

Peter Godfrey-Smith, *Philosophy of Biology*, Princeton University Press, Princeton and Oxford 2014, p. 187.

From the *Introduction*¹ of *Philosophy of Biology*, we learn that the book has been written for two types of readers: students of philosophy and biologists interested in philosophical issues of biology. It is dedicated to David Hull who died in 2010 and was a leading representative of the philosophy of biology in the 20th and the first decade of the 21st century.² The reviewed volume contains, apart from the Introduction, nine Chapters, a bibliography and a subject index. Let us briefly summarize the content of the individual chapters of this book.

The first chapter, entitled *Philosophy and Biology*³, introduces the issues discussed in the volume. The author describes the specificity of philosophy and biology as independent scientific disciplines, and their mutual relations. Godfrey-Smith emphasizes that understanding the relationship between philosophy and biology, and what may be the philosophy of biology, depends largely on the general issues concerning the nature of philosophy. He reminds us that philosophy is about how things, in the broadest possible sense of the word, "fit together". Thus, philosophy aims at a holistic image of what the world is and how it is located in it. Science also tries to determine how these elements "fit together", but philosophy does it in a broad way. The author notes that the "width" is, however, gradual, and as a result, the philosophical work may even "rub against" science. There is no distinct border between them. In its relationship with science, philosophy is often also used as an "incubator" of theoretical ideas – a place where they can be developed through speculation, when they are in a form that cannot be empirically tested. Godfrey-Smith, however, considers this role of the "incubator" as secondary. In the general sense, the whole philosophy of biology is, as it is emphasized, is a part of a wider project, which is the philosophy of science. The latter, in the author's opinion, in a more narrow sense, can be distinguished from the philosophy of nature. The philosophy of science in this narrow sense is an attempt to understand the activities

¹ P. Godfrey-Smith, *Philosophy of Biology*, Princeton and Oxford 2014, p. 9.

² The author repeatedly expressed his admiration and gratitude to David Hull. He even devoted a separate article to the person and research work of Hull (P. Godfrey-Smith, *David Hull*, "Biology and Philosophy" 25 (2010), p. 749-753).

³ P. Godfrey-Smith, *Philosophy of Biology...*, p. 1-10.

and products of science itself. By cultivating the philosophy of nature, however, we try to understand the universe and our place in it. What, then, in the author's opinion, is the relationship of philosophy and biology? Godfrey-Smith gives two examples of philosophical issues that arise in and around biology, and which appear in this book: the understanding of life itself, the study of nature and the natural world, including the practice of science. In the second chapter, *Laws, Mechanisms and Models*⁴, the author focuses on issues related to the concept of "law" as well as the role of "mechanistic" explanations in biology and the role of theoretical models that seem to be far from reality, but to help understand the world of nature. Godfrey-Smith emphasizes that looking at biology from a philosophical point of view, one of the first things that can be noticed is the apparent lack of scientific laws. The image of science as the search for laws governing the natural world is an old and important, and many philosophers argue that reviewing these laws is of immense importance for any authentic scientific area of research. Physical laws can be basic, but every science tries to find its own laws. Perhaps biology is the cataloging of the contents of the world, and not a theoretical science that gives us true understanding? – asks Godfrey-Smith rhetorically. Advances in biology over the past century have made this seem unlikely to the author. Science can be organized differently. Laws are present in biology, but we do not see them clearly.

In the third chapter, *Evolution and Natural Selection*⁵, the author focuses on the most controversial part of the theory of evolution, i.e. the Darwinian idea of *natural selection*. He notes that a large part of the philosophy of biology is about the theory of evolution, because this part of biology knits together its individual branches, and besides, it has much to say about our place in the universe. Evolutionary change occurs on several scales. The standard way is to recognize the differences between microevolution and macroevolution. The first one is a change in one species and the other one is a change in the species group. With a macroevolutionary scale, we find a tree of life, a pattern of origin and descent connecting all species on Earth. Change in each species is, in turn, a microevolutionary change. Going even further, as Godfrey-Smith claims, we find a change in the life of one organism. Ontogenetic relations are the subject of developmental biology. Many speculations arise around what exactly can be explained in the context of selection and in the context of the idea of biological "fitness". In the last part of the chapter the author considers the application of evolutionary ideas outside the boundaries of biology, for example in the area of culture.

