

Book review

Handbook of Evolution: The Evolution of Human Societies and Cultures

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One of the merits of the Darwinian theory of evolution is its fascinating potential for explaining different facets of the human world. Unfortunately, this aspect can easily become a theoretical shortcoming, which can elicit questions such as 'Can we really explain everything by evolution?' or 'Do we really need to do so?'

Of course, this is a personal point of view, which helps, nevertheless, to introduce this engaging volume edited by two eminent students of human culture and evolution. To inform about the state of affairs, i.e. the current theories, problems and results of evolutionary thinking in different disciplines, and to show some close connections and interrelations between the disciplines *sub specie evolutionis*, they asked eight contributions from authors coming from different disciplines. The theory of evolution and its controversies are discussed to explain how the acquisition of cognitive capabilities influenced the evolution of the human complex society, shaping it on ethical and political–economical principles. Michael Tomasello (Chapter 1) superbly analyzes these unique human cognitive skills, exploring some of its most important anthropological implications comparing social learning, social cognition and cultural organization of human beings and their nearest primate relatives. Human beings are biologically adapted for culture like no other primate species, and the author indeed acknowledges that only human cultural traditions accumulate modifications over historical time (ratchet effect).

In the following Chapter, Olaf Diettrich discusses cognitive evolution, with reference to epistemological thinking. This is a compelling but fascinating chapter. We particularly admired the claim that a coherent description of organic, cognitive and scientific evolution is attractive but that, nevertheless, a theory of everything does not exist and that there will be not meaningful context-free communication. Harold Haarmann uses the evolutionary framework to illustrate the richness and variability of human languages. It is an exhilarating chapter that, we suppose, Eibl-Eibesfeldt would have liked very much. The only criticism we have is that more than a few lines should have been devoted to the comparative aspects of the evolution of language, with a more in-depth reference to other species other than humans. In Chapter 4, the sociologist Peter Meyer analyzes

the evolution of social systems, claiming that human social behavior is solidly based upon evolutionary foundations: an interesting point of view which reminds the potential problem of the explanatory pervasiveness of evolutionary theory.

In Chapter 5, Camilo J. Cela-Conde and the evolutionist Francisco J. Ayala discuss the evolution of morality, reviewing the evolutionary and sociobiological models developed to explain the evolution of altruistic behavior and ethical codes in human societies. Although genetic altruism appeared in the animal kingdom by natural selection, the authors emphasize how difficult it is to explain moral behavior simply in terms of evolution by natural selection, because altruism is far from increasing individual fitness. Group selection and kin selection represent good alternatives. The problem is that group selection, for example, has been dismissed as a non-particularly illuminating theory to explain the evolution of different behavioral traits. We do not think that a chapter on the evolution of morality can be exhaustive when dealing just with biological origins: we need to understand how this account fits with the historical and current major theories of human morality and a contribution by a philosopher here would have been appropriate.

As Peter A. Corning explains in Chapter 6, the evolution of political systems paralleled human organization in societies characterized by a growing level of complexity. This is a very interesting chapter, where different models that can be used to define politics are illustrated. To analyze the evolution of the political systems, he reports models of socially organized animals in which politics and government seem convergent with human society, exhibiting a combination of self-organized cooperation (volunteerism) and social controls that are enforced by various coercive measures (policing).

The two final Chapters deal with the evolution of economics (John Gowdy) and the evolution of scientific method (Erhard Oeser). The awareness of the links between economics and evolution is not new: Darwin and Wallace themselves developed their ideas also after reading the works of Thomas Malthus, a political economist. Gowdy gives an account of these links mixing learnedly evolutionary theory, economic theory and ethnology. Oeser's contribution on scientific method is attractive to read, especially for behavioral biologists. This is a demanding book with long chapters and with some of the approaches appearing a bit myopic. While

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knowledge of evolutionary theory is requested in order to enjoy it, biologists could be put off by some wording exercises in reasoning. Nevertheless, we recommend to take this book little by little because lots of information and reasoning is there, making it worthwhile reading.

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