

The Magazine

March 2022

Introduction

Well, we made it through the Ides of March, the end of winter, and a truly *long* month... There are some repeat announcements in this month's newsletter – either due to extended deadlines or just more time remaining before deadlines – so be sure to have another look. Also, we not only have interesting philosophical and scientific articles published this month, but also a new book, an exclusive interview with Ford Doolittle, and, as promised, the start of a new series about the PinS corpus. There's lots to report so grab your nootropic of choice and dig in!

Jobs

The [CNRS & University of Bordeaux](#) are seeking to hire 2 postdoctoral researchers, funded by a Moore Foundation grant to Thomas Pradeu, CNRS Director of research (please see also short grant description in the 'Announcements' section below). The 2 subprojects are:

1. Development of a new theory regarding how an organism's immune system and its resident microbial communities sense and manage each other;
2. Development of a new theory regarding how an organism's tumors interact with its resident microbial communities, which represents a complex subset of interactions between the organism and the microorganisms present.

Please contact Thomas Pradeu (thomas.pradeu@u-bordeaux.fr) if you are interested.

The [Department of Philosophy, University of Geneva](#), invites applications for two 4-year positions, one Postdoc (100%) and one Ph.D. student, for a new SNSF-funded project titled "Philosophy of Infectious Disease Epidemiology: Modeling, Values, and Policy Advice" (more details on the second page).

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Jobs

- The project will be based in a thriving research environment at the Department of Philosophy and will collaborate with the Department of Political Science as well as the Faculty of Medicine.
- Postdoctoral candidates must have defended their Ph.D. thesis and ideally have a track record in the philosophical debates on scientific modeling.
- Ph.D. candidates must have completed a MA degree in philosophy or in political science with a strong philosophical component. Applicants with scientific or medical degrees who have received some training in philosophy are also encouraged to apply.

For both posts, candidates must have excellent communication skills in English. Proficiency in French is not necessary at the time of application (but Ph.D. candidates will eventually have to pass a French exam before submitting their thesis).

The application dossier must contain the following:

Postdoctoral candidates:

Cover letter detailing your research interests and experience

CV

1 writing sample

3 names and e-mail addresses for potential academic references

Ph.D. candidates:

Cover letter explaining your interest in the topic (more information about the project is available upon request)

CV

Masters thesis

2 names and e-mail addresses for potential academic references

- Please send applications by e-mail as a single PDF file named simply [your last name].pdf showing your e-mail address on top.
- Applications from members of groups that are currently underrepresented in academic philosophy are strongly encouraged.
- Please send applications and queries to: marcel.weber@unige.ch
- To ensure full consideration, [please send applications until 18 April 2022](#)



CFA's

The **third Philosophy in Biology and Medicine (PhilInBioMed) Network Meeting** will take place in-person in Pittsburgh on **November 13 and 14, 2022**.

The event will immediately follow the conclusion of the Philosophy of Science Association Meeting in Pittsburgh (November 10-13, 2022). The program committee invites abstracts of 500 words from those wishing to present at the conference.

The **deadline** for abstract submissions is 22 **April 2022**. [Submission link](#).

Next conferences/announcements

Sophie Gerber (Bordeaux) will visit colleagues involved in the research network “The Philosophical Life of Plants”, at the end of April.

There is a **new website** up for the Bordeaux ImmunoConcept Lab! Visit it [here](#).

Bordeaux Summer School extended deadline to **April 6!** This summer school is organized by the PhilinBioMed network and the University of Bordeaux, within the framework of the Bordeaux Summer Schools program. It is open to second year Master students, doctoral students and post-doctoral fellows from the fields of philosophy, life sciences, and medicine. Participants will learn to use interdisciplinary methods to address conceptual issues in scientific research. Course leaders will be present throughout the week providing examples of interdisciplinary research based on their own experience, as well as interacting with and advising participants on their projects. Course leaders include Angela Potochnik (Cincinnati), Elliott Sober (Wisconsin), Lucie Laplane (Paris), Paul Griffiths (Sydney), Alan Love (Minnesota), plus local organizers. [More details](#).

University of Utrecht is offering a summer school from 11-15 July on Global Health Ethics & Equity. It will focus on urgent topics in global health ethics and equity. With an enthusiastic team of experts from all over the world, we will discuss the major challenges to health equity in the world at this moment as well as potential solutions. This course is a collaboration between the University Medical Center Utrecht and the Royal Tropical Institute (KIT). [For more details and to apply](#).

