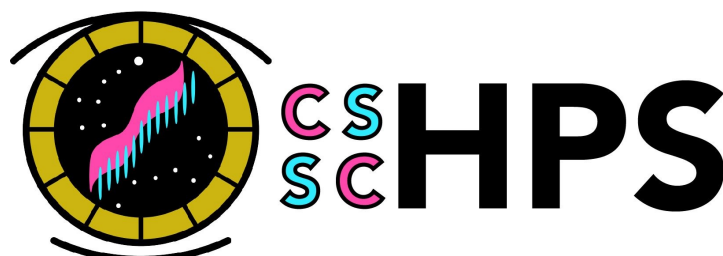Cover Image: "Coronavirus Communications" by Kira Lussier. A collage almost entirely made out of *Globe & Mail* news clippings from March-June 2020.

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Communiqué

Nº 102 Autumn/Automne 2020

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This "New Normal"

We might have adapted to lockdowns, mask-wearing and zooming,
but this way of life cannot be sustainable.

I don't know about you, but I am completely exhausted.

In August, as the number of COVID-19 cases continued to rise, many universities, colleges, and schools implemented measures for remote learning. As a deaf scholar who works on accessibility, I was asked to test out various captioning apps and provide expertise reports for several organizations; I even shared my recommendations publicly on Twitter (using the hashtag #AcademicTwitter) because I wanted to ensure that educators and conference organizers were considering access when planning for ways to deliver virtual content. This wasn't unusual: many academics were exchanging tips and tricks for improving their lecture videos: sharing details for using Open Broadcasting System, advising on which technology to purchase, and outlining strategies for building asynchronous LMS content. Through mutual aid, we were rallying together to make the best of the remote learning situation.

Meanwhile, as universities and colleges began to addresss their dire financial circumstances, layoffs, furloughs, and "voluntary" retirement became a looming threat—even as spending increased for safety measures, including rigorous cleaning of campus facilities, daily mandatory self-assessment tests, and PPE for employees. Academic parents faced the incredible challenge of teaching from home and supervising their children's education. This virtual digital world came with even more challenges, in the form of failed wi-fi connections, regular technology disruptions, and the fatigue attendant on synchronous e-learning.

This is our "new normal."

But there is nothing normal about this. We might be coping and processing, but this situation is exacerbating structural inequalities—in academia as well as in society more broadly. The situation might differ between nations, but there are commonalities: a rise in poverty and migrant displacement, and a stark revelation of how fragile the situations of contingent faculty are.

In the last issue of *Communiqué*, I expressed that it was crucial for the newsletter to become a platform for addressing relevant social issues facing our CSHPS body. To do justice to this new mandate necessitated expanding the editorial team. For the first time, *Communiqué* has more than two editors. Please join me in welcoming Francophone co-Editor Ghyslain Bolduc, Associate Editors Geoff Bil, Kira Lussier, and Sarah Qidwai, and Assistant Editor Léa Derome. Together, we have brainstormed how to transform this newsletter into a diverse and inclusive platform that directly engages with contemporary concerns. As a result, this issue is possibly the largest issue to go to print, a whopping 50+ pages of original content, advice, reflections, resources—and celebration, because despite the despair, we must always find moments of joy.

Jaipreet Virdi, Editor
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Crises, science et démocratie

En rendant compte des fondements et des conditions d'application de la rationalité scientifique et critique, les historiens et philosophes des sciences peuvent jouer un rôle prépondérant dans notre prise en charge collective de ces fenêtres de possibilités « curatives » que sont les crises.

C'est avec enthousiasme que je succède à Catherine Rioux en tant co-rédacteur francophone de Communiqué. D'abord parce que le bulletin m'apparaît un outil de diffusion et de mobilisation qui peut aider nos membres à relever les défis épistémologiques, sociopolitiques et institutionnels du moment présent; ensuite parce que je me joins ainsi à une équipe éditoriale fraîchement formée qui déborde de motivation et partage une vision à la fois cohérente et diversifiée.

Dans le cadre de ce volume, nos choix éditoriaux ont été faits en réponse aux « crises » que nous subissons collectivement et dont l'interconnexion n'a peut-être jamais été aussi manifeste. Alors qu'en surface est souvent compris le devenir des sociétés modernes comme une succession de crises plus ou moins distinctes (« crise financière », « crise des opioïdes », « crise du logement », « crise constitutionnelle », « crise des gilets jaunes », etc.), la mise en lumière de leurs relations révèle plus profondément leur emboîtement et enchevêtrement cyclique. Ainsi, la résolution d'une crise subordonnée – un « retour à la normale » – cache trop souvent le déni ou l'accommodement d'un palier critique supérieur dont les effets délétères ne tardent pas à se différencier sous la forme de nouvelles crises particulières. C'est dans cette optique que la crise sanitaire actuelle a été associée plus d'une fois à la crise écologique et à la mondialisation à outrance de l'économie. C'est aussi dans cette optique que nous réunissons au sein de ce volume deux thèmes qui à première vue semblent bien éloignés : la pandémie de covid-19 et l'antiracisme. Et pourtant, le racisme systémique n'est-il pas la manifestation de structures de domination, de privilèges et d'inégalités historiquement constitués que la crise sanitaire actuelle a non seulement mis en évidence, mais renforcés?

Après des mois de confinement, l'historien des sciences Alexandre Klein partageait justement le 17 juin dernier ses réflexions sur la notion même de crise. Renvoyant aux origines hippocratiques de celle-ci, il rappelait que les médecins qualifiaient de crise la courte période pendant laquelle se décidait le devenir de la maladie concernée, et par le fait même le sort du malade. Reprenons cette analogie médicale : face à cet imposant réseau de crises emboîtées dont les natures individuelles sont des plus diverses, ne revient-il pas, en partie, aux communautés scientifiques de toutes disciplines confondues, de même qu'aux philosophes, de porter des diagnostics et prescrire des traitements? Et alors, n'appartient-il pas aux historiens et philosophes des sciences non seulement d'analyser les fondements épistémiques de cette pratique, mais aussi de justifier rationnellement et publiquement le rôle et le statut de ces savants? À cet égard, je ne peux que renchérir, à la suite d'Alan Richardson ,

sur l'importance de consolider les programmes existants en histoire et philosophie des sciences et de multiplier les embauches et les initiatives dans ces domaines au sein des institutions d'enseignement et de recherche. Alors qu'une certaine méfiance envers le discours scientifique s'accentue, l'avenir même de nos démocraties repose en partie sur la transmission d'éléments épistémologiques et critiques et d'une certaine culture scientifique à l'ensemble de la société civile. S'il revient, comme le souligne Nicolas Bernier dans ce volume, aux décideurs de justifier en toute transparence la mise en place de politiques publiques sur la base d'une hiérarchie de valeurs et d'une organisation interprétative

de données hétérogènes, un travail pédagogique de grande envergure conditionnerait en amont une réception éclairée et critique de ces politiques, et cela au bénéfice de la vie démocratique.

Le bulletin peut sans doute servir de lieu d'échanges, voire de débats, autour de ces enjeux afin que la SCHPS et ses membres anglophones et francophones portent cette cause d'une voix commune. Mobilisons-nous pendant que ces fenêtres de possibilités « curatives » que sont les crises du présent soient encore ouvertes!

Ghyslain Bolduc, Co-Editor
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Dear Members,

The new academic year has begun. The circumstances of it are not what we would have hoped or expected even just a few months ago. Everyone is feeling overworked, under-resourced, worried about a million things. It is hard to think about teaching or research; it is hard to think about anything else.

Here are CSHPS, we are working closely with the Federation in the early planning stages for Congress 2021. We will know by early November if we are looking at an online, hybrid, or in-person Congress. We are committed, no matter what, to having a robust CSHPS 2021 meeting in conjunction with Congress. We are grateful to Ingo Brigandt for looking after local arrangements and to Molly Kao for once again chairing the program committee.

The CSHPS officers are especially concerned about our members who are graduate students, or independent or precarious scholars. In addition to everything else, these members must contend with academic job markets that are sinking to historic lows even as a number of methodological and theoretical approaches in the humanities are under intense political attack. We really must commit to not losing a generation of scholars in history and philosophy of science. As individual scholars we can explain the value of our perspectives, especially in a world in which the need for and vagaries of science communication are set in stark relief every day. As an association, we need to think about community-building and mentoring activities we can engage in throughout the year. I urge any member with ideas to be in touch with me.

One of the major advances in the CSHPS world continues to be *Communiqué* itself. This is our largest issue in living memory, perhaps of all time. We all owe a debt of gratitude to Jai Virdi and her entire editorial team for the work they do to keep us all informed.

Alan Richardson, CSHPS President
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CSHPS News

Lesley Cormack takes on new role at UBC Okanagan

As of July 1, 2020, Professor Lesley Cormack joined the University of British Columbia Okanagan campus as the new Deputy Vice-Chancellor and Principal. Professor Cormack brings decades of administrative and teaching experience: she held previous positions as Dean of the Facutly of Arts at the University of Alberta (2010-2020), and Dean of the Faculty of Arts and Social Science at Somon Fraser University (2007-2010).

2020 Hadden Prize: Maria Amuchastegui

Congratulations to Maria Amuchastegui, whose paper, "The Discovery of Binary Numeration: Leibniz, Caramuel, and the New World," was selected for the 2020 Hadden Prize! Amuchastegui is a PhD student in Humanities at York University, where she previously obtained an MA in Science and Technology Studies. She has worked as an IT consultant, educator and freelance writer.

Amuchastegui's paper provides a more nuanced interpretation of binary numeration. Leibniz claims, in his 1703 *Explication de l'arithmétique binaire*, that he invented binary numeration, a claim that has remained largely unchallenged. Most histories of mathematics and computer science credit Leibniz with the discovery of the numbering system that would later form the basis for modern computers. Although the priority dispute between Leibniz and Isaac Newton over the invention of calculus has been extensively studied, the dispute over the discovery of binary numeration has received little attention. Juan Ares, María Aurora Martínez, Juan Alfonso Lara, and David Lizcano contend that Leibniz plagiarized the Spanish scholastic philosopher Juan de Caramuel y Lobkowitz (1606-1682), who was in turn inspired

by New World accounts of alternative numbering systems, in particular the counting practices of the Guaraní Indians of Paraguay.

Reinterpreting Ares et al.'s allegation, Amuchastegui argues a close reading of primary texts is required to reconstruct the chronology of events. In addition to settling the priority dispute, the reason that Leibniz's claim has prevailed, while Caramuel's claim has remained largely unacknowledged, also needs to be interrogated. Answering this question requires an examination of the relationship between centres and peripheries, as well as the role of institutions in legitimating knowledge claims. Finally, the connection between Caramuel's insight and the discovery of the New World demands further investigation. Unusually for his time, Caramuel insisted that indigenous counting practices constituted mathematical knowledge. It is a commonplace that the discovery of the New World led to a burgeoning of scientific knowledge. In what ways did the discovery of the New World inspire Caramuel to develop his theory of numeration, his notion that there exists a plurality of possible arithmetics?

How can Historians Help with the Pandemic?

How can historians help with the pandemic (see May issue of *Centaurus*)? Donald Forsdyke (Queen's University, Kingston) has extensive webpages on Samuel Butler, George Romanes, William Bateson and – of particular significance in COVID times – Romanes' mentor, John Burdon Sanderson (1828-1905). The account in the 1860s of the rapidly spreading cattle plague (rinderpest) by "England's Pasteur" was scrutinized by the politicians no less intently than they today scrutinize accounts of the rapidly spreading coronavirus. For more on this please see an invited "op-ed" that he has submitted for the October Newsletter of the History of Science Society.

Also, a new series "Classics in Biological Theory" edited by Richard Gawne, seeks "recognition that looking backward can sometimes help us determine how to move forward." Here, Forsdyke has contributed a foreword to Kingston-born George Romanes' great 1886 Linnean Society address (see: *Biological Theory* 15, 143-147). This relates to Darwin's great question – the origin of species, which today concerns informational aspects of genomes and the origin of viral species (e.g. *Microbes and Infection* 16, 96-103).

Finally, when messengers are not authors of messages they bear, they should not be praised for the novelty of ideas in the messages. Forsdyke has made a case that certain accolades bestowed upon Peter Medawar and Erwin Schrödinger for their respective contributions to theories of aging and of informational aspects of genomes, should rightly be assigned to the Victorian polymath, Samuel Butler (see *Biological Theory* 15, 50-55).

New Open Access Journal: Philosophy of Medicine

The mission of Philosophy of Medicine is to serve as the flagship journal for the field by advancing research in philosophy of medicine, by engaging widely with medicine, health sciences and the public, and by providing open-access content for all.

Financial support for the journal is generously provided by the Center for the Philosophy of Science at the University of Pittsburgh and the Faculty of Humanities at the University of Johannesburg.

Website: https://philmed.pitt.edu

CSHPS News

Meet the New Communiqué Editors

Diplômé en philosophie de l'Université de Montréal (Ph. D.), Ghyslain Bolduc a soutenu une thèse doctorale d'épistémologie historique en 2017 sous la supervision de François Duchesneau. Il y a étudié le renouvellement de l'opposition conceptuelle entre la préformation et l'épigenèse aux origines de l'embryologie expérimentale.

Après s'être consacré à l'enseignement de la philosophie pendant deux ans au Collège Édouard-Montpetit (Longueuil, Qc), il effectue depuis septembre 2019 un séjour postdoctoral à l'IHPST de Paris sous la supervision de Philippe Huneman. Ses recherches actuelles portent sur les heuristiques mécanistes et vitalistes, de même que sur les liens entre l'embryologie expérimentale et la naissance de l'épigénétique.

Geoff Bil is a historian of science and Visiting Assistant Professor in the Department of History at the University of Delaware, specializing in 19th- and 20th-century botany, anthropology, empire, Indigenous history and environmental history. His first book, *Indexing the Indigenous: Plants, Peoples and Empire* (under contract with Johns Hopkins University Press), examines the history of Western engagements with Indigenous knowledge, with particular emphasis on the varied ways that Indigenous plant names have figured in metropolitan botany and anthropology.

Kira Lussier is a historian of science, technology, and business. She is a postdoctoral research fellow at the University of Toronto Mississauga's Institute for Management and Innovation and an affiliated researcher at the Technoscience Research Unit and Rotman's Institute for Gender and the Economy. She holds a PhD in the history of science from the University of Toronto. Her current book project, "Personality, Incorporated," is a cultural history of psychological testing in 20th-century North American science, business, and society. Her writing has appeared in *Slate, The Conversation, Aeon, History of Psychology, Journal of the History of the Behavioral Sciences*, and *Business History Review.*

Kira Lussier

Sarah Qidwai

Sarah A. Qidwai is a PhD candidate at the University of Toronto, where she is working on a dissertation on the history of science and Islam in British India. Her thesis examines a historical figure in South Asia, Sir Sayyid Ahmad Khan (1817-1898), and argues that he could be considered a popularizer of science in India.

