

Contemporary Natural Philosophy and Philosophies—Part 3

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1. Introduction

In 2018, we initiated a series of three Special Issues dedicated to contemporary natural philosophy in the spirit of the goals of the journal *Philosophies* (See Appendices A and B). *Philosophies* journal [1] aims to establish a new unity in diversity within human knowledge, encompassing both “Wissen” (i.e., “Wissenschaft”) and “scīre” (i.e., “science”). While “science” exclusively focuses on directly testable explanations and predictions, “Wissenschaft” as the pursuit of knowledge, learning, and scholarship involves all forms of knowledge, including philosophy. Our aim is to promote this broader notion of scholarship that encompasses the understanding and articulation of the learner’s role in the knowledge growth process rather than just the final product and its validation. This inclusive approach to knowledge involves both short-term and long-term perspectives and is critical and hypothetical, breaking new ground. It is expected to resonate with basic human value systems, including cultural values.

The contemporary natural philosophy project aims to give importance to humans in the natural world as active subjects and integral parts of nature. It seeks to overcome the compartmentalization of human reality into non-communicating domains by accommodating all forms of knowledge within the network of networks of contemporary natural philosophies. This synthetic network of knowledge promotes coexistence and co-creation between the human and the natural world, where there is room for both rational and intuitive, embodied and abstract, physical and mathematical relations with the world.

As knowledge grows, it tends to spontaneously fragment. We take advantage of existing diversity as both a resource and a starting point for a new synthesis of knowledge. The idea of broad, inclusive knowledge is not new and has been part of natural philosophy from its inception. Scientists such as Newton, Bohr, Einstein, Prigogine, Weizsäcker, and Wheeler were all natural philosophers who embraced a broad understanding of knowledge about nature. However, in modern times, the unifying picture of the natural/physical world is missing. This is because scientific domains have become isolated silos with their own ontologies, methodologies, and epistemologies.

In recent decades, the need for connected and shared knowledge has given rise to new trends toward synthesis. Complexity science, particularly when applied to biology or medicine, helps us understand the importance of connectedness between disparate pieces of knowledge and their frameworks, theories, and approaches. Network science is also emerging as a related field that studies the structures of nodes and edges as connections between actors. These trends toward synthesis and interconnectedness are crucial for advancing our understanding of the world around us.

According to Einstein and Hawkins, problems are not solved within the framework in which they arise but rather in a new framework at the next level of abstraction. This principle guides the approach of this Special Issue, which attempts to construct a new, networked world of knowledge where domain specialists from various disciplines can



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interact and connect with the wider knowledge-producing and knowledge-consuming communities in an inclusive, extended natural-philosophic manner.

This process of synthesis involves a mutually beneficial relationship between scientific and philosophical investigations. Sciences inform philosophies about the latest knowledge of the world, both natural and human-made, while philosophies scrutinize the ontological, epistemological, and methodological foundations of sciences, providing scientists with questions and conceptual analyses. The goal is to extend and deepen our comprehension of the world, including ourselves as individuals and societies, as well as humankind. Through this inclusive and collaborative approach, we can achieve a more comprehensive and interconnected understanding of the world around us, which is needed in these turbulent times of paradigm shifts caused by the emergence of high-level artificial intelligence.

We would like to give place in this modern natural philosophy to the human in the natural world, both as an active subject and as an integral part of nature, for whom the world comes as an interface (Rössler's "The World as an Interface") [1]. The separation between human and nature, thought and feeling, rational and intuitive, knowledge how and knowledge that, embodiment and abstraction, and physical and mathematical relations to the world have led to the compartmentalization of human reality in various non-communicating domains. All should have a place in this new synthetic network of knowledge of contemporary natural philosophy, in which there is a given place for human in coexistence and co-creation with the natural world.

This Special Issue responds to the call from the journal *Philosophies* to build a new, networked world of knowledge with domain specialists from different disciplines interacting and connecting with the rest of the knowledge-producing and knowledge-consuming communities in an inclusive, extended natural-philosophic manner. In this process of synthesis, scientific and philosophical investigations enrich each other—with sciences informing philosophies about the best current knowledge of the world, both natural and human-made—while philosophies scrutinize the ontological, epistemological, and methodological foundations of sciences, providing scientists with questions and conceptual analyses. This is all directed at extending and deepening our existing comprehension of the world, including ourselves, both as individuals, societies, and as humankind.

