

To Grasp the Essence of Life

# **To Grasp the Essence of Life**

## **A History of Molecular Biology**

by

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There is no Majesty and there is no Might,  
save in Her, Nature and Her Laws.  
We all shall perish miserably  
and none will know of us.

After: The Third Voyage of Sindbad  
(see also: Yčas, 1959).

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## PREFACE

History: is its study a science? Most historiographers certainly would assert that it is. To a layman, though, doubts about that will often arise: he is convinced that one of the basic principles of science should be its legendary "objectivity". Notwithstanding, he witnesses the spread of subjective biases, disguised and made unassailable under the cover of the supposed scientific objectivity. Actually, history appears to me to be always intrinsically subjective, arbitrarily selective. To someone dedicating himself to some aspects of history, it would be advantageous to immediately put aside the ideal of objectivity, and to reveal at least the criteria for his partial, personal choice of themes. He also should explain what goal he aims to achieve.

My aim is somehow didactical. I am often surprised how the data in textbooks are presented such, that student readers will come to accept them, consciously or not, as dogmas; and this indoctrination occurs without any explanation of the procedures by which results were obtained, not to mention the questions from which the research initially originated. Also rarely considered are the problems relevant at the time before the "ultimate truth" was brought to light. This is, one is told, the sin of the "whig interpretation of history" (Harrison, 1987) which judges the past according to its relevance to the present; on the other hand, it is basically impossible to consider the past the way it "really was", and trying to do so is probably an act of self-deception.

But openly admitting one's personal point of view on a subject does not imply it was not derived from real facts. And if I allow myself to describe here how I see the development of molecular biology in general terms, without claiming a historiographer's professionalism, I do that specially for two reasons: first, because I personally participated in a good part of this development (although, mainly, by sitting on the fence) during 5 decades of teaching and doing research in universities and scientific institutions in Brazil and the U.S.A., as well as in Germany; second, because the professional view of the history of science, in fact, also propagates nothing less than a distorted view of reality. For almost 20 years I commenced my genetics course at the University of Freiburg pointing out an article – it must have impressed me, indeed! – from the University of Maryland's physicist and historiographer, Stephen Brush, "Should the history of science be rated X?" (Brush, 1974). It describes how the official history of science was distorted, aiming, supposedly, at the preservation of the scientific establishment's good image. The

article, referring especially to the history of physics, aroused my curiosity so that I looked for parallels in biology. It was not difficult to find them: not only in classical festschriften but also in the key studies on the history of molecular biology. Nevertheless, many such publications, containing minutely described personal interviews with scientists directly involved, in addition to pure scientific literature, contributed crucially to the elaboration of this text. An overview of these sources is found as an appendix to the literature list at the end of this book.

I hope this work will be considered in the way that I see it: as a documentation of the "inner reality" of someone who followed the development of molecular biology with the greatest interest.