Léa Derome is a PhD candidate in philosophy at McGill University. Her main research interests center around Aristotle, particularly his psychology and biology.

Léa Derome

Conference Summaries

CSHPM Online Summer Colloquia
David Orenstein (TDSB, Retired)

By the time you read this, the Canadian Society for the History and Philosophy of Mathematics (CSHPM) will have held four Online Summer Colloquia. Two on History of Math and two on Philosophy of Math. Sessions were open to CSHPM members as well as the broader scholarly community. The talks lasted 30 minutes, followed by a Q&A.

KARINE CHEMLA (Université de Paris) delivered the inaugural talk on July 24: "The shaping and reshaping of languages and texts for mathematical activity. Views from China." Even setting aside symbolic language, mathematical work is not carried out in any "natural language," but actors have always shaped languages, and more generally cultures. In ancient China mathematical language was influenced by the literary language with which it was practiced. In these settings, actors inherited language practices and reshaped them in relation to the work they were carrying out. Artificiality lay in the syntax of the language used for a certain purpose, and in textual practices designed to enable work towards goals.

Then BRENDA DAVISON (Simon Fraser University) talked about "Divergent series and Numeric Computation" on August 7. In 1856, G.G. Stokes used divergent series to compute many values of the Airy integral. By convergent series it was too laborious. What led Stokes to use this method? What physical problems were solved? How Stokes justify it? How were the results verified?

On August 21, JAMIE TAPPENDEN (University of Michigan) gave the first philosophy talk: "Frege on Computation and Deduction: Herbart, Fischer and 'Aggregative, Mechanical Thinking'." A close reading of the opening and concluding pages of "Grundlagen" shows Frege established the nature of arithmetic (and mathematics more generally) as deductive (Johann Herbart) rather than computational (Kuno Fischer), binding together the deductiveness of mathematical reasoning, the fine structure of mathematical concepts, explanation and the possibility (due to the fruitfulness of mathematical concepts) of extending knowledge via deduction alone. Frege's rejection of Fischer's picture by a broader opposition to Fischer's dismissive stance on the value of thinking in arithmetic. Frege's effort to define number in "Grundlagen" would have been recognized by his readers as a clear

example of "working out" in Herbart's sense.

JEAN-PIERRE MARQUIS (Université de Montréal) delivered the last summer talk on Sept. 4. "On Mathematical Style," a short talk exemplified by Bourbaki's mathematics. The main goal is to capture the "structuralist style" of mathematics, but also to provide a general and supple framework to capture other types of style. A style in the sense proposed has an inherent epistemic component and is not merely an aesthetic addition to a discourse.

The series will probably continue into the Fall, with its format and schedule still to be decided.

Mathematics in Times of Crisis: A BSHM Conference
David Orenstein (TDSB, Retired)

On Monday 6 July 2020 the British Society for the History of Mathematics (BSHM) hosted an online conference around the pandemic-inspired theme, "Mathematics in Times of Crisis." It was the second academic conference I attended during the Ontario public health lockdown. The first was the rescheduled graduate student conference, at the University of Toronto's Anne Tanenbaum Centre for Jewish Studies back in May.

There were three themed sessions: Individuals, Crises in Math, and Math Community Responses. For each session, there were three or four pre-recorded lectures that were posted the day before, and a live to screen Question and Answer session. The lectures are still available for viewing and the program is posted on the BSHM website.

The Q&A sessions were well attended, with participants ranging in time zones from at least Vancouver to Warsaw. The discussion was quite lively. I even engaged in a couple of the more heated ones myself, especially when I challenged Michael Barany on his evaluation that the 1924 International Mathematical Congress in Toronto was a failure. As a result, Michael and I will continue this debate in the December 2020 issue of CMS NOTES (published by the Canadian Mathematics Society).

I saw that several Canadian and American scholars were in attendance. Thus, when the Canadian Society for the History and Philosophy of Mathematics launched its own Online Summer Colloquia, I shared the relevant information with the BSHM, who in turn sent it out to its members, thus fostering international cooperation. By the way, such cooperation was the overarching theme for the 1924 Toronto IMC—But that's another story.

2021 DHST Dissertation Prize
Call for Applications

The International Union of the History and Philosophy of Science and Technology, Division of History of Science and Technology, invites submissions for the sixth DHST Dissertation Prize to be presented in July 2021. Up to three awards for recent Ph.D. historians of science and technology will recognize outstanding doctoral dissertations completed and filed between 1 September 2018 and 1 September 2020.

The Prize does not specify distinct categories, but submissions must be on the history of science, technology, or medicine. The Award Committee endeavors to maintain the broadest coverage of subjects, geographical areas, chronology and civilizations (African, North American, South American, Asian, Islamic, Western and Ancient Civilizations, and others not included in this list).

Prizes consist of a certificate, waiver of registration fees, assistance with travel and accommodation expenditures to the IUHPST/DHST Congress in Prague in July 2021.

The deadline for applications is **1 October 2020**, (22:00 GMT).
For more information: http://dhstweb.org/awards/dhst-dissertation-prize

The BSHS Global Digital History of Science Festival

Charlotte Sleigh (President, BSHS)
Contact: charlottelsleigh@gmail.com

Every triumph needs an outrageous set up.

"Hey, how about we organise a festival that's ten times the size of our normal annual conference, using new and uncertain technology, and deliver it all within 100 days?"

In the event, the British Society for the History of Science's (BSHS) global digital history of science festival ran from 6-10 July, featuring around 50 hours of content; it attracted almost 1500 people from 59 countries, and gained a reach on Twitter (according to Twitter's own metrics) of 3.5 million. And yes, the whole thing was developed and delivered within one hundred days of the first tentative suggestion.

This was not an attempt to move a normal conference online, but a chance boldly taken to do something very different – different in medium and content, in finance, and in politics.

Internet media have become a necessity for us all in the current pandemic, but their adoption is a trend that's been coming for a long time. The BSHS, like its constituent members, is carefully considering how to revise professional practices to make best use of them. Council had already begun thinking about their use in the context of a proactive response to the climate emergency. Our Twitter conference, in February 2020, was a first step in this direction, and brought together the right people to start talking about the things that were to bear such fruit for us in July. The festival trialled a number of formats, including lightning talks, virtual gallery tours, discussion forums and even panel games. For the first time ever, there were also two events specifically aimed at children. Long-form keynotes were reduced a little, to around 40 minutes, and the audience submitted questions in text form as the talk went along. These were addressed as usual at the end of talk; arguably, though, the text format reduced the anxiety that some people can feel asking aloud in a large lecture hall.

Most of the sessions were conducted by the participants on Zoom, and broadcast using Crowdcast platform. From the viewer's perspective, one simply clicked through from the online festival programme to the Crowdcast interface – a very straightforward way to attend events. (If you didn't attend the Festival because you were put off by the technology, please come along next time – it is easier than you think!) Crowdcast feels very much like YouTube except that it lacks pestering adverts, and splits audience response into two areas rather than showing a single stream of comments. By clicking the 'ask a question' button, viewers could ask something directly of the speaker. Meanwhile a sidebar stream of chat was a space for viewers to share relevant web links, ask questions that they thought were too trivial for the formal Q&A, and sometimes just make jokey comments. It was noteworthy that throughout the entire festival, use of chat and social media was unfailingly polite and positive – not to say appreciative.

Early on, the BSHS chose to make the festival completely free to attend. Our aim was two-fold. First, we hoped to increase our reach to academic participants for whom cost (or visa arrangement) is a barrier– albeit digital participation is not completely open and universal. By the magic of the Crowdcast metadata, we were able to see that we did indeed get excellent global participation; sub-Saharan Africa and Eastern Europe were the exceptions to this. By making the festival free, secondly, we hoped to engage some casual visitors who wouldn't class themselves as scholars in the field. It was hard to gather data on this but the anecdotal signs seem good.

Along with increasing participation from the global south, the festival was an opportunity to interrogate – against the #BlackLivesMatter backdrop of the global north – what a global history of science might be. Rather than treating non-Western science as an adjunct to the main

story, the festival's participants did substantial intellectual work in re-envisioning accounts of science past. Both established and developing scholars in the field took on the task of thinking about how to create histories that are intellectually credible and politically responsible. This aspiration is widespread, but – speaking personally – this was the first academic event for a long time which, I felt, went beyond presenting new studies leading to predictable conclusions. I sensed that I did not know enough: that there are scholarly changes afoot, embedded in a reflexive consideration of academic practice; and that my own training (thus far) is insufficient for the work that lies ahead. In short, I was unsettled and excited. It was noteworthy that the festival had a greater intellectual presence of early-career researchers than usual, and I think that this accounted in large part for its scholarly ambition and risk-taking. I very much hope that, at future events, we will have greater participation from senior players in the field – with their attention to listening at least as much as talking.

There will be a longer reflection on the intellectual and academic legacy of the festival in a forthcoming article in the *British Journal for the History of Science*. Additionally, the Society hopes to make available some of the more practical lessons learned – publication forum yet to be decided at the time of writing. Meanwhile, I'd like to highlight the extraordinary vision and focus of the BSHS festival team that brought this idea to reality, led by Nicola Sugden on the tech side, by Sarah Qidwai on content, and managed overall by Sam Robinson. It's worth emphasizing that the majority of the team were early career researchers and postgraduates, with enthusiastic support from more senior colleagues who sensed the value of their intellectual and practice-based leadership. All their labor was conducted on a voluntary basis – for which the Society owes them profound thanks.

6th Notes and Records Essay Award

Are you a researcher in the history of science, technology and medicine? Have you completed a postgraduate degree within the last five years? If the answer to these questions is "yes," you can enter our Essay Award for a chance to win £500 (or local currency equivalent) and publication of your winning essay in our history of science journal Notes and Records. One runner-up will also receive £250 and there will be £100 prizes for an additional three honourable mentions. All winning categories will benefit from a free online subscription to Notes and Records for one year.

The deadline for applications is **28 February 2021**

For more information:
https://royalsocietypublishing.org/rsnr/essay-award

Career Corner

Jonathan Turner outlines best practices for implementing diversity, inclusion, equity, and access in hiring candidates as an overall strategy to dismandle colonial and capitalist systems that perpetuate inequality.

Once we have a cure and/or vaccine for COVID-19, we will face two pressing global, human-caused, challenges. One of these challenges is climate change, which I can't say much about in a career-focused column, and the second is improving equity, diversity, inclusion, and access. So, let's focus on the latter cluster in this column, and start from the assumption that we are interested in improving inclusion and access in postsecondary education as both a place of learning and employment. We'll also assume that we all agree that the significant discrepancies of access and inclusion are the legacies of colonialism and capitalism. With that in mind, let's review some of the best practices and research on inclusion and access.

Diversity statements, both from an employer, and candidates in a recruitment process are increasingly common. If we want to avoid these being empty performances, then we have to think about the steps we're taking so that diverse students and employees have everything they need to succeed and feel welcomed when they arrive. There are five steps to this.

First, there is extensive research in how to construct requests for applications, rubrics for reviewing applications, and interview questions to create an inclusive and accessible process. G. Stoney Alder and Joseph Gilbert and Taren Stinebrickner-Kauffman cover ways to construct job postings, and Michael A. Campion, David K. Palmer, and James E Campion and Mark Cook explain the value of structured interviews with deliberate questions about diversity.

Second, we must ask: who is reviewing the applications? Are they aware of their own biases and assumptions about candidates? Are there structures in place to either anonymize applications to prevent bias (please don't call this process "blinding"), or, perhaps better, are there systems in place that will level the playing field? For instance, if you have a set of applicants to undergraduate studies from northern indigenous communities who likely did not have access to a comprehensive secondary education, are they admitted to a bridging program that both prepares them for university and supports them throughout their ensuing undergraduate and graduate studies (e.g. the one at University of Manitoba)?

Third, are we ensuring that at least two of the candidates in the pool being interviewed are Black? Indigenous? (Please don't set up a process so that Black and Indigenous candidates must vie for a single diversity spot.) Stefanie K. Johnson , David R. Hekman, and Elsa T. Chan found that having at least two women, or two racialized folks, in a hiring pool drastically increased the chances of hiring one of them.

Fourth, interview processes are bi-directional, and so individuals from equity-deserving groups are going to want to see themselves represented in the group interviewing them. If the panel is all white men, then it says a lot about who has power in the unit, how intentional and thoughtful the department is, and what service work above and beyond core responsibilities this individual will have to take on when they arrive. If there are no Black or Indigenous folks to include in interview or selection committees, then start building intentional relationships with other units and teams.

Fifth, don't tokenize. If we only have one individual from an equity-deserving group, don't

expect them to constantly be in pictures of the department, to speak up for all equity-deserving groups, or to even be a representative for all people in the same equity-deserving group. They are probably already doing unseen labour in supporting equity-deserving students if they are a staff or faculty member. This means that the white and male folks in a team need to speak out against racism, misogyny, homophobia, colonialism, ableism, transphobia, etc., but without speaking over community members from equity-deserving groups.

There are limitations to these five best practices, and the core limitation starts with the school's diversity statement. The most alarming aspect of research conducted by Dr. Sonia Kang wasn't that racialized folks have been whitening their resumes for years to get through hiring processes; it was the fact that employers who proclaimed themselves a champion of diversity were just as likely to prefer whitened resumes as employers who made no such claim. Ruha Benjamin's work, similarly, highlights how data sciences, artificial intelligence, and machine learning all perpetuate anti-Black racism. This research helps explain Black, Indigenous and people of colour are less likely to trust application processes that request information about their diversity. Better relationships with equity-deserving communities can lead to improved diversity statements, and more intentional data collection and storage.

As we've discussed, passive inclusion—for example copying the standard diversity statement into a job ad—is necessary, but not sufficient. Recruitment processes should pursue more active forms of inclusion, with anti-racist, feminist, and decolonizing lenses, in order to enact systemic changes that will recognize existing diversity of lived experiences and enact meaningful access and inclusion, in order to achieve equity. This is a shared responsibility and an imperfect and evolving process.

To recap, achieving more inclusive practices in universities requires:

1. Acknowledging that we have a shared responsibility to dismantle colonial and capitalist systems that perpetuate inequality.

2. Engaging in meaningful consultation to improve diversity statements and data collection/storage in recruitment processes.

3. Deliberately reviewing the recruitment process.

4. Making systemic and structural changes to expectations and pathways to recruitment.

5. Deliberately hiring for diversity, by focusing on a single equity-deserving group per hire, and intentionally shortlisting at least two candidates from that equity-deserving group.

6. Increasing the diversity of those reviewing and making decisions on recruitment.

7. Acknowledging that equity within a team is a shared responsibility.

8. Committing to continuing to learn.

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.