Chapter four, *Adaptation, Structure, Functi*⁶, describes philosophical categories such as purpose and function in relation to biology. The author emphasizes that one of the largest historically conditioned and influential ways of thinking about living beings is to relate to them in the context of their *goals* and *functions*. Contemporary biology, with its combination of mechanistic understanding of biological processes

⁴ Ibid, p. 11-27.

⁵ Ibid. p. 28-49.

⁶ Ibid, p. 50-65.

and evolutionary description, has difficulties with this way of thinking. The existence of a goal in the biological world and an explanation of where the goals come from are the key topics of this chapter. The author also considers other issues, such as the relationships of organisms to the environment in which they live, trying to answer the question of how far the organisms *adapt* to their environments.

Chapter five, *Individuals*⁷, deals with the organisms themselves and other "individuals" in the biological world. The author shows what kinds of entities are organisms, how limited they are, and how they were created. Obviousness, characteristic behaviors, and practical significance of organisms have given rise to what anthropologists call "folkbiology" (a collection of habitual thoughts about living beings that all human cultures seem to share). In this informal, popular-biological sense, the organism seems to be something that accomplishes two tasks: he supports himself (keeps everything alive) and reproduces himself (he makes more things of the same kind). This is, according to the author, a useful way of thinking about life in many contexts, but when there was a significant development of biology, then the ability to recognize specific cases that are very different from our everyday thinking about organisms is increased. The result was a lively on going discussion on the "individual" in biology, a discussion in which biological and philosophical questions are strongly intertwined with each other.

Chapter six, *Genes*⁸, focuses on an important area of biological research, which is genetics. The author begins his deliberations on this topic from a careful look at the variable role of genes as factors that explain what organisms are. Then, it focuses on the role of genes in biological evolution, and especially on the idea that all evolution can be seen as a long-term battle between competing genes.

The seventh chapter, *Species and the "Tree of Life"*⁹, discusses issues related to "species"¹⁰ and other biological categories. The problem related to the attempt to answer the question of what species are, was, according to the author, one of the keys in the history of biology. Are species real units, objective aspects of the structure of the natural world, and perhaps the "essence"¹¹ that separates one kind of organism from another? The author devotes this chapter to detailed answers to these questions.

Chapter eight, *Evolution and Social Behavior*¹², treats about social behavior, especially about cooperation and altruism. These behaviors are of great importance in human life, and they also pose serious problems for explaining evolution. The

⁷ Ibid, p. 66-80.

⁸ Ibid, p. 81-99.

⁹ Ibid, p. 100-119.

¹⁰ The term "species" for biology was introduced in 1650 by John Ray, cf: J. Szymura, *Gatunek* in: *Encyklopedia biologiczna*, t. 3, ed. Z. Otałęga, Kraków 1998, p. 372.

¹¹ Essentialism generally reduces diversity in nature to a limited number of basic categories representing constant, clearly delimited types. cf. E. Mayr, *To jest biologia. Nauka o świecie żywym*, tłum. J. Szacki, Warszawa 2002, p. 236.

¹² P. Godfrey-Smith, *Philosophy of Biology...*, p. 120-143.

author presents in brief the general theory of evolutionary cooperative behaviors, and then focuses on the special case of cooperation in human communities. He wonders how much similarity there is between human cooperation and cooperation among the "non-thinking parts" of living systems. Then, he considers whether the discussion about the species and social behavior together tell us something about "human nature".

In the final, ninth chapter, entitled *Information*¹³, the author deals with the issue of the role of information in biology. Biology, for many, the author notes, has become a science in which information occupies a place in the center of attention. Genetics are about coding, translation, and transcription. In developmental biology, chemical gradients provide information for the developing organism. Some biologists believe that the evolutionary processes, and even life itself, are in some sense created from information. The author critically analyzes these and similar ideas, and then considers ways of signaling and communicating used by living systems, and models of the evolution of these specific forms of interaction.

