

COMMUNIQUÉ

Canadian Society for the History and Philosophy of Science

Société Canadienne d'Histoire et de Philosophie des Sciences

N° 104 autumn/l'automne 2021



Environment



Cover Image: Hudson River Plastics 6,
courtesy of Max Liboiron

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N° 104 Autumn/l'automne 2021

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Environment Never Sleeps

Overshadowed by the ongoing pandemic, HPS scholars continue to create important, innovative work relating to the environment, land, and nature; we aim to showcase them.

Hello, readers! I am delighted to be co-editing *Communiqué* with Ghyslain Bolduc, my eagle-eyed co-editor who has already caught many of my mistakes, and contributed his own stirring piece to this issue.

This issue on the environment has been a particular delight for me. Our call for contributions received a flood of submissions—proof that historians and philosophers of science remain active in this area! Those who study science have long been at the fore of thinking about the environment because science and technology are critical for what we do (or do not, as the case may be) know about environments. Of course, this scholarship has evolved over time. The cover is designed to elicit continuity and change. A luminous sphere floating in a sea of blackness, it harkens to the famous “Blue Marble” image taken from the Apollo 17 shuttle in 1972 (an icon of the then just budding environmental movement). The Earth’s deep blue seas and swirling clouds have been replaced by a stew of organic and polymer flotsam and jetsam. It is a visual reminder that “nature” is not just out there, but is inextricably interwoven into the microstructures of life. The image was taken by Dr. Max Liboiron, who is the subject of this issue’s *In Conversation*. My conversation with them illuminates provocative new ways of thinking about environmental science as if colonialism and Indigenous Land mattered. It is a piece not to be missed!

Dr. Liboiron’s interview is accompanied by a rich selection of essays. Tyler DesRoches makes a case

for moral limitations to water markets in a world of increasing water precarity. My co-editor Ghyslain Bolduc uses the precedent of Bertrand Russell to take an unflinching look at what scholars can and ought to be doing during this time of unprecedented environmental abuse. Ryan O’Loughlin examines the supposed “global warming hiatus” through a multifaceted lens of objectivity.

Gillian Barker shares details about a new, multi-institutional Geofunctions Project in our section on *Innovative Research*. And in *Innovative Pedagogy*, Ellie Louson and Megan Halpern report on how nature journaling has contributed to their students’ learning and processing of life in a pandemic.

In addition to these feature pieces we have *Career Corner*, a summary of the 2021 Hadden Prize-winning essay, minutes from the 2021 AGM, and *CHSPS News* and *Member Updates*. This autumn issue of *Communiqué* is tardy, but we hope you will find it worth the wait.



Dani Inkpen, Editor
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Au-delà du discours ?

Je voudrais d'abord saluer le superbe travail de ma nouvelle coéditrice, Dani Inkpen. Par la rigueur et l'originalité de son travail, sa prédécesseure Jaipreet Viridi avait établi un standard de haute qualité pour ce bulletin, et le défi était de trouver quelqu'un qui puisse porter de telles chaussures et poursuivre la voie pavée. Avec ce numéro, force est de constater que Dani a pris le relai avec brio!

J'ai d'abord envisagé commencer cette lettre en ressasant – à l'instar de nombreux journalistes, conférenciers, militants et scientifiques de tout acabit – une série de faits les plus alarmants; sur l'entreprise d'extermination du vivant et «sa diversité» dans laquelle nous sommes froidement entraînés, sur le potentiel basculement irréversible du système climatique terrestre et les scénarios épouvantables qu'il laisse entrevoir, sur les centaines de millions de réfugiés climatiques que nous aurons honteusement poussés à l'exil d'ici deux à trois décennies avec son lot anticipé de désespoirs, de violences et de crimes. Mais à force d'être remâchés, ces faits deviennent plus lassants qu'alarmants, à la manière du décompte quotidien des cas COVID qui monopolise à nouveau les manchettes dans un air de *déjà vu*. C'est peut-être pourquoi, comme le rapporte Gillian Barker dans ce numéro, les messages de funestes pronostics personnifient la nature et multiplient les analogies : pour «réveiller», le discours doit marquer l'imaginaire. Si l'on se fie à ce commentaire pénétrant d'Aurélien Barrau, astrophysicien et militant écologiste notoire, c'est plutôt la chair qu'il faudrait piquer pour que l'âme se redresse: "je crois que ceux qui se pensent les plus sérieux ou les plus rationnels sont en réalité parfois ceux-là mêmes qui ratent les évidences les plus vitales et les plus incontestables concernant [la catastrophe

écologique...], parce qu'entièrement lissés par leur adéquation avec le monde qui les honore et les flatte, parfois les sert, ils oublient ses violences et ses incohérences qui ne les touchent pas (ou pas encore) dans leur chair, qui est très largement surprotégée".

Peut-être faut-il alors renouveler, comme le proposent Ellie Louson et Megan Halpern dans ce numéro, notre relation avec les milieux naturels en s'y plongeant de manière incarnée. Car pour qu'un discours parvienne à provoquer un changement radical, ne faut-il pas qu'il excite quelque chose comme un amour pour ce qui est menacé et à construire?



Ghyslain Bolduc, Editor
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President's Message

Dear CSHPS Members:

Welcome to the first issue of Communiqué under the editorship of Dani Inkpen and Ghyslain Bolduc. I am confident that they will build on the great success the newsletter had under our editor emerita, Jai Virdi. Congratulations to Dani and Ghyslain.

As you are aware, no doubt, Congress 2022 will be an all online affair. This was done less out of an abundance of caution, as I understand it, than out of some complications involved in instituting a more hybrid Congress experience to increase and diversify participation. Congress 2023 has already been announced as being at York. By then it will have been four years (including the entirety of my Presidency!) since we have met in person.



The planning for our conference as part of Congress 2022 moves ahead apace. Thanks to James Elwick for stepping in as Program Chair and to Ingo Brigandt for doing another year as “local” organizer. Ingo is now the local organizer for the entirety of the CSHPS multiverse. Behind the scenes financial matters are guided by the steady hand of our Treasurer, Paul Bartha. I am particularly excited that Deborah Coen from Yale has accepted my invitation to give the 2022 Stillman Drake Lecture.

We are hoping to ramp up online activities in the coming months to supplement the conference, especially given that social and mentoring events will be limited again at our 2022 conference. Look for ad hoc events being organized to bring groups interested in similar topics or seeking mentoring of various kinds together.

Finally, we will be having an election cycle in the spring that will include putting someone on the path to the Presidency. We are very fortunate to have Tara Abraham ascending to the Presidency immediately after our conference in 2022 and, as everyone moves up and I move out, there will be an opening for a new 2nd Vice President. There will also be plenty of other offices to fill. Please think about putting your name forward. I hope also that we will have some exciting by-law changes to propose at our annual meeting in the coming year also.

Take care, everyone. See you soon in cyberspace.

A handwritten signature in black ink, which appears to read 'Alan Richardson'.

Alan Richardson, CSHPS President
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CSHPS News

Call for Papers: Seventh Annual Conference on the History of Recent Social Science (HISRESS) <https://hisress.org>

17-18 June 2022

Institute for the History and Philosophy of Science and Technology, University of Toronto

After a two-year pandemic delay, this two-day conference of the Society for the History of Recent Social Science will bring together researchers working on the history of post-World War II social science. It will provide a forum for the latest research on the cross-disciplinary history of the post-war social sciences, including but not limited to anthropology, economics, psychology, political science, and sociology as well as related fields like area studies, communication studies, history, international relations, law, and linguistics. The conference aims to build upon the recent emergence of work and conversation on cross-disciplinary themes in the postwar history of the social sciences.

Submissions are welcome in such areas including, but not restricted to:

- The interchange of social science concepts and figures among the academy and wider intellectual and popular spheres
- Comparative institutional histories of departments and programs
- Border disputes and boundary work between disciplines as well as academic cultures
- Themes and concepts developed in the history and sociology of natural and physical science, reconceptualized for the social science context
- Professional and applied training programs and schools, and the quasi-disciplinary fields (like business administration) that typically housed them

- The role of social science in post-colonial state-building governance
- Social science adaptations to the changing media landscape
- The role and prominence of disciplinary memory in a comparative context
- Engagements with matters of gender, sexuality, race, religion, nationality, disability and other markers of identity and difference

The two-day conference will be organized as a series of one-hour, single-paper sessions attended by all participants. Ample time will be set aside for intellectual exchange between presenters and attendees, as all participants are expected to read pre-circulated papers in advance.

Proposals should contain no more than 1000 words, indicating the originality of the paper. The deadline for receipt of abstracts is **February 4, 2022**. Final notification will be given in early March 2022 after proposals have been reviewed. Completed papers will be expected by May 13, 2022.

Organizing committee: Jamie Cohen-Cole (George Washington University), Philippe Fontaine (Universités à l'École normale supérieure Paris-Saclay), Jeff Pooley (Muhlenberg College), Mark Solovey (University of Toronto), and Marga Vicedo (University of Toronto).

All proposals and requests for information should be sent to submissions@hisress.org.

Conférence/Conference: Sustainability and the Arts in a Technological Society: Revisiting Jacques Ellul

8-9 juillet 2022
Montréal

Connu d'abord comme l'auteur de *La Technique ou l'enjeu du siècle* (1954), Jacques Ellul (1912-1994) a écrit plus de soixante livres et des centaines d'articles, dont une réflexion approfondie sur les arts, *L'Empire du non-sens: L'Art et la société technicienne* (1980). À travers son œuvre, Ellul défend une idée radicale de la liberté et une éthique de la non-puissance, ouvrant un espace pour des projets révolutionnaires et un refus de l'ordre dominant. Pour Ellul, la plus grande menace à la liberté est l'exigence croissante d'efficacité, de productivité, de rationalisation, de standardisation et d'automation dans les cultures industrielles—une réalité sociologique qu'il appelle la Technique. Ayant été témoin de la rapide intensification technologique au vingtième siècle et des atrocités de deux guerres mondiales, Ellul n'offre pas tant des solutions que des diagnostics quand il traite des catastrophes écologiques, économiques et humanitaires causées par l'exaltation des valeurs de la Technique. Ce colloque soulève la question de l'environnement en lien avec les pratiques artistiques et les industries culturelles, en ayant recours aux critiques d'Ellul comme point de départ.

Site web de la conférence: <https://ellul.org/montreal-conference-2022/>

Sustainability and the Arts in a Technological Society: Revisiting Jacques Ellul

July 8-9, 2022
Montreal

Best known as the author of *The Technological Society* (1954, English trans. 1964), Jacques Ellul (1912-94) wrote over sixty books and hundreds of articles, among them a sustained reflection on the arts, *The Empire of Non-Sense: Art in the Technological Society* (1980, English trans. 2014). Throughout his oeuvre, Ellul advances a radical notion of freedom and an ethics of non-power, making space for revolutionary projects and a refusal of the dominant order. For Ellul, the greatest threat to freedom is the increasing demand for efficiency, productivity, rationalization, standardization, and automation in industrialized

cultures—a sociological reality he calls 'Technique'. Witness to rapid technological intensification in the twentieth century and the atrocities of two world wars, Ellul offers not so much solutions as diagnoses of the accumulating environmental, economic, and humanitarian disasters that have resulted from an exaltation of the values of Technique. This conference addresses the question of sustainability in relation to artistic practices and industries, using Ellul's critiques as a starting point. See the conference website for full details: <https://ellul.org/montreal-conference-2022/>

Job: Two Postdoc Positions (2-3 years, 1 FTE) in History of Philosophy of Science and/or Digital Humanities

The Department of Philosophy at Tilburg University seeks to appoint two postdoctoral researchers (2 or 3 years, 0,8 - 1,0 FTE) in the NWO Vidi project "Exiled Empiricists: American Philosophy and the Great Intellectual Migration." Starting date: August or September 2022.

The postdocs' primary responsibility will be to contribute to the research project (description below) and to publish in peer-reviewed journals and books. The researcher should also contribute to the project in other ways, such as by giving conference presentations, (co-)editing a special issue, and (co-)organizing reading groups and workshops. Furthermore, the researcher will be a member of the Tilburg Center for Moral Philosophy, Epistemology and Philosophy of Science (TiLPS) and contribute to its colloquia and seminars.

AOS of Position 1: History of Philosophy of Science/
History of Logic/Intellectual History

AOS of Position 2: Digital Humanities/
Scientometrics/Bibliometrics

For inquiries about the positions and the project, please contact the Principal Investigator of the project, Sander Verhaegh, at: A.A.Verhaegh@tilburguniversity.edu.