Hewton and Griffin Funding Awards
To Support Archival Research in 2021

The Friends of the CAMH Archives (FoCA), dedicated to the history of Canadian psychiatry, mental health and addiction, have established two endowment funds. These endowments annually provide funding in memory of their late colleagues, Ms. E.M. (Lil) Hewton and Dr. J.D.M. (Jack) Griffin, OC.

The purpose of these funding awards is to provide financial assistance to post-secondary students, and others not necessarily associated with an academic institution, who propose to undertake archival research on an aspect of the history of mental health or addiction in Canada. The FoCA board at its discretion may approve awards to a maximum of $5,000 each.

There is no application form. Candidates are invited to submit a letter of intent not exceeding 500 words, together with a budget and résumé, not later than November 30, 2020. These research awards are conditional on the recipients agreeing to submit progress reports within one year, and a final report including a financial synopsis within two years of receiving their financial allocation.

For examples of the archival research projects (formerly "Bursaries") previously awarded, please refer to that feature as included in the SPRING editions of our past years' Newsletters.
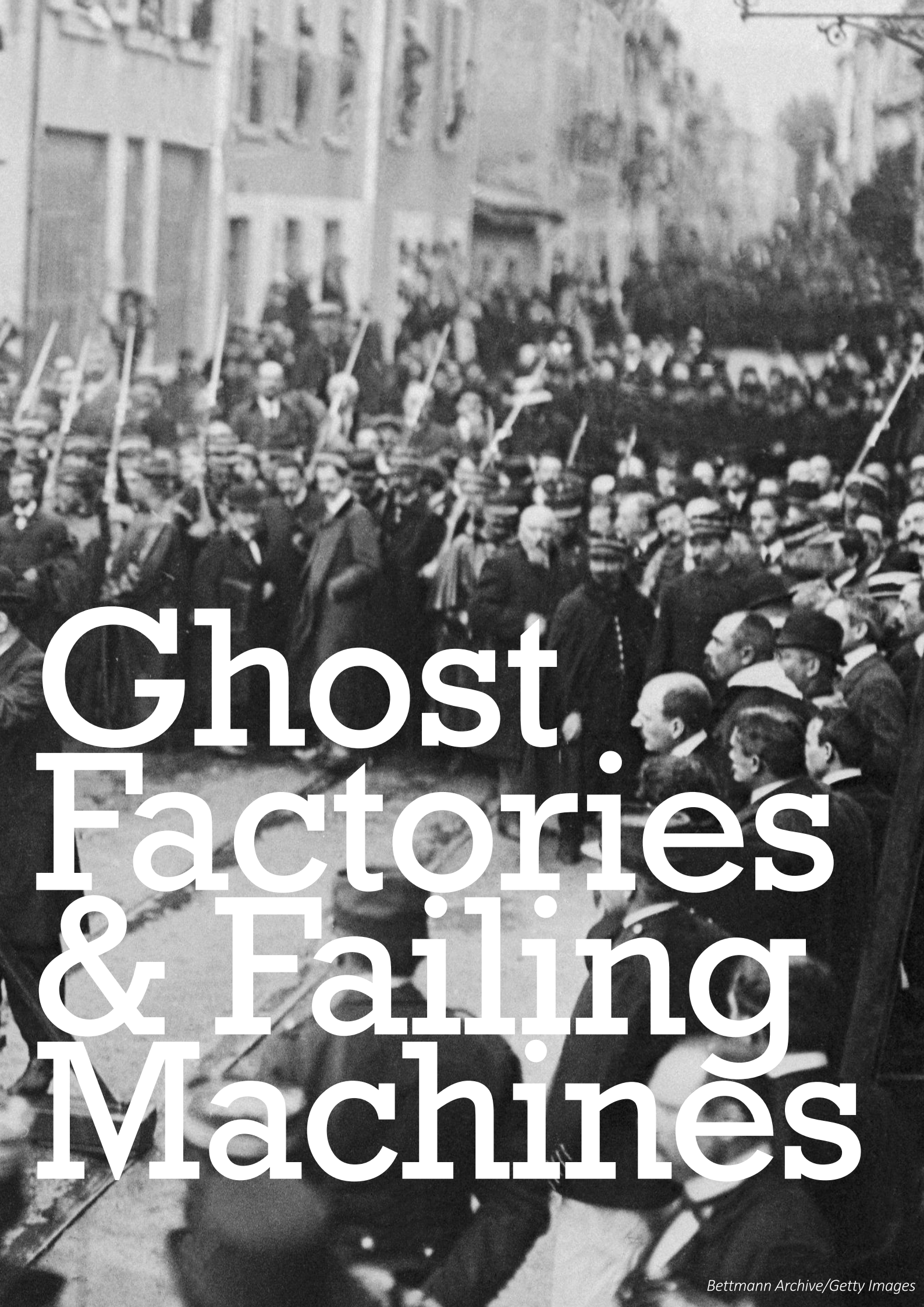

To apply for a 2021 award, please submit an application by the **November 30, 2020** deadline to:

Sydney Jones – President, Friends of the Archives
CAMH, 1001 Queen Street West
Toronto, Ontario M6J 1H4

Please note that electronic submissions are preferred: John.Court@camh.ca

Internationally pre-eminent geneticist, Lionel S. Penrose (1898-1972) was Ontario's Director of Psychiatric Research, 1939-45. Here Dr. Penrose is seated at Fr. Gregor Mendel's desk in St. Thomas Abbey, Brno (now Czech Republic), with Fr. Mendel's portrait hanging above. Photo ca.1965 courtesy of the Penrose family, Dr. Joseph Berg, and CAMH Archives.

Ghost Factories & Failing Machines

How do technological failures shape the world? Jai Virdi interviews Edward Jones-Imhotep on how starting with the sentimental self gives us a new perspective for understanding the history of technology and our collective histories.

JV

Great to see you! You're the new director of IHPST and have a new book in progress, and so I'm very happy to be interviewing you. I remember first meeting you, way back in my early years in my PhD—I think it was at an event at York and I was introduced to you. That seems so long ago!

EJI

It was a while ago! It's great to see you again.

JV

So let's get started. First question: you're working on a new book, *Reliable Humans, Trustworthy Machines: A History of the Technological Self*—I love that title!—which centers on the historical problem of the failing machine as a problem of the self, a problem of the kinds of people that these failing machines created or threatened. What can you tell us about this history? Is failure something inherently fundamental to the history of technology?

EJI

Failure is fundamental for understanding the historical behaviors of machines, and therefore their place in the social and cultural histories of technology. As scholars, we've often treated failures as sideshows and interruptions in a story about working machines and how they've shaped our world. But we can never fully understand the place of machines in the cultural, social, and political life of their societies if we focus only on their proper functioning. A fuller range of machine behaviors—including breakdowns, malfunctions, accidents—have shaped our cultures, social lives, and politics. Instead of seeing those events as nuisances, I see them as historical phenomena in themselves and ask how they've shaped our world. My first book, *The Unreliable Nation*, looked at how radio communications failures in the Canadian North in the 1950s and 1960s shaped ideas about a hostile nature that underpinned postwar Canadian national identity and shaped the geopolitics of the Cold War. Whereas that book focused on the relationship between technological failure and natural order, this new book is very much interested in the relationship between failing machines and social order.

We tend to see the question of technological failure and social order as a macro level problem – a problem about economic disruption, or about environmental degradation, or loss of human life. As I looked into the history technological failures, though, I realized that people living through those times expressed their most pressing concerns about failure as a problem of the self—a problem of the kinds of people that failing machines created, or threatened, or presupposed. Although we often treat the links between failure and social order as straightforward and fundamental, they're actually mediated and the self is one of the

most important mediators in that relationship. Tracking those concerns around historical selves and failing machines from the late 18th century France to late 20th century America is the project of this new book.

JV

Can you give a specific example of technological failures and the self?

EJI

The guillotine is an interesting example because we often think of that device forming part of the history of rationalization, specifically the

based. The guillotine, then, had to be infallible to preserve the social order of the young Republic. And its potential failures, real or imagined, were a threat to that social order. By centering failure and the anxieties about it, the guillotine becomes a different kind of device: not so much a product of Enlightenment rationalization and more a product of late 18th-century sentimentalism. And we get a different history of Enlightenment technologies along the way: not just a history of rationalized machines, but a history of sentimental machines that's otherwise lost.

"When you start looking into the history of technological failures, you realize very quickly that people living through these times expressed their most pressing concerns about failure as a problem with the self."

rationalization of European punishment in the second half of the 18th century. On that view, the guillotine was created to reduce or eliminate the suffering of the condemned; to produce more humane executions. That's the story I was taught. When I looked more closely at the documents surrounding the creation of the guillotine, the texts and images and objects, I realized that those considerations were only a secondary concern.

The main concern was the effect that a failed execution would have on the spectating public. Executions were profoundly public events in late 18th-century France. In the decades before the Revolution, Paris had been the scene of a series of high-profile executions that had gone horribly wrong. The popular psychology of the time, known as sentimentalism, saw these events as a threat to the interior lives of people, a threat to the self. Witnessing horror and suffering, on that understanding, transformed people into unfeeling and uncaring subjects. The fear was that the experience would break the social and emotional bonds that linked citizens to each other, bonds on which the French Republic itself was supposed to be

JV

I think whenever people think about the guillotine now, it's always perceived as a threat, something that's used as a weapon against certain kind of power. You can bring out an image of the guillotine and everyone can understand what this means, the threat of it. Why do you frame it as a technological failure?

EJI

I came into this project through a passage in Foucault's *Discipline and Punishment*. Foucault is talking about the invention of the guillotine and quotes someone saying, "It should be an easy enough thing to build such an unfailing machine." In the book, it's not entirely clear who utters those words, but it turns out they belong to Antoine Louis—the secretary of the Academy of Surgery, France's foremost expert on death, and the principal architect of the guillotine. As you and I know, building an unfailing machine is one of the hardest things to do in the history of technology. So I wanted to understand not only the cultural world that could produce Louis' utterance—what understanding of machines allows you to imagine that they can be unfailing—but also

why infallibility was so critical. What, exactly, was at stake? So starting with failure as the key concern around the guillotine appeared as the most interesting way into not only that specific history, but the broader history of failures and the relationship with the self.

JV

I think you've answered my question about why the technological self is crucial for understanding the history of technology. Is there anything else you want to add to that?

EJI

Focusing on the self is important for two reasons. One is that most histories of technology ignore the question of the self by taking it for granted. That's not just a feature of the history of technology; social and cultural history more generally tend to take the self for granted. Lynne Hunt, for instance, a historian of the French Revolution, has written about this very interestingly. But it's precisely because we take the self for granted that it's a powerful way of understanding the history of technology.

One of the goals of our broader field of history, science and technology, is to write the history of things that seem to have no history. To write histories of nature, or race, or objectivity—these things that seem like they just exist in the world. To do that, we need to understand how the things that we view as self-evident came to be in the first place. The self and the things that support a specific understanding of the self are prime candidates for that project.

But the second reason, I think, is because the histories that do focus on the self and technology have been written in a very particular way. They generally start with a technology and show how the functioning and the use of that technology shapes a historically specific self. Think, for instance, about scientific atlases or notebooks or photographic instruments that help to create an objective scientific self in the middle of the 19th century. We start with technologies, we put them to work, and then we detail the kinds of selves that

result. But there's another way of exploring that relationship, which is the one that I'm interested in. Rather than providing another account of how modern technologies helped shape a highly specific historical self, I ask how widespread, historically-specific anxieties about the self shaped the very form of modern technology and its core technical virtues by posing problems of social order around failing machines.

JV

I've been thinking a lot about the connection between disabled people and technology, and how so much of that history is really kind of creating a separation: the technology comes and solves the disabled person's problem, whether it's in terms of predictability, improvement, capacity to do things, etc, even as the relationships between disabled people and their technologies become a kind of symbiotic dependency. Your book I think, addresses these kinds of crucial questions that I've been trying to figure out in my own work and I'm very excited about it.

Next question: you wrote an article that highlights the need to understand the ghost factory when we discuss the history of automated machinery and artificial life. For readers who might not be familiar with the term, what is the ghost factory?

EJI

I use that term "ghost factory" in a review article that I published recently in History and Technology. It refers to two things. The first was a vision that's put forward by Jacques de Vaucanson in 1745, where he describes a factory with a single worker, a young girl, surrounded by weaving machines that supposedly operate themselves. This is an early vision of automation. Here, the "ghost factory" calls attention to the kinds of erasures that are required for that illusion of automation. The role of the workers, for instance, who built the machines, or the colonial laborers who gathered the raw materials or the animals, and the elements, and the people who powered the machines but appear nowhere in Vaucanson's

vision of the automatic factory.

But I also wanted to use the ghost factory as a kind of metaphor for thinking about how we write histories of automation. And in particular, I wanted to stress how even the most brilliant histories of automation we have also require certain kinds of erasure around race or gender or physical ability to make them work as a certain history of automation. The invisible elements in those histories—these ghosts—are actually the ones that I think that we should be tracking at this moment.

JV
This does make me think about the impact of

Mythologies like racial supremacy, for instance, are made possible by all kinds of forgetting: forgetting people, forgetting their contributions, forgetting injustices. And the stories we tell about science and technology, insofar as they participate in those acts of forgetting, contribute to the formation of those mythologies.

I think one of the most lasting effects of the recent anti-racism demonstrations has been to show the kind of violence that's involved in, and that always accompanies, those kinds of forgetting. They're acts that contribute, directly in some cases, to the kinds of physical and psychological violence that specific groups have

> "Mythologies like racial supremacy are made possible by all kinds of forgetting: forgetting people, forgetting their contributions, forgetting injustices. And the stories we tell about science and technology, insofar as they participate in those acts of forgetting, contribute to the formation of those mythologies."

how the forgetting of ideas, peoples, device, who were previously necessary for the formation of technology, but have historically been forgotten. And I think there's a responsibility that we have as scholars who are reflecting on this history and writing about them. At the same time, forgetting becomes relevant, I think, in context of what's happening now with regards to the anti-racism uprising. Do you approach your work differently in terms of our current cultural context?

EJI
I think the current protests against anti-Black and anti-Indigenous racism have really highlighted something that I think we've known for a long time. Joseph Roach, for instance, writes in his book *Cities of the Dead* that forgetting isn't just passive. We often think of forgetting as something that happens on its own, when we don't actively try to remember. But forgetting is often tactical. It involves choices about what we choose to remember, and the work that we put into remembering.

historically experienced and continue to experience. Forgetting in this case isn't innocent.

JV
Thank you. It's important too, to not feel defeated in this history as well. Do we have an estimated publication date for the book?

EJI
Not yet. But I'll let you know as soon as I do.

JV
As an IHPST PhD alumna, congratulations on your new position as the Director! I'm sure it's challenging taking on this role in the middle of a pandemic and university-wide budget cuts. What is your vision for the Institute?

