Issues in Science and Religion: Publications of the European Society for the Study of Science and Theology

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Issues in Science and Theology: What is Life?
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Issues in Science and Theology: What is Life?
In memory of Chris Wiltsher
Preface

Every other year, the European Conference on Science and Theology (ECST) is organised by ESSSAT, the European Society for the Study of Science and Theology. ESSSAT is a scholarly society that promotes the study of the interactions of science and theology, thus creating opportunities for scholars from a wide diversity of backgrounds, geographically and linguistically, and from different disciplines and confessions to engage in conversation and debate. From 24 to 29 April 2012, ESSSAT arranged the Fourteenth European Conference on Science and Theology (ECST XIV) in Tartu, Estonia, in collaboration with Tartu University and its department for biosemiotics. Over 100 participants from Europe and beyond were attracted by the conference, and ESSSAT members and other conference participants alike were inspired to present and discuss about 70 papers in the conference’s paper sessions.

The theme of the conference was: What is Life?, and it was approached from a number of different perspectives, including biology, biosemiotics, ecology, philosophy, technology and theology. Life is far from being indifferent to itself. Organisms want to live. They develop concerns, ambitions, emotions, understanding, and even start to think about themselves. How can these phenomena be interpreted within a scientific framework? Is there a path from physics to biology, and has this path something to do with the concept of signs and semiosis? How do these insights relate to philosophical and religious perspectives on the human life-form? These and other questions were addressed by the plenary lectures of the conference, which covered a broad spectrum of disciplines and approaches and which are printed in this volume in revised and edited versions. In addition, the editors chose a selection of short papers presented at the conference and thus composed this volume of Issues in Science and Religion (ISR). (Most of the other papers of the conference have been published in Volume 14 of the yearbook of ESSSAT, Studies in Science and Theology, which all society members receive and which can be ordered directly from ESSSAT.)

This volume marks a double transition. It is the first volume with ESSSAT’s new publisher, Springer, who took over our series from T&T Clark. The editors took this opportunity to rename the series from Issues in Science and Theology (IST) to Issues in Science and Religion (ISR) and thus to indicate the broad range of approaches
towards scientific and religious questions which ESSSAT wants to foster. The editors are looking forward to a fruitful and successful collaboration between ESSSAT and Springer. And with this volume, I as ESSSAT’s Vice-President for Publication hand this task over to Michael Fuller from Edinburgh who took great responsibility for this and the preceding volume of the series, and who will be an excellent editor-in-chief for this new Springer book series.

The publication of ESSSAT’s yearbooks is always an opportunity to thank organisers and sponsors of the conferences. We express our gratitude to the local organiser Anne Kull (ESSSAT Vice-President for the conference), Roland Karo (registration officer) and Meelis Friedenthal, who designed the conference website and did the layout for all conference material. Other members of the Organising Committee were Antje Jackelén (ESSSAT President), Lotta Knutsson Bräkenhielm (ESSSAT Secretary), Knut-Willy Sæther (Scientific Programme Officer) and Chris Wiltsher (ESSSAT Treasurer). Particular thanks go to Tartu University as the host of the conference.

Without sponsors and partners ESSSAT would not be able to organize conferences like these. Financial support from Estonia came from Rector Alar Karis of the University of Tartu, from The Centre of Excellency in Cultural Theory, Tartu (European Union Regional Development Fund 2008–2015); from Professor Anne Kull, Tartu (as part of the John Templeton Foundation Grant ID#15658 “The Collegium of Science and Religion at the University of Tartu”); and from businessman Väino Põllumäe. We express our deep gratitude to all of them. Thanks also go to the Udo Keller Foundation – Forum humanum, Neversdorf (Germany), which supported the ESSSAT prizes.

Rev. Triin Käpp was responsible for the morning prayers and transformed a storage room to an appealing chapel. St John-University Church and its organist and music director Elke Unt hosted the ecumenical service. We express our gratitude to the friendly and helpful staff of the Dorpat Conference Centre in Tartu, the venue of our conference. Dr. Enn Kasak, Ph.D. and, Ursula Haava, Triinu Akkermann, and the crew of the barge “Jõmmu” served as excursions guides. Conrad Krannich and Felix Kalder helped with the editorial work in different stages of the process. Finally we thank the staff from Springer and especially Cristina dos Santos for their cooperation on this volume, now the eighth of the old and the first of the new series.

While we were in the process of editing this volume, and just before our 2014 conference in Assisi, ESSSAT suffered a great loss. Chris Wiltsher, ESSSAT’s treasurer and membership secretary, died suddenly and unexpectedly on April 4, 2014. Chris had served the society in these positions since January 2000. But he was one of the very few members to attend all European Conferences on Science and Theology since their beginning in 1986. His contributions to the work of the council and the organizing committees for conferences, including the Tartu conference documented in this volume, have been invaluable. His wit, kindness and sense of humour are deeply missed, and in accordance with the unanimous decision of the general assembly of ESSSAT we dedicate this volume to his memory.

Halle (Saale), Germany

Dirk Evers

November 2014
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Part I
From Physics to Biology
Chapter 1
From Physics to Semiotics

Stuart Kauffman

Abstract  Since Newton we have sought laws that “entail” the evolution of the system. These dreams range from reductionism, dreams of a final entailing theory, upward. In this chapter I hope to show that no laws at all entail the becoming of the biosphere. Ever new, typically unprestatable, biological functions arise, often as Darwinian preadaptations, and once they exist, they do not cause, but ENABLE an often unprestatable set of “opportunities” forming a new “adjacent possible” into which evolution flows, creating yet new adaptations that enable new adjacent possibles in an unprestatable becoming. Because we cannot prestate the variables, we can write no differential equation laws of motion for evolution, so cannot integrate those equations. Thus no laws entail evolution. Since the biosphere is part of the universe, if the above is correct, there can be no final theory that entails all that becomes in the universe. The discussion rests on the legitimacy of “functions” in biology, subsets of the causal consequences of parts of organisms. Physics cannot distinguish between causal consequences. I try to justify “functions”, whose unprestatable becoming are parts of the ever changing phase space of evolution, hence no entailing laws. “Functions” are justified in the non-ergodic universe above the level of atoms by Kantian wholes such as collectively autocatalytic sets in protocells that can sense, evaluate, and act in their worlds, yielding teleonomy and biosemiotics. Modernity is based on Newton and Darwin: these ideas may take us beyond Modernity.

Keywords  Autocatalytic sets • Biosemiotics • Evolution • Modernity • Reductionism • Teleonomy