THE MAGAZINE

- January 2019 -

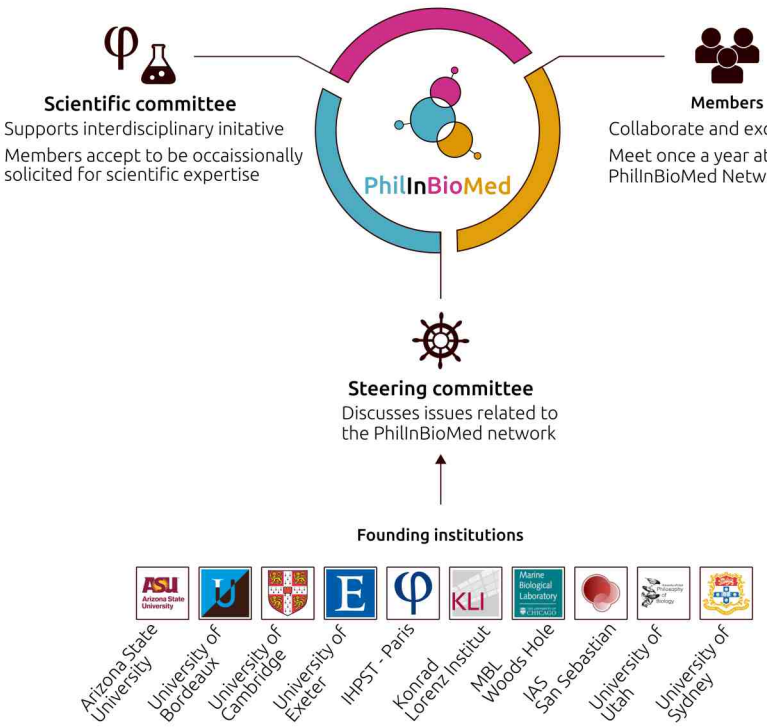
Happy 2019

Dear PhilInBioMed members,

the new year has barely begun, but already it promises to be eventful: summer schools, workshops and of course the 2nd PhilInBioMed meeting in October. Also PhilInBioMed will adopt a new structure with a scientific and a steering committee.

If you want to share other articles, events and opportunities that the new year holds in store, than send a note to contact@phlinbiomed.org.
Happy 2019 to all of you,

The PhilInBioMed Magazine team



A new structure for PhilInBioMed

From the start PhilInBioMed has been conceived as an international network connecting groups and institutes that work at the interface between philosophy, biology, and medicine in order to transform scientific practices and discovery.

Last October the first meeting of the PhilInBioMed network took place in Bordeaux. The second and third meeting are already in preparation (see page 3) and regularly new members join the network. While it is good news that PhilInBioMed is active and expanding, it might be time to rethink its organizational structures.

It was therefore proposed that a steering committee and a scientific committee be set up. The steering committee will be composed of 10 individuals, one from each of the founding institutions. Their role will be to make managerial decisions, such as location and timing of the next network meeting or the exchange of students and faculty between different centers of the network. For practical reasons most of the discussions of the steering committee will take place via email.

The scientific committee has more of an advisory role. Mainly the members of the scientific committee support the interdisciplinary initiative promoted by the PhilInBioMed network and on occasion they can be solicited for their expertise.

So far no scientific committee members have been officially selected, but suggestions can be made here: PhilInBioMed committees.

Interdisciplinary workshop on addiction

On **February 8th-9th** a workshop **Philosophy and the Interdisciplinary Study of Addiction** will take place at Byrne House, University of Exeter.

Substance abuse has been recognised and discussed since antiquity, and has also attracted much recent scientific enquiry. Yet its treatment and prevention have made frustratingly slow progress; an unprecedented wave of addiction currently grips the USA, seeming set to spread to other developed nations. Addiction research spans neurological, pharmacological, social, clinical, legal, and political dimensions, which have seldom been integrated into a properly comprehensive, integrated programme of inquiry.