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Next conferences/announcements

Ongoing call for PiBM MA: Exciting new Master program (“Philosophy in Biology and Medicine”) in Bordeaux, France, **starting in September 2022**. Interested students should contact us now (mael.lemoine@u-bordeaux.fr).

This Master program ([presented here](#)) will welcome philosophy students that have a very strong appetite for collaboration with scientists, particularly in cancer, immunology, microbiota, systems biology, neuroscience, and aging research. These philosophy students will have the opportunity to work in scientific labs and be embedded in scientific research.

Please be reminded that the master is exceptionally cheap, but very competitive (as we will hire only 5 students). It is entirely in English. [More details here](#).

Interdisciplinary Event at the **FENS Forum 2022**, Paris: **July 10th, 2022**, 6.45 – 8.30 pm:
“Are we equipped to work interdisciplinarily? - On the lack of philosophical education for neuroscientists”

“How can neuroscientists benefit from extending their expertise into philosophical realms? Philosophical thinking tradition excels in the analysis of arguments, the reflection on modes of justification, and the elaboration of limits of statements or concepts, which can expand the horizon of each neuroscientist. Sounds too theoretical? By means of concrete examples from scientific practice, we will show how interdisciplinary projects strongly benefit from conceptual and philosophical input.” For details, see [this website](#).

An interdisciplinary event featuring...

Speakers:

- Jean-Pierre Changeux, Institut Pasteur & Collège de France, Paris, France
- Anne-Sophie Barwich, Indiana University Bloomington, USA,

Discussants:

- Sidney Carls-Diamante, University of Konstanz, Germany
- Igor Branchi, Istituto Superiore di Sanità, Italy
- Markus Kunze, Medical University of Vienna, Austria
- Isabella Sarto-Jackson, Konrad Lorenz Institute for Evolution and Cognition Research, Austria



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Publications

Guerville F, Bourdel-Marchasson I, Déchanet-Merville J, Pellegrin I, Soubeyran P, Appay V, Lemoine M. (2022). ‘Does Inflammation Contribute to Cancer Incidence and Mortality during Aging? A Conceptual Review’. *Cancers*,14(7):1622. <https://doi.org/10.3390/cancers14071622>

Sepich-Poore GD, Guccione C, Laplane L, Pradeu T, Curtius K, Knight R. (2022). “Cancer’s second genome: Microbial cancer diagnostics and redefining clonal evolution as a multispecies process.” *BioEssays*. <https://doi.org/10.1002/bies.202100252>

Simon, J.R., Lemoine, M. (2022). ‘Philosophy of medicine in 2021’. *Theor Med Bioeth.* <https://doi.org/10.1007/s11017-022-09562-7>

Sholl, J. (2022). Everything in Moderation or Moderating Everything? Nutrient balancing in the context of evolution and cancer metabolism. *Biology & Philosophy*. [Preprint]

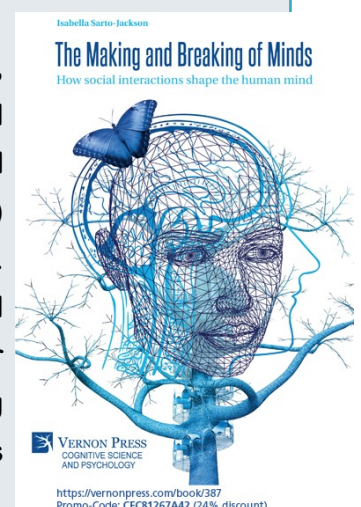
Soutschek, M., Gross, F., Schrott, G., & Germain, P-L. (2022). ‘ScanMiR: a biochemically based toolkit for versatile and efficient microRNA target prediction’, *Bioinformatics*, btac110. <https://doi.org/10.1093/bioinformatics/btac110>

Tabb, K., Lemoine, M. (2022). ‘The prospects of precision psychiatry.’ *Theor Med Bioeth.* <https://doi.org/10.1007/s11017-022-09558-3>

Zach, M. (2022). ‘Revisiting abstraction and idealization: how not to criticize mechanistic explanation in molecular biology’. *Euro Jnl Phil Sci* 12, 21. <https://doi.org/10.1007/s13194-022-00453-1>

Book announcement: *The Making and Breaking of Minds*. How social interaction shape the human mind by Isabella Sarto-Jackson (Konrad Lorenz Institute for Evolution and Cognition Research).

