

Review of: "[Commentary] Evolution, Through the Lens of a Physicist"

Janusz Uchmanski¹

¹ Cardinal Stefan Wyszyński University in Warsaw

Potential competing interests: No potential competing interests to declare.

I think that the reviewed text is interesting, and I must admit that it intrigued me. It forces the reader to pay attention to a few issues that were considered in physics and that are also important for biology. Supplementing our knowledge of the philosophy of nature with conclusions from biology can significantly broaden our horizons. It is valuable that it draws attention to the relationship between the level of description of nature by detailed natural sciences and the meta level, i.e., looking from a more general perspective at the problems that natural sciences raise. This is a rare approach among physicists. They usually try to weave considerations between the molecular level and the level of biological individuals. The detailed issues raised by the author are interesting. The issue of causes, consequences, and the significance of chance in broadly understood ecology is very important but underestimated and omitted. It is good that the author gives examples of what the difficulty in determining the presence of chance in nature may consist of. This issue requires in-depth study, especially since, as experience from reading mathematical models in ecology teaches, attempts to explain the properties of populations by referring to the level of individuals very often strangely reduce to stochastic models. The issue of the relationship between the whole and the parts of this whole is even more important. The author very rightly notes that it is one thing to break down the whole into parts, and it is quite another difficulty to put the components together into a whole. As a former physicist and currently an ecologist, I could add here a few examples from the field of individual-based models, which have recently been successfully used in ecology.