But philosophy which both intersects in important ways with these disciplines, and provides a further disciplinary perspective offers a potential framework for such an integrated study. This workshop, kindly funded by the British Academy and Leverhulme Trust, will engage researchers, clinicians, and stakeholders in an interdisciplinary analysis of the problem, and explore possibilities for sharing disciplinary knowledge and expertise in the search for better understanding, treatment, and prevention of addiction.

The workshop is free of charge and open to all, but to ensure adequate space and catering please notify the organiser if you wish to attend. We are hopeful, but cannot yet guarantee, that it will be possible to cover travel costs for graduate students.

For all enquiries, please contact: Dr. Shane Glackin, Dept. of Sociology, Philosophy, and Anthropology,University of Exeters: n.glackin@exeter.ac.uk

Unhinged

"Reviewers have asked him to reproduce the experiment."

Upcoming

January 2019

25th Emmanuel Farge: Mechanotransduction in development, Bordeaux, France

February 2019

8th-9th Interdisciplinary workshop on addiction, Exeter, UK

15th Lucie Laplane, What is stemnes and how does that matter? ,Bordeaux, France

March 2019

26th Workshop: Development versus evolution in the pathogenesis of cancer, Bordeaux, France

June 2019

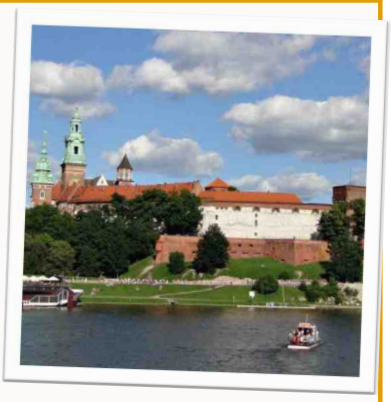
2nd - July 15th Embryology: Concepts & Techniques in Modern Developmental Biology, MBL, Woods Hole

6th Workshop: Fitness meets Niche Construction and Symbiosis, Krakow, Poland

July 2019

1th-5th Summer school: Microbiota, Symbiosis and Individuality: Conceptual and Philosophical Issues, Biarritz, France

Workshop 'Fitness meets Niche Construction and Symbiosis'



The term fitness is used very often in evolutionary biology and plays a central role in the theory of evolution. However, for decades , the status of this concept has been debated and many questions have been raised by philosophers and biologists alike. What is the definition of fitness? What does being fitter really mean, in scientific terms ? How can fitness be measured ?

These and others questions will be adressed by a workshop held the **6th of June in Krakow**. The keynote speaker will be Lynn Chiu. Applications are open to philosophers, scientists and medical doctors. Deadline is the 31st of March. For more information on the workshop click here.

Summer school on Microbiota, Symbiosis and Individuality

The ERC IDEM project by Thomas Pradeu is organizing an interdisciplinary summer school on **Microbiota, Symbiosis and Individuality** from **the 1st-5th of July.** The summer school will take place in the seaside town of Biarritz in southern France.

Course leaders are, among others, Yasmine Belkaid (NIH) and Scott Gilbert (Swarthmore College). Applications are welcome from Master and PhD students as well as postdocs in the fields of Philosophy of Science, Medicine and Biology (in particular developmental biology, immunology, microbiology and the neurosciences).

The application deadline is March 7th. More information here.