Reading the book *Philosophy of Biology* by a well-known Australian philosopher can be extremely enriching for both biologists and philosophers. For biologists interested in philosophical issues, it can be a great opportunity for a wider reflection on the phenomenon of life and its various aspects, which very often lack space in contemporary, narrowly specialized areas of biological research. Philosophers, especially those who do not have enough biological knowledge to enable them to closely follow the progress in life sciences, can, thanks to reading the reviewed volume, significantly broaden the spectrum of their interests to the extremely fascinating world of animated nature, which they themselves are an important part of. Writing to both philosophers and biologists gives the opportunity to look from two sides, philosophical and biological, to the phenomenon of life, which makes the book extremely interesting and informative.

Particular emphasis is required on the part entitled "Further reading", placed at the end of each chapter, containing a list of works whose reading will provide the reader with a broader view of the issues particularly important in a given chapter. The references relevant to the main argument line are clearly and transparently placed in numerous footnotes. Understanding many of the key issues presented in this volume is facilitated by the instructional engravings, photographs, summary tables, and summaries that lead to deeper reflections and stimulate creative discussion.

The philosophy of biology, especially in the Polish environment, is still a little-known philosophical subdiscipline. For everyone who is looking for a good guide to the difficult but extremely fascinating areas of contemporary philosophical and biological reflection, the latest book by Peter Godfrey-Smith can be an extremely valuable asset. This volume contains an interesting, multi-faceted and comprehensive analysis of various topics of contemporary philosophy of biology, provides the reader with a good opportunity to systematize and expand information in this area of knowledge.

¹³ Tamże, s. 144-157.

The book *Philosophy of Biology* is, above all, a testimony to the extraordinary fascination of its author with the phenomenon of life, drawing the attention of thinkers and scholars from time immemorial, and still not fully understood, concealing many undiscovered secrets. I encourage all interested parties to read it carefully.

Fr. Mirosław Twardowski
Rzeszów University – WSD, Rzeszów

Streszczenie

Książka Petera Godfrey'a-Smitha *Philosophy of biology*, oprócz *Wstępu* zawierająca dziewięć *Rozdziałów* (*Filozofia i biologia, Prawa, mechanizmy i modele, Ewolucja i dobór naturalny, Adaptacja, budowa i funkcja, Indywidua, Geny, Gatunki i „Drzewo Życia”, Ewolucja i zachowanie społeczne, Informacja*), *Bibliografię* oraz *Indeks rzeczowy*, jest świadectwem niezwykłej fascynacji fenomenem życia, przykuwającym uwagę myślicieli i uczonych od niepamiętnych czasów, wciąż skrywającym wiele nieodkrytych tajemnic. Recenzowany tom został napisany dla filozofów zainteresowanych problemami biologicznymi i biologów zainteresowanych kwestiami filozoficznymi i dedykowany jest czołowemu przedstawicielowi filozofii biologii XX i pierwszej dekady XXI wieku Dawidowi Hullowi. Pisanie do dwóch rodzajów adresatów umożliwia wgląd w fenomen życia z podwójnej perspektywy, filozoficznej i biologicznej, co czyni książkę niezwykle interesującą i pouczającą.

Słowa kluczowe: biologia, filozofia, fenomen życia, ewolucja.

Summary

The book of Peter Godfrey-Smith *Philosophy of Biology*, which besides the *Introduction*, contains nine *chapters* (*Philosophy and Biology; Laws, Mechanisms, and Models; Evolution and Natural Selection; Adaptation, Construction, Function; Individuals; Genes; Species and the Tree of Life; Evolution and Social Behavior; Information*), *Bibliography* and *Subject Index*, is a testimony to the extraordinary fascination with the phenomenon of life, that since time immemorial has been catching the attention of thinkers and scholars, yet still hides many undiscovered secrets. The reviewed volume was written for philosophers interested in biological problems and biologists interested in philosophical issues, and it is dedicated to the leading representative of the philosophy of biology of the 20th and the first decade of the 21st centuries – David Hull. Writing to two types of readers an insight into the phenomena of life from a double perspective, philosophical and biological is given which makes the book extremely interesting and informative.

Key words: biology, philosophy, phenomenon of life, evolution.