Appel à contributions / Call for Abstracts: Congrès annuel de la SCHPS / CSHPS Annual Conference

16-20 mai 2022/ 16-20 May 2022
Online

La Société canadienne d'histoire et de philosophie des sciences (SCHPS) tiendra son congrès annuel dans le cadre du Congrès des sciences humaines. Le congrès aura lieu le 16-20 mai 2022 dans un format *complètement virtuel* (http://www.yorku.ca/cshps1/meeting_fr.html; <https://www.federationhss.ca/fr/congres/congres-2022>).

Le comité de programme invite les historiens et philosophes des sciences à soumettre un résumé pour une communication individuelle ou une proposition de séance pour le congrès. Les propositions de séances (typiquement pour 3 communications) seront particulièrement bienvenues. Les contributions qui ne sont pas liées à ce thème seront également considérées.

Date limite de soumission: 3 janvier 2022

Les soumissions: <https://easychair.org/my/conference?conf=cshps2022#>

The Canadian Society for the History and Philosophy of Science (CSHPS) is holding its annual conference as part of the Congress of the Humanities and Social Sciences, May 16-20, 2022. The format is *completely virtual*. (<http://www.yorku.ca/cshps1/meeting.html>; <https://www.federationhss.ca/en/congress/congress-2022>).

The Program Committee invites scholars working on the history and philosophy of science to submit abstracts for individual papers or proposals for sessions (typically 3 papers). Unrelated topics and themes are also welcome.

Deadline for proposals: January 3, 2022

Submissions: <https://easychair.org/my/conference?conf=cshps2022#>

Job: Assistant Professor (Tenure Track), Department of Social Study of Medicine, McGill

The Department of Social Studies of Medicine is seeking to hire at the rank of Assistant Professor (tenure-track). We are looking for a historian specializing in the history of medicine in any period from classical antiquity through the 18th century. The geographic focus of the candidate's specialization is open. We welcome candidates whose work addresses cultural difference and/or global perspectives.

Candidates will be expected to teach courses within the Faculty of Medicine and Health Sciences and the Faculty of Arts, and to carry out a program of research. The successful candidate will have potential or proven ability to develop an internationally recognized research program in ancient, medieval or early modern medicine, to obtain grants for their own research, and to contribute to the building of successful research projects and programs.

The candidate is expected to be actively involved in all aspects of McGill's academic mission (research, teaching, supervision of a diverse body of graduate students and involvement in academic and administrative committees) and the mission of the Department of Social Studies of Medicine. McGill faculty members are expected to contribute to service activities within their units, the University, and the wider scholarly community. A demonstrated commitment to equity, diversity, and inclusion is also expected.

Application deadline: January 30, 2022

Workday Link:

https://mcgill.wd3.myworkdayjobs.com/McGill_Careers/job/Peel-3647/Assistant-Professor--Tenure-Track---Department-of-Social-Studies-of-Medicine--Faculty-of-Medicine-and-Health-Sciences--L001065-JR0000020524

Job: Bioethics Teaching Position, Michigan State University

Teaching-focused faculty position in the Academic Specialist Continuing Appointment System
Bioethics specialization (broadly defined) in Lyman Briggs College's History, Philosophy, and Sociology of Science group.

Review of applications begins **January 10th, 2022**

See the full job posting at:

<https://careers.msu.edu/en-us/job/508998/specialist-teachercontinuing>.



Image: Jackie Hallet

Career Corner

One of our dedicated readers asks “what should students know about applying/interviewing for academic jobs?” This is a big topic, and I’m happy to revisit it again in the future, but for now let’s narrow our focus to just interviewing and to five tips.

1. Know Your Audience

Ideally this step should happen before you apply, but in the rare event that you catch lightning in a bottle and land an interview without first researching the department, institution, location, etc. then now is the perfect opportunity. This is generally accomplished by researching general and specific questions to help you customize the communication strategies, styles, etc. that you will use to deliver your message.

What can you learn about the people you are going to be meeting? Who is going to be on the hiring committee? Who else will you be meeting with when you are there? Why is there an opening (a new line, mid-career replacement, retirement replacement)? What are the existing strengths and weaknesses of the department? What will you contribute? What gaps will you fill? Where is this department situated (in both geopolitical and ideological senses) within the institution and the field? Does the institution have a strategic research and/or teaching plan? Where does the department fit in that institutional plan and does it buy-in to the larger plan or maintain indifference or hostility to it?

That’s certainly not an exhaustive list of the questions you could ask, but it gives you a sense of the range of things you could pursue. One caveat: unlike almost every other job search process, you generally can’t just ask the hiring committee or search chair before your interview. This means you have to be creative – can your supervisor or mentor ask for you? Is there an alum from your program who has been hired there and might be able to talk to you? Have you collaborated with someone in the department who isn’t on the search committee? Do you know an alum from that program who might be willing to give you some insights?

2. Prepare Your Answers

If you’ve researched your audience, it becomes a simpler task to prepare your presentation(s) / job talk(s) as well as the questions you anticipate they will ask. The broad categories of research, teaching, and service

capture most of the questions you should expect. They’ll cover both your past experiences and motivations as well as your future vision and ambitions. Good answers are always grounded in past experiences, even when you’re talking about future vision and ambitions.

3. Prepare Your Questions

Based on your research, you should have lots of questions for them. This serves two purposes. First, it buys you a minute to drink some water, eat some food, collect your thoughts, etc. while they answer. Second, social psychology research shows that actively listening to someone else talk forms a more positive impression of you in their mind than solely telling them about yourself. While your host should have a plan in place for their colleague who is apt to “ask” a longwinded comment, you should definitely have a repertoire of responses that convey you are listening, e.g., “That’s so fascinating. Thank you for sharing, and I’m looking forward to having further opportunities to explore possible connections between that idea and my current and future research.” Be sure to take a moment to breathe while everyone is paying attention to someone in the room who isn’t you.

4. Define Your Anxiety Coping Strategies

Everyone gets nervous in interviews – including your interviewers. They, with a few exceptions who prove the rule, want you to succeed. Deborah Powell (University of Guelph) has investigated interviewing and personnel selection, with an eye to practical application. She suggests two strategies for coping with interview anxiety.

The first is positive self-talk. This is the practice of reminding yourself of difficult (and easy) problems you’ve solved, how you solved them, and how you know you solved them. This strategy is effective for two reasons. First, the construction of the story produces an ideal answer to an interview question. Second, the collection of positive stories will remind you of the good things you’ve done, which is more effective than

thinking about the times you think you've failed miserably.

The second is field technique: visualizing the interview from the perspective of the interviewer or a neutral observer. It comes from sports psychology and it is effective in dealing with interview anxiety because it helps you focus on the details they are hoping to elicit with a specific question and the bigger picture of what they're trying to accomplish. If you know your audience, you can customize your message to meet them where they are.

If you aren't convinced that either of those will work, or if you think you need more than two strategies, then remind yourself of strategies that helped you with oral or written exams or other stressful situations.

5. Interview Them

Remember that an interview goes both ways. While it can be frustrating if something doesn't work out, it's okay if you just don't feel right about a position. Maybe they won't have good spousal or family support, maybe the location isn't one you'll be comfortable with, maybe they are fully committed to the wonders of experiential learning and you prefer a more Socratic or didactic approach. It's important to have a sense of your values and priorities before you even start a job search, but sometimes our truest priorities only reveal themselves in moments of extreme stress.



Jonathan Turner has a PhD in the history of science from the University of Toronto. He works in university administration, is a project manager and co-founder of the Graduate and Postdoctoral Development Network and has a consulting business. He can be reached at bcw.director@gmail.com with questions or ideas for future columns.



Image: Celinebj

https://commons.wikimedia.org/wiki/File:Recycling_bottles.JPG

Anticolonial Pollution Science

In Conversation with Max Liboiron

Dr. Max Liboiron (they/them) is an Associate Professor in Geography at Memorial University and the author of Pollution is Colonialism (Duke University Press, 2021), which brings Science and Technology Studies, Indigenous studies, and discard studies together to develop a methodology for doing environmental science in ways that do not assume colonial access to Indigenous Land. They are a founding leader of the interdisciplinary field of discard studies and director of the Civic Laboratory for Environmental Action Research (CLEAR), a value-based lab which strives to foreground humility, equity, and good Land relations in doing plastic pollution research. Dr. Liboiron's work has influenced national policy on both plastics and Indigenous research, and they have created technologies and protocols for community peer reviewed science. They spoke to Dani Inkpen on the phone in early November.

DKI: You just had a book published, *Pollution is Colonialism*. The introduction presents it as a methodological text that models how to do anticolonial pollution science, particularly in Newfoundland and Labrador, from within a dominant science framework and institution (Memorial University). Let's start with some basics: What is anticolonial science? What is dominant science? And how is dominant environmental pollution science colonial?

ML: I'll tell it as a story. In my PhD program, I studied feminist Science and Technology Studies. I was well-versed in various critiques of dominant science in terms of patriarchy, nature-culture binaries, life-death binaries, male-female binaries, extractivism, knowledge imperialism--the whole spectrum of critiques. I was critiquing what at the time was brand-new plastic pollution science and felt there was a Thomas Kuhnian moment: plastic polluted in ways that went against the axioms of dominant theories of pollution. It didn't assimilate. When it did breakdown it was more, and differently, dangerous. The chemicals associated with plastics cause the greatest harm at the lowest doses, which flies in the face of toxicology's "danger in the dose." I was sure there was going to be a paradigm shift. But it didn't shift.

When I got my job here in Newfoundland and Labrador, there was no science to critique. We'd

had a Conservative government who had not done a lot of environmental science. I realized critique is a privilege, and that I was going to have to do the science. But because I was fluent in feminist STS critiques of science, I wanted to do science differently. Those two issues--why didn't plastics change dominant ideas of pollution? And how do I do science that is not within the dominant model of science? I came to realize that both were about power and the power they had in common was colonialism. Which is to say, the dominance of Indigenous Land by non-Indigenous systems of governance, epistemologies, and land relations, including using L/land¹ as a sink for pollution. Modern regulations and environmental science are based on identifying how much pollution you can put into L/land before harm occurs, instead of saying that such a relationship *is* harm. These things were swimming in the milieu of my research life and I came to realize, first of all, that I didn't study plastics, I studied colonialism. Secondly, I became a methodologist dedicated to the *how* of things. How do you maneuver in dominant science and still stay in good relations? How do you do science as a Western scientist while not replicating some of its norms? What if you want to blow those out the water? If you blow them totally out of the water, you are no longer a scientist. And I need to be a scientist. Walking that tension is the basis of the book. Most of my theorization comes about through chores. It doesn't start in the abstract and then get specific. The theory of the book is

¹ In Dr. Liboiron's work, L/land (capitalized and uncapitalized) refers to two ways of conceptualizing and experiencing place. Capitalized, Land is a proper name that refers to the "unique entity that is the combined living spirit of plants, animals, air, water, humans, histories, and events recognized by many Indigenous communities" (*Pollution is Colonialism*, 6/7, fn.19). Uncapitalized, land refers to the universal geographies of a colonial worldview. The combination in L/land indicates that the relations to a place may be Indigenous or colonial.

accomplished through bench labour. How do I titrate like a feminist? What does that even mean? I read my Fox Keller but now what do I do? Those are the problems that the book comes out of.

DKI: Why plastics? At one point you say that plastics are *Land* with a capital L. What does that mean?

ML: I understand myself as an activist scholar, a scholar who is trying to move the world from an is to an ought (using Annemarie Mol's terms).² As a PhD student I was studying moments in history when environmental problems seemed completely insurmountable—and then they were surmounted. The primary study was 1880s waste in New York City, the filthiest city in the world. Within two years it had one of the most sophisticated universal sanitation systems in the world. How did that happen? Then someone said, “are you studying marine plastics, then?” And I said, “no, because that's actually an impossible problem. They last in geological time and they're dominated by the petro-chemical industry. That's impossible.” And then I thought about it for a while, and turned my attention to the impossible problem of plastic pollution. The book's answer is colonialism, which I didn't know at the time. By showing what makes it an impossible problem you show what has to change.

Hanging out with plastics as a scientist, I came to know plastics in a myriad of different ways, not just as a scrounge or filth upon the planet but as a cool little thing that gets around in different ways. Look, it's over there! And look, it's over here! And isn't it neat when it does that? And look at how animals deal with it this way. Learning that plastics have very old relatives who came from the ground and have been coerced through extraction and cracking towers into a certain set of relations they were never designed for. Those are Land relations. There's not just width and depth and volume and weight, there's also spirit and relations and

obligations—things that round them out into Land. There's no way I could have anticipated or come to know those Land relations without being a scientist.