EJI
I envision IHPST as one of the leading centers in the world for the humanistic study of science and technology. It's a remarkable place—a

major North American institute, dedicated specifically to our field, and located in a leading research university. And we're building on its

micro-level actions: a seemingly minor change to department policies that authorizes new voices and perspectives; a re-imagined syllabus

> "One of the goals of our broader field of history of science and technology is to write the history of things that seem to have no history."

rich history and remarkable strengths. Two new scholars joined the Institute this summer: Elise Burton, a brilliant historian of science and society in the modern Middle East; and Karina Vold, an equally brilliant philosopher of technology and AI. They bring incredible strengths and capacities that push us in new directions. We also operate in a broader intellectual ecology at U of T that includes fascinating related work in History, Philosophy, Women and Gender Studies, Indigenous Studies, English, and Criminology, to name just a few. Combined with the broader community in the geographic area, that makes it an incredibly exciting place to be. I'm very much looking forward to what the future holds for IHPST.

JV
Recently there's been a push for university departments to decolonize and implement anti-racism policies in their curriculum. Do you consider it's important for the future of HPS and STS to address the impulses to do more activist work, that is, work that helps spur material, rather than intellectual, change?

EJI
I absolutely believe that those impulses are crucial. I think they're crucial for the future of most disciplines, including STS and HPS. The question of activism is really interesting here. Academia has a long tradition of social critique. But that critique can and does take many, many different forms that blur the distinction between the material and the intellectual. You have large-scale faculty and student demonstrations and days of action, for instance. Or petitions for divestment. But you also have

that suddenly centers other experiences; a supportive or encouraging email to an isolated student at a critical moment. There's enormous scope for meaningful action. It's inaction that's the problem.

JV
I really appreciate your time with me this morning. Is there anything else you'd like to add?

EJI
Just my thanks to you and to the editorial team. Under your editorship in particular, Communiqué has become a really courageous voice for our field. That takes a lot of work, a lot of emotional effort, and a lot of investment. I am incredibly grateful that there are people like you and your editorial team that are doing this kind of important work.

JV
Thank you!

Virtual HSTM:
A Digital Experiment

How one Twitter idea turned into a global network

Sarah A. Qidwai
University of Toronto

Sarah Qidwai 🎉 @skidwayy · Mar 20
I'm thinking about starting up some virtual #histSTM groups/workshops/discussions/grad communities via Skype. Are folks interested?!
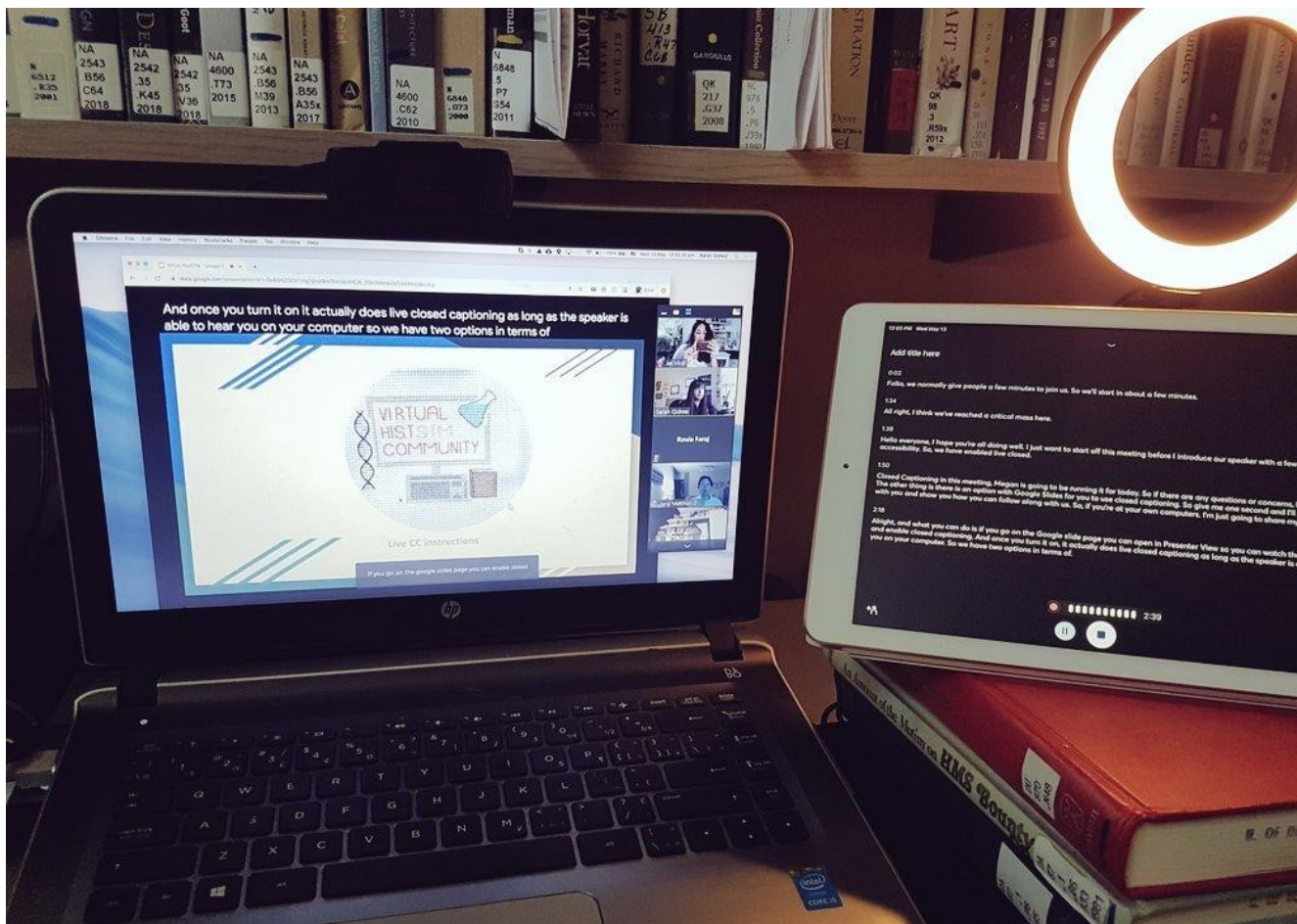
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On March 20, I Tweeted out an idea.

There I was sitting at home, suddenly forced to return from the UK because my research trip was cut short due to Covid-19. I was sure that I was not the only one in this situation and others were looking for some form of support or community. Graduate students and Early Career Researchers often feel isolated as it is; this pandemic highlighted many issues that have been bubbling on the surface.

The tweet above was only the beginning of Virtual HistSTM.

A few months later, the Virtual History of Science, Technology and Medicine group (also known as Virtual HistSTM) has a distinct identity as a digital community for academics interested in various topics related to the history of science, technology and medicine. While this group was created as a response to Covid-19 disruptions, it has grown to so much more. So far, we have organized over 17 weeks' worth

One discussion the group had was on how to make these virtual events accessible, including with the use of (free) closed captioning options. In the example above, Jai Virdi shows a setup using Otter.ai (on iPad) and on googleslides (on laptop); this was one of the group's early approaches for following accessibility best practices. (Photo by Jaipreet Virdi)

Previous image: a needlepoint design by Jemma Houghton.

Image on next page: an example of the group's schedule.

of events and have a global reach. Our programming is driven by an advisory board: Daniella McCahey, Eddie Guimont, Kelcey Gibbons, Will Scates-Frances and Megan Baumhammer.

Initially, we started out by organizing a series of events and set our programming based on the needs of our members. First, we decided that it was important to think about issues of access and accessibility. While not perfect, we tried our best and consulted with people about things such as transcripts and access. Of course, it's not perfect but it's definitely a start. There are several advisory board members who are working behind the scenes, and our model is to work with a collaborator or two for a specific theme and draw on experts in the field. The

organization has depended on the generosity of scholars from all across the world.

At this point, we have about 375 people on our mailing list. We have anywhere from 10 to 60 people showing up for events, depending on the type of it. We have an event that's focused in the Australia Asia timezone, one that's focused on Eastern Standard Time to accommodate European counterparts. It's been quite a phenomenal experiment over the break, and there are so many things to learn from this point on.

The plan is to turn the group into a pedagogical resource for subfields related to the history of science, medicine and technology.

Virtual HistSTM Community: Week 3 "The Science of Time"			
Date	**Time zone**	**Name of Event**	**Description**
Tuesday, April 14, 2020	1:00 AM EDT	Reading Group Meeting (AEST)	This is the first meeting for the ***NEW*** AEST friendly group.
Tuesday, April 14, 2020	12:00 Noon EDT	Reading Group Meeting (GMT/EDT)	This week's theme is "The Science of Time." Readings include "Time, Work-Discipline, and Industrial Capitalism" by E.P Thompson, Time in Early Modern Islam by S. Blake (the introduction) and "On Islamic Time" by S. Bashir
Wednedsay, April 15 2020	12:00 Noon EDT	**Alt-ac Advice with Erin Bartram**	Erin Bartram is joining us for this week's workshop. She will be discussing her experiences after graduate school. She is a historian of 19th century America, women, and religion. She is well known as one of the founders and editors of Contingent Magazine; as co-editor of the Rethinking Careers, Rethinking Academia series for the University Press of Kansas; and as an advocate for alt-ac and contingent employment in academia.
Thursday, April 16 2020	05:00 AM EDT	Check-in	Join us for the general check-in and share what you've been up to. The time reflects members who might miss other sessions because of their location.
Friday, April 17, 2020	12:00 Noon EDT	**Telling Islamic Time with Mariam Sabri**	Mariam Sabri will be leading a session on the philosophy of time in various Islamic contexts. Mariam will present an overview of some philosophical ideas of time and then discuss examples from various Islamic contexts. More details closer to the session.

IUHPST Essay Prize in History & Philosophy of Science Call for Applications

The International Union of History and Philosophy of Science and Technology (IUHPST) invites submissions for the 2021 IUHPST Essay Prize in History and Philosophy of Science. This biennial prize competition seeks to encourage fresh methodological thinking on the history and philosophy of science and related areas.

Entries in the form of an essay of 5,000–10,000 words in English are invited, addressing this year's prize question: "What can history and philosophy of science, technology and medicine contribute to our current global challenges?" What constitutes a current global challenge is left to the judgment of the authors, but examples include the coronavirus pandemic, climate change, socioeconomic inequality, racism, the refugee crisis, and science denialism.

All entries should consist of original work that has not previously been published. Entries written originally in another language should be submitted in English translation, along with the name and contact details of the translator. Entries will be judged on the following criteria, in addition to general academic quality: direct engagement with the prize question, effective integration of historical and philosophical perspectives, and potential to provide methodological guidance for other researchers in the field.

The author of the winning entry will be invited to present the work at the 26th International Congress of History of Science and Technology (ICHST) to be held in Prague, Czechia, 25–31 July 2021. Presenting at the Congress will be a condition of the award.

The award will carry a cash prize of 1,000 US dollars and a waiver of the Congress registration fee.

Entries for the prize competition should be submitted in pdf format by e-mail to the Chair of the Joint Commission, Prof. Hasok Chang, Department of History and Philosophy of Science, University of Cambridge (hc372@cam.ac.uk). Any queries should also be directed to him.

Submission deadline: 15 January 2021
Further Details: https://www.ichst2021.org/call-for-stand-alone-abstracts/

Purity & Maple Syrup

Racism, Anti-Racism, and Food Products

Brigit Ramsingh

In the wake of the brutal murder of George Floyd by Minneapolis police, as witnessed by the world and subsequently sparking a wave of global protests, the food and drink industry was not far to follow suit in showing solidarity with anti-racism movements through social media statements and commitments to "do better." Doing "better" in some cases took the form of removing well-known iconic figures from U.S. products, such as Uncle Ben from rice packets or Aunt Jemima from maple syrup bottles, as their personas are both symbolic relics associated with the Jim Crow era (1). Aunt Jemima was the idealized construction of the devoted slave "mammy," and her image emerged against the backdrop of the creation of the American mass market, the rise of labour-saving household technology, and represented one solution to the "servant crisis" during the post-abolition of slavery period with this offer of a quick-fix pancake mix (2). Quaker Oats'

recent announcement of the planned removal of this character prompted an Ottawa journalist to tweet: "if you are Canadian and eating Aunt Jemima, there is something seriously wrong with you"—pointing to a photo of our iconic 540 ml can of *Pure Maple Syrup* from Québec, draped in red and white colours, and featuring quaint and inoffensive pastoral scenes of a sugar shack emanating plumes of smoke in the sugar bush.

In Canada, however, early legislation ensuring the purity of maple syrup did in fact attract the attention of populist groups, such as the Native Sons of Canada. This particular episode in Canadian history highlights how discourses on pure food can become co-opted by political groups, more notably those with racist or xenophobic tendencies. This small vignette from the archives provides a learning opportunity and critical lens for examining racism/anti-racism discourses in food history. The history of food adulteration and standards reminds us of how food is inherently political, and I suggest there is at times a fine line between food nationalism (i.e. taking pride in food of your country), and food and racism (or food and populism/nativism). Alternatively, typically left-leaning proponents of food sovereignty and food justice arguably participate in a form of "selective patronage"—that is, as Hinrichs and Allen have suggested, movements such as of buy local or (or "buy Canadian") can undermine social justice movements by unintentionally resulting in the marginalization and exclusion of others (3).

There have been moments in history when purity of food was used as a metaphor or rationale to mirror the desire for purity in race. For example, under Third Reich in Germany, additives and adulterated products posed a threat to the racial hygiene of the *volk*, and their rejection fit with National Socialists' broader war against food additives and toxic agents that might cause cancer (4). The Nazis advocated for food standards, barred chemicals like pesticide and food additives such as the colour "Butter Yellow"—a campaign that later found great support among German housewives and women's organizations post-WWII (5).

In the 1920s and 30s, a debate was raging over the problems with adulteration of maple products in Canada, and the potential for regulations and standards to safeguard their purity. In the early days of the industry, maple syrup was sold primarily as maple sugar in a solid brick form, and was often found to contain more than just maple sugar: substances ranging from the cheaper cane or beet sugar, to other powdery substances like chalk or *Blanc d'Espagne*, a calcium carbonate and clay powder mixture (6). John Grimm, a Montréal-based wholesaler and manufacturer of evaporators, lobbied hard for cleaning up the industry. Alarmist exposés of how "The "Maple Industry is Menaced!" started to appear in broadsheets (7). Canadian producers were accused by American counterparts of providing "doped sugar," although American producers were no less culpable (8). By 1930, after much petitioning from producers and lobbying from the Québec government, the federal Minister of Agriculture presented a bill to parliament which would pass into law: *The Maple Sugar Industry Act*. The *Act* defined the standards for pure maple sugar and syrup, forbade the adulteration of these products, and disallowed the use of the term "maple" on labels unless the product contained within was entirely pure. It also set out the powers of enforcement for inspectors, and the associated regulations that followed set definitions for different grades (i.e. for syrup: *Canada Fancy, Canada Light, Canada Medium, Canada Dark*) (9).