The human brain has a truly remarkable capacity. It reorganizes itself, flexibly adjusting to fluctuating environmental conditions – a process called neuroplasticity, that while providing the basis for wide-ranging learning and memory processes (particularly profuse during childhood and adolescence) it also leaves it highly vulnerable to negative impact from the surroundings. By bringing together insights from neuroscience, evolutionary biology, and social education work, it lays out a fact-based, transdisciplinary endeavor that aims at rising to the societal challenge of providing a rewarding perspective to youth at risk. An extraordinary exploration in the fabulous universe of the human brain and behavior. [More information here.](#)



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PinS Corpus in the Spotlight!

This month Maël Lemoine considers why “**Seven reasons not to neglect niche construction**” (2006) by Kevin Laland and Kim Sterelny is a philosophical paper.

This paper, coauthored by a philosopher and a scientist, is published in PNAS, a scientific journal. From a bibliometric perspective, it is cited 1,85 as much as the average article in this journal that year, either due to Laland’s notoriety or to the contribution of the paper itself.

The definition of a “philosophy in science” article, as proposed in Pradeu et al. (2021), is that it takes up a question raised by scientists themselves, addresses the question with philosophical tools, and ultimately makes a scientific proposal.

The paper undoubtedly raises a scientific question, namely, whether niche construction is making a decisive addition to the modern synthesis, or whether it is negligible. More specifically, it addresses 7 objections, from its non-prevalence to its being caused by natural selection. Its scientific proposal is of the modest form, namely, providing a contribution to a scientific debate - the conclusion is that niche construction cannot be neglected.

But is this paper particularly “philosophical”?

A weak argument would be that it is cowritten by a philosopher, or that it cites philosophy articles, i.e., either written by philosophers or published in philosophy journals (9 such references here). At best, these are signs that this paper is philosophical. Another argument is that philosophers have started to discuss niche construction among themselves - i.e., that it has become a “philosophical question”. Although stronger, this criterion would not help in the case of papers tackling questions that happen never to have been discussed by philosophers. Yet another argument would be that the article uses the reconstruction of a concept, or the elaboration of a distinction, that has been proposed in philosophy, but in another context than niche construction. This is not really the case here.

So, is this paper philosophical? The main argument is not that it uses an unusual method for science, but that it uses it in an unusually thorough way. Indeed, most arguments are examined and phrased with great care so as to assess with accuracy the consequences that follow, but also, to assess whether these claims are consistent with available evidence.

This article would therefore not illustrate how philosophy of science differs from science, but rather, how continuous the way of thinking is - and also, how contributive a degree of conceptual precision that is usual in philosophy can be for science as well.

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Interview time!

This month, we have the pleasure to announce an interview with Ford Doolittle (done by Thomas Pradeu on March 23rd) discussing how he views his work at the interface of biology and philosophy. To watch the interview and get some great reflections on the promises and challenges of embedding philosophers in science, go [here](#). Below is a transcript of the interview, which is also on the website.



Ford Doolittle is Professor Emeritus of Biochemistry and Molecular Biology at Dalhousie University, Canada. He has made very important contributions to evolutionary biology and molecular biology. He grew up in Illinois in the US. He did undergraduate studies at Harvard and graduate studies at Stanford, then moved to Denver, Colorado and, in 1971, to Halifax, Nova Scotia, at Dalhousie University, where he has been ever since. In 2013, he was awarded Canada's highest scientific prize, the Gerhard Herzberg Gold Medal in Science and Engineering. He is a member of the US National Academy of Sciences and a Fellow of the Royal Society of Canada. He has worked with many philosophers (and co-authored papers with them), including Maureen O'Malley, Andrew Inkpen, Tyler Brunet and many others + scholars whose work is at the interface between biology and philosophy, e.g., Eric Baptiste. Since 2020, Ford is also cross-appointed with Department of Philosophy at Dalhousie. Of course, we are interested today in knowing more about how Ford's work lies at the interface between conceptual biology, experimental biology, and philosophy.

Q. What do you see as your most significant scientific contributions, and to what extent are these contributions of a conceptual or theoretical nature?