2. Towards a New Synthesis

Historically, scholars have attempted to search for a unity of knowledge originating from a holistic understanding of the world. The examples include Snow's critique of "The Two Cultures" [2] and biologist Wilson's "Consilience: The Unity of Knowledge" [3]. However, the strong development of disciplinary research continued. It was still possible to dig deeper into isolated domains, and the results were still interesting even though a common view was missing. However, new developments in sciences and technology, such as artificial intelligence, neurosciences, cognitive science, and modern medicine called for unified views of emergent levels from microscopic to macroscopic scales. It also connected diverse phenomena of the "body" and "mind", the physical and the mental as archetypes of the divide between "two cultures".

The dialogue between sciences and philosophy has become especially interesting regarding the philosophy of science and the question of what constitutes the scientific method, which has become less clear. There are three major methodological challenges: The demise of natural philosophy; "Idol of Numbers" added to Bacon's four Idols of the Mind (Idols of the Tribe, Idols of the Cave, Idols of the Marketplace, and Idols of the Theater) [4]; and isolationism and the self-sufficiency of research disciplines.

3. Connecting the Disparate Knowledge Silos

When modeling a phenomenon, multiple connected theories, seen from a common perspective, contribute to our multifaceted understanding of its structures and temporal behavior.

One very successful approach in this direction was the development of multiscale models for complex physical, chemical, biological, and cognitive systems, including the human brain. Multiscale models [5] combine and connect earlier approaches focused on single scales of time, space, and topology through the integration of data across spatial, temporal, and functional scales.

Another promising path is the reconceptualization (i.e., conceptual engineering) of the basic concepts used to describe different natural and artificial systems—physical, chemical, biological, and cognitive. In this new framework, information is considered the fabric of reality (Deutsch) [6], for an observer, Floridi [7]. The dynamics of information can be modeled as computation, thus forming the basis for the info-computational modeling of a variety of systems, from the physical to the cognitive [8]. According to Kun and Brenner [9], the philosophy of information presents a revolution in philosophy and provides a means of informational metaphilosophy of science, as the philosophy of science. We might also add that information, together with its dynamics (computation), presents a new possibility for the development of the modern philosophy of nature.

4. Topics Covered

For this Special Issue, we particularly encouraged addressing the human aspect of natural philosophy, extended evolutionary syntheses, and the life and capacities of cognition and consciousness from a naturalist point of view—along with the topics already discussed in the previous two issues.

The basic ambition from the beginning was to explore contemporary natural philosophy through the views of researchers investigating broader domains of knowledge based on “the idea of the unity of nature and human as its integral part, from different perspectives of sciences, humanities, and liberal arts from their cultural contexts, including technology”.

This resulted in the following list of topics:

What is the current state of the philosophy of nature/natural philosophy?

What might be the role of the philosophy of nature/natural philosophy?

Can the philosophy of nature be based on our best current scientific knowledge? (the thesis of the book “Everything Must Go” [10]);

How can interdisciplinarity/crossdisciplinarity/multidisciplinarity/transdisciplinarity help tie knowledge from different disciplines and interdisciplines at different levels of abstraction in a common intelligible philosophy of the universe with cosmos and chaos, non-living and living parts in it? [11,12]

What would be the new role of research methods in this new high-level take on human knowledge?

Can we imagine any higher authority in matters of truth and existence than the consensus view of our current humanity?

How do the sciences of the artificial [13], AI, relate to the philosophy of nature?

Informational universe—Floridi, Deutsch, Kun—epistemology, and ontology;

“Mechanism” and “materialism” as bases for our understanding of nature;

Nature and mind—the role and character of the mind/cognition/agency in the development of the universe;

Evolving universe—being and becoming in the contemporary philosophy of nature;

Emergent universe;

Connecting a variety of levels of abstraction;

The role of life sciences, with biology and cognitive sciences, in the new natural philosophy;

The role of the observer in the new synthesis;

The role of formal sciences and methods—logics, mathematics, computing, and simulation;

The ecological view of knowledge [14].

5. The Way Ahead

We consider the series of Special Issues only the first step towards a more organized and sustainable collective effort to revive the original fundamental role of natural philosophy, construed as the pursuit of integrated knowledge and understanding of the world.

We plan the continuation of this project in the *Topical Collection on Contemporary Natural Philosophy*. This will allow contributors to submit their work unconstrained by the timelines or deadlines of Special Issues.

Author Contributions: All authors contributed equally to the article. All authors have read and agreed to the published version of the manuscript.