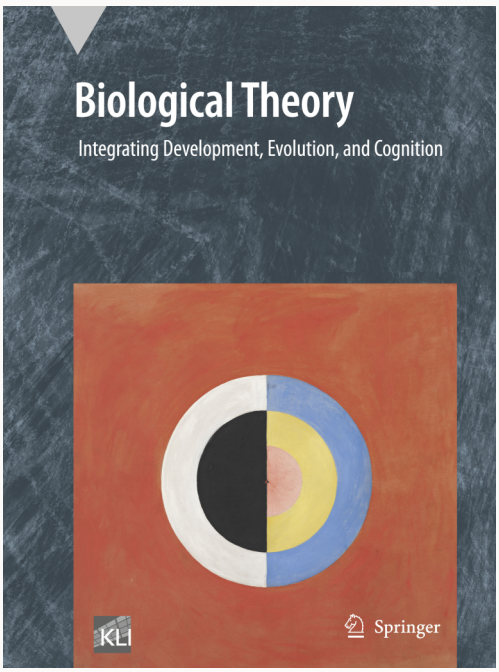
PhilinBIoMed Meetings 2019 and 2020

As reported the **2nd PhilInBioMed meeting** will take place on **October 14th-15th 2019** in Bordeaux. The keynote speakers will be Eugene Koonin (NIH) and Elliott Sober (Wisconsin). A call for papers will be sent out in the beginning of March.

Furthermore, we are happy to announce that in 2020 Richard Creath's group will be hosting the **3rd PhilinBioMed in Arizona**! More details on both meetings will follow in the upcoming newsletters.

Articles welcome

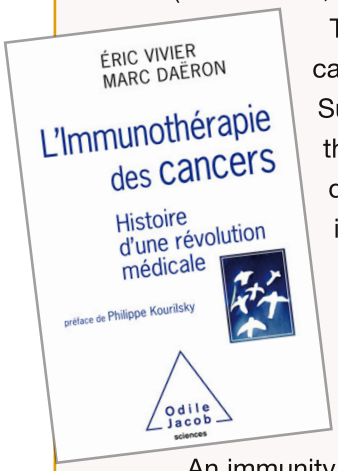
Biological Theory is a peer-reviewed journal published by Springer Verlag and the Konrad Lorenz Institute for Evolution and Cognition Research (KLI). It is devoted to theoretical advances in the fields of biology and cognition, with an emphasis on the conceptual integration afforded by evolutionary and developmental approaches. Since 2015 Stuart Newman is the editor in chief of *Biological Theory.*



The quarterly journal welcomes both original research papers and conceptual articles. Among it's readers *Biological Theory* counts scientists, social scientists, and scholars from the humanities, in particular philosophers and historians of biology. For more information about the journal please click here.

New book on immunotherapy for cancers

Just published: L'immunothrapie des cancers. Histoire d'une révolution médicale, by Eric Vivier and Marc Daëron (Odile Jacob, 2019).



This book deals with novel immunotherapeutic approaches that have revolutionized cancer treatment. It emphasizes on the history of ideas that led to this medical revolution. Such a dramatic progress indeed resulted from three conceptual ruptures that occurred in the tectonics of immunity over one and a half century. The first rupture was the democratization of immunity, the transformation of a privilege, the immunity of survivors, into an immunity for all, the immunity conferred by vaccination against microbes. Accounting for protective immunity was the aim of a new science, immunology, that assigned this task to a new biological system, the immune system, or rather, the immune systems.The second rupture broadened the field of immunity from microbes to non-self and cancer. Immunity was indeed understood as being directed against non-self, but not only the microbial non-self. Cancer happens to belong both to self and to non-self. An immunity against cancer thus became not only possible but also proven, and with it, the idea of an immune surveillance that normally prevents the advent of cancers. The third rupture was a shift from a univocal to an ambivalent immunity. Besides being protective, immunity was found to be pathogenic, e.g. against allergens or autoantigens, and anti-cancer immunity was found both to fight cancer cells and to promote the development of cancers. Immune responses are neither protective nor pathogenic, but both protective and pathogenic. Immunity became double-edged.The idea could then arise that inhibitory mechanisms antagonize activatory mechanisms, which, normally, prevent immunity from being pathogenic. Such a control might hamper immune surveillance, and it could not be overcome by anti-cancer vaccines. It thus became conceivable to free immunity from its control, to unleash anti-cancer immunity by targeting inhibitory mechanisms. Hence the development of immune checkpoint inhibitors that dramatically improved survival in cancers with poor prognosis, including lung cancer and metastatic melanoma.