DKI: You write about what it means to be a scientist and the obligations that come with operating within dominant science. You also write about obligations to local communities, to Indigenous people, to the fish that you're studying. What kind of obligations do you have when you're writing about science as a science studies scholar?

ML: If you want to make headway in science, critique may be necessary, but it's insufficient. When I'm writing to and with scientists, I start with our common ground. When I came to Newfoundland and Labrador and there was no science to critique and I realized how horrible that was because science is still the dominant way in which largescale action occurs for Land and Indigenous people. It's an incredible privilege to be able to critique. Taking that privilege seriously, not using it as a big stick but as a way to find common ground and wend our way through compromised terrain together, is one of the obligations I have. And I would like to see it taken up by more folks in philosophy, history, sociology, and anthropology of science.

DKI: The focus of the book is pollution, but there is another environmental “issue” that can be glimpsed here and there, and that's global warming. Global warming is another means by which certain futures are maintained while others are foreclosed. How one might think about global warming from an anticolonial scientific orientation?

ML: I would say that plastic isn't the focus of the book, it's the case study. So, the lessons and the mobilizations through plastic can happen for anything, whether it's cotton or climate change or rubber duckies. Climate change and plastics have the same feedstock and the same primary producers. The oil and gas extractors are identical

² Annemarie Mol, *The Body Multiple: Ontology in Medical Practice* (Durham: Duke Univ. Press, 2002).

and political lobbies have heavy overlap. The plastic pollution playbook is the same as the climate change playbook.

Folks will already be familiar with this if they're involved in the climate change movement, but the reach for technological fixes or accountability alibis that let L/land relations stay the same don't solve anything. L/land relations where you expect the atmosphere to sort out as best it can are colonial land relations.

The second chapter of the book looks at Western scientists and Western environmental movements for moments of non-colonial L/land relations in how people deal with plastic. What surprised me when I was researching, is that scientists more often and more robustly come up with anticolonial L/land relations with plastics compared to activists. I thought it would be the other way around. Environmental activism appeals to the "Commons" and arguments for building renewable energy hydroelectric dams are still colonial in that they require Indigenous Land for non-Indigenous futures. The lessons in the book are there for climate change action and science.

DKI: Historians and philosophers of science are familiar with the term "incommensurability." It's an important term for you as well. What does incommensurability mean in the context of doing anticolonial science?

ML: Following Kuhn, if incommensurability doesn't just mean not sharing a metric or value, it also means not being on the same planet, then you might have two scientists who aren't on the same planet but they could still be in the same lab. This happens for colonial and anticolonial science. You can have two scientists, two groups, on totally different epistemological and ontological planets and they can share a lab. If we extend this (this isn't

how Kuhn talks about it but we can bring in how la paperson talks about it in *Third University*)³ this means that incommensurability is not an insurmountable problem in the Academy. You can generate anticolonial and decolonial ends out of a colonial apparatus because multiple worlds can be sitting in the same space and generating different futures at the same time.

There's another way that I talk about an "ethics of incommensurability" using is Eve Tuck and Wayne Yang's phrase.⁴ It doesn't simply mean, in a Kuhnian sense, that people are on different paradigmatic worlds, but that, say, Indigenous people and non-Indigenous people don't share values or worlds and it's important not to conflate those two things in the name of justice because they will tend to converge towards the dominant term, which is whiteness. It's also important not to falsely dichotomized either because there *is* overlap. You need to find the overlap to stand together. Stand with.⁵ An ethics of incommensurability is about keeping separate, yet not dichotomizing; recognizing and honouring difference, yet not conflating. These are very special grey-area maneuverings, which is quite beyond Kuhn. He doesn't talk about the scientists who hang out for their entire careers in the middle of a paradigm shift, and that's who I'm talking about. People who are fluent in multiple paradigms, and necessarily so.

DKI: Many environmentalists understand themselves to be working towards futures that seek to return to some sort of prelapsarian state, be that in terms average global temperature rise or a non-anthropocentric view. Not only is this not possible, according to you and to others, but it's also not desirable. Could you tell me why that is the case? What do you hope for the future?

ML: First, even though theories and discourses of

³ la paperson, *A Third University is Possible* (Minneapolis: University of Minnesota Press, 2017).

⁴ Eve Tuck and K. Wayne Yang, "Decolonization is not a Metaphor" *Decolonization: Indigeneity, Education & Society* vol. 1, no. 1 (2012): 1-40.

⁵ Kim Tallbear, "Standing With and Speaking as Faith: A Feminist-Indigenous Approach to Inquiry," *Journal of Research Practice* vol. 10, no.2 (2014), N17.

purity might still dominate and circulate, your average scientist is aware that those are not materially feasible. In many cases purity discourses are strategic for activism but I don't think you can talk to any environmental scientist who thinks, "I can locate the golden spike of where purity starts." It's mostly rhetorical for the morality of activism. Strategic essentialism, perhaps we could call it. And it's a strategic essentialism that sometimes we want to support.

That being said, colonial land relations require the nature-culture dichotomy is strong. Something I think is ethically not OK: the erasure of Indigenous people, for instance, or Indigenous knowledge for looking after Land, which is never in a pure state because of that collaboration (e.g., burning management).

Like a lot of other people in HPS and sociology and anthropology of science, I'm interested in a simultaneous multiverse of different approaches. A diversity of approaches will always be better than arguing for a new dominant, universal approach as the best. All approaches have to be place-based. And they have to be accountable to place, which includes Indigenous people, necessarily; and the L/land relations that those approaches entail.



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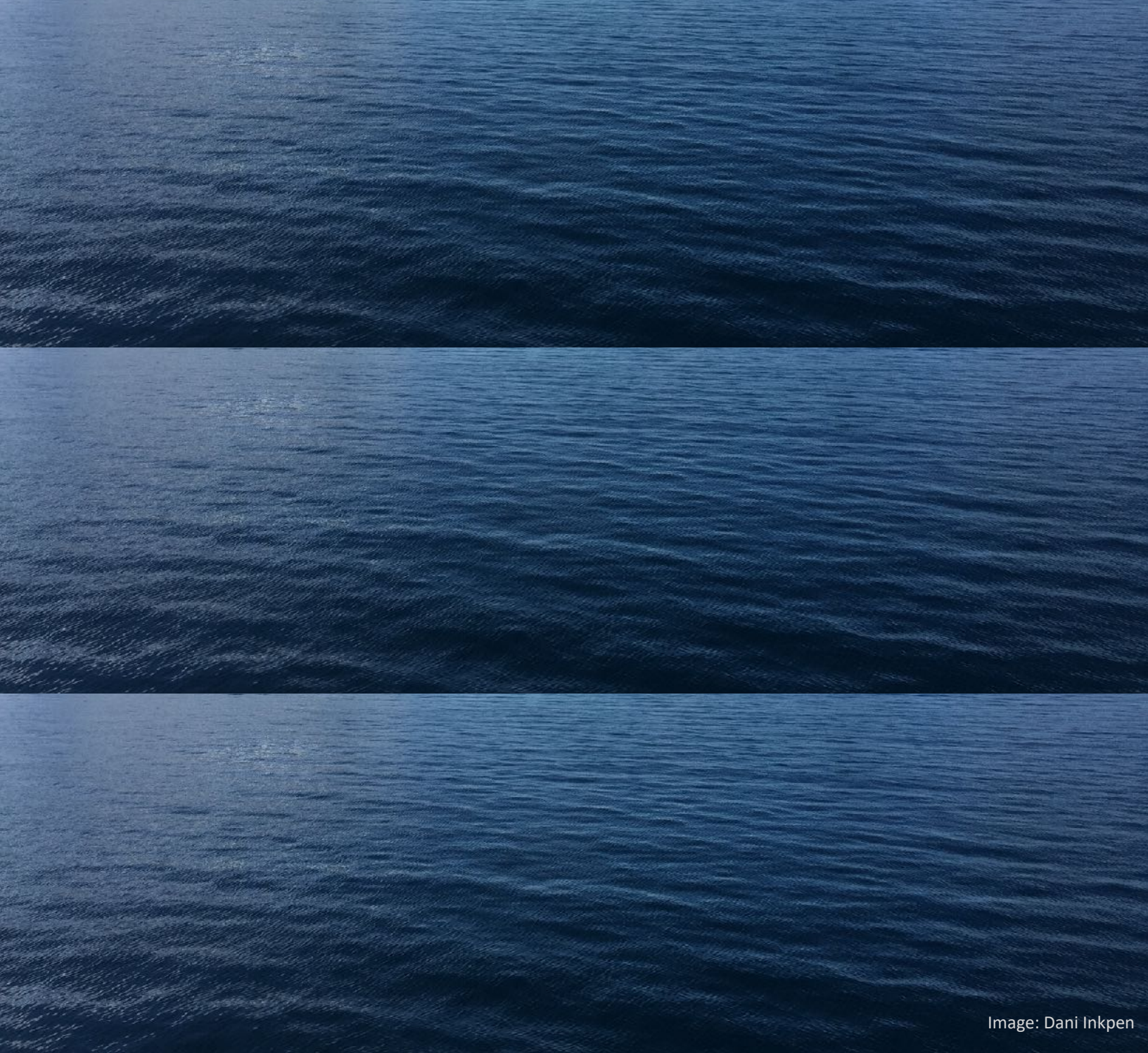


Image: Dani Inkpen

Water Rights and Moral Limits to Water Markets

C. Tyler DesRoches

Does the human right to water entail moral limits to water markets? This question is striking, not least because the most esteemed theorists in the history of economic thought regularly invoked water as the example of a good that has no economic value and, therefore, no market. In *The Wealth of Nations*, Adam Smith famously claimed that “nothing is more useful than water: but it will purchase scarce anything; scarce anything can be had in exchange for it.”

No contemporary economist would agree with Smith’s claim. Today, water is becoming increasingly scarce in a growing number of jurisdictions. To resolve this problem, many countries, including Australia, Chile, Spain, and the United States have turned toward establishing water markets – in one form or another. In Canada, water markets have been concentrated in Alberta, where the provincial government employs various kinds of market transactions to allocate the right to use water.

Free-market economists emphasize the wide variety of benefits of water markets, including the efficient distribution of a scarce resource to those who value it the most. As the supply of water dwindles relative to its demand, standard economic theory predicts that, other things being equal, the price of water will rise. Far from being unfavourable, this effect is expected to incentivize the owners of water, or those with the right to use it, to either conserve it or sell it to a buyer who will. Given these advantages, it is unsurprising that most economists do not explicitly recognize any moral limits to buying and selling water, let alone ones prompted by the human right to water.

Not everyone believes that water should be commodified, however. The Canadian environmental thinker Maude Barlow, for one, insists that water is not the kind of good that should be distributed by the free market.¹ Barlow

insists that water is not merely a resource, or even a basic human need, but a human right. She concludes that water “must never be bought, hoarded, traded, or sold as a commodity on the open market.” She asserts that no water markets should be permitted, let alone ones that are restricted on moral grounds. From this limited purview, the choice is stark. Either water markets are to be left unbridled, without any clearly defined moral limits, or the human right to water entails that no water market should be sanctioned.

Strikingly, philosophers have had little to say about the human right to water. Perhaps the most convincing philosophical conception of the human right to water is that of Harvard political philosopher, Mathias Risse.² Risse follows John Locke’s *Two Treatises of Government*, wherein Locke claimed that God gave the Earth in common to mankind and that, originally, in the state of nature, each person had an equal claim to make use of the Earth and its products. Locke then famously grapples with the topics of original acquisition and private property. How can one person come to own previously unowned objects when such objects are entrusted to no one in particular but in common to all of mankind?

Locke’s answer to this question does not depend on the social utility of private property. Instead, since each person naturally has ownership over their ability to labour, people can come to own previously unowned objects by mixing their labour with them and improving these objects for the benefit of life.

Since everyone in the Lockean state of nature has common ownership of the Earth, Locke must somehow ensure that such claims are not breached by individual appropriations of private property. To resolve this problem, he argues that appropriations are sanctioned only insofar “there is enough and as good left in common for others.”

¹ Maude Barlow, *Blue Gold: The Fight to Stop the Corporate Theft of the World’s Water* (New York: The New Press, 2002); Barlow, *Blue Covenant: The Global Water Crisis and the Coming Battle for the Right to Water* (New York: The New Press, 2007).

² Mathias Risse, “The Human Right to Water and Common Ownership of the Earth.” *The Journal of Political Philosophy* 22 (2014): 178-203.

“Nobody,” he maintains, “could think himself injured by the drinking of another man [...] who had the whole river of the same water left him to quench his thirst: and the case of land and water, where there is enough of both, is perfectly the same.”

It is primarily from these two passages that Robert Nozick attributes Locke’s theory, with a specific proviso. Nozick explains that “a process normally giving rise to a permanent bequeathable property right in a previously unowned thing will not do so if the position of others no longer at liberty to use the thing is thereby worsened.” This proviso requires that all acquisitions must not worsen the situation of others and, therefore, it represents a bona fide constraint on property rights. To determine if the proviso has been violated one must show that others are below their baseline case, or starting position, because of the appropriation. Thus, the crucial question to ask is whether the appropriation of an unowned object has worsened the situation of others.

For Risse, as for Locke, it is in virtue of the fact that humanity collectively owns the Earth, prior to any individual appropriations, that everyone possesses a set of natural rights to the Earth’s resources: everyone is entitled to some minimal and proportional share of the Earth’s resources. This right to a proportional share of resources ipso facto encompasses a positive right to water. How could it exclude water? Nevertheless, it should be clear that, on this account, people are not entitled to collectively own all of the world’s water. As Locke states above, there are some individual appropriations of resources, including water, that can be made without worsening the situation of others and, therefore, should be permitted.

Clearly, this conception is inextricably tied to the Lockean proviso. According to this conception, then, people have a natural right to that minimal quantity and quality of water required to make them at least as well-off as they would have been in the Lockean state of nature, prior to any original individual appropriations.

Does this conception of the human right to water entail specific moral limits to water markets? Of course. If water markets prevent people from obtaining some minimal and proportional share of water, by charging a prohibitively high price, for instance, then those markets put the human right to water in jeopardy and should be blocked. This conclusion is consistent with Barlow’s thesis that no water should be treated as a commodity. However, it is also consistent with the claim that *some* water may be treated as a commodity.

The extended version of this essay is published as a chapter in *Canadian Environmental Philosophy* (2019), edited by C.T. DesRoches, F. Jankunis and B. Williston. The chapter is available online: <https://philpapers.org/archive/DESWRA-2.pdf>.



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(Ne pas) «engager un savoir» dans la Résistance écologiste: légitime?

Ghyslaine Bolduc



Bertrand Russell & his wife Edith Russell lead anti-nuclear march by the Committee of 100 in London on Sat 18 Feb 1961. Image: Tony French

«Conformity means death. Only protest gives a hope of life»,¹ déclarait Bertrand Russell dans la foulée de la crise des missiles de Cuba de 1962. Est-il nécessaire de rappeler que cette sommation à la résistance contre l'autodestruction du monde est d'autant plus vraie et pertinente face à ce que l'ONU qualifie aujourd'hui de «menace existentielle directe»?² Nos espoirs tièdes en une issue encourageante de la COP26 (cet énième sommet de «la dernière chance») étant brisés, il est plus clair que jamais que «demander les choses

gentiment et proprement»³ aux dirigeants nous mène gentiment et proprement à notre perte. À la fois universitaire et militant, Russell prit quant à lui part à des actions de désobéissance civile, audace qui lui coûta d'ailleurs l'incarcération. Devrait-il apparaître comme un modèle de courage pour les chercheurs, incluant celles et ceux en histoire et philosophie des sciences?

Si les climatologues ont depuis longtemps intégré dans leurs fonctions officielles le rôle d'alerter

¹ Russell cité par Andrée Shepherd, *Protest and Nuclear Weapons in Britain: La Campagne pour le désarmement nucléaire et les intellectuels de la nouvelle gauche*, Tours, Presses universitaires François-Rabelais, 1984.

² <https://ici.radio-canada.ca/nouvelle/1312171/changements-climat-nations-unies-action-onu-new-york>

³ L'expression est de Jean-François Julliard, directeur de Greenpeace France.

[https://reporterre.net/Le-mouvement-climat-cherche-un-second-souffle?](https://reporterre.net/Le-mouvement-climat-cherche-un-second-souffle?utm_source=newsletter&utm_medium=email&utm_campaign=nl_quotidienne&fbclid=IwAR0nlqzBGjy99etQiQHMuXDLzo_f7yjXWMrQ2Hy-alS-J5iZzHc2AuQOBj4)

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publiquement des conséquences désastreuses des activités anthropiques émettrices de GES, plusieurs chercheurs, gagnés par le sentiment d'extrême urgence, ont déjà fait le saut dans la sphère militante. Devant l'inaction des gouvernements, près de 1000 scientifiques ont en 2020 appelé les citoyens à la désobéissance civile,⁴ alors que d'autres forment des militants d'ONG ou rejoignent directement des groupes comme *Extinction Rebellion*.⁵ Mais pour certains, le militantisme académique menace la neutralité et la crédibilité scientifique. L'écologue Christian Lévêque dénonce ainsi la politisation de la science écologique menée par certains écologues eux-mêmes, qui en ferait un mouvement normatif, telle l'«écologie profonde» (*deep ecology*), fondé sur des théories périmées.⁶ Le litige concerne au premier chef le principe de *neutralité axiologique* conçu par Max Weber. Or, cette exigence – qui n'est pourtant pas rappelée lorsque les scientifiques travaillent pour des intérêts corporatifs ou étatiques – vise d'abord à prévenir l'instrumentalisation dogmatique de l'autorité savante; elle ne saurait proscrire un «activisme intellectuel [...] fondé sur la production de savoir qui suit des méthodes scientifiques rigoureuses». ⁷ Comme le précise Louis Pinto résumant Pierre Bourdieu, «engager un savoir» est tout à fait légitime lorsque ce savoir «ne s'acquiert que dans le travail savant, soumis aux règles de la 'communauté savante'». ⁸ Ce présumé devoir de neutralité ne servirait-il pas ainsi de refuge moral en se substituant indûment au devoir de résistance, alors que la passivité a déjà mené à des extinctions massives et à des souffrances humaines intolérables?

Et si, en réaction à une menace existentielle scientifiquement révélée, l'engagement n'était pas un obstacle, mais une *condition* à la crédibilité du chercheur? Cela répondrait à l'exigence – à la fois simple et rare – d'adéquation entre le discours et l'action: comment peut-on marteler qu'il y a urgence sans modifier nos propres comportements, conformes au *business as usual* de la vie académique? Il serait d'ailleurs trop facile de réserver ce type de considérations aux climatologues et autres experts de la question environnementale: étudiant la constitution historique, logique, psychosociale et technique du savoir scientifique, les historiens et philosophes des sciences sont à même de justifier la prétention épistémique des experts et d'en dégager les conditions et les limites. Nous avons donc un savoir à engager dans cette lutte et surtout, des actions à entreprendre.

Que faire alors?

Voici en conclusion deux fronts à mener:

Créer un rapport de force en renforçant la mobilisation citoyenne et étudiante. Nous pouvons tisser des liens avec des groupes militants, les appuyer et même nous joindre à eux.⁹ En guise de solidarité avec les générations futures, nous nous devons d'appuyer les étudiants dans leur propre mobilisation et faciliter leurs actions militantes, dont la grève pour le climat.

Réduire drastiquement les émissions de GES liées à nos activités académiques et atteindre la carboneutralité. En toute cohérence, il n'est pas sérieux d'exhorter la population à rompre sa dépendance aux énergies fossiles et transformer ses modes de vie alors que, dans le cas de

⁴ https://www.lemonde.fr/idees/article/2020/02/20/l-appel-de-1-000-scientifiques-face-a-la-crise-ecologique-la-rebellion-est-necessaire_6030145_3232.html

⁵ https://www.lemonde.fr/sciences/article/2020/03/09/savants-ou-militants-le-dilemme-des-chercheurs-face-a-la-crise-ecologique_6032394_1650684.html

⁶ C. Lévêque, *L'écologie est-elle encore scientifique?*, Versailles, Éditions Quae, 2013.

⁷ H. Etchanchu, «Face aux crises, l'avènement du chercheur-militant», <https://theconversation.com/face-aux-crisis-lavenement-du-chercheur-militant-127759>

⁸ L. Pinto, «'Neutralité axiologique', science et engagement», *Savoir/Agir*, vol. 2, n° 16, 2011, p. 109.

⁹ Au Québec, des collectifs comme *La Planète s'invite au Parlement* ont besoin de forces vives, dont des experts pour porter leurs revendications et contribuer à l'élaboration de leurs formations. <https://laplanetesinvite.org/>

l'Université de Montréal par exemple, un professeur fait dans le cadre exclusif de ses fonctions en moyenne sept voyages par an, parcourant ainsi 33 000 kilomètres et émettant 10,7 tonnes de CO₂, «soit une tonne de plus qu'un Québécois moyen n'en émet en une année».¹⁰ Heureusement, il s'agit d'un problème de plus en plus étudié et nombre d'acteurs redoublent de créativité dans les mesures qu'ils proposent: d'abord calculer et documenter nos émissions institutionnelles,¹¹ diminuer la fréquence des congrès de sociétés savantes en présentiel et favoriser leur fonctionnement bimodal, adopter le «modèle du moyeu» (*hub model*)¹² et, en dernier recours, compenser nos émissions.¹³ Une forte mobilisation qui transformerait ces mesures en revendications – appuyées notamment par des sociétés comme la SCHPS – pourrait mener à des progrès significatifs en peu de temps.



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¹⁰ <https://unpointcinq.ca/mode-de-vie/empreinte-carbone-des-chercheurs/>

¹¹ L'initiative française «Labos 1point5» est à cet égard exemplaire. <https://labos1point5.org/>

¹² Ce modèle privilégie la multiplication des points de rencontre des participants d'un congrès dans des aires géographiques distinctes afin de limiter leurs déplacements; ces «petits centres» qui réunissent en présentiel les participants entrent ensuite en communication sous la forme de webinaires. J. Glausiusz, «To fly or not to fly in 2021?», *Nature* vol. 589 (7 janvier 2021): 155-158.

¹³ À ce sujet, voir <https://davidsuzuki.org/what-you-can-do/carbon-offsets/>

The Influence of Climate Contrarianism on Scientific Research

Ryan O'Loughlin

How has climate contrarianism impacted scientific research? This question is too big to answer here. I offer, instead, one perspective by examining the case of the so-called global warming “hiatus.” (For a more thorough treatment of the topic, see O’Loughlin (2020)¹). This “hiatus” refers to the period between 1998-2012 when the global mean surface temperature appeared to have stopped rising. As early as 2006, climate contrarians writing in newspapers and on the blogosphere began claiming that global warming had “stopped” or was on “hiatus,” and that the climate models were wrong.² Let’s call this the “hiatus” framing.

The 1998 starting point was cherry-picked—there was a particularly strong El Niño that year—and surface temperatures fluctuate enough from year to year that short term trends are often just noise. Nonetheless, at the time, there appeared to be a

discrepancy between climate model projections and observational data. We now know that this discrepancy can be explained by pointing to a confluence of factors, including problems with some ocean surface data and how missing polar data points were accounted for.³

The story does not end here, however.

Cognitive psychologist Stephan Lewandowsky and co-authors (one of whom is a climate scientist) describe the research on the “hiatus” as evidence of *seepage*, that is, “the infiltration and influence of...essentially non-scientific claims into scientific work.”⁴ Many climate scientists adopted the “hiatus” framing in their research even though this framing was introduced by climate contrarians. What are the *effects* of this seepage? I draw on some of the philosophical literature on objectivity to answer this question (Figure 1).

¹ Ryan O’Loughlin, “Seepage, Objectivity, and Climate Science” *Studies in History and Philosophy of Science Part A*, 81 (2020): 74-81.

² Perhaps most (in)famously, was this article from *The Telegraph*: B. Carter. “There IS a problem with global warming... it stopped in 1998.” <http://www.telegraph.co.uk/comment/personal-view/3624242/There-IS-a-problem-with-global-warming...it-stopped-in-1998.html>

³ For a more in-depth explanation, see I. Medhaug, Stolpe, M.B., Fischer, E.M. and Knutti, R, “Reconciling controversies about the ‘global warming hiatus’.” *Nature* 545, no. 7652 (2017): 41-47.

⁴ Stephan Lewandowsky, Naomi Oreskes, James S. Risbey, Ben R. Newell, and Michael Smithson, “Seepage: Climate change denial and its effect on the scientific community.” *Global Environmental Change* 33 (2015): 1-13. Direct quote is on page 9.

In their 2014 article, Elizabeth Lloyd and Vanessa Schweizer distinguish among seven different senses of objectivity. Using their framework, we can see that the objectivity of the climate science community had been compromised in some senses but not others. Below are just a few of the key points from my analysis.

On the other hand, climate scientists did *not* appear to be engaged in any sort of wishful thinking when evaluating evidence for/against the reasons for the apparent “hiatus”; in that sense they remained **detached** and drew conclusions about **independently existing** oceanic-atmospheric processes. Additionally, many climate scientists

Methodological	Social	Metaphysical
1. Public: having to do with public accessibility, observability, and inter-subjectivity.	4. Interactive: agreement achieved by debate/discussion among peers of the scientific community. Emphasis on the degree to which both procedures and results are responsive to criticism.	6. Independently existing: phenomena that are not dependent on our perception for their existence.
2. Unbiased: achieved when results, actions, or attention do not anomalously lean in one direction. “Unbiased” does not mean “error-free.”	5. Procedural: achieved when a process is set up such that its outcome does not depend on who is performing that process.	7. “Really real”: distinct from independently existing; for example, colours and dreams.
3. Detached: disinterested, independent from will. To be detached, values shouldn’t supplant evidence.		

Figure 1. See O’Loughlin (2020), 7.⁵

There was a **biased** degree of scientific attention on this short-term trend because no other temperature fluctuations (of comparable magnitude) attracted such attention. Additionally, by adopting the “hiatus” framing, the **public** accessibility of the scientific consensus on anthropogenic climate change may have been reduced. Moreover, it would seem that the **procedural** objectivity of the climate science research community was damaged. One piece of evidence for this is that the “hiatus” was featured in the fifth IPCC assessment report despite much contestation within the scientific community.

were responsive to the critique launched by Lewandowsky and co-authors. Following their critique, the “hiatus” framing was largely dropped, or at least handled more responsibly by scientists, which is an encouraging sign for the strength of the **interactive** objectivity of the climate science community. Indeed, climate scientists today continue to debate whether it is legitimate to research the “hiatus,” and if it is, how such research should be framed and discussed.⁶

I would like to close by pointing to how this way of evaluating scientific research adds to the

⁵ These meanings of objectivity are drawn from Elizabeth A. Lloyd and Vanessa J. Schweizer, “Objectivity and a comparison of methodological scenario approaches for climate change research,” *Synthese* 191, no. 10 (2014): 2049-2088.

⁶ For two recent examples see T.G. Shepherd, “Bringing physical reasoning into statistical practice in climate-change science.” *Climatic Change* 169, no. 1 (2021): 1-19. and an informal discussion by climate scientist John Kennedy here: <https://diagrammonkey.wordpress.com/2021/11/05/the-alleged-global-warming-hiatus/>

literature on science and values and where it may be gainfully applied in the future. Much of the recent work in the values in science literature takes on some version of an inductive risk approach. This can be especially fruitful for examining how and whether values influence particular scientific methods. However, the type of objectivity analysis I've engaged in may be preferable for examining value influence on a more holistic level. A similar analysis into the objectivity(ies) of negative emissions research in the face of shifting contrarian tactics may prove fruitful.⁷



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⁷ See, for example, <https://www.scientificamerican.com/article/climate-deniers-shift-tactics-to-inactivism/>

“Pour l’amélioration de la race humaine”: The Reception of Eugenics in the French-Canadian Press, 1912-1921

Vincent Auffrey

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In September 1912, French-Canadian gynecologist Albert Laurendeau made an energetic plea in the radical Montréal-based newspaper *Le Pays* in defence of what he called “l’eugénique.”¹ This was the first time Francis Galton’s science of human improvement – eugenics – was openly championed in French-speaking Canada. Laurendeau and *Le Pays*’s endorsement of eugenics promptly sparked controversy in Québec’s francophone press. *La Vérité* and *L’Action sociale*, two Catholic, ultramontane newspapers based in Québec City – and both longstanding opponents of *Le Pays* – engaged in open debate with the Montréal newspaper over the compatibility of eugenics with Catholicism. They mounted an argument against eugenics based on Catholic morality and the role of the state, bolstering their claims with papal pronouncements on the errors of modernism.²

While the ultramontane stance on eugenics is hardly surprising, investigation into the public debate that opposed *Le Pays* to *La Vérité* and *L’Action sociale* reveals the existence of a close-knit network of French-speaking eugenicists in Montréal during the 1910s. In a strange twist of fate, these self-proclaimed eugenicists would be silenced by Church authorities for their radical political beliefs, although not explicitly for their advocacy of eugenics. This narrative challenges the notion that French-Canadians had no interest in eugenics due to their religious convictions or supposed scientific backwardness.³ Rather, it reveals that eugenics gained vocal support in French-speaking Québec as soon as it breached the language barrier, but was swiftly repressed by ultramontanes within the Church hierarchy. It also provides precious insight on the reception of

¹ Albert Laurendeau, “Premier Congrès international d’eugénique,” *Le Pays* (Montréal), September 14, 1912, 4.

² See, for instance, Joseph Lefranc, “Lettre des États-Unis : L’eugénisme,” *L’Action sociale* (Québec, QC), April 10, 1913, 1; “Et la liberté?,” *L’Action sociale* (Québec, QC), April 23, 1913, 4; “Le fond d’une utopie malsaine,” *L’Action sociale* (Québec, QC), April 29, 1913, 4.

³ See Angus McLaren, *Our Own Master Race: Eugenics in Canada, 1885-1945* (Toronto: University of Toronto Press, 2014), 150-154; and Sebastian Normandin, “Eugenics, McGill, and the Catholic Church in Montreal and Quebec: 1890-1942,” *Canadian Bulletin of Medical History* 15, no. 1 (1998).

eugenics in French Canada at a crucial juncture in the history of eugenics: the year 1912.

The First International Eugenics Congress, which was held in July 1912, firmly established the legitimacy of eugenics in academic circles and contributed to its popularization on the world stage. In the French-speaking world, it was the main impetus to the creation of the Parisian *Société française d'eugénique*. It didn't take long for this sudden interest in eugenics to reach French-speaking Québec. Within a few weeks of the congress, *Le Pays* received news from Paris covering the event and promptly reprinted it for its readers in Montréal.

The new science attracted a handful of radical social reformers in Québec, most of whom shared a deep conviction in secular republicanism and evolutionary theory. They were Albert Laurendeau (1857-1920), Godfroy Langlois (1866-1928), and Germain Beaulieu (1870-1944). Their version of eugenics focused primarily on the implementation of premarital health examinations to prevent "unfit" individuals from marrying and having children. Understandably, *Le Pays* and its eugenicists would attract considerable criticism from the Catholic press.

In fact, Laurendeau and Langlois were already under suspicion from the Church due to their outspoken anticlericalism. Laurendeau was a convinced evolutionist whose 1911 publication of *La vie: Considérations biologiques* was met with threats of excommunication; Langlois, a journalist and politician, was a radical who, disillusioned with Québec's Liberal Party, founded *Le Pays* to

advocate for social reform. He was also a renown Freemason whose affiliation with Montréal's *Loge l'Émancipation* made him a prime target for anti-modernist rhetoric.

Both men were swiftly silenced by Church authorities. By March 1913, Laurendeau would be forced to recant his views on evolution due to his ongoing conflict with the Bishop of Joliette, Joseph-Alfred Archambault. He would spend the rest of his life in relative silence. Langlois, too, would face condemnation from the Catholic Church. In September 1913, *Le Pays* was blacklisted by Archbishop Paul Bruchési. While Langlois's newspaper would defiantly keep publishing until 1921, Langlois himself would be forced to withdraw from Québec politics in the spring of 1914, having been appointed as Québec's Agent General in Brussels as a means of keeping him away from local politics.

Ironically, Beaulieu, an entomologist who wrote in *Le Pays* under a variety of pseudonyms, survived the controversy largely unscathed. Others, who avoided the label of eugenics altogether while still advocating for the improvement of the French-Canadian "race" also managed to avoid condemnation. It remains to be seen whether the exile of Langlois or the near excommunication of Laurendeau dissuaded would-be eugenicists from following in their footsteps. One would believe that, if they did, they would be particularly cautious not to identify themselves too closely with the label of "eugenics" and *Le Pays*.

⁴ Anne Carol, *Histoire de l'eugénisme en France: Les médecins et la procréation, XIXe-XXe siècle* (Paris: Éditions du Seuil, 1995), 79-81.

⁵ Anatole Georjin, "La science eugénique ou 'l'élevage de l'homme' : pour l'amélioration de la race humaine," *Le Pays* (Montréal), August 10, 1912, 3.

⁶ See Marcel Sylvestre, *La peur du mal : Le conflit science et religion au Québec : L'affaire Laurendeau* (Laval: Les Presses de l'Université Laval, 2008); Patrice A. Dutil, *Devil's Advocate : Godfroy Langlois and the politics of Liberal Progressivism in Laurier's Quebec* (Montreal: Robert Davies Publishing, 1994).

⁷ The pseudonyms used by Beaulieu in *Le Pays* when discussing evolutionary theory and eugenics include A. d'Albert, Fabricius, Hugues Lambert, L.P.D. and Procul Hotte. See Francis-J. Audet and Gérard Malchelosse, *Pseudonymes Canadiens* (Montreal G. Ducharme Librairie-Éditeur, 1936).

⁸ See, for instance, Georges-Émile Marquis, "Leçon de l'exposition: Pour lire au foyer," *Le Franc Parleur* (Québec, QC), August 26, 1916, 2.



Image: Patrick Hendry, Cracked earth

“The State of the Planet is Broken”: Functions and Agency in the Global Environmental Sciences

Gillian Barker

As we watch news reports describing the cascading and often alarming changes in natural patterns around the world, it is hard not to think that the way Earth used to be, 50 or 100 or 200 years ago, is the way it is (somehow) *supposed* to be. In a landmark speech on the “state of the planet” in December 2020, the UN Secretary General, António Guterres, placed this intuition front and centre: “*The state of the planet is broken.*”¹ Images of brokenness, breakdown, injury, and damage are common in public discussions of the global environment. This normative perspective on Earth’s workings often goes along with an understanding of those workings as functional in the sense that particular components or systems have proper roles to play—roles they should play—in the working of the whole. Thus the thermohaline circulation is seen as a “conveyor belt” serving to circulate seawater and thereby moderate global temperatures,² and peat bogs are described as “carbon sinks” that help stabilize global temperatures by sequestering carbon.³ Other metaphors describe polar ice sheets as a planetary “air conditioner”⁴ or forests as a “biotic pump” that drives both water cycles and atmospheric circulation.⁵

Often this sort of metaphorical talk goes further, ascribing a sort of agency to Earth or Earth’s systems, marked by features like goals, needs, and responsiveness. In his 2020 speech, Guterres continued: “*Humanity is waging war on Nature.... Nature always strikes back—and it is already doing*

so with growing force and fury.... We must make peace with Nature.” Inger Andersen, the UN Environment chief, strikes a similar note: “*We are intimately interconnected with nature, whether we like it or not.... [W]e need to go into [the] future armed with nature as our strongest ally.*”⁶ Paleoclimatologist Wally Broecker says that “*far from being self-stabilizing, the Earth’s climate system is an ornery beast which overreacts even to small nudges.*”⁷ Other scientists focus instead on organisms as agents whose interactions shape what happens to Earth as a whole. “*Our relationship to earth’s other inhabitants is broken,*” says ecologist Carl Safina.⁸ In a less metaphorical vein, detailed studies explore the roles that individual organisms play as agents contributing to good planetary functioning. Migrating salmon return to the streams where they spawned, transporting nutrients and energy from oceans to terrestrial environments.⁹ Forests’ resilience may depend on the ability of individual “mother trees” to provide resources and information needed by younger trees. Elephants act as ecosystem engineers, maintaining biodiversity and enhancing carbon storage in forest and savannah ecosystems, guided by the knowledge, leadership, and communication skills of older “matriarchs.”

How should we think about these attributions of function and agency—with their implications of value, purpose, and meaning—to the forces of planetary change and stability we see in play around us? Are they merely metaphors, or do they

¹ António Guterres. “The State of the Planet.” Speech, Columbia University, New York, December 2, 2020. United Nations. <https://www.un.org/sg/en/content/sg/speeches/2020-12-02/address-columbia-university-the-state-of-the-planet>.

² Wally Broecker. *The Great Ocean Conveyor*. (Princeton, NJ: Princeton University Press, 2010).

³ Matthew J. Amesbury, Angela Gallego-Sala, and Julie Loisel. “Peatlands as prolific carbon sinks.” *Nature Geoscience* 12, no. 11 (2019): 880-881.

⁴ Mark C. Urban. “Life without ice.” *Science* 367, no. 6479 (2020): 719-719.

⁵ Fred Pearce. “Weather Makers.” *Science* 368, no. 6497 (2020): 1302-1305.

⁶ Damian Carrington. “Coronavirus: ‘Nature is sending us a message’, says UN environment chief.” *Guardian*. March 25, 2020. <https://www.theguardian.com/world/2020/mar/25/coronavirus-nature-is-sending-us-a-message-says-un-environment-chief>

⁷ Wally Broecker. Cooling the tropics. *Nature* 376, 212–213 (1995). <https://doi.org/10.1038/376212a0>

⁸ Jack Humphrey. “Carl Safina on Animal Cultures, Pandemics, and Humanity’s Rocky Relationship with the Wild World.” Rewilding Earth Podcast, Episode 46. April 28, 2020. <https://rewilding.org/episode-46-carl-safina-on-animal-cultures-pandemics-and-humanitys-rocky-relationship-with-the-wild-world/>

⁹ T. E. Reimchen, D. D. Mathewson, M. D. Hocking, J. Moran, and D. Harris. “Isotopic evidence for enrichment of salmon-derived nutrients in vegetation, soil, and insects in riparian zones in coastal British Columbia.” In *American Fisheries Society Symposium* (American Fisheries Society, 2003), 59-70.

reflect and strive to capture something real and important about the causal structure of the complex interactions of living and non-living systems on our planet? If they do reflect what philosopher Daniel Dennett would call “real patterns”¹² in the natural world, what do we risk if we fail to recognize those patterns?

The Geofunctions Project is a new research initiative seeking to answer these questions, by exploring emerging philosophical theories of biological teleology and agency and working with scientists to clarify their own uses of concepts of function and agency in investigating climate change and other global-scale patterns of change and stability. With researchers in the department of HPS at the University of Pittsburgh, in Philosophy and Biology at Western University, and in Philosophy at Bowling Green State University, the Geofunctions Project is also part of an ambitious and innovative international collaboration among research teams working on interconnected questions about biological purpose and agency. The collaborative program, entitled “Agency, Directionality, and Function: Foundations for a Science of Purpose” and funded by the John Templeton Foundation, will enable the 24 diverse member projects to share questions, insights, and findings over the course of their three-year collaboration. Its overarching aim is to develop and trial new concepts, models, and methods that can be taken up in empirical scientific research in a longer second stage of the program.

For more information on the Geofunctions Project:

<https://www.biologicalpurpose.org/subaward-project/geofunctions-purposes-and-agents-global-environmental-sciences>

<https://www.biologicalpurpose.org/>



Gillian Barker is Visiting Research Assistant Professor in the Department of History and Philosophy of Science at the University of Pittsburgh, and a member of the Rotman Institute of Philosophy at Western University. Her current work focuses on the distinctive features of complex adaptive systems, exploring how scientists can best grapple with these in investigating ecological resilience and evolutionary dynamics, human cognition and social behaviour, and the interconnected global-scale processes upon which human societies depend.

¹⁰ Suzanne Simard. *Finding the Mother Tree: Uncovering the Wisdom and Intelligence of the Forest* (London: Penguin UK, 2021).

¹¹ Fabio Berzaghi, Marcos Longo, Philippe Ciais, Stephen Blake, François Bretagnolle, Simone Vieira, Marcos Scaranello, Giuseppe Scarascia-Mugnozza, and Christopher E. Doughty. "Carbon stocks in central African forests enhanced by elephant disturbance." *Nature Geoscience* 12, no. 9 (2019): 725-729. McComb, Karen, Graeme Shannon, Sarah M. Durant, Katito Sayialel, Rob Slotow, Joyce Poole, and Cynthia Moss. "Leadership in Elephants: The Adaptive Value of Age." *Proceedings of the Royal Society B: Biological Sciences* 278, no. 1722 (2011): 3270-3276.

¹² Daniel C. Dennett. "Real patterns." *The Journal of Philosophy* 88, no. 1 (1991): 27-51.

‘Spend time in nature, whatever that means to you’: Nature journaling as mindful pedagogy

Ellie Louson & Megan Halpern


It was January 2021, the fourth semester of pandemic learning, and it seemed as though our students were nearing burnout. At Lyman Briggs College, a residential undergraduate science college at Michigan State University with a strong HPS curriculum, students had been learning online for ten months. Some of them were attending classes from a dorm room on campus. Others were attending from home, spread over the state of Michigan and beyond. They were spending most of the week in front of laptops, including attending their classes on Zoom. And we could tell that they were worn out.

In Ellie’s third-year “Science and the Environment” HPS course, “What We Mean When We Talk about Nature,” she wanted to give students a reason to get away from their laptops. She was part of a Learning Community on Mindful Teaching that was exploring the benefits of mindfulness for undergraduate learners, especially within the context of the pandemic. One of the main lessons from those discussions was that giving students the chance to be more present in their learning environment helped them reduce stress and anxiety, improve classroom culture, and create an environment more conducive to learning. She also wanted to prompt students to reflect on course topics like conservation and human-nature interactions.

Fortunately, Ellie’s colleague Megan was familiar with nature journaling and recommended that she try it. John Muir Laws describes nature journaling as “collecting and organizing your observations, questions, connections, and explanations on the pages of a notebook using words, pictures, and numbers” on his website that provides pedagogical resources for bringing the practices of natural history into the classroom. The practice involves deep observations of nature as well as refining and building skills for conveying those observations. Much has been written about the benefits of nature journaling for young students, such as enhancing geographic and environmental education and helping students focus on process, rather than the product, as well as developing a connection to nature, honing observational skills, focusing on details, and, importantly, spending time outdoors. When considering the practice for the college students in Ellie’s class, many of these same benefits are evident. Additionally, Ellie saw evidence of benefits for their mental health in uncertain times.

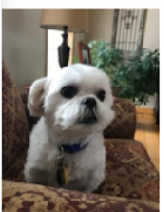
Ellie gave her students instructions to “Spend time in nature, whatever that means to you, and write or sketch your observations and ideas.” They had to spend at least an hour being deliberately present in nature. To receive full credit, students had to submit an entry for ten out of the fifteen weeks of

the term, and to include responses with detailed observations for three of John Muir Laws' prompt phrases: "I notice... I wonder... It reminds me of..." They could write their entries and/or use artistic formats. If any of the required components weren't present, students could redo the journal, but this rarely happened. Indeed, Ellie was surprised at the length of most written entries, as well as the range and quality of alternative format and artistic entries that they submitted, including sketches, paintings, illustrated layouts, audio narrations of hikes, comic strips, photography, videos, and digital art.

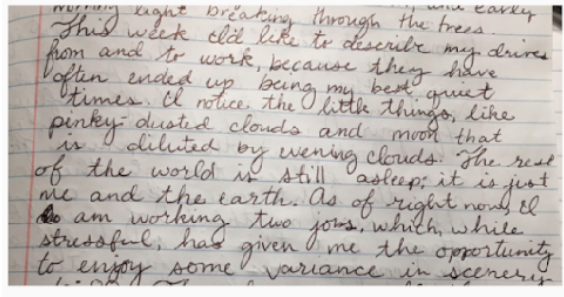


I noticed after most of the hour that I was rather disappointed I hadn't seen one of the Asian elephants (the National Zoo has five) and I wanted to explore this feeling a little bit more with the new perspective I have from class and our readings. It is disappointing to come to a zoo and not see an animal, because that is, for most intents and purposes, the point of going to a zoo. But why do we have this expectation that nature will perform for us? How do zoos and places where we witness animals literally within our own shaped narratives (we as humans design their habitats, we design when and

Of course, I wonder what on earth he could possibly be smelling over and over again that was so captivating it required a complete and full stop. On the other hand, part of me is almost afraid to find out the answer to that question. Cooper has always been the over-enthusiastic explorer; finding smells, wanting to greet everyone he encounters, getting completely lost in every nook and cranny of the barn behind our house. But that kind of adventure seeking doesn't get any easier as his caretaker, constantly worrying about what he'll get into next. These encounters with him reminds me of the kind of sensory overload I remember feeling when travelling in a new city. It's like the first time I visited New York or when I travelled to France, everywhere you turn is like being bombarded with ultra-new information that's almost incomprehensible to process. Thinking about it this way, it seems like our pets might be better at managing this crowding of stimuli, choosing to hone in on just one new thing at a time. This could be a welcome reminder that when things get overwhelming like now when we're approaching final exam week, focusing on just one thing at a time might be the best route to take.



few days! I notice the stacks and stacks of snow on the ground and I am in complete shock. I notice the piles of snow on my car and how it'll take me some time to get it all off. I could barely move my car in the morning because of all the snow. I notice how when I stepped foot out of my apartment, I basically sunk into the snow. It really is moments like this which make me crave sunshine. I notice the freezing cold weather and it makes me want to run to my room



towards the shoreline and notice a few small brown birds jumping from bush to bush. I turn my attention towards the bird feeder closer to the house to see two squirrels scavenging through the snow below for fallen seeds as a result of the careless birds. Despite the liveliness of the lake during the spring and summertime, those were the only two kinds of animals I was able to observe during my time on the lake. The ice fishing holes make me wonder how fish and other water creatures manage to survive the harsh and cold winters under the ice. It amazes me how animals like turtles and frogs survive for months while barely moving and eating and I wonder where they might be right now as I look down at the ice. Being out on the lake reminds me of back in the summer when my friends and I would go fishing off the dock and the boat. I am not

Finally, I noticed the tree that usually drops the berries, and how beautiful it looked. It leans over the trail like an archway, and from where I was standing the sun was peeking through the branches. I wonder what kind of tree that is, and why it grew with crooked branches like that. This reminds me of some sort of fairy tale, where there is an archway in the forest that the protagonist walks through to enter a different dimension.

The journals were immediately popular. Some students said that it gave them a reason to be away from their computers, something they wouldn't otherwise make time for. Some of them made special trips to places we conventionally think of as "nature," like a protected forest or a state park. Others paid extra attention to their surroundings when they were already outdoors. Students who weren't inclined to spend time outside, especially in January, observed their pets, houseplants, backyards, or footage from streaming wildlife cameras, which prompted them to reflect on what

we mean by "nature." Some journals followed one location over the entire term, describing the slow unfolding of spring. Repeat visits helped those students notice small changes, like the emergence of buds.

Over time, Ellie noticed that her students were using their journals as a way to process their experience of the pandemic as well as their feelings about spending time in nature. A common theme within the journals was how much they needed the time outdoors to relax, move their bodies, and find

a connection with nature, in contrast to the pressures of school, work, and family. One student whose family emigrated from India recalled memories of camping in Michigan's upper peninsula; she loved being outdoors despite her family facing biased attitudes about them "not looking like people who go camping." Several students referred to nature journaling as their favourite assignment in their course evaluations. Some even submitted extra entries or planned to continue nature journaling after the course ended.

This assignment could be adapted to other HPS courses, in person or online. For example, students could make observations about the physical infrastructure they encounter in a course examining the built environment, or observe and reflect on their own science training for a history of science course. With a little tweaking, it could support a variety of learning objectives or specific formats for student work, like free-writing, blogging, or producing their own science-art. Nature journaling could also provide scaffolded exercises to build students' drawing or painting skills, especially for students who are inexperienced or hesitant to engage in artistic practices. We think it was especially effective for giving students the chance to be present in their surroundings and to observe and reflect on their experiences in nature. In the future, we will be developing an entire "Science

and the Environment" course based in nature journaling. The course will build nature journaling skills and draw on journaling experiences as opportunities to engage with new ways of knowing about nature and the environment.

We hope this prompts you to think how you might try something like this in your own HPS courses, or perhaps give you even more reasons to spend more time being present in nature yourself!

For more resources on nature journaling, see [John Muir Laws' blog](https://johnmuirlaws.com) (<https://johnmuirlaws.com>), the [NAAEE's brief guide to nature journaling](https://naaee.org/eeepro/blog/brief-illustrated-guide-nature) (<https://naaee.org/eeepro/blog/brief-illustrated-guide-nature>), and the many helpful guides at [International Nature Journaling Week](https://www.naturejournalingweek.com) (<https://www.naturejournalingweek.com>) and [Drawn Into Nature](https://www.drawnintonature.com) (<https://www.drawnintonature.com>).



All images and excerpts from students' journals are shared with permission.



Dr. Ellie Louson is an academic specialist-teaching at Michigan State University in the history, philosophy, and sociology of science at Lyman Briggs College. She is also a learning designer at MSU's Center for Teaching and Learning Innovation.

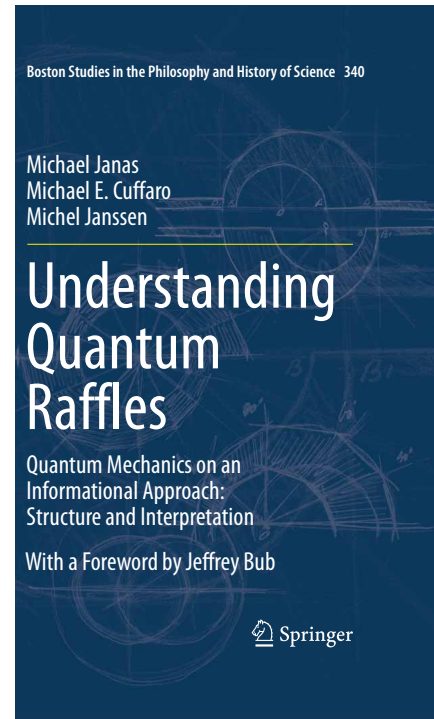


Dr. Megan Halpern is an Assistant Professor at Michigan State University, where she teaches science communication and science & technology studies at Lyman Briggs College. She is also the inaugural scholar-in-residence at MSU's Center for Interdisciplinarity.

Book Releases

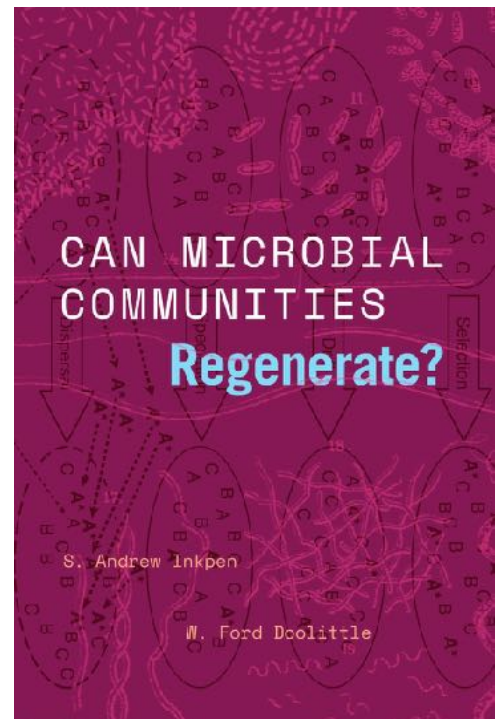
Michael Janas, Michael E. Cuffaro, and Michel Janssen, *Understanding Quantum Raffles: Quantum Mechanics on an Informational Approach, Structure, and Interpretation* (Springer, 2021)

This book offers a thorough technical elaboration and philosophical defense of an objectivist informational interpretation of quantum mechanics according to which its novel content is located in its kinematical framework, that is, in how the theory describes systems independently of the specifics of their dynamics. It will be of interest to researchers and students in the philosophy of physics and in theoretical physics with an interest in the foundations of quantum mechanics. Additionally, parts of the book may be used as the basis for courses introducing non-physics majors to quantum mechanics, or for self-study by those outside of the university with an interest in quantum mechanics.



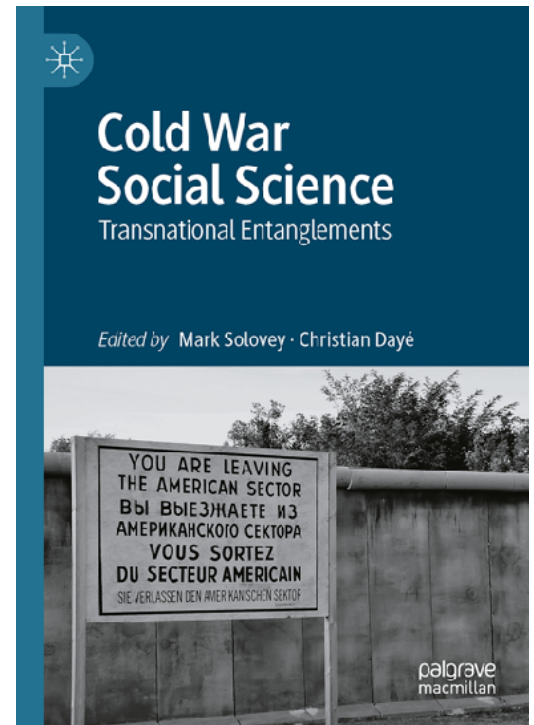
S. Andrew Inkpen and W. Ford Doolittle, *Can Microbial Communities Regenerate?: Uniting Ecology and Evolutionary Biology* (University of Chicago Press, 2022)

Microorganisms are important determinants of health at the individual, ecosystem, and global levels. And yet many aspects of modern life, from the overuse of antibiotics to chemical spills and climate change, can have devastating, lasting impacts on the communities formed by microorganisms. Drawing on the latest scientific research and real-life examples such as attempts to reengineer these communities through microbial transplantation and the use of probiotics, this book explores how and why communities of microorganisms respond to disturbance, and what might lead to failure. It also unpacks related and interwoven philosophical questions: What is an organism? Can a community evolve by natural selection? How can we make sense of function and purpose in the natural world? This primer offers an accessible conceptual and theoretical understanding of regeneration and evolution at the community level.



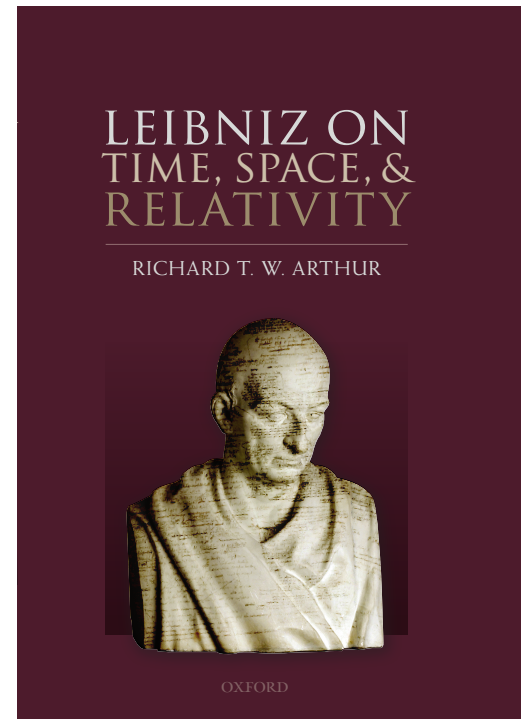
Mark Solovey and Christian Dayé, eds. *Cold War Social Science: Transnational Entanglements* (Palgrave Macmillan, 2021)

This book explores how the social sciences became entangled with the global Cold War. While duly recognizing the realities of nation states, national power, and national aspirations, the studies gathered here open up new lines of transnational investigation. Considering developments in a wide array of fields – anthropology, development studies, economics, education, political science, psychology, science studies, and sociology – that involved the movement of people, projects, funding, and ideas across diverse national contexts, this volume pushes scholars to rethink certain fundamental points about how we should understand – and thus how we should study – Cold War social science itself. The book has four parts: I Exchanges Across the Iron Curtain, II Modernization Theory Meets Postcolonial Nation Building, III Creating Good Citizens, IV Social Science Under Debate. <https://www.palgrave.com/de/book/9783030702458>



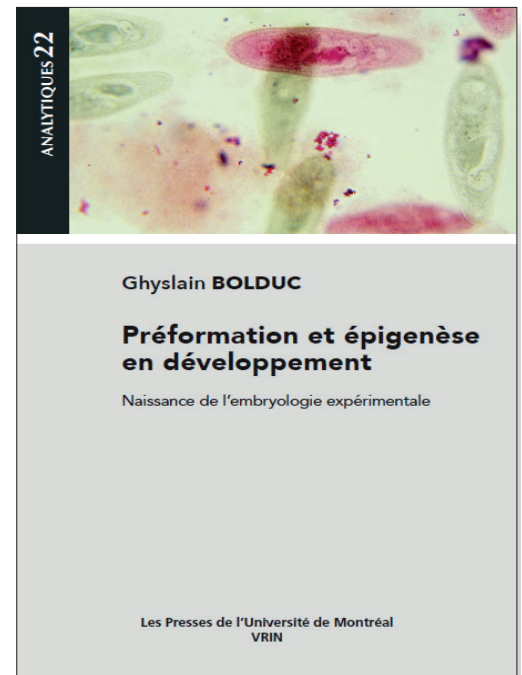
Richard T. W. Arthur, *Leibniz on Time, Space, and Relativity* (Oxford University Press, 2021)

This book gives a thorough treatment of Gottfried Leibniz's theories of time, space, and the relativity of motion. These are analysed in historical context, but also with an eye to their contemporary relevance in the philosophy of space, time, and spacetime. Leibniz's views on relativity have been extremely influential, first on Mach, and then on Einstein, while his attempts to provide a formal theory of space through his *analysis situs* inspired many later developments in mathematics. Arthur expounds the latter in some detail, explaining its relationship to Leibniz's metaphysics of space and the grounding of motion, and defending Leibniz's views on the relativity of motion against charges of inconsistency. Arthur attempts to remedy an under-appreciation of Leibniz's work on time through a detailed discussion of his relational theory of time, showing how it underpins his theory of possible worlds, his complex account of contingency, and his treatment of the continuity of time. Formal treatments, new translations of writings on *analysis situs* and on Copernicanism, as well as an essay on Leibniz's philosophy of relations are included in the appendices.



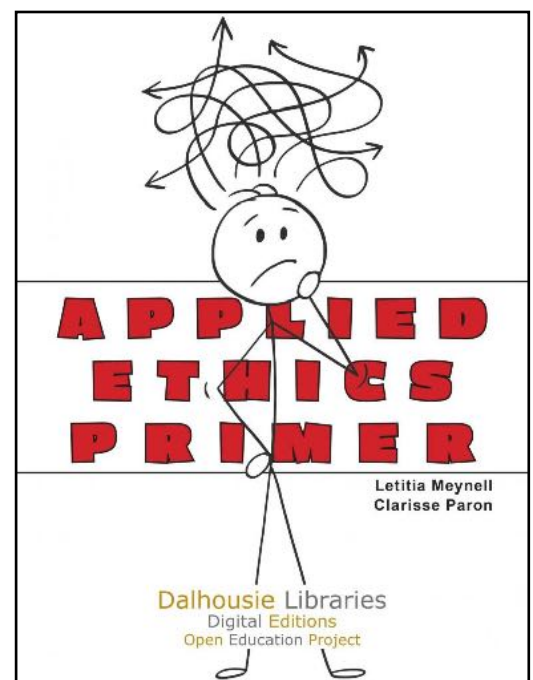
Ghyslain Bolduc, *Préformation et épigenèse en développement: Naissance de l'embryologie expérimentale* (Les Presses de l'Université de Montréal, 2021)

La forme vitale est-elle virtuellement fixée dans le germe ou se détermine-t-elle au cours du devenir embryonnaire? Dans les années 1880, Wilhelm Roux cherche à résoudre ce problème par la création de l'embryologie expérimentale. Au moyen d'une reconstruction rationnelle des étapes historiques de cette discipline, cet ouvrage montre l'importance des concepts de préformation et d'épigenèse aux origines de celle-ci. L'analyse porte sur trois périodes charnières : la réforme mécaniste et darwinienne de l'embryologie morphologique par Ernst Haeckel (1866); l'avènement d'une physiologie réductionniste du développement avec Wilhelm His (1874) ; et la création d'une « mécanique du développement » par Roux ainsi que les interprétations néo-darwinienne, néo-vitaliste et organiciste de ses résultats les plus significatifs (1888-1908). L'auteur y soutient que ces développements suivent une logique de la découverte, selon laquelle les modèles mécaniques d'explication doivent être renouvelés lorsque leur examen empirique engendre la découverte de nouveaux phénomènes de régulation. La méthodologie adoptée ici s'inscrit dans la tradition de l'épistémologie historique, consacrée à l'étude des transformations du savoir scientifique, fondée sur l'analyse historique de diverses sources documentaires. Un éclairage théorique constitué de modèles provenant de la philosophie des sciences et de connaissances scientifiques demeure ici indispensable.



Letitia Meynell and Clarisse Paron, *Applied Ethics Primer* (Open Educational Resource, 2021)

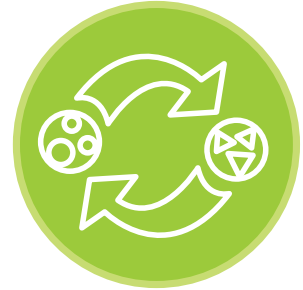
Every applied ethics course requires some brief introduction on ethical theory and moral decision making. This open access educational resource provides a basic introduction to ethical reasoning and ethical theory that is more inclusive than some other similar resources. Although it is generic, so as to support any applied ethics focus, it was initially developed to support a course on ethics in science. The authors have published it as an Open Educational Resource so that it is free to students. Available at <https://caul-cbua.pressbooks.pub/aep/>.



Andrew S. Reynolds, *Understanding Metaphors in the Life Sciences* (Cambridge University Press, 2021)

Covering a range of metaphors from a diverse field of sciences, from cell and molecular biology to evolution, ecology, and biomedicine, *Understanding Metaphors in the Life Sciences* explores the positive and negative implications of the widespread use of metaphors in the biological and life sciences. From genetic codes, programs, and blueprints, to cell factories, survival of the fittest, the tree of life, selfish genes, and ecological niches, to genome editing with CRISPR's molecular scissors, metaphors are ubiquitous and vital components of the modern life sciences. But how exactly do metaphors help scientists to understand the objects they study? How can they mislead both scientists and laypeople alike? And what should we all understand about the implications of science's reliance on metaphorical speech and thought for objective knowledge and adequate public policy informed by science? This book will literally help you to better understand the metaphorical dimensions of science.

UNDERSTANDING
**METAPHORS IN
BIOLOGY**



ANDREW S. REYNOLDS

Member Updates

Mark Solovey (University of Toronto)

Prof. Solovey was promoted to Full Professor as of July 1, 2021 at the Institute for the History and Philosophy of Science and Technology.

Tyler Brunet (Exeter University)

Dr. Brunet has taken up a Leverhulme Trust Early Career Fellowship at the University of Exeter in Egenis (The Centre for the Study of Life Sciences) where he is working with John Dupré on a project that seeks to unify process philosophy and the new mechanism. Dr. Brunet also has a few of recent publications to report: “Local Causation,” *Synthese* 2021, which argues for the use of sheaves—a concept from geometric category theory—in causal models; with Adrian Erasmus and Eyal Fisher, “What is Interpretability?” *Philosophy and Technology* (November 2020), which argues that AI is indeed explainable using the usual forms of scientific explanation; with W. Ford Doolittle and Joseph Bielawski, “The Role of Purifying Selection in the Origin and Maintenance of Complex Function,” *Studies in the History and Philosophy of Science, A* 87 (2021): 125-135; with Marta Halina, “Minds, Machines and Molecules,” *Philosophical Topics* 48, no. 1 (2020): 221-241, which argues against a biocentrism that pervades thinking about subjectivity in the context of artificial minds.

Michelle Pham (Harvard University)

Dr. Pham became a Postdoctoral Research Fellow at the Center for Bioethics, Harvard School of Medicine. She is working on two NIH projects related to ethics and neurotechnologies.

Ian Stewart (University of King’s College)

Prof. Stewart is half-way through a co-directed (with Debra Davidson, University of Alberta) SSHRC Partnership Development project that aims to apply insights from STS and allied fields to

environmental impact assessments (www.Nedia.ca). Philosophers and historians of science who are interested in engaging with contemporary environmental management, please get in touch. Prof. Stewart also has recently published papers on related topics: “The Unavoidable Tension in the ‘Science vs. Policy’ Divide,” review essay of Michael Oppenheimer et al., *Discerning Experts: The Practices of Scientific Assessment for Environmental Policy*, in *Proceedings of the Nova Scotia Institute of Science* 51, no. 1 (2021): 203-9; with John Cherry and Moira Harding, “Groundwater Contamination Science and the Precautionary Principle,” in M. Abrunhosa et al. (eds.) *Advances in Geoethics and Groundwater Management: Theory and Practice for a Sustainable Development* (Springer Nature, 2021): 17-21.

Dani Inkpen (Mount Allison University)

Prof. Inkpen was hired as an Assistant Professor in the Department of History at Mount Allison University, effective July 1, 2022.

Agnes Bolinska (University of South Carolina)

Prof. Bolinska was hired as Assistant Professor in Philosophy at the University of South Carolina. News of her hire was overshadowed by the early days of the pandemic and so we happily acknowledge it here!

CSHPS 2021 AGM Minutes

June 2, 2021 Online

In attendance: Alan Richardson, Paul Bartha, Gabriel Miller, Ingo Brigandt, Doreen Fraser, Molly Kao, Aditya Jha, Agnes Bolinska, Allan Olley, Dani Inkpen, Daniel Saunders, Danielle Brown, Ellie Louson, Ernst Hamm, Fiona Amery, Gordon McOuat, Isaac Record, Jacob Neal, James Elwick, Jessica Oddan, Lesley Cormack, Maria Amuchastegui, Mark Solovey, Michelle Pham, Mike Stuart, Philippe Verreault-Julien, Pierre-Olivier Methot, Rachel Katz, Tara Abraham, Theo Di Castri, Vincent Auffrey, Vivien Hamilton, Zeyad El Nabolsy, David Orenstein, Arjun Sawhney

CSHPS President Alan Richardson calls meeting to order

Land acknowledgement.

1. Approval of agenda:

- Tara Abraham moves
- Lesley Cormack second
- Motion passes

2. Approval of 2020 AGM minutes:

- Corrections to 2020 minutes (Lesley Cormack): Lesley Cormack reported on our annual report to NRC and membership in DHST and DLMPST, including a Canadian delegation for the DLMPST meeting pending
- Correction to 2020 minutes: add Maria Amuchastegui to list of attendants
- Ernie Hamm moves to approve minutes
- Agnes Bolinska second
- Motion passes

3. Report from CFHSS by Gabriel Miller

- Land acknowledgement
- Background info: the many roles of Congress

- Remote format for 2021: challenges and benefits (Congress seeks feedback)
- DEID (diversity, equity, inclusion, and decolonization) concerns: non-participation by some groups, criticisms of Congress indicate need for greater membership
- Report on DEID released in May; conclusions endorsed by Congress; new money to support equity initiatives; new DEID standing committee to ensure implementation of report
- Changes will take many years; opportunities for involvement and dialogue; input sought from individual Congress organizations
- Annual meeting June 23/21; will discuss plans for Congress 2022 (no announcement yet)
- Question (David Orenstein): Congress needs to address concerns about copy write laws and independent researchers

4. President's Report (Alan Richardson):

- See report
- Highlights: gratitude to PC, LAC, CSHPS officers; some interest in continued use of online platforms - e.g., mentoring sessions or specialized interest group meetings; broad concerns about academic life in Canada
- Comment (Tara Abraham): endorses use of CSHPS to create opportunities for informal and/or structured online interaction (esp. for grad students) throughout the year
- Comment (Dani Inkpen): focused, single-day seminars work well as online events
- Comment (David Orenstein): CSHPM holds such events regularly
- Pierre-Olivier Methot moves to approve report
- Mark Solovey second

- Motion passes

5. Executive Decision to hold CSHPS 2021 at Congress and EDI concerns (Alan Richardson)

- EDI concerns: some organizations did not participate over these concerns
- Exec shared and discussed these concerns
- Decision made to participate (2020 meeting was cancelled; our mandate is to support CSHPS community in Canada; managing independent online event would have been too difficult). Comments welcome
- Hope to learn more at June 23 meeting.

6, 7. Secretary & Treasurer Reports (Paul Bartha)

- See reports

Treasurer Report

- Ernie Hamm moves to approve Treasurer Report
- Agnes Bolinska second
- Motion passes

Secretary Report

- Question (Dani Inkpen): geographic distribution of members? Tara Abraham: membership committee should be able to share data later
- Molly Kao moves to approve Sec Report
- Dani Inkpen seconds
- Motion passes

8. Programme Committee Report (Molly Kao)

- See report
- Comments (Molly Kao): send her corrections for final version of program
- Comments (David Orenstein, Vincent Auffrey): very successful conference; congratulations to organizers
- Ernie Hamm moves to approve
- David Orenstein second
- Motion passes

9. Hadden Prize (Molly Kao)

- Prize awarded **Vincent Auffrey** for paper, "Pour l'amélioration de la race humaine:

The Reception of Eugenics in the French-Canadian Press, 1912-1921"

- Honourable mentions: **Jacob Neal**, "From Static to Dynamic: A Historical Account of the emergence of the Dynamic View of Proteins" and **Daniel Saunders**, "How to Put the Cart Behind the Horse in the Cultural Evolution of Gender"

10. Local Arrangements (Ingo Brigandt)

- See report
- Comments (Ernie Hamm, David Orenstein): appreciation for effort so organizers
- Molly Kao moves to approve
- Mark Solovey second
- Motion to approve passes

11. Communiqué report (Jaipreet Viridi not present)

- See report
- Comment (Alan Richardson): thanks to Jai who is stepping down; lots of work has gone into it; participation welcomed from those with expertise in layout
- Comment (Dani Inkpen): moving into production role, welcomes support
- Pierre-Olivier Methot moves to approve
- Dani Inkpen second
- Motion to approve passes

12. Webmaster report (Allan Olley)

- See report
- Comment (Allan Olley): Send news and announcements (e.g., CFP) to Allan
- Vincent Auffrey moves to approve
- Mark Solovey second
- Motion to approve passes

13. Social Media Report (Anthony Nairn not present)

- See report
- Comment (Ellie Louson): CSHPS Facebook group has been quiet, likely to stay dormant until in-person meetings (comment made under item 11 but intended for item 13)
- Allan Olley moves to approve
- Isaac Record second
- Motion to approve passes

14. Nominating Committee Report (Pierre-Olivier Methot)

- See report for names of nominees
- No local arrangements coordinator yet (no location for Congress 2022)
- Comment (Ingo Brigandt): corrected report should locate AGM at U of Alberta
- Ernie Hamm moves to approve amended report
- Mark Solovey second
- Motion to approve passes

15. Further nominations from the floor and election

- Call for nominations. None
- Election results: Approved

Other business

- Tara Abraham: thanks to nominating committee
- Agnes Bolinska moves to adjourn meeting
- Allan Olley second
- Motion to adjourn passes

Meeting adjourned

Submissions

Submissions and inquiries should be emailed to csbps.communicue@gmail.com

Issues are published twice a year: in autumn and spring. Submissions are welcome and may be sent in both official languages. We welcome submissions in the following categories:

Announcements: details about conferences, workshops, job openings, department or program news, and calls for papers.

Research & Pedagogy: launches of new and innovative research or techniques used to teach HPS, or original topics addressed in classes and seminars. We are especially interested in digital humanities projects and pedagogies that prioritize student engagement. Descriptions should be no more than 800 words.

Reports: we are interested in receiving short reports (500 words max.) from conferences or workshops our members have attended, together with photos they would like to share with us.

In Conversation: we encourage graduate students and early career scholars to contact the editors if there is an individual you would like to interview for Communiqué. We are looking, especially, for interviews of scholars who adopt intersectional approaches to HPS or explore non-traditional scholarly avenues.

Artwork & Photos: we welcome submissions of all original art and photos, especially for the cover.

Member Updates & New Books: Please ensure the book write-ups are no more than 200 words and include a high-resolution image of the cover.

We aim to keep the HPS community abreast of what is going on in the field, in Canada and abroad. But we need your contributions if we are to share your news with the CSHPs community. The newsletter is only as robust and effective as we make it. Thank you for your contributions.

REMINDER TO RENEW/RAPPEL DE COTISATION

This is a good time to remind members that the 2021 memberships are about to expire, so it is time to renew for 2022. To attend or participate in annual meetings, you need to be a member in good standing: <http://www.yorku.ca/cshps1/join.htm>

Le moment est venu de rappeler à nos membres que leur affiliation pour 2021 vient d'arriver à son terme et qu'il est donc temps de renouveler leur adhésion pour 2022. Pour assister et/ou participer au congrès, vous devez être à jour dans votre cotisation: <http://www.yorku.ca/cshps1/join.htm>