Praise for *The Act* came from many sources: producers, housewives, industry, and, curiously, a populist group called the Native Sons of Canada. Established in 1921 in British Columbia, and known for its aim of fostering "a national Canadian spirit," the Native Sons was a movement that promoted Canadian jobs for Canadian people, vociferously opposed Asian immigration and, in the process of creating a heroic image of British Columbia, cast Aboriginal peoples as the "Other" (10). Its membership grew (to a peak of 150,000 by the mid-1950s),

and spread to Eastern Canada whilst spouting the slogan of "Canada First" (11). Regulations that supported Canadian industries were most welcome by the Native Sons, and in 1930 Secretary of the Ottawa Chapter, L.B Wright, pleased with the new maple syrup *Act*, wrote to then-Minister of Agriculture Hon. W.R. Motherwell about how "It is the consensus of our membership that this measure, besides protecting legitimate interests engaged in that line of manufacture, also protects that great unorganised body, the consuming public" (12). Motherwell politely acknowledged the Native Sons, and although the correspondence seemingly ends there, this endorsement of the *Maple Sugar Industry Act* does raise a curious eyebrow. It reminds us of how Canada was not, and is not, immune to protectionist and nativist elements, and a closer look at the stories behind every day foodstuffs can contribute to broader discussions on symbolism and meanings ascribed to these products, and the contexts in which they emerged before becoming established as a national iconic food.
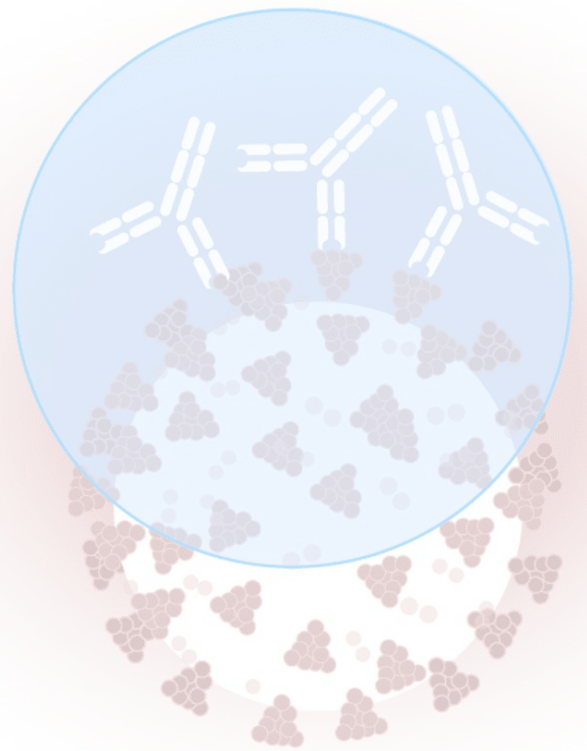
Acknowledgements

Notes

1. C. Bailin, "From Picaninny to Savage Brute: Racialized Images and African American stereotyping in turn-of-the-century American Advertising." In Danielle Sarver Coombs and Bob Batchelor (Eds.) *We are what we sell: How advertising shapes American life...and Always Has* (Connecticut: Praeger, 2014), 87-101.

2. Maurice Manring, *Slave in a Box: The Strange Career of Aunt Jemima* (Charlottesville: University of Virginia Press, 1998).

3. Hinrichs, C.C. and Allen, P. "Selective Patronage and Social Justice: Local Food Consumer Campaigns in Historical Context." Journal of Agricultural and Environmental Ethics 21, 329–352 (2008).

4. Robert Proctor, The Nazi War on Cancer, (Princeton: Princeton University Press, 1999), 120-170.

5. Proctor, *Nazi War on Cancer*, 124; Heiko Stoff "Oestrogens and Butter Yellow: Gendered Policies of Contamination in Germany, 1930-1970" in: Teresa Ortiz-Gomes and Maria Santesmases (Eds.) *Gendered Drugs and Medicine: Historical and Socio-cultural Perspectives.* (London and New York: Routledge, 2014), 23.

6. Brigit Ramsingh. "Liquid Gold: Tapping into the power dynamics of maple syrup supply chains." *Dublin Gastronomy Symposium: Food and Power. DGS Proceedings*. 2018.

7. Anonymous. "Maple syrup is Menaced!" [Newspaper advertisement], Library and Archives Canada, c. 1928, RG 17 Vol 3217 Department of Agriculture No. 158–1. Ottawa.

8. Letter from George Cary to Mr. J.H. Grisdale, March 12, 1928, RG 17 Vol 3217 Department of Agriculture No. 158–1, Library and Archives Canada. Ottawa, Ontario, Canada.

9. *The Maple Sugar Industry Act and Regulations, 1931*, Ottawa: Published by the Department of Agriculture.

10. "The Native Sons of Canada" In: W. Stewart Wallace, ed., *The Encyclopedia of Canada*, Vol. IV, (Toronto, University Associates of Canada, 1948) p. 384; Forrest D. Pass, "The wonderous story and conditions of the country: The Native Sons of British Columbia and the Role of Myth in the Formation of an Urban Middle Class." *BC Studies*, no. 51 (2006), 4.

11. Shirley Mair, "The Man who was too native for the Native Sons" *Macleans*, April 22, 1961.

Enjeux épistémologiques

de l'élaboration des politiques publiques à partir des données probantes lors de la pandémie de la COVID-19

Nicolas Bernier

Au cours des dernières décennies, l'élaboration des politiques publiques à partir de données probantes a fait l'objet d'un intérêt grandissant. Les données probantes sont des faits, des propriétés ou des corrélations qui ont été découverts dans le cadre d'une démarche scientifique rigoureuse et dont l'analyse a été révisée et validée par les pairs. Elles ont des probabilités élevées d'être vraies en fonction de l'état des connaissances à un moment précis. On estime généralement que le recours aux données probantes permet aux décideurs d'élaborer des politiques publiques transparentes, justifiées et répondant davantage aux besoins des populations. Or, la relation entre la science et la politique est complexe et pose de nombreux enjeux épistémologiques qui sont d'autant plus exacerbés lorsque l'action publique s'effectue dans un contexte d'urgence et d'incertitudes scientifiques.

De nombreux chercheurs des quatre coins de la planète ont participé à un partage massif, sur des plateformes d'archives numériques (par exemple. MedRxiv et BioRxiv), de leurs prépublications (*preprints*), de recherches préliminaires qui n'ont pas encore été validées par les pairs. Plusieurs de ces recherches préliminaires ont fait l'objet de couvertures médiatiques qui ne mentionnaient pas toujours clairement le caractère préliminaire de ces recherches. Bien que le partage de prépublications puisse s'avérer bénéfique pour l'avancement scientifique sur la COVID-19, il comporte d'importants risques, notamment la surcharge d'informations non vérifiées, la circulation d'informations erronées et partielles sur la pandémie, lesquelles sont susceptibles de susciter de faux espoirs ou d'exacerber indûment le climat d'incertitude.

Ensuite, le caractère multidisciplinaire du champ d'intervention et de recherche de la santé

publique peut rendre la tâche difficile aux décideurs publics voulant appuyer leurs décisions sur des données probantes. En effet, la santé publique s'appuie sur une multitude de pratiques, de courants et de disciplines, allant des sciences de la vie (virologie, épidémiologie, pharmacologie, biomédecine) aux sciences humaines et sociales (science politique, sociologie, psychologie, éthique et sciences économiques). Les recherches réalisées par les différentes disciplines offrent, en quelque sorte, différents niveaux d'analyse de la réalité de la crise actuelle. Chacune demeure limitée, de telle sorte qu'aucun expert de ces disciplines ne peut prendre en compte à lui seul l'ensemble des conséquences de ses propositions d'actions. Parvenir à faire converger l'ensemble des disciplines et des pratiques autour d'une même problématique constitue un défi de taille.

Un autre enjeu corolaire à la multidisciplinarité se rapporte à la hiérarchisation des données probantes, c'est-à-dire la prépondérance accordée à un type de données plutôt qu'à un autre. À cet égard, les recensions systématiques des connaissances tendent à admettre un volume nettement supérieur de recherches quantitatives (en particulier les tests randomisés) que d'études qualitatives. Même si cela s'explique dans le contexte de la présente pandémie, puisqu'il s'agit au départ d'un problème relevant de la médecine et de l'épidémiologie, il reste que les recherches en sciences sociales sont d'une grande importance afin de bénéficier d'un portrait plus riche de la complexité de la réalité sociale, notamment en ce qui a trait aux conséquences des mesures de confinement sur la santé psychologique des populations et les nouvelles formes d'inégalités générées par la pandémie.

Dans le choix des mesures à prescrire face à la pandémie, les décideurs publics doivent tenir compte des relations entre les différents groupes sociaux, des valeurs sociétales, des habitudes de vie des citoyens ainsi que des ressources humaines et matérielles disponibles. Ainsi, la diversité des contextes socioculturels, politiques et économiques fait en sorte qu'il est difficile de prendre des décisions en fonction d'études comparatives (*benchmarking*) des différentes mesures et stratégies déployées par divers États dans le monde, même si celles-ci ont démontré leur efficacité. Cette volonté d'uniformisation des mesures aurait notamment pour effet de porter ombrage à certaines valeurs importantes dans une société donnée ou de négliger l'évaluation du contexte social et des ressources disponibles en santé publique.

Enfin, le contexte d'urgence et d'incertitudes scientifiques de la pandémie de la COVID-19 a permis de mettre en lumière l'importance de l'éthique au sein de l'élaboration des politiques publiques. Au tout début de celle-ci, les décideurs publics disposaient de très peu de connaissances sur le nouveau virus. Les décideurs publics ont dû, à partir de connaissances partielles et limitées, effectuer des choix comportant des conséquences sociales importantes. Dans un tel contexte, une décision justifiable à un moment précis peut éventuellement se révéler inadéquate en fonction de l'évolution des contextes et des connaissances. Ainsi, l'enjeu pour les décideurs qui désirent maintenir la confiance de la population et susciter sa collaboration, est de parvenir à expliciter les valeurs sociales priorisées et à justifier de manière transparente les mesures de santé publique adoptées à cet effet ainsi que les moyens déployés afin d'atténuer les conséquences négatives liées aux valeurs non priorisées ou aux intérêts sacrifiés.

Cet article présente une synthèse des enjeux épistémologiques soulevés dans le rapport *Enjeux éthiques de la pandémie de la COVID-19: précaution et déconfinement*, issu de la collaboration entre le Comité d'éthique de santé publique (CESP) et la Commission de l'éthique en science et en technologie (CEST). Pour accéder au document.

Nicolas Bernier (M. A.) est conseiller en éthique pour la Commission de l'éthique en science et en technologie du gouvernement du Québec.

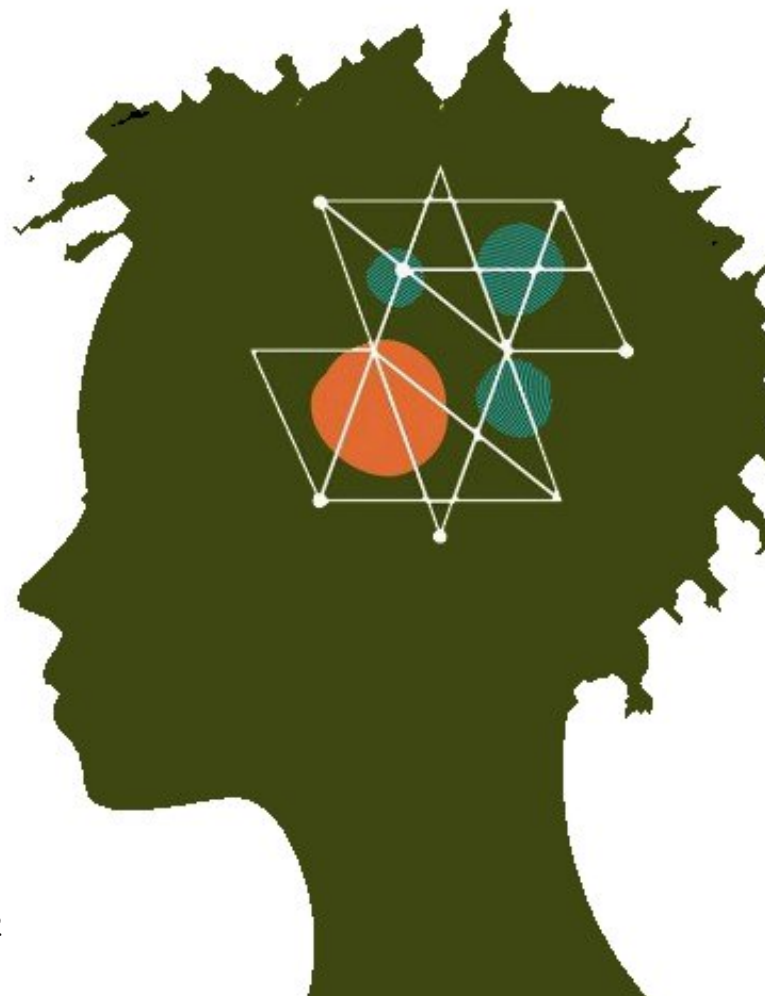# Tools for Canadian Philosophy

Making the Discipline more Equitable, Diverse, and Inclusive

Letitia Meynell
Equity Committee, Canadian Philosophical Association

The Equity Committee of the Canadian Philosophical Association has been advocating for greater equity, diversity, and inclusion (EDI) in professional philosophy since 1991. Although originally our mandate focussed on gender equity, for the last 20 years we have tried to address the underrepresentation of people of colour, Indigenous people, and people with disabilities in our discipline also. This edition of Communiqué is a wonderful opportunity for us to share some of the resources we have recently developed as well as inform readers about others that are currently under construction.

We believe our work is urgent as the situation in professional philosophy is dire. A recent demographic survey of Philosophy professors, *The Report on the Canadian Philosophical Association Equity Survey 2018*, shows that just under 9 % of professors are people of colour.

As only 30 % of professors are women it is perhaps unsurprising, though utterly dismaying, that only 2.3 % of philosophy professors are women of colour. The situation for Black and Indigenous philosophers is yet more troubling. Black people were found to comprise 0.85% of the professoriate (all ranks, including limited term and part-time), compared to 3.5% of the Canadian population, and Indigenous people comprise less than 0.5% of the professoriate, compared to roughly 5% of the Canadian population (see section 3.4).

