

PREFACE

Some years ago in Kenya I had the opportunity to visit their national park. When looking over the vast savannah, I could see great herds of gnus, zebras and antelopes peacefully grazing while a couple of lions were resting in the shadow of a tree, obviously just having had their breakfast. Then suddenly I was struck by a deep feeling. I realized that this scenario had been going on over immense times, even long before there was anybody seeing it and that therefore it must be something quite exceptional about us humans having this ability to contemplate over our experiences.

In my endeavor to write this book I have been inspired by this vision. What do we actually mean by saying that we are unique and how has our uniqueness come about? Our uniqueness obviously has to do with our intelligence—we are, as we label ourselves, the sapient species—and we have arrived at this position through the process of evolution. But how has this process with such a fantastic result been brought about? How does it work? Is natural selection really sufficient for its explication? Is it progressive; have organisms successively become more complex? Can organisms be sorted in lower and higher kinds? Can human cultural evolution be explained by means of the same mechanisms as organic evolution? Has evolution resulted in mankind as its summit?

My intention with this thesis is to discuss these questions and audaciously suggest some fresh views. I have chosen the word mechanisms

for these explanations, processes and theories although I'm aware of the fact that most theorists in the field avoid this term because it gives associations to mechanical, human-constructed devices. Of course, life is not, at least hitherto, a human construction, but on the other hand it is merely built on material objects such as atoms, molecules and genes and in this sense it is related to machines.

Life is a process in time in two respects. Each individual creature goes through a developmental course and all creatures taken together form an evolutionary process. It has long been a challenging task to understand the coupling between these two processes. As the first and original discovery presented in the present thesis, I introduce my finding of an explanation of the coupling between development and evolution. A characteristic of this mechanism is a temporal correlation between the two processes that I actually discovered long ago and in several publications have reported as a descriptive phenomenon, a phenomenon to which I now have found an explanation.

This discovery has strengthened my previous analyses of several evolutionary processes. Thus I have previously reported my discovery that there is a ubiquitously acting selection pressure for shortening of generation times that works independently of the external environment. An original discovery presented in this book is the generalization of this mechanism to a selection pressure for enhancement of efficiency of the developmental growth that likewise works without dependence of external conditions. This mechanism is thus to be seen as complementary to natural selection and I have suggested it to be called *intrinsic selection*.

The coupling between development and evolution has furthermore led to an operational definition of the concept of complexity and the possibility of its measurement. This measurement has indicated that complexity is increasing rapidly all over evolution in a stepwise mode that has implied a progressive and hierarchical characteristic of the evolutionary process.

These rationales have turned out to be applicable to the human cultural evolution as well, rendering the human species the highest position in the diversity of life, the summit of evolution.

In my previous publications on this issue, I have in separate publications reported my investigations about development and evolution and about complexity, progress and hierarchy. I think it is necessary to join all these concepts in one unified text in order to be able to come closer to a satisfying understanding of the extremely complicated mechanisms of evolution. My aim of the present book is to present such an integrated and all-embracing macroevolutionary perspective on the processes of the evolution of life and culture on earth.

Börje Ekstig

Uppsala, Sweden

March 2019