A majority of my top 20 'best hits' were conceptual in nature. I very much believe in fact that to reach a large audience you have to actually be a scientist rather than a philosopher. And to have credibility as a scientist, you have to produce some actual data. Being established in such a way then gives you the right to speculate. Scientists generally reach a larger audience than philosophers do. Ernst Mayr was obviously a very philosophically inclined biologist, but the fact that he had a background in ornithology was something that people could respect. A minority of my papers have been experimental contributions, but I don't think that they're trivial ones.



Interview time!

I remember as a graduate student, my supervisor, who was Charles Yanofsky thought that I was especially good at thinking of reasons why I didn't have to do the experiment that he suggested because it wouldn't actually mean anything anyway. And I think that's sort of the contrarian attitude that I have always had: I will take what most scientists are thinking and think 'You know, maybe it could be something else, maybe another explanation would be appropriate.' This is a very philosophical attitude, I think. From within science it sometimes comes across as contrarian, or, you know, obstreperous. So you have to be careful about that, but I think that's my general approach.

Science in general is very verificationist, and "positive" in the sense that journals would accept the positive result and they won't accept the negative result, the demonstration that something doesn't work. Now, it seems to me that eliminating bad solutions is very important, so eliminating the experiments you shouldn't do is very important.

Q. Could you please say a little bit more about which of your conceptual contributions you see as the most scientifically significant?

Well, the one I'm currently working on is the one that interests me the most I guess which is Gaia. Back when the Gaia hype started, when Jim Lovelock first published his little book on the Gaia hypothesis, me and most other Darwinians reacted very strongly against it. We could not conceive of the biosphere as a whole as being anything that would meet Lewontin's recipe, which I think is what we sort of thought natural selection was in those days. I've been trying in the last four or five years to reverse that opinion or at least to come up with some way in which it is legitimate to talk about Gaia, the whole biosphere, as if it had adaptations. So I think that's still a work in progress. I'm not sure whether that's going to succeed or not.

At the moment I'm thinking that what we need to do is stop thinking about evolution by natural selection in terms of Lewontin's recipe and substitute for that something a little bit more like David Hull's replicator/interactor framework. In fact, I think that's a shift that's going to be forced upon us by the increase in the data from communities, like metagenomic data, which is community data, not individual taxon data. I think that that field is lacking a theoretical underpinning. There's a lot of just data accumulation that's going on now in microbiomics. I'm kind of thinking that David Hull's way of thinking about evolution by natural selection is superior or more embracing than is Richard Lewontin's and that we should make that switch, which I think you would probably agree is not one that most people are willing to make yet. So what I'm trying to do now is to catalyze that shift.

Q. This is very interesting. What conceptual contribution of yours was the most impactful on your fellow biologists?

Probably the tree of life stuff, I guess. I mean, I think that's why I got the Gerhard Herzberg Gold Medal and a million-dollar grant that came with it. Well, that story is very interesting, because Science asked me to come up with the names of some people who should write review articles for the special issue on evolution, and I said 'well, why not me?' I guess they couldn't get their minds around how could you ask somebody to advise them about authors to solicit and not take him as one of those authors, so I think they were sort of forced to take it.



Interview time!

Then I collected together a bunch of thoughts that had been around in the field already, particularly amongst several other people, and packaged that in terms of the challenge to the Tree of life that lateral gene transfer represents. I think that paper was fairly speculative. I sort of say in that paper “if it turns out that lateral gene transfer is really important, then it means this. I was quite careful, actually. And then it has turned out that way, so I was pleased with that result, but I don’t think it’s a particularly interesting contribution and I wasn’t the only person saying this at the time.

Q. Did philosophy play any role in what you see as your most important scientific contributions and has the work of some philosophers been inspiring or useful to your own scientific work, and if so, which philosophers and why?

Right, that’s a complicated question, for which I have a possibly relevant answer. I’ve been hanging around with philosophers for a very long time. Elliott Sober helped me buy a coffee maker at some meeting in Los Angeles and that’s the first philosopher I ever met. He is very nice guy. And then he came to Dalhousie to give a seminar at some point. Rich Campbell, who’s in the Philosophy Department at Dalhousie, and Gordon McOuat, a philosopher and historian of biology who’s at King’s College in Halifax, and I put together a reading group to read some of Elliott Sober’s papers before he showed up here. This reading group has been meeting every other week more or less for about 35 years! When I did have some extra money, I hired Maureen O’Malley who was the first of my postdocs who was a philosopher. The reason for all this is that I had always been more interested in concepts than in data, I think.

