronics. Though this can be said about some aspects of biological analysis, the conceptual framework of biology still depends on simple and direct experiments. Even in the overemphasized field of 'recombinant DNA research', a lot can be achieved in the absence of any fancy equipment or electronic technology. Statements such as 'Physicists are turning to the living system to decipher how complex reactions are carried out....' and 'there will come a day when biology might subsume physics itself' are uncalled for. To give the impression that a conflict exists between physicists and biologists for intellectual supremacy is as unwarranted as statements such as 'Homo sapiens—the monarch of all he surveys'. In the concluding chapters, one also gets the feeling that most of biology is designed for the betterment of life on earth. Any technological breakthrough that assists life is a bonus. But the biggest prize, at least as far as learning biology in schools and colleges, is knowledge itself about us and the world around us.

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