

The Philosophy of Biology

History, Philosophy and Theory of the Life Sciences

Volume 1

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Charles T. Wolfe, Ghent University, Belgium

Philippe Huneman, IHPST (CNRS/Université Paris I Panthéon-Sorbonne), France

Thomas A.C. Reydon, Leibniz Universität Hannover, Germany

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Kostas Kampourakis
Editor

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A Companion for Educators

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Editor

Kostas Kampourakis
Secretariat of Educational Research and Development
Geitonas School
Vari Attikis, Greece

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*To my father, Giorgos Kampourakis, who
encouraged and supported my intellectual
life ever since I was a child*

Foreword

There is an ancient Chinese curse: “May you live in interesting times!” My strong suspicion is that the contributors to this splendid volume would think of it as a challenge rather than a curse, which is just as well, for we do indeed live in interesting times. Apart from threats of violence and upheaval, we live in a time when the world is changing rapidly, as societies previously poor and excluded are starting to rise up and demand their places at the table of comfort and satisfaction and meaning. One thinks of the huge changes that have already occurred in China and are now starting to make India and other parts of the world full and functioning societies, with food and health and the possibility of lives of joy and worth.

No one, certainly no one in this volume, would regret this change at all. Everyone is united in hoping that all can share in nature’s bounties. But the changes do bring challenges, especially to those in long-established cultures and civilizations. No longer can we automatically take to ourselves the lion’s share of the world’s energy resources. No longer can we expect that our food supplies will be furnished by others, to the detriment of themselves. No longer can we assume that disease and sickness are the burden of denizens of faraway lands. With change and the rise of others, with electronic devices ever-conquering, with travel becoming so much more commonplace, we live in a world that is integrated but that also makes demands on those already established if they will merely stay still let alone move ahead.

Demands that we must meet and science and technology, as they have been for the centuries since the Scientific Revolution, are going to be in the forefront. And more than this, biological science and technology are going to be vital. Already, for instance, plants are being utilized for new energy sources. Foodstuffs and fuels are being produced by means that depend crucially on knowing the details of life down to the smallest molecules. Sickness and disease are being fought with new medicines and new techniques, again dependent on biological knowledge as never before.

We cannot, we must not, stand still. Biological understanding must be produced and improved and extended and developed, by us and by future generations. And this means education. If worthwhile life on this shared planet is to continue – worthwhile life not just for us humans but for the other inhabitants also – then the training of young minds in our understanding of the nature of the organic world is absolutely

crucial. There is no greater task or higher or more challenging calling. For this reason, if for no other, a volume such as this – written and edited with understanding and sensitivity – is to be celebrated.

But why philosophy? What has philosophy to say to biology? What has philosophy to say to biological education? Judging from the comments of many of today's active scientists, including active biologists, not much! The comments by scientists come thick and fast, and they tend not to be complimentary. Philosophy at best is something best done by scientists at the end of a busy day in the laboratory, and even then it is little more than common sense and an extension of the science produced by professionals in the field. Is this a fair judgment? After our initial excitement of finding a book that is going to tackle the all-important matter of biological education, should our enthusiasm gush out as air from a punctured tire when we discover that this is a volume dedicated to the place of philosophy in science education?

Three responses come to mind. First, the scientists are quite wrong about philosophy. It is not irrelevant. It is not just an occupation for tired scientists at the end of the day or – even worse – finished scientists at the end of a career, now going through what is unkindly known as the “philosophypause.” My inclination is to say that the scientists, the biologists, are wrong. There is more to philosophy than this. However, I cannot but agree that today's philosophers have worked hard to bring on the contempt of the biologists. Analytic philosophy, particularly as it was influenced by Wittgenstein, has always been antipathetic to biology. In a move that only academics could make, it is quite denied that the fact that we are modified monkeys rather than modified mud has any relevance to problems of knowledge, epistemology, or problems of morality, ethics.

Fortunately, although this mindset still stalks the land, as the contributors to this volume show so convincingly, no longer are all philosophers turning their backs on biology. The very opposite is the case. They are taking biology so seriously that they feel the need to grasp the science at such a level of sophistication that they can engage fact to face with the practitioners, which brings me to the second response. Perhaps philosophy must meld with science, with biology, so essentially there is no difference, and a biological education should include a philosophical component because such a component is essentially biology anyway.

Now I do not want to deny that there have been philosophers of biology who have gone so far down the route of biology that it is at times difficult to know how to categorize them. The late David Hull, the founder of modern philosophy of biology, was so engaged in the taxonomic struggles of the 1970s – the old guard versus the cladists – that he was neither one nor the other, but both. Significantly, he was president of both the leading philosophy of science association and of the leading taxonomic association. But generally I don't think this is the way to go, and I think in this I am joined by the editor and contributors to this volume. The cobbler should stick to his last. We are philosophers not biologists. Ultimately we are not trained to do the best cutting-edge science. We should be proud of what we are.

We should be proud of what we are. That is the third response, and that is the key. Philosophy, the discipline of the contributors to this volume, is a subject with a justifiably proud heritage – Plato and Aristotle, Augustine and Aquinas, Descartes and

Kant, Hegel and Russell, and even – dare I say it! – Wittgenstein. Philosophy does deal with understanding, in knowledge about the world and in conduct in this world, and much more. We philosophers have training in these areas, and this is something that we can bring to biology, to biological education. You need to grasp science, biology, for what it is today. But science, biology, thank god never stands still. It is always moving, and the scientists, the biologists, must contribute to this movement or at the least understand and appreciate the movement.