I think molecular biology and genomics as sciences lagged behind whole animal or whole organism biology in terms of the philosophical impact. The “new synthesis” was by whole organism biologists, not molecular biologists. Molecular biologists tend to be very ‘here and now’ oriented. And even though there’s the whole field of molecular phylogenetics now, it often involves or embraces philosophical concepts which are kind of outdated in terms of what whole organism biologists or larger organism biologists might think. So, I think in some ways what I’ve been doing is importing ideas from the philosophy and biology of larger organisms into smaller organisms or into the molecular biology and genomics area.

I think that the selfish DNA hypothesis, which was probably my first philosophical intervention, came from reading Richard Dawkins’ *The Selfish Gene* book. I have always been sort of interested in general biological theory and importing that into my own particular field. It’s really both ways, from philosophy to science and from science to philosophy. Sometimes it’s philosophical considerations which lead me into the intervention, and sometimes it’s really the science. For the Tree of Life, I’d say that the science really led the way there, and it was really quite unexpected scientific results that that stimulated the philosophical conceptual idea.

Q. Could you say a little bit more about why you think David Hull’s replicator-interactor framework is superior to Lewontin’s recipe?

I think it’s driven by the increasing emphasis on community led by metagenomics and now by microbiomics and the holobiont thinking and all that stuff - driven by the relative cheapness of DNA sequencing now, basically.



Interview time!

Somewhere in his little book *Philosophy of Biology*, Peter Godfrey-Smith says that that maybe the replicator-interactor framework is more appropriate for dealing with symbiosis and things that recur rather than reproduce. I think he's right about that, and that's really what I'm trying to catalyze. There's also this recent book by Arvid Agren, *The Gene's-Eye View of Evolution*, which I'm sure you have. I think we're about to see a revolution in the way we think about evolution by natural selection. Maybe you can help me with that, but I'm not quite sure how we got off on the Lewontin's recipe track. In *Darwinian Populations and Natural Selection*, Peter Godfrey-Smith very much emphasizes Lewontin's recipe. I think he's probably right about lower levels, that is, up to the level of the organisms, but for more complicated multi-species interactions I think probably the replicator-interactor framework works better. It would be interesting to know how we got so focused on the differential reproduction as the only means by which evolution by natural selection occurs. Peter Godfrey-Smith does say in that book that it's not quite clear what evolution by natural selection actually means and there are different idealizations or formulations of it, and some may be useful in some contexts and some not in others, but there isn't necessarily a right way of thinking about it.

Q. Could you please say a few words about your critique of ENCODE and how it was influenced by philosophical considerations?

I do think that genomicists in general, particularly biomedical researchers who study the human genome, are very pan-adaptationist. They probably haven't read Gould & Lewontin's 1979 paper anyway, but they would probably reject that message. This debate has been going on for a long time. I mean, it's happened in the selfish DNA debates back in around 1980. People pointed out that some vertebrates, like the lungfish, have 40 times as much DNA as we do. So either you have to think that the lungfish is 40 times as complicated as we humans are, which seems unlikely, or a large proportion of its DNA is "junk" or maybe its whole genome is more junk-ish because the same amount of function is distributed over 40 times as much DNA. I still think we haven't dealt properly with that question. Philosophers still debate about the meaning of function. 'What do we mean by function?' is a difficult question. But the molecular biologists and genomicists who led the ENCODE project, I think, thought that function was like pornography: you know it when you see it! And that's it – end of story, don't bother me with this philosophical crap. I don't think they know what a function means. So, that's a problem.

Q. How do you see the potential contribution of philosophy to science more generally?

Well, I can only really speak about biology because I don't know how important philosophy of physics is actually to physicists and I don't actually know how you tell the difference between a theoretical physicist and the philosophy of physics to tell the truth. It's a little bit easier in biology, I think, and I think it would be a bad thing if philosophers played a major role in the practice of biology if that means that philosophers insisted that we not proceed with research until we have a more precise definition of our terms. I think successful science, at least in biology, depends upon a certain imprecision in the definition of terms. So I think the two disciplines need to be separate. I also think that philosophy and biology can get a little bit too isolated and philosophers of biology can sometimes worry about problems that biologists don't consider important, or have already solved in some way. Particularly, I think philosophers of biology are often outdated in their concepts; they learnt some biology when they were undergraduates and they're keeping going on that, whereas biology has moved beyond that. So, I think it would be good if there are more people that move back and forth between the two disciplines, but I don't think they should be the same discipline.

