

## **BOOK REVIEW**

### **Time, Life, and Civilization**

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It is but trivial to say that the present-day biology is full of uncertainties, reticence and controversies which, in tune with the dominating postmodernist ideology are in most cases neglected and even welcomed rather than attempted to be solved. Most of them, including the relations between the genome and the highly dynamic space-temporal manifold usually called the phenotype continue to be treated in most primitive deterministic fashion in spite of many arguments showing inadequacy of such approach.

We know from the history of science that for radically surmounting this situation a new set of basic notions should be introduced. The referred book is a bold attempt to do just this. It follows the line traced by such persons as Bergson, Gurwitsch, Rosen and others, combining the theoretical arguments with recent empirical data.

While accepting that the biology in *sensu stricto* and, moreover, its humanitarian aspects are broader than physics, the author borrows from the latter his fundamental notions. Those are: quantum measurements, energy flows, coherency and, most of all, time. On the other hand, the capacity to “play” with these agents, to reinterpret them and, in the case of time, to rescale it and to possess anticipatory tendencies (in particular, to distinguish the past, the present and the future) is left to the living beings themselves. In this framework, “the distinction between genotype and phenotype is dynamic and flexible, so it is not possible to define what is primary and what is secondary” (P. 13) and the genome-phenotype interactions are regarded as an active interpretation rather than passive determination. To emphasize the internal activity of the living systems, the concept of so called endo-observer is elaborated, which makes successive measurements each time increasing the complexity of the system.

Professor Igamberdiev book is not for easy reading. Moreover, the first reaction, especially coming from empirically oriented researchers, well may be a protest against the introduction of a new strangely looking system of notions. On the basis of my own experience I may say, however, that as applied to the realm of development at least, the authors’ suggestions are looking adequate and promising. It is hard to believe that further advancement of biology and related branches of knowledge can be achieved without essential “rescaling” of the entire system of traditional notions, started in this book.

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