Bateson, G.: Geist und Natur. Eine notwendige Einheit. Frankfurt/Main: Suhrkamp 1982. 285 pp., 10 figs. Hard bound DM 44,–.

This book is a translation from English and was originally published in 1979. Its author, Gregory Bateson, himself an anthropologist, was the son of the geneticist William Bateson. The former became involved with cybernetics, which took him from naturalistic to idealistic views in anthropology. In this book Bateson argues that mental processes are not only found in the human mind, but may also be attributed to, e.g., the evolutionary process and epigenesis. The other main message of this book seems to be that both evolution and somatic changes (including learning and thinking) are stochastic processes. This means that both are characterized by chance events on which selection works. In addition, both processes are subject to similar pitfalls, especially those arising from confusing different levels. For example, evolution takes place at the level of populations, somatic changes at the level of individual organisms; it was Lamarck's mistake that, according to him, evolution took place at the level of the individual. In fact, according to Bateson all this is an extension of Whitehead and Russell's concept of logical types in epistemology to other fields.

I have just said what the main message *seemed* to be, since it was difficult for me, if not impossible, to grasp Bateson's major lines of thought. This is, to a great part, due to his inaccurate and inconsistent terminology. Why does he call evolution, ecology and epigenesis *mental* processes? Why does Bateson first speak about somatic changes as if this includes learning (p. 183) and later as if both are separate things (p. 231)? Why does he give in the book itself a new meaning to epistemology (that it concerns all mental processes including evolution, embryology etc.) and then does not mention this in the glossary?

Apart from this, Bateson's arguing is muddled: He is unable to construct an integrated argument and almost never discusses the ideas of other authors. That learning and evolution resemble one another has already been explored especially by the evolutionary epistomologists a.o. K. Lorenz, K. Popper, D. T. Campbell. Their analysis, however, is far more sophisticated than Bateson's and includes, for example, a third level besides evolution and individual learning: sociocultural learning.

Furthermore, I wonder if Bateson's knowledge of biology is profound and up to date: he calls Waddington's experiments on genetic assimilation (performed in the 1950s) "the newest genetic experiments" (p. 60). The same applies for other disciplines. In discussing self-reference, for example, Bateson should have discussed Gödel. Finally the book contains many minor mistakes. The most amusing was that Bateson wonders (p. 124) why there are two definitions of energy in physics (the first equates energy and mass, the second defines energy as mc^2) without realizing that both definitions refer to the same fact.

In conclusion, there are many reasons why not to read this book and in fact, many times I found its shortcomings very frustrating. There are, however, many interesting parts in which deep insights are revealed e.g. his discussion of logical types. Bateson surely has important things to tell. In the closing chapter he promises the reader a forthcoming book with a title that is even worse than the title of this book: "Where the angels fear to tread." Perhaps he would have clarified a lot of things therein, but unfortunately Bateson died in 1980.

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