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Interview time!

Peter Godfrey-Smith and probably others have said that there's 'philosophy of science' and then there's 'philosophy of nature'. Philosophy of science, I think, is an independent discipline and probably should stay separate from the science. But philosophy of nature is very close to theoretical biology, and I don't really know that there's a difference. I got an Art college degree, at the age of 72 or something like that. And it's interesting to contrast the role of art historians and art philosophers in the training of practicing artists versus the role or the non-role of historians and philosophers of science and the training of scientists. These disciplines are very separate, whereas in art schools they're practically the same discipline; I think that's an interesting contrast.

Of course, for an old guy like me, I get a little bit irritated when undergraduate or graduate students are having the same debate that we had 50 years ago, and here's how it comes out. There is this assumption that history is irrelevant. Practicing scientists are willfully ignorant of their own history, and sometimes it's to their detriment.

Q. Do you consider that there is today a divorce between science and philosophy? If so, what are the causes of this situation, in your view? Is this divorce detrimental? Should we try to recombine science and philosophy, and, if so, how?

I've already answered that in a way. Well, I think people like me are useful: practicing biologists who are interested in philosophy. The philosophical questions are useful, and certainly philosophers like Elliott Sober – who's basically a theoretical biologist as far as I can tell – are very useful too, but I think the disciplines should be separate.

For the last almost 10 years now I've been more or less trying to make myself into a philosopher of biology, and I've gotten to know this community reasonably well. There are many very bright people in it. Sometimes they're wasting their times, I think because they're not doing anything that really is interesting to biologists, but it that's true of biology, too.

There is also a challenge with the career structure of younger philosophers, which is pretty much like the career structure of younger biologists in the sense that you, you know, you want to be radical. You want to say something that's different enough from what your peers said, so that you'll be noticed, but not so different that you'll be discarded as crazy. It's a shame that that's a challenge that both sides face in some ways. This explains that philosophy can go off on little tangents. There's a paper and then somebody writes a counter paper, and then there's a counter-counter paper and that doesn't necessarily mean that it's a particularly interesting problem.

I think most biologists think that philosophers are really smart. Maybe I'm not typical, but it seems to me that biologists in general think that philosophers are very well trained – very particularly trained, but also quite rational, and therefore would be useful as postdocs or in grad school, provided they learn some biology.

The opposite direction exists, too. I'm not sure how many mature biologists go into philosophy yet. There is this negative notion of 'philopause' when a retired biologist does philosophy, because it's easier and it doesn't require a lab. Well, in fact, it doesn't require a lab, but it's not so easy.



Interview time!

Q. Would you say that current science needs more ‘foundational thinking’ (in the sense of conceptual, theoretical, and critical work)? To what extent would you say that such ‘foundational thinking’ equates with ‘philosophy’? Which are the scientists who, in the last decades, have made ‘foundational’ advances in the biological sciences that you see as particularly important?

Biology has become very positivist and verificationist. Biologists often assume that more data will answer their questions. I think it often doesn’t, and in some ways I think biology is basically sort of a fraudulent discipline in the sense that it’s pretending to be a science, but it’s really about history. I mean, it really is just about things that happened in the past and therefore have an imprint on the presence. Yet we pretend it’s science, and therefore we get funded 100 times the level at which you guys get funded.

In terms of training, our philosophy department does teach a philosophy biology course, and the majority of the students in that course are actually biologists, because there are more biology students than there are philosophy students, for sure. And I think that’s really good for them. They probably often take it thinking ‘Oh, this will be easy’, and it turns out to be very hard.

I would strongly recommend that all biology departments have a philosopher and a historian of biology on their staff, if they’re big enough. And, in general, I think that philosophy needs, in order to protect itself in some ways, to reach out and integrate with the sciences in a way that respects the independent interests of philosophers. So, I would like to see a stronger integration of philosophical and historical thinking in in biology departments. And embedded philosophers in biology labs are also very useful. I mean often, as you know, those philosophers wind up going “native”, as it were, and end up becoming actual scientists rather than philosophers. But sometimes it’s the other way around, I guess. Certainly, here at Dalhousie, where King’s College has been a source of undergraduates and graduate students who are interested in doing biology or working in a lab, that has always worked out quite well. Often, you know, it’s surprising to them sometimes to realize that we’re not just making up the data!

