

## Book Review

*A Reason for Everything: Natural Selection and the English Imagination.* by Marek Kohn. London: Faber and Faber.

Reviewed by

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*A Reason for Everything* is a popular history of British evolutionists from the mid nineteenth to the end of the twentieth centuries. It is well-written and researched throughout. The author, Marek Kohn, read biology at Sussex University, and is the author of numerous other works on drug culture, evolution, biology and society. Six evolutionists are discussed in increasing biographical detail: Alfred Russel Wallace, Ronald Fisher, J. B. S. Haldane, John Maynard Smith, William Hamilton and Richard Dawkins. The series of biographical sketches grows more in depth and contains some new material when we reach Maynard Smith, Hamilton and Dawkins because Kohn makes use of interviews and correspondence with family, colleagues and the subjects themselves.

It would have been nice had Kohn included a sketch of Charles Darwin, especially since it was Darwin who first discovered the significance of and coined the terms ‘natural selection’ and ‘adaptation’, terms which Kohn’s book particularly targets. However Kohn considered that Darwin’s case is so well-known and abundantly available that he would focus on others. It is hard to disagree with him.

The first evolutionist to be discussed, therefore, is Wallace who is usually remembered as the ‘co-discoverer’ of evolution by natural selection. This is a distinction both deserved and undeserved. While Wallace did independently propose that varieties of organisms will diverge from an ancestral stock to the point of speciation by differential survival of well-suited forms, it is perhaps an unfortunate short-hand to say that he and Darwin discovered ‘the same’ theory. By assuming a singular entity ‘the theory’ we shrink what actually happened historically to an unwarranted simplicity. It is also somewhat misleading to then attach the name Darwin coined for his ideas to the thought of both men. As is often remarked, there were many differences between them. Wallace never

appreciated Darwin's insight that a farmer or breeder's selection of particular individuals, because of desirable characteristics or stock to breed from is directly parallel to certain characteristics of organisms in nature making the difference between their surviving to reproduce or not. Hence Darwin called the effect 'natural selection' because it was akin to a breeder's selection. Wallace much preferred Herbert Spencer's term 'the survival of the fittest'. In fact Wallace even crossed out the words 'natural selection' in his copy of *The Origin of Species* (1859) and wrote in 'survival of the fittest' in the margins. As is well known, the implementation of this less suitable and more tendentious term has unleashed cascades of misunderstandings and inspired or was used in many forms of elitist weak-to-the-wall thinking. Similarly, it is misleading to say that Herbert Spencer thought up 'natural selection' before Darwin. (81) Spencer had a similar idea but using the identical label renders the statement misleading.

Kohn's treatment of Wallace is sympathetic and one wishes it were not so brief. Kohn speculates that Darwin and Wallace hit on such similar theories of evolution because of similar early interests such as collecting beetles and all the attention to detail and diversity that this entailed. This is quite a general and inadequate explanation. Thousands upon thousands of their contemporaries collected beetles and yet only two came to explain the diversity of life in what we now call evolution by natural selection. If a general explanation is sought, one should point rather at their extensive periods of collection, ability to observe geographical distribution around the world first hand and penchant for generalization.

Kohn also makes a few minor mistakes as when he asserts that Charles Lyell and J. D. Hooker arranged a special meeting of the Linnaean Society for the reading of the joint paper by Darwin and Wallace announcing their views in 1858.(33) (See Desmond and Moore, *Darwin*, 1989, 469) Similarly, when discussing Wallace's many fringe interests, Kohn claims that they were confined to the supernatural. This is clearly the case with spiritualism or the unsupported assertion that human beings must have had some supernatural help in their evolution but not the case with phrenology, mesmerism, anti-vaccination and radical land reform. Wallace clearly had wide interests, strong convictions and an inability to give up a view once he had become convinced it was true, no matter how much contrary evidence he later encountered.

The treatment of the five subsequent evolutionists is thorough, intimate and thoroughly enjoyable. Kohn combines a discussion of their lives and personalities as well as their work and their scientific contexts. After reading Kohn's chapters one feels one almost knows Hamilton or Fisher. Nevertheless the book does assume some prior knowledge of some of the scientific issues such as the debates over selectionism.

Only in some of Kohn's general remarks and in his overall argument is the book less convincing. For example, Kohn repeats what has become almost a commonplace statement in textbooks "Darwinism was widely assumed to have been consigned to the dustbin of the nineteenth century". (85) Yet this is not the case. It is true that many writers believed that Darwin's mechanism of natural selection could not be the main explanation, but he was universally regarded as the greatest biological thinker and theorist for having convincingly demonstrated how all the vast variety of living forms on earth originated, common descent. In countless books and articles from the turn of the century and in the following decades Darwin was still praised in terms as high as one finds in the many obituaries and biographical notices that appeared in 1882-3 just after Darwin's death. I suspect that the disrepute or inadequacy of Darwinism has come to be somewhat exaggerated since a second triumph-story has come to be told. How can the new synthesis be proclaimed as coming to the rescue in the history of science if it were only filling in some of the vague sub clauses in Darwin's theory?

There is a similar change in the story since genetic mutations have become such an important component of biology. Now one constantly reads in popular accounts that mutations are the only source of variation. Yet Darwin's great theory included variation, selection and heredity. What was variation for Darwin if genetic mutations were not yet known? Darwin referred to the fact that all individual organisms are unique and it was these tiny variations between one another that could make the difference between survival and reproduction and ceasing to exist. So the modern role of genetic mutations in the story of Darwin and evolution has overshadowed the far greater source of genetic variation for many species, sexual reproduction.

But the real argument of Kohn's book, if sometimes out of sight, is that an emphasis on adaptation is particularly British and that this emphasis can be explained by some other characteristics of British thinkers. And, as Kohn puts it, "An adaptationist will tend to assume a reason for everything." (13) Hence the title of the book. John Maynard Smith agreed "I never knew a birdwatcher who was not a naive adaptationist". (6) A few broad brush explanations are offered for British adaptationism. For example, there is the British tradition of natural history from Gilbert White onwards. But these sorts of explanation are little more than a rhetorical characterization. There is no measurement or even comparison with other countries. The assertion that 'adaptationists' are primarily British is not based on any quantification of publications or other data. Hence it could be contradicted by other plausible sounding characterizations.

Even so an explanation such as 'it is something about Englishmen' or 'something in their context or culture', is unnecessary. Selectionist or adaptationist thinking was proposed by two Englishmen, Darwin and Wallace,

and the first converts were also therefore British. We need not be surprised that a tradition founded and passed on by individual conversation and instruction in a country diffuses and continues. (Rogers, 1995) The doctrines were spread to America, in contrast, largely by print. This gives more leeway for interpretation and divergence from the thought of innovators like Darwin and Wallace. And this is precisely what we observe.

In my opinion the biographical histories are stronger than the theme or argument of the book. Yet one can always quibble about a book that covers so much time and material because there is so much food for thought. This should not be allowed to subtract from the merit of a delightful book which it is to be hoped will be widely read.

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### **Bibliography**

- Darwin, Charles, *On the origin of species*. 1859.  
Desmond, Adrian and James Moore, *Darwin*. 1989  
Rogers, Everett M., *Diffusion of innovations*. 1995.