



Seminar

DAVID DUNÉR

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Professor of History of Science and Ideas, Lund University

The History and Philosophy of Biosignatures

Tuesday, 8 December 2020, 2:15 p.m.

Due to the precautions imposed by the current Corona pandemic, the Thunberg Hall will be closed to the public until further notice.

You are therefore invited to join the seminar via Zoom instead:
<https://uu-se.zoom.us/j/66363770663>

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ABOUT DAVID DUNÉR

David Dunér is Professor of History of Science and Ideas at Lund University. His research focuses on the history and philosophy of astrobiology, the concept of life, and the emergence and distribution of life. His latest publications concern historical and epistemological studies on biosignatures that could be found in the geological record or through spectral analysis of distant planetary atmospheres. He is currently a member of the management committee of the European Astrobiology Institute (EAI), leading the working group on historical, philosophical, societal and ethical issues in astrobiology.

Among his astrobiology-related publications is the edited book *The History and Philosophy of Astrobiology: Perspectives on Extraterrestrial Life and the Human Mind* (2013). He has also been guest editor of special issues of the journals *Astrobiology* (2012) and *International Journal of Astrobiology* (2016). He is an affiliated researcher in cognitive semiotics, which has resulted in the edited volumes *Human Lifeworlds: The Cognitive Semiotics of Cultural Evolution* (2016) and *Cognitive History: Mind, Space, and Time* (2019). As a historian, he has published a number of works on especially eighteenth-century history of science, for example *The Natural Philosophy of Emanuel Swedenborg: A Study in the Conceptual Metaphors of the Mechanistic World-View* (2013).

At SCAS, he will work on a project entitled “Signs of Life: The Epistemology of Remote Indirect Sensing”. The project examines the epistemological problems associated with the interpretation of biosignatures. How can we be sure we have found signs that refer to actual biological processes, and how can we rule out other explanations for these signs? The project will analyse historical records and interpretations, as well as contemporary and future attempts to detect signs of life.

ABSTRACT

This paper examines the human search, understanding, and interpretation of biosignatures. It deals with four epistemological issues in the search for signs of life in outer space: (1) conceptualization, how we form concepts of life in astrobiology, how we define and categorize things, and the relation between our concepts and our knowledge of the world; (2) analogy, how we see similarities between things, and with inductive, analogical reasoning go from what we know to what we do not know, from the only example of life here on Earth, to possible extraterrestrial life; (3) perception, how we interpret what our senses convey in our search for biosignatures, how the information we get from the surrounding world is processed in our minds; and (4) the semiotics of biosignatures, how we, as interpreters, establish connections between things, between the expression (the biosignature) and the content (the living organism) in various forms of semiosis, as icons, indices, and symbols of life. In all, it is about how we get access to the world, and how we interpret and understand it, for achieving a well-grounded knowledge about the living Universe.