It is here that, as this volume shows, philosophy has a contribution to make. We philosophers think about structure, about evidence, about classification, about the connection between facts and demands, and much more. The biologist-in-training needs to know the Hardy-Weinberg law. The biologist-in-training needs to know the Krebs cycle. The biologist-in-training needs to know the genetic code. But he or she needs also to have the tools, the methods, to move beyond these and to extend our understanding to the next and future generations. It is here that philosophy is not just important. It is fundamental.

The pragmatic virtues of a philosophical component to a biological education are compelling. But I do not want to end on just a pragmatic note. Man does not live by bread alone. To be alive is a privilege. To understand this glorious, threatening, beautiful, dreadful world in which we all live is the end point of being a human being. Don't take my word for it. Socrates told us so! A world seen through a biology informed by philosophy! What a triumph and a joy!

Michael Ruse
Program in the History and Philosophy of Science
Florida State University, Tallahassee, FL, USA
e-mail: mruse@fsu.edu

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Contributors

Denis R. Alexander The Faraday Institute for Science and Religion, St. Edmund's College, University of Cambridge, Cambridge, UK

Robert Arp Independent Scholar, Overland Park, KS, USA

John C. Avise Department of Ecology and Evolutionary Biology, University of California, Irvine, CA, USA

Francisco J. Ayala Department of Ecology and Evolutionary Biology, University of California, Irvine, CA, USA

William Bechtel Department of Philosophy and Center for Chronobiology, University of California, La Jolla, San Diego, CA, USA

Pierrick Bourrat Department of Philosophy, University of Sydney, Sydney, NSW, Australia

Pierre-Alain Braillard UFR de Biologie, Université Lille 1, France

Ingo Brigandt Department of Philosophy, University of Alberta, Edmonton, AB, Canada

Richard M. Burian Department of Philosophy, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA

Carol E. Cleland Department of Philosophy, Center for Astrobiology, University of Colorado, Boulder, CO, USA

Jennifer DeBerardinis Sydney Centre for the Foundations of Science, University of Sydney, Sydney, NSW, Australia

David Depew Project on the Rhetoric of Inquiry, University of Iowa, Iowa City, IA, USA

Michael R. Dietrich Department of Biological Sciences, Dartmouth College, Hanover, NH, USA

Michael J. Duncan Department of Philosophy, University of Sydney, Sydney, NSW, Australia

Patrick Forber Department of Philosophy, Tufts University, Medford, MA, USA

Giuseppe Fusco Department of Biology, University of Padova, Padova, Italy

Lisa Gannett Department of Philosophy, Saint Mary's University, Halifax, NS, Canada

Annie Jamieson School of Philosophy, Religion and History of Science, University of Leeds, Leeds, UK

James Justus Department of Philosophy, History and Philosophy of Science Program, Florida State University, Tallahassee, FL, USA

Kostas Kampourakis Secretariat of Educational Research and Development, Geitonias School, Vari Attikis, Greece

Marc Lange Philosophy Department, University of North Carolina, Chapel Hill, NC, USA

James G. Lennox Department of History and Philosophy of Science, University of Pittsburgh, Pittsburgh, PA, USA

Alan C. Love Department of Philosophy, Minnesota Center for Philosophy of Science, University of Minnesota, Minneapolis, MN, USA

Alfredo Marcos Department of Philosophy, University of Valladolid, Valladolid, Spain

Kevin McCain Department of Philosophy, University of Alabama, Birmingham, AL, USA

Roberta L. Millstein Department of Philosophy, University of California, Davis, CA, USA

Alessandro Minelli Department of Biology, University of Padova, Padova, Italy

David S. Moore Pitzer College, Claremont, CA, USA

Claremont Graduate University, Claremont, CA, USA

Maureen A. O'Malley Department of Philosophy, University of Sydney, Sydney, NSW, Australia

Massimo Pigliucci Philosophy Program, The Graduate Center, City University of New York, New York, NY, USA

Anya Plutynski Department of Philosophy, University of Utah, Salt Lake City, UT, USA

Angela Potochnik Department of Philosophy, University of Cincinnati, Cincinnati, OH, USA

Gregory Radick School of Philosophy, Religion and History of Science, University of Leeds, Leeds, UK

Michael Ruse Program in the History and Philosophy of Science, Florida State University, Tallahassee, FL, USA

Andrew W. Siegel Berman Institute of Bioethics, Johns Hopkins University, Baltimore, MD, USA

Tobias Uller Edward Grey Institute, Department of Zoology, University of Oxford, Oxford, UK

Brad Weslake Department of Philosophy, University of Rochester, Rochester, NY, USA

John S. Wilkins Department of Philosophy, University of Sydney, Sydney, NSW, Australia

Historical and Philosophical Studies, University of Melbourne, Melbourne, Australia

Arno G. Wouters Department of Philosophy, Erasmus University Rotterdam, Rotterdam, The Netherlands

Michael Zerella Department of Philosophy, University of Colorado, Boulder, CO, USA