

## “Nothing in Biology Makes Sense Except in the Light of Evolution”

Raghavendra Gadagkar



*The Theory of Evolution*  
John Maynard Smith  
Canto Edition  
Cambridge University Press, 1993

Nothing in biology makes sense except in the light of evolution, quipped Theodosius Dobzhansky. The theory of evolution argues that each biological species was not suddenly and independently created but that all life forms are interrelated by virtue of having descended from common ancestors through the accumulation of modifications. Indeed, nothing we know about living organisms would make any sense if they were not so interrelated. And the theory that biological species are descended from common ancestors provides an indispensable heuristic to understand why living organisms are what they are and do what they do.

There are of course a plethora of introductions to the theory of evolution for the beginning student or for the non-specialist. Richard Dawkins has described *The Theory of Evolution* by John Maynard Smith as “the best general introduction to the subject now available”. I agree and will here attempt to explain my reasons for agreeing with Dawkins’ description.

John Maynard Smith (1920-2004), first wrote this book in 1958 and revised it in 1966 and again in 1975. It is this unaltered 1975 edition that Canto, an imprint of Cambridge University Press, has reissued in 1993. Maynard Smith covers the whole gamut of evolutionary biology in relatively simple, non-technical language. But that is the minimum we would expect from a general introduction. What makes *The Theory of Evolution* the best general introduction is Maynard Smith’s unique ability to make the book intellectually challenging without making it intimidating. And the main reason why he succeeds is because of the supremacy he accords to arguments over facts. A description of facts for the sake of facts coupled with the masquerading of description as understanding, is the bane of much of biology and it is this that makes some biologists feel that they don’t need evolution to guide their work. In contrast, Maynard Smith does not give you any fact without a good reason for giving it. Every fact he presents has an indispensable place in his narrative and brought to bear on his argument only when required. This, woefully rare approach is what makes the book challenging without being intimidating. And this is why a book last revised 30 years ago can still be recommended as the best available introduction to the subject. Today we may have many new facts and many new arguments but they do not invalidate the old facts and arguments. And even when they occasionally do, the arguments that Maynard Smith makes on the basis of facts available to him at the time of his writing are still most

instructive. If only biology is taught as a series of logical arguments connecting facts rather than a series of facts that need no arguments, *a la* Maynard Smith, it will surely attract all those bright high school kids who are now turned away from what they perceive as an intellectually un-challenging study of too many facts.

But there are other qualities that Maynard Smith brings to bear on his writing. Just as Maynard Smith did not change his voice when he said something profound, he does not alter his style of writing when he presents something very profound. Because we are so used to authors pronouncing the profundity of what they are going to say, before saying it, and again, after saying it, Maynard Smith's writing has the uncanny ability of making the reader feel that she has just realized *de novo* the profundity of what is being said. This can do no harm to the morale of the reader or to her ability to remember the arguments being made. Even Maynard Smith's humour is delivered with the same straight face. I cannot help giving a couple of examples:

*"Less officially, the two strands of the DNA molecule are 'Watson' and 'Crick', but as yet there is no international agreement as to which gets transcribed and which is there only to help in replication."*

*"Elementary textbooks of biology used to contain lists of the defining characteristics of life: the only one I recall is 'irritability', because of the picture it summoned up of an irritable oak tree,"*

I must allude to yet another unique character of Maynard Smith's writing, indeed of Maynard Smith himself. This is best done by quoting him:

*"Before starting a formal training in biology, I had read a number of books about evolution, some intended primarily for the specialists and some for laymen. Although there were always, in the former kind, passages I could not follow, I found such books more satisfying than those written for laymen, since in the latter I had always the feeling that difficulties were being slurred over. I have tried to avoid this fault. Although I have not assumed any specialized knowledge in the reader, and when possible I have drawn my examples from familiar animals and plants, I have not omitted any subjects merely because they are difficult."*

And yet, Maynard Smith has studiously avoided algebra. Even when forced to use the simple binomial expansion in the context of the Hardy-Weinberg law, he says:

*"This law is so important in arguments about selection in wild populations that, at the risk of irritating readers who dislike even the simplest algebra, it will be explained here."*

Finally I must mention the that if you get hold of the Canto edition of this book, which is probably the only one in print now, you will have the joy of three books in one. There is a long and delightful foreword by the inimitable Richard Dawkins, which I recommend heartily even to those who have no time to read the book itself. And then there is a longer introduction to the Canto edition by Maynard

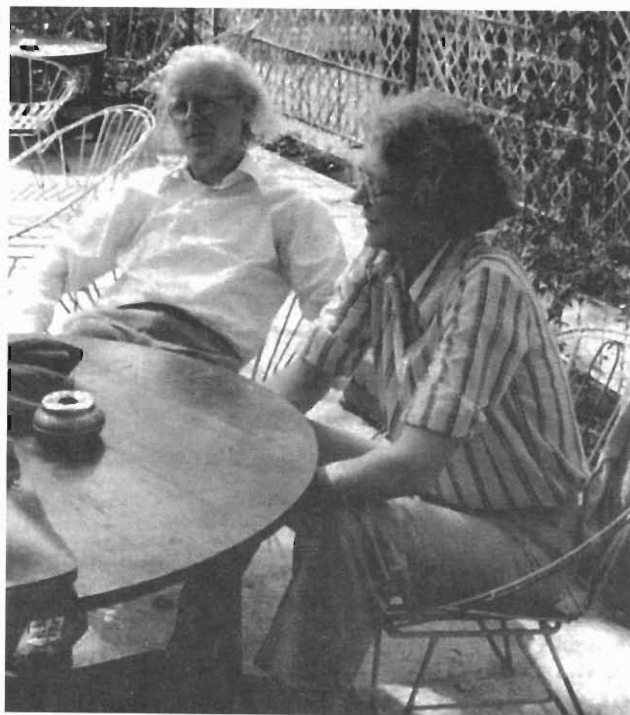


Smith in which he summarises the developments between 1975 and 1993. I am pleased that he chose to write such an introduction rather than revise the whole book yet again. The essay helps see the new developments in striking relief from the pre-1975 body of knowledge and can be read independently of the main book by those who only wish to bring themselves up-to-date or by those who wish to focus only on the new developments. To get the full pleasure of the Canto edition however, one should first read Dawkins'

foreword followed by the main book and finally the new introduction to the Canto edition. And if you do so, you will be rewarded by even more than "*the best general introduction to the subject now available*".

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**Raghavendra Gadagkar, Centre for Ecological Sciences, Indian Institute of Science, Bangalore, 560012, and Evolutionary and Organismal Biology Unit Jawaharlal Nehru Centre for Advanced Scientific Research Jakkur, Bangalore, 560064, India. Email: ragh@ces.iisc.ernet.in; URL: <http://ces.iisc.ernet.in/hpg/ragh>**



John and Sheila Maynard Smith during their visit to participate in the Mahabaleshwar seminar on Modern Biology in 1979.