Recent publications

1. CRISPR-Cas immunity: beyond nonself and defence

Pradeu and Moreau, Biology & Philosophy (Feb 2019): CRISPR-Cas systems can target endogenous elements and tolerate exogenous elements, therefore, the vocabulary of “defence” and “nonself” might be misleading when describing CRISPR-Cas systems. This article is a commentary to the target paper by Eugene Koonin *CRISPR: a new principle of genome engineering linked to conceptual shifts in evolutionary biology*, which was not yet available online at the time this newsletter was edited.

2. The Multiple Layers of the Tumor Environment

Laplane et al., Trends Cancer (Dec 2018): The notion of tumor microenvironment (TME) has been brought to the forefront of recent scientific literature on cancer. However, there is no consensus on how to define and spatially delineate the TME. The authors propose that the time is ripe to go beyond an all-encompassing list of the components of the TME, and to construct a multilayered view of cancer.

3. Science, truth and beliefs

Bikfalvi A, Médicine/Sciences (Nov 2018 - Article in French): This article aims at discussing some aspects of the relationship between science, truth and belief. The author focuses on the scientific activity in the biological and medical sciences and how it relates to the notion of truth and belief and not discuss the relationship with specific religions.

3 questions for Matt Haber

Matt Haber is an Associate Professor and Chair of the Department of Philosophy at the University of Utah. Furthermore, he holds appointments at the University of Utah as Associate Faculty in the Center for Quantitative Biology and Associate Faculty in Latin American Studies. He describes himself as a philosopher of biology who is primarily interested in phylogenetic systematics, taxonomy, evolution, and nomenclature.

1 What sparked your interest for philosophy of science ?

As an undergraduate I double majored in biology and philosophy. One of my first philosophy courses was a philosophy of science class. At the same time I was taking a course on electron microscopy. Learning about the realism/anti-realism debate while simultaneously learning how to use these powerful instruments provided a way for me see how the two areas intersected with one another. It made me a better science student, and a better philosopher, and, as importantly, made each class more fun and challenging! I ended up presenting my work in electron microscopy to my philosophy class, defending an anti-realist interpretation of the images I shared with them. It was counter-intuitive, but really exciting to see some of my classmates coming around to the view I was defending. I deeply enjoyed the way it forced me to slow down and carefully think about what we do in science.

2 What is your main research focus ?

I am a philosopher of phylogenetic systematics, including both epistemological and metaphysical projects. For the former, I focus on phylogenetic inference. Phylogeneticists are routinely faced with multiple conflicting hypotheses that are all consistent with the data. How they select which of those hypotheses best explains the data is, to my mind, a great case study for understanding one way scientists generate knowledge and comparatively evaluate hypotheses. The other primary project I have focused on regards the metaphysics of lineages and taxa. I have defended the view called the 'individuality thesis', i.e., that species (and other biological taxa) are historical entities ('individuals'), rather than natural kinds. Much of that has been trying to articulate what a biological individual is.

3 What are topics you would like to explore in the future ?

What intrigues me most at the moment is how to make sense of the complexity we see in biology. In phylogenetics, this is most striking in the way that lineages are structured hierarchically. Lineages are both constituted by and constitutive of other lineages (though this tops off and bottoms out at some point). What's most interesting to me is the way the histories of these constitutive lineages may come apart. For example, tracking the evolutionary history of the lineages of organisms or species may yield very different evolutionary histories than the lineages of the nuclear or mitochondrial DNA contained in those organisms; at the developmental scale, parts of the same organism may have many different histories as well. The breadth and depth of this complexity has only recently begun to be really appreciated, and I'm excited to consider how this generates new challenges for both phylogenetic inference and how we think about taxonomic entities. Understanding this better will, I think, have major consequences for how we think about evolution, and provide a more sophisticated way for us to understand divergence and diversification of living things. I am also excited about some of the infrastructure we are developing at the University of Utah. Starting next Fall, we hope to begin offering a new major in Philosophy of Science. We've designed the major to be deeply collaborative and interdisciplinary, and it will provide a lot of new opportunities for us to get to know our colleagues in lots of different sciences. I would love to have students push me in new directions, and am eager to see how this all plays out.