Acknowledgments: The Guest Editors would like to express their gratitude to the authors who contributed to this Special Issue and to numerous anonymous peer reviewers whose work helped in improving the quality of published contributions. We were overwhelmed by the response, both in terms of the number of submissions and their wide range of topics and excellent quality. We hope that this Special Issue will add to the new synthesis in the form of a revived modern natural philosophy.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

The List of Contributions to **Volume 1** of Contemporary Natural Philosophy and Philosophies, available at <https://www.mdpi.com/books/book/1331> (accessed on 26 April 2024) [15].

Gordana Dodig-Crnkovic and Marcin J. Schroeder, *Contemporary Natural Philosophy and Philosophies*.
Bruce J. MacLennan, *Philosophia Naturalis Rediviva: Natural Philosophy for the Twenty-First Century*.

Nicholas Maxwell, *We Need to Recreate Natural Philosophy*.

Stanley N. Salthe, *Perspectives on Natural Philosophy*.

Joseph E. Brenner, *The Naturalization of Natural Philosophy*.

Andrée Ehresmann and Jean-Paul Vanbremeersch, *MES: A Mathematical Model for the Revival of Natural Philosophy*.

Arran Gare, *Natural Philosophy and the Sciences: Challenging Science's Tunnel Vision*.

Chris Fields, *Sciences of Observation*.

Abir U. Igamberdiev, *Time and Life in the Relational Universe: Prolegomena to an Integral Paradigm of Natural Philosophy*.

Lars-Göran Johansson, *Induction and Epistemological Naturalism*.

Klaus Mainzer, *The Digital and the Real Universe. Foundations of Natural Philosophy and Computational Physics*.

Gregor Schiemann, *The Coming Emptiness: On the Meaning of the Emptiness of the Universe in Natural Philosophy*.

Koichiro Matsuno, *Temporality Naturalized*.

Robert E. Ulanowicz, *Dimensions Missing from Ecology*.

Matt Visser, *The Utterly Prosaic Connection between Physics and Mathematics*.

Kun Wu and Zhensong Wang, *Natural Philosophy and Natural Logic*.

Lorenzo Magnani, *The Urgent Need of a Naturalized Logic*.

Roberta Lanfredini, *Categories and Dispositions. A New Look at the Distinction between Primary and Secondary Properties*.

Rafal Maciag, *Discursive Space and Its Consequences for Understanding Knowledge and Information*.

Harald Atmanspacher and Wolfgang Fach, *Exceptional Experiences of Stable and Unstable Mental States, Understood from a Dual-Aspect Point of View*.

Włodzisław Duch, *Hylomorphism Extended: Dynamical Forms and Minds*.

Robert Prentner, *The Natural Philosophy of Experiencing*.

Robert K. Logan, *In Praise of and a Critique of Nicholas Maxwell's In Praise of Natural Philosophy: A Revolution for Thought and Life*.

Appendix B

The List of Contributions to **Volume 2** of Contemporary Natural Philosophy and Philosophies, available at <https://www.mdpi.com/books/book/3098> (accessed on 26 April 2024) [16].

- Gordana Dodig-Crnkovic and Marcin J. Schroeder, *Contemporary Natural Philosophy and Philosophies—Part 2*
- Richard de Rozario, *Matching a Trope Ontology to the Basic Formal Ontology*
- Ronald B. Brown, *Breakthrough Knowledge Synthesis in the Age of Google*
- Andreas Stephens and Cathrine V. Felix, *A Cognitive Perspective on Knowledge How: Why Intellectualism Is Neuro-Psychologically Implausible*
- Cathrine V. Felix and Andreas Stephens, *A Naturalistic Perspective on Knowledge How: Grasping Truths in a Practical Way*
- Johannes Schmidl, *De Libero Arbitrio—A Thought-Experiment about the Freedom of Human Will*
- Cristian S. Calude and Karl Svozil, *Spurious, Emergent Laws in Number Worlds*
- Roman Krzanowski, *What Is Physical Information?*
- Gordana Dodig-Crnkovic, *Natural Morphological Computation as Foundation of Learning to Learn in Humans, Other Living Organisms, and Intelligent Machines*
- Joseph E. Brenner and Abir U. Igamberdiev, *Philosophy in Reality: Scientific Discovery and Logical Recovery*
- Marcin J. Schroeder, *Contemporary Natural Philosophy and Contemporary Idola Mentis*

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