It is obvious that widespread change needs to happen throughout Canadian philosophy and here we report some tools that we (or people working with us) have developed over the years to help professional Canadian philosphers make our discipline more equitable, diverse, and inclusive.

• *Good Equity Practices* presents both basic background material about EDI and puts it into the Canadian context before presenting specific, practical suggestions for supporting EDI in professional practice, specifically research, teaching, and service. A French version, *Les bonnes pratique en équité*, is also available.

• *Where the Rivers Meet* is a website honoring Bruce Ferguson, an Indigenous student at Kwantlen Polytechnique Univeristy, who was committed to promoting Indigenous philosophy and bringing non-Indigenous philosophy into conversation with Indigenous issues and Indigenous knowlege. Tragically, Bruce died before he could move this work very far forward but he inspired members of our community to continue it. *Assessing the Relationship of Canadian Academic Philosophy to Indigenous Thought in Canada* (2017), is a report of a survey by Bruce that offers an overview of his findings about the status of Indigenous thought in contemporary Canadian philosophy and recommendations for moving forward.

• *Good Practices for Indigenizing and Decolonizing Philosophy* is a document that we are developing that is currently in draft from. It will include guidance for philosophy professors and students on how to Indigenize and decolonize the discipline. We are working on a glossary of terms, sample syllabi, suggested readings for standard philosophy courses, as well as a list of tips for navigating what, for many professional philosophers, is unfamiliar and difficult terrain.

• The Equity Committee will also be be collaborating with the ACPA Teaching Hub—a series of workshops specifically oriented towards developing EDI in the practice of teaching philosophy—at future annual meetings. (The first Teaching Hub, scheduled for Congress 2020, was unfortunately cancelled but we look forward to these workshops in 2022 and 2024).

We are also developing an Equity Charter, inspired by the UK's Athena SWAN program and the *Good Practice on Gender Bias Scheme* supported by the (UK) Society for Women in Philosophy and the British Philosophical Association. Departments who are signatories to this charter would make a set of commitments to follow practices designed to support equity, diversity and inclusiveness—the kinds of practices recommended in our Good Equity Practices document.

There are many other resources out there that designed to make Philosophy more diverse and inclusive. Here are just some of our favorites:

• Minorities and Philosophy – see, especially their *Working Against Anti-Blackness in Practice* and their excellent list of resources.
• The History of Africana Philosophy podcast, by Peter Adamson and Chike Jeffers (past co-chair of the CPA's Equity Committee).
• The History of Indian Philosophy, by Peter Adamson and Jonardon Ganeri.
• The Canadian Society for Women in Philosophy's guidelines for making conferences inclusive.
• The American Philosophical Association's inclusive syllabi.

Minds & Machines Special Issue on Machine Learning: Prediction Without Explanation?
Call for Papers

Over the last decades, Machine Learning (ML) techniques have gained central prominence in many areas of science. ML typically aims at pattern recognition and prediction, and in many cases has become a better tool for these purposes than traditional methods. The downside, however, is that ML does not seem to provide any explanations, at least not in the same sense as theories or traditional models do. This apparent lack of explanation is often also linked to the opacity of ML techniques, sometimes referred to as the "Black Box Challenge." Methods such as heat maps or adversarial examples are aimed at reducing this opacity and opening the black box. But at present, it remains an open question how and what exactly these methods explain and what the nature of these explanations is.

While in some areas of science this may not create any interesting philosophical challenges, in many fields, such as medicine, climate science, or particle physics, an explanation may be desired; among other things for the sake of rendering subsequent decisions and policy making transparent. Moreover, explanation and understanding are traditionally construed as central epistemic aims of science in general. Does a turn to ML techniques hence imply a radical shift in the aims of science? Does it require us to rethink science-based policy making? Or does it mean we need to rethink our concepts of explanation and understanding?

In this Special Issue, we want to address this complex of questions regarding explanation and prediction, as it attaches to ML applications in science and beyond. We invite papers focusing on but not restricted to the following topics:

- (How) can ML results be used for the sake of explaining scientific observations?
- If so, what is the nature of these explanations?
- Will future science favor prediction above explanation?
- If so, what does this mean for science-based decision and policy making?
- What is explained about ML by methods such as saliency maps and adversarials?
- Does ML introduce a shift from classical notions of scientific explanation, such as causal-mechanistic, covering law-, or unification-based, towards a purely statistical one?
- (Why) should we trust ML applications, given their opacity?
- (Why) should we care about the apparent loss of explanatory power?

The Special Issue is guest edited by members of the project "The impact of computer simulations and machine learning on the epistemic status of LHC Data," part of the DFG/FWF-funded interdisciplinary research unit The Epistemology of the Large Hadron Collider.

Deadline for paper submissions: 28 February 2021
To submit a paper for this special issue, authors should go to the journal's Editorial Manager:
www.editorialmanager.com

Guest Editors
- Dr. Florian J. Boge, postdoctoral researcher, Interdisciplinary Centre for Science and Technology Studies (IZWT), Wuppertal University
- Paul Grünke, doctoral student, research group "Philosophy of Engineering, Technology Assessment, and Science", Institute for Technology Assessment and Systems Analysis (ITAS), Karlsruhe Institute of Technology (KIT)
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Islamophobia & Civilization
Surveying European History from the Middle East

Jörg Matthias Determann
Virginia Commonwealth University, Qatar

Like many scholars of science, especially those based at general history departments, I get to teach more than the development of ideas and instruments. Since 2013, I have served as a faculty member in the Department of Liberal Arts and Sciences on the Qatar campus of Virginia Commonwealth University (VCU). Our program mostly offers general education courses for students of other majors. One of my first teaching assignments was Survey of European History, a two-semester introduction and it came with the following brief description in the VCU Bulletin: "A survey of European civilization from the ancient world to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Europe's place in the world. First semester: to 16th century. Second semester: 16th century to the present." These sentences remained on my syllabi, even as I changed

course materials and methods of assessment over the years.

While I had to adopt the university-wide course description, I did not embrace the term "European civilization." Like many other Germans born since World War II, I did prefer to cultivate a pan-European identity over one tied to specific nation-states. Identifying as a European also made sense to me personally, as I was educated in Austria, Malta and Britain as well as Germany. So, I had no problem agreeing to teach a course on Europe. My concern was over the word "civilization." It reminded me of the thesis of the clash of civilizations put forward by the American political scientist Samuel Huntington during the 1990s. He argued that future wars would be fought not between countries, but between cultures. The Harvard University professor thus separated Western

civilization from the Muslim world (as well as Sub-Saharan Africa and other world regions). Studying history and Arabic as an undergraduate at the University of Vienna during the 2000s, I was encouraged to be skeptical of Huntington's work. Later, I encountered further critiques of the notion of irreconcilable differences between Islam and Christianity, like Richard Bulliet's *Case for Islamo-Christian Civilization* (Columbia University Press, 2006). Yet, despite the interventions of academics, the rhetoric of civilizational conflict fed Islamophobia and racism during the War on Terror that followed the September 11 attacks. In 2014, Germany saw the formation of a far-right movement called Patriotic Europeans Against the Islamization of the Occident (*Patriotische Europäer gegen die Islamisierung des Abendlandes or Pegida*), for instance.

Teaching in Qatar, I do not have to worry about creating fear or hatred of Islam among my predominantly Muslim students. However, I still want to avoid dividing the world into the West and the rest. My Survey of European History has thus focused on connections with the Middle East and North Africa. I have stressed that the cultures of ancient Greece and Rome stretched across the Mediterranean. Greek scientific terms that later made into both Arabic and English are especially illustrative. *Klima* gave rise to *iqlim* and "climate," for instance. Moving into the Middle Ages, the Byzantines, and Crusades and Muslim Spain (al-Andalus in Arabic) provide plenty of opportunity for discussion of exchanges between East and West. The Ottoman Empire with its territories in Europe, Asia and Africa was, like its trading partners in Italy or France, also a site of early modern science. In this context, I have introduced my students to the work of historians, like Harun Küçük and Giancarlo Casale. They are the authors of *Science Without Leisure* (University of Pittsburgh Press, 2020) and *The Ottoman Age of Exploration* (Oxford University Press, 2010), respectively. Nineteenth-century imperialism, in which astronomers, botanists and many other scientists participated, is another global topic that needs to be addressed from the perspectives of colonizers as well as colonized.

Teaching European and Middle Eastern history together in this way should not mean brushing over conflicts. Traumas also need to be acknowledged. The widespread transfer of plants, animals, diseases and technologies between the New and Old Worlds during the fifteenth and sixteenth centuries is often called the "Columbian exchange." Just as this term arguably hides the violence and death that was part of European colonization, I would not want to reduce the Crusades or the Arab conquest of Iberia simply to an interchange. Nevertheless, it is important not to separate the history of Europe from that of the Middle East. If I had to use the word "civilization" at all, I would prefer to reserve it for humanity as a whole.

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Canadian Science & Technolgogy Historical Association New Blog Launch

The CSTHA blog is a platform for scholars and anyone with a professional interest to connect with each other and the public. From the history of science and technology in Canada, to the transnational flow of scientific ideas, research practices, and technologies across borders, our goal is to spark interest and debate in the history of Canadian science and technology, broadly defined. Given the relevance of history to current affairs, this blog will also publish historically informed commentary and analysis on present issues facing scholars who study the history of science and technology in relation to Canada and Canadians.

https://cstha-ahstc.ca

Some Thoughts About Aristotle & Electronic Teaching

Luckily, Aristotle did not actually think that students are passive vessels.

Duncan Maclean
St. Mary's University

I would like to share my spring on-line teaching experience at St. Mary's University in Calgary. For the past couple of years I have been teaching according to an Aristotelian philosophy of teaching, based on some of Aristotle's philosophical principles and various comments. The philosophy has proven good for organizing the traditional classroom. It also worked in the electronic classroom, though the electronic classroom presents challenges with respect to participation, a problem that many teachers anticipate in the fall.

Aristotle does not articulate a teaching philosophy, but I think he would have recommended classes be a blend of lecturing and active student participation. Consider first Aristotle's four causes (e.g., Physics 2.3). To explain educational activities, Aristotle requires reference to the student (the material cause), the teacher (the efficient cause), the knowledge the teacher conveys (the formal cause), and the student's well-being (the final cause). Without supplement, the four-causal account of education is a version of the so-called banking model of teaching, where the teacher transfers knowledge into passive vessels. The banking model is unacceptable to teachers like me who value student activity.

Luckily, Aristotle did not actually think that students are passive vessels: people have an intrinsic desire to learn (Metaphysics 1.1) and students should seek knowledge that is required to understand advanced topics (e.g., Metaphysics 2.3). Aristotle thus recognizes the importance of self-guided learning. But self-guided learning is in tension with the idea that education involves a teacher who transmits knowledge and provides the foundation of Socratic learning, where the teacher initiates student-lead inquiry. What Aristotle needs, then, is an account of classroom activity that falls between the extremes of student passivity and the minimization of the teacher – a mean position that provides space for both a teacher's desire to teach and a student's desire to learn.

So, should we aim for equal shares of lecture time and student participation? No. Aristotle argues that the mean of a range of activities is not objectively definable but is instead relative to individual agents (Nicomachean Ethics 2.6). Individual teachers should thus judge the right amount of time for both lecturing and activities by considering a number of factors, including the number of students in the class, the course level, the difficulty of the material, and the teacher's professional experience. For instance, between, on the one hand, the extreme of lectures only and, on the other, the extreme of participation only, a new teacher may find the mean leaning to one extreme while an experienced teacher may find it leaning to the other. There is no objective mean to seek: the mean is relative to each teacher and by considering the unique factors of each course, teachers determine the right blend of classroom activities. Aristotle, then, would recommend that we avoid extremes and he places in us the responsibility of deciding how to best deliver our courses.

Turning to my virtual classroom experience, I taught three sections of a third-year Ethics course covering the history of moral philosophy, with about 20 students in each section. I used the D2L learning platform and the Bongo virtual classroom to conduct live lectures and discussions. Given what was happening at the time, the course material was directed to elucidate and evaluate moral decisions that were made in the pandemic, such as nurses traveling to help overburdened NYC hospitals and the debate over reopening the economy vs. maintaining lockdowns. We also added literature on American Black radicalisms in response to the Black Lives Matter protests.

The overlap of the readings and the global events was ripe for student discussion, but it required a deliberate effort on my part to encourage it. To me, the virtual classroom feels like a slipstream – the technology pulls the instructor into a comfortable position where endless speaking seems natural. Also, student-initiated discussions are less frequent in the virtual classroom; the screen before them and the distance between us seem to discourage it. A way to deal with this was to deliberately plan discussion sessions for every hour of teaching. I found that rigidly following a lesson plan was the best way to ensure that student participation occurred.

Bongo has a few functionalities that help to facilitate participation. The breakout rooms are helpful – it organizes students into groups to work on topics you give them. By setting a timer, the breakout rooms close together, and the students find themselves back in the main classroom where discussion can continue. There is also a 'hand raised' icon that students can use to get the teacher's attention (discovered by us on the very last day of class!) You may also find that some students have microphones that do not work – opening discussion boards on D2L and similar platforms is a good way to encourage participation outside of class time. I spent a lot of time noting students' participation in the classroom, the discussion boards, and my 'office' hours. These seem to be the basic tools of the virtual classroom. I am not savvy with computers, but I will try one or two new tools in the fall to see if they further encourage participation.

A final point worth mentioning is that the spontaneous humour that is a normal part of my classroom was almost completely absent in the virtual space. This may have been a function of the physical distance between us and the lack of visual cues that help to generate humour. But perhaps even more, people's moods were serious in the spring and they might be in the fall too.

Well, that's my account of teaching online with an Aristotelian philosophy of teaching. It is perhaps more practical than innovative and it no doubt reflects what many teachers already do. Notably, it tells us to make room for student participation, but student participation can be challenging in the virtual classroom. Good luck!

Teaching Science & Culture in Pandemic Times

How a group of instructors adapted a course for remote instruction to teach students how to examine the way scientific knowledge travels in culture.

Marisa Brandt, Isaac Record, and Arthur Ward
Lyman Briggs College, Michigan State University

Halfway around the world from where the coronavirus was discovered, we were instructors and students in four sections of a course Michigan State University calls "Introduction to the History, Philosophy, and Sociology of Science," a first-year writing course that focuses on examining relationships between science and culture. (You can check out our syllabus here.) Before spring break, we had focused on investigating scientific culture and how scientists make knowledge. We talked about how much slower, more collaborative, and more expensive science is than it appears in our popular culture, in no small part because of the inherent challenges of producing verifiable knowledge about things that are new, unstable, or controversial—like novel coronaviruses.

After spring break, we were starting to examine how scientific knowledge travels in culture. In the second half of the course, we look at how scientific knowledge is communicated through everyday life, but we are keen to recognize that science's audiences are diverse. How does a matter of fact produced in a lab become a matter of concern in our private, public, and political lives? Why is science, despite its authority, often contested?

In normal times, in order to address these questions, our students would work in small groups to investigate a scientific matter of concern—an issue that brings together diverse stakeholders who either conflict or collaborate based on their perspective on a matter. Each

team selects one issue, such as vaccines, NFL helmets, microbeads, conversion therapy, or water pumping rights, and makes a website exploring different perspectives based on research.

But we returned from spring break to find that we were not in normal times. On March 11, 2020, the same day that the WHO declared the pandemic, MSU moved to remote instruction. Teaching during the outbreak of a pandemic, we found ourselves immersed in life-threatening matters of concern on a scale we had never experienced before. Sheltered in place, the mediated nature of scientific knowledge was thrown into vivid relief as almost all forms of communication suddenly had the potential to impact public health. While the virus itself might be invisible, it was simultaneously everywhere and affecting everyone.

As members of Lyman Briggs College, a residential college for undergraduate science education, we want to encourage our science students to be responsible experts and global citizens. We asked ourselves how we could achieve our original course goals against a quickly changing living and learning environment, with our community suddenly dispersed. COVID-19 as a case clearly exemplifies the complexity of science's role in society that we want our students to appreciate as they embark on their educational journeys. Moreover, we were all living through it. Informed and inspired by work in critical pedagogy, we had a good reason to believe that we would benefit from grappling with the pandemic together, using both our course concepts and our collective experiences to gain understanding within the chaos.

Given this situation, we decided to change our plan. Instead of many websites, we would make one website dedicated to the CoVID-19 pandemic. Yet, we acknowledged that there are risks in taking on a dangerous and pervasive topic and we knew that we needed to approach the assignment with care. Certainly, we risked

overexposure to the topic at a time when it already seemed inescapable. Worse, we could do real harm if we spoke without thinking, especially about the experiences of vulnerable and marginalized groups. This pandemic is very close to all of us, and none of us has the privilege to sit apart. But because some are affected more deeply than others, or in ways that some others may not imagine, we must take great care in using COVID-19 as a learning opportunity not to be exploitative of the suffering of others. Indeed, our intention with this project is to reveal those differences of perspective by engaging carefully with primary sources that give them voice.

In order to create our website, we and our students learned how to use Scalar, a digital humanities tool designed for collaboratively building curated media archives. Scalar allowed us to work together and share our perspective sources as embedded media. Scalar's creators, the Alliance for Networking Visual Culture at the University of Southern California, not only provided lots of great, openly available documentation on how to use the tools, but also gave us direct support when we suddenly needed a scalable tool for our project in March. Working with Scalar enabled us to work collaboratively to collect the many, many perspectives on an invisible threat.

The constraints of the semester system entail that this website necessarily only captures a limited window into the story of this pandemic. As instructors, we met together via Zoom to redesign the assignment within days of moving to online teaching, and then announced it to our students at the end of March, only two weeks into our new classroom format. To conduct research for their pages, students studied perspectives as they emerged in real time, gathering data until the project was due at the end of April, as classes came to a close. Of course, much has happened since then that is not captured in this website.

Nevertheless, the responses we received from the students about their learning experience of

making this website showed us the value of the effort that we undertook together. Some are included below:

I learned a great deal from this project. The first lesson I learned is that we can create something wonderful even during times of great crisis. I realized the different domains of what is meant by a perspective and how one can present it in a good way ... I also learned how to work in continuous stress and use my time and resources to the fullest despite the many hurdles. I built upon my skills of unpacking a fact and so I can now check is someone's statement is true or not. In my journey, I also learned how to connect my own understanding of HPS to the project. All in all, I have started asking more and more questions and I can truly say that I am now "confused at a deeper level" than before I started the project.   -TM

This project helped me learn about a group of people that doesn't always cross my mind. It taught me that there are many people who live very different lives than I do. Because of that, we probably think very differently, and that's really cool.   -SL

Although the project's idea was made on the spot, it was one of the most interesting I have ever done. It comprises a real-world issue and a research project into one. I will enjoy reading all the other perspectives on the matter. This HPS projects were my favorite to do out of any class I have ever took, and I look forward to implementing the skills I have learned into future classes.   -LS

I think what I learned most is the fact that every perspective has a reason for being that way. If we don't look into perspectives of different groups we start to assume a lot of things and sometimes forget that people's viewpoints are there for a reason. It's also really important to know where to look for reliable sources that could further your understanding of certain subjects. Without reliable sources a lot of misinformation can easily be spread.   - IJ

By making themselves open to exploring new perspectives, our students not only developed empathy for the experiences of others, but have also come to understand more deeply a key lesson from the feminist standpoint theory we had read and discussed in class: that what each of us sees is affected by where we stand. As members of society, our values, interests, and networks of trust affect how we interpret the facts that matter most to us. Though our different perspectives lead to all manner of conflicts and controversy, they also hold the possibility of improving humanity's overall store of knowledge: Ironically, the most "objective" view of the world is the one that includes as many perspectives as possible.

A central theme of our course is that science does not happen in isolation, but rather is a deeply collaborative enterprise. It takes a community to build new knowledge and change the world. Though this pandemic-disrupted semester was both emotionally and materially challenging, we as instructors are deeply grateful for how our students came together to build this project. It might not change the world, but we hope this experience of collaborative inquiry helped them understand it a little better and maybe even gain the tools to share this understanding with others.

Extracted and reprinted with permission from Scalar. Visit the website *to see more examples of student testimonials.*

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You Can Teach Online!
Designing effective and engaging online courses

Ellie Louson
Michigan State University

Online teaching may be a new modality of work for CSHPS members. The pivot to remote teaching in the spring was abrupt and stressful for many of us; at times it felt like we were building the plane while flying it. This summer I took a week-long workshop called SOIREE, which stands for Summer Online Instructional Readiness for Educational Excellence, to improve my online teaching practices at MSU. I learned how to transform my Science and the Environment HPS course to be fully online. Then, through my role as a learning designer at the Hub for Innovation in Learning and Technology, I co-facilitated that same workshop a few times to support faculty colleagues from all across the campus in their transition to online teaching. All told, MSU put a thousand educators through this week-long training to prepare for a fall term that is now almost entirely online.

While the workshop was specific to MSU, our D2L learning management system, and our specific technologies and resources, we learned good pedagogical practices that apply to all online courses at any institution. Here are the takeaways for making your online courses effective and engaging, with some examples from trying to apply them in HPS/STS contexts.

1. Care
In addition to the stresses of both teaching and learning in new online ways, the pandemic has further revealed and contributed to social, health, financial, and racial inequalities. You need to center care, kindness, and patience in your teaching: for yourself as you learn a new way of being an educator, and for your students who are facing significant stresses you may know nothing about. When making choices about attendance requirements, late penalties, and the suggestions below, default to care. For example, some students in rural areas had significant connectivity issues that reduced their ability to always access our online course or upload assignments on time. They told me it was a big relief to be reassured that they wouldn't be penalized for those tech issues.

2. Connection
Maintaining a connection with your students is key for online teaching, whether you are

teaching live or recording content. Do things that contribute to your students' interactions with you, with each other, and with your course material. For instructor-student interactions, for example, virtual office hours or asking students to type a 3-word check-in are ways to improve connection. Discussion boards or short video introductions to the other students are ways to help students connect to each other. Building engaging assignments and making room for creativity are other ways to enhance connection. There are plenty of creative options that work well in HPS courses; ones that have worked for me are sketching and journaling assignments to get students reflecting about their relationship to nature, to artistic responses to scientific controversies that highlight the experiences of different stakeholder groups.

3. Design Backwards from Learning Objectives

Shifting a course online is a good opportunity to think about how the components of your class help your students move towards its learning objectives. This helps you understand which parts of your class are essential and which can be left out. Even if you are starting with a full syllabus of readings and activities, start over with a clean slate and set goals for your students' learning. Some of your prior content will fit well with those learning objectives, and some might need to be replaced or scaled back. One of the objectives for my summer course was "Analyze and explain the impacts of conservation initiative" but I switched the format from an essay to a recorded presentation. This still supported their progress towards the objective but it was a better fit for an online course that already had more writing than usual because of regular discussion board assignments.

4. Use Synchronous Time Wisely

If your online course has a synchronous component, try not to fill it with lecturing. Instead, you can record and post your lectures for students to watch beforehand. This way you can use the live class time for discussions, answering questions, reinforcing unclear areas, and other more valuable activities than content

delivery. (This approach, known as the "flipped classroom," is already well-known in the humanities).

5. Find Digital Tools that Work for You...

Many of the professors taking the workshop wanted digital solutions to replace in-person class components. One resource we shared with them was the "magic table" created by my colleague in Lyman Briggs College, Rachel Barnard. This 1:1 correspondence worked well to show how just about everything in an in-person course can happen online, just in a different form. Your institution may not have access to all of these tools, but you don't need these specific ones to build an effective online course. Think about the functions that your course needs and find a combination of tools that replicates those functions. I really like structuring my class' small group discussions in zoom breakout rooms, with each group getting a different prompt and writing a paragraph within Google Docs. Afterwards, one member reports on their results to the whole class and I briefly synthesize their responses and make any missing connections to the course content.

6....but Keep It Simple

The downside to finding new tools to replace in-person components of your class is that it's easy to be overwhelmed. Your students are likely overwhelmed as well, especially if every course requires a different set of tools. Only introduce a few tools that you understand, and build in time for your students to try out new tools before they need to use them for coursework.

7. Communicate

We know that clear communication is helpful in teaching. For online teaching, it is essential. Make sure your students know how to access the learning management system and the course content, how and when to submit assignments, and how to ask questions. To ease the email burden, set up a discussion board (mine is called Course Structure and Assignment Questions) and answer all general inquiries there. This way other students will (in theory)

How is online structure different from face-to-face?

Face-to-face	Online
1st day of class: intro you and the course	D2L pages ("files") describing policies, norms for how often to log in to D2L, etc. with text and short "tour" videos
Student turns to neighbor to ask question	Student use the chat (if synchronous sessions), discussion board, email, and/or text a friend
Office hours: in your office	In a Zoom meeting room possibly with a "waiting room"
1:1 meetings about projects	1:1 Zoom meetings about a projects
Group workheet	Collaborative e-tools (Office365, Google Suite, etc.)
Class meeting: pre-reading --> small group discussion --> share out --> post-reflection	Social reading in perusall.com --> Small group discussion notes on google doc --> individual, written reflection submitted to D2L
Class meeting: iClickers for classroom polling	iClicker REEF (if sync sessions); or videos + short D2L quizzes (if async session)

"Magic Table" created by Rachel Barnard, reproduced with permission.

see the questions their peers have asked; email can be saved for questions related to individual student issues. Make sure your students can give you feedback about elements of your course that are unclear so that you can make adjustments.

8. Resist Panoptic Surveillance

Online courses can lead to fears of students cheating or not paying attention. This makes some instructors or colleges to go all-in on surveillance: "always on" camera rules, invasive virtual proctoring, and even eyeball tracking software. We don't want this in our working life, so why inflict it on students? Perceiving your students as about-to-be-cheaters sets up an adversarial relationship; instead, use more formative assessments and fewer high-stakes exams. Design open-book and collaborative assignments, and have students reflect on their process and teamwork. HPS classes use essay assignments; you can build steps for submitting outlines and drafts and for written work, so that students can iterate based on your feedback and you can guide students towards stronger essays.

9. Ask for Help

When things get overwhelming, don't go at it alone. One IT colleague told me about the "10-minute rule": don't spend more than 10 minutes trying to fix a technical problem on your own. You can start by asking your close colleagues for help; they may have already solved that problem themselves. Next, reach out to your institution's IT experts, whether through a helpline, chat, or FAQs; they know the systems you'll be using and solutions to the issues instructors encounter. My weakness in using our D2L system has always been the gradebook, and I have saved myself hours of finicky work with a few short phone calls to the IT helpline.

Some of these suggestions will work best for your next online course, while others can be implemented right away with a little preparation. I hope this set of best pedagogical practices can reduce your anxiety, support your care for yourself and your students, and improve your future courses, both online and in-person.

You've got this!

Our Digital Pandemic

Cultivating Science Studies during COVID-19

Sammy Goldberg
University of King's College

How do you write history while you're living through it? Considering much of our news and opinions of our world now exist online, future historians of science are going to have to comb through the lived experience of the digital realm to assemble a picture of the COVID-19 pandemic. *The Isolated Reflections* blog serves to make this work easier by creating a space for students to do science studies, in real-time, in the midst of a major historical event.

The Isolated Reflections is an open source, collaborative, community blog dedicated to providing a platform for HPS- and STS- focused student perspectives on COVID-19. The idea for this came back in June, when I was speaking with another student in the History of Science and Technology department at the University of King's College. We were discussing our department's student journal, and I mentioned that people in science studies have a unique vantage point when it comes to actually living through the historical moments they study. In public discussions around the pandemic, many of the perspectives about current science issues come either from the international scientific community or just from historians without a background in science. The bridge between these two, science studies, is often missing from daily reportage of COVID-19. So, *The Isolated Reflections* asks two questions: How does HPS affect coronavirus and how does coronavirus affect HPS?

While scholars and professionals are also encouraged to submit, the blog is geared towards those who will be studying the COVID-19 pandemic in the future: current undergraduate and graduate students. Collaboration is key to making The Isolated Reflections capture this "snapshot" of science studies in the time of coronavirus. If we are to talk about and eventually go on to develop the history of COVID-19, it is not enough to just look at data or speak to essential workers around the world, but we must also consider the full range of who is included, both in current journalistic reporting and as a primary source. Students are learning HPS and STS right now, but we are also living through a historical moment, not dissimilar to that which we study so often. What role do social forces play in the blending of HPS and COVID-19? How does this blend shape us and what are our thoughts and ideas at this intersection? Very often we hear from those who are considered "learned", but we don't hear from those who are "learning" and are being shaped by a global historical event. The Isolated Reflections is working to include these voices in the history of COVID-19.

In capturing this wide-ranging experience of HPS/STS in our present world, the blog has garnered interest not only throughout Canada and the United States, but also in Brazil, South Korea, Italy, Taiwan, New Zealand, Japan, Russia, Spain, India, and even Trinidad & Tobago, amongst many others. Of course, this is not to suggest that Coronavirus is inherently different from past pandemics, such as the 1918 influenza. But it is the first worldwide non-influenza pandemic to occur in the digital age where the Internet is a predominant force in lives around the world. With the ability to make connections on a scale never before seen, the voices of the international community, rather than just Western perspectives, are capable of being projected in a shared ecosystem. Where the 1918 pandemic had newspapers, COVID-19 has a type of "guerilla reporting". From fired statisticians reporting actual COVID-19 numbers against governments to deeply personal stories of loss being shared on public forums such as Twitter or Facebook, people's experiences of the pandemic are more available, and more fluid, than ever before. Individuals have the ability to project their voice out into the world, especially in a more permanent and long-lasting medium. It is only in the context of this international connection that the Internet affords that The Isolated Reflections can exist.

Along these lines, the blog is experimenting in a type of "casual" academia. In order to bring HPS and STS into greater relevance to the world, breaking down barriers to learning and publishing is critical. The Isolated Reflections accepts posts of any length or depth from any person enrolled in relevant and related fields, for free. Unhooking HPS and STS from the activity of established scholars and transforming it into a collaborative process amongst students and learners, whether it be in entire posts or short discussion questions, allows for new and exciting insights that might otherwise be lost.

In its aims to understand HPS and STS in the present as well as develop a type of "time capsule" for the future study of coronavirus, The Isolated Reflections has been slow to grow since its mid-July launch. However, I cannot help but feel this is in itself a reflection of the situation. After all, the domination of COVID-19 in the news cycle and in our daily lives makes it the last thing we want to talk about -- let alone write about -- when we go online. In this regard, the loss of voices is an ever present threat to historical research, making real-time archives like that of The Isolated Reflections all the more valuable and vital for both science studies now and for future generations.

For more information, visit:
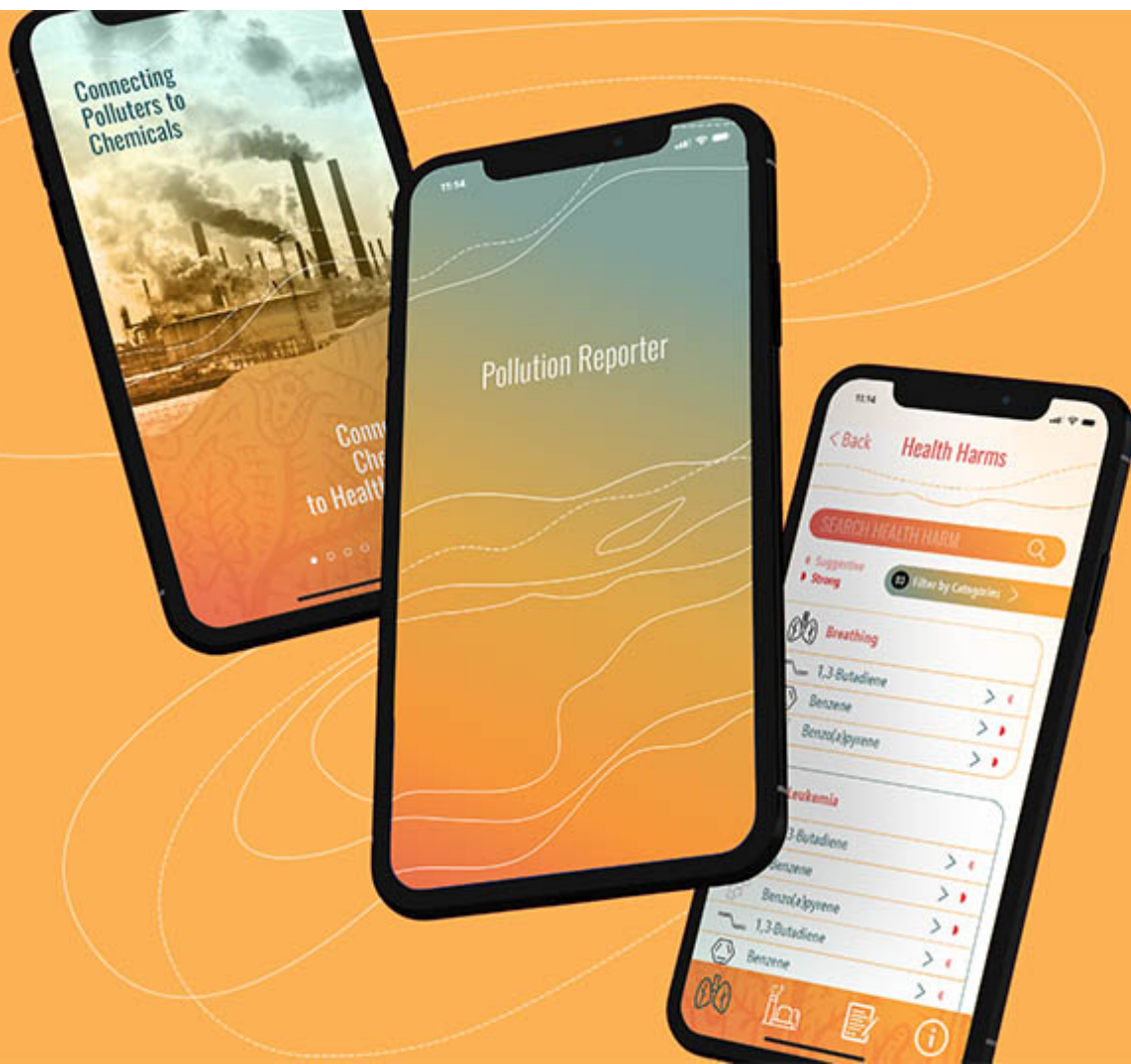www.theisolatedreflections.wordpress.com

Or email us at
theisolatedreflections@gmail.com

From Research to App

Building the Pollution Reporter Project

Kira Lussier
University of Toronto, Mississauga

This past summer, a team of researchers at the Technoscience Research Unit worked on an environmental research project with an unconventional output for academic research—not an article, but a phone app. The app, *Pollution Reporter*, translates peer-reviewed medical and scientific literature into an accessible format, in order to detail the historical and ongoing environmental pollution in Ontario's Chemical Valley. For over a century, the region around Sarnia, Ontario—now called "Chemical Valley"—has been the site of intensive chemical industry, centered around the oil & gas industry and related industrial facilities.

A major goal of the project is to excavate the relationship between pollution, settler colonialism, and health harms. The project is based out of the University of Toronto's Technoscience Research Unit, which takes a feminist, anti-colonial, and anti-racist lens to STS, and co-led by Vanessa Gray, Michelle Murphy, Kristen Bos, and Reena Shadaan.

Pollution Reporter is a phone app designed primarily for use by the Aamjiwnaang First Nations community—those who are most acutely affected by the pollution in the region. Users of the app can search in several different ways: by chemical pollutant, by symptom, or by general health category. Users can log on to report a pollution event or spill. Or, they can look up bodily symptoms and see if they are related to known effects of chemical pollutants in the area. More generally, the app can also be used to learn about different chemicals and their known effects on health.

To provide new content for the app, the research team spent time this summer poring through medical literature, chemical databases, and corporate reports. One main goal is to translate technical, scientific, and medical language into a more accessible format, while still retaining the precision and accuracy of peer-reviewed literature. For all categories, we assessed the strength of evidence to ensure that the app provides evidence-based, accurate information that neither overstates nor underplays the health harms of pollution. We adapted the collaborative research project to COVID times, meeting on Zoom for regular coworking sessions and chatting in group text threads.

The goal of all this research was to make visible the connections among the chemical industry, health harms and pollution, both past and present—relations that are too often concealed—in order to hold companies accountable for pollution. To make these connections, sources had to be read against the grain. Much of the pollution reporting data is produced by the companies themselves, who are not always motivated to be forthright about the real impact of their work. Further, government laws are organized around a "permission to pollute" model that allows environmental harms to happen, up to a certain level. This government and industry-produced data, moreover, focuses too much on the discrete harms of specific chemicals, rather than conveying the cumulative, long-term effects of this pollution.

As my small part of the project, I helped to conduct research into the corporate history of chemical facilities, which entailed reading old corporate reports, company histories, and news stories to uncover the history of chemical facilities in the region. Facilities changed ownership many times, the subject of corporate mergers and acquisitions by large oil and gas conglomerates. Tracking changes in ownership was a rabbit-hole of historical research that had practical applications in understanding the kinds of chemicals lingering in ground soil and water in the area.

Pollution Reporter can be downloaded through your preferred app store. You can find out more about the app and the Land Refinery project on the website:

https://www.landandrefinery.org/pollutionreporter

Book Releases

Richard T.W. Arthur, *The Reality of Time Flow: Local Becoming in Modern Physics* (Springer, 2019).
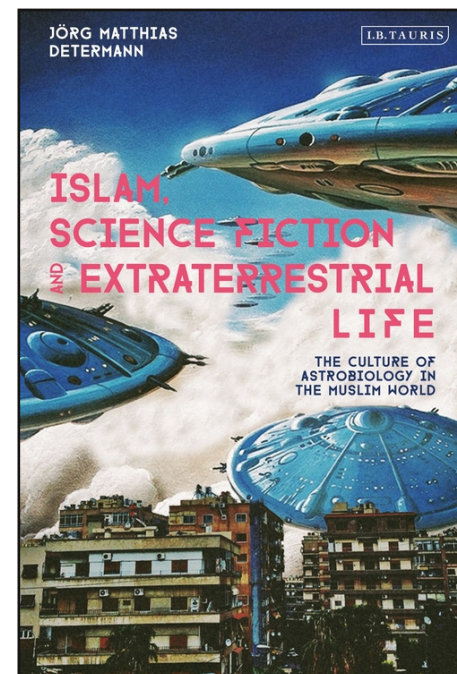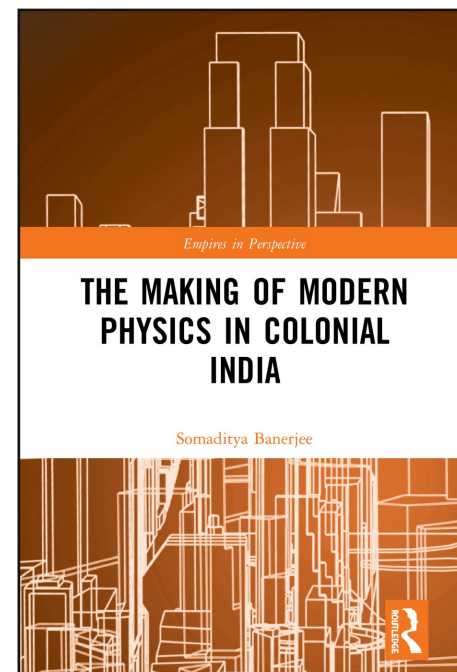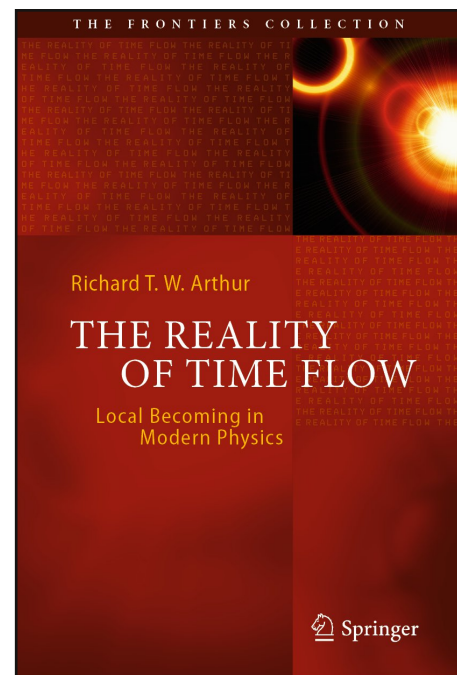
It is commonly held that there is no place for the 'now' in physics, and also that the passing of time is something subjective, having to do with the way reality is experienced but not with the way reality is. Indeed, the majority of modern theoretical physicists and philosophers of physics contend that the passing of time is incompatible with modern physical theory, and excluded in a fundamental description of physical reality. This book provides a forceful rebuttal of such claims. In successive chapters the author explains the historical precedents of the modern opposition to time flow, giving careful expositions of matters relevant to becoming in classical physics, the special and general theories of relativity, and quantum theory, without presupposing prior expertise in these subjects. Analysing the arguments of thinkers ranging from Aristotle, Russell, and Bergson to the proponents of quantum gravity, he contends that the passage of time, understood as a local becoming of events out of those in their past at varying rates, is not only compatible with the theories of modern physics, but implicit in them.

Somaditya Banerjee, *The Making of Modern Physics in Colonial India* (Routledge, 2020)

This monograph offers a cultural history of the development of physics in India during the first half of the twentieth century, focusing on Indian physicists Satyendranath Bose (1894-1974), Chandrasekhara Venkata Raman (1888-1970) and Meghnad Saha (1893-1956). The analytical category "*bhadralok* physics" is introduced to explore how it became possible for a highly successful brand of modern science to develop in a country that was still under colonial domination. The term *Bhadralok* refers to the then emerging group of native intelligentsia, who were identified by academic pursuits and manners. Exploring the forms of life of this social group allows a better understanding of the specific character of Indian modernity that, as exemplified by the work of *bhadralok* physicists, combined modern science with indigenous knowledge in an original program of scientific research. This book analyzes the responses by Indian scientists to the radical concept of the light quantum, and their further development of this approach outside the purview of European authorities. The outlook of *bhadralok* physicists is characterized here as "cosmopolitan nationalism," which allows us to analyze how the group pursued modern science in conjunction with, and as an instrument of Indian national liberation.
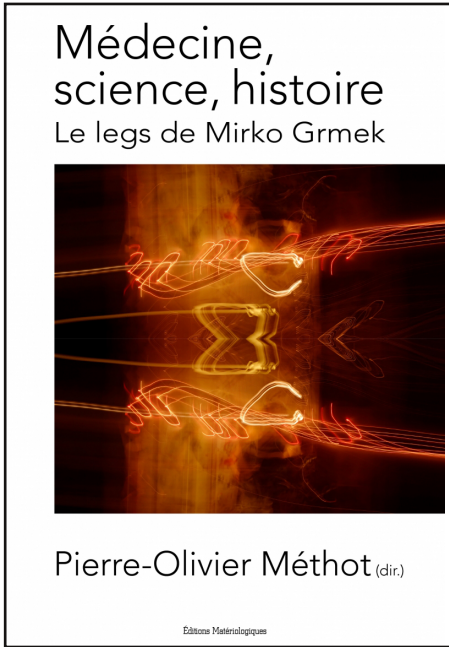
Jörg Matthias Determann, *Islam, Science Fiction and Extraterrestrial Life* (Bloomsbury, 2020).

The Muslim world is not commonly associated with science fiction. Religion and repression have often been blamed for a perceived lack of creativity, imagination and future-oriented thought. However, even the most authoritarian Muslim-majority countries have produced highly imaginative accounts on one of the frontiers of knowledge: astrobiology, or the study of life in the universe. This book argues that the Islamic tradition has been generally supportive of conceptions of extra-terrestrial life, and in this engaging account, Jörg Matthias Determann provides a survey of Arabic, Bengali, Malay, Persian, Turkish, and Urdu texts and films, to show how scientists and artists in and from Muslim-majority countries have been at the forefront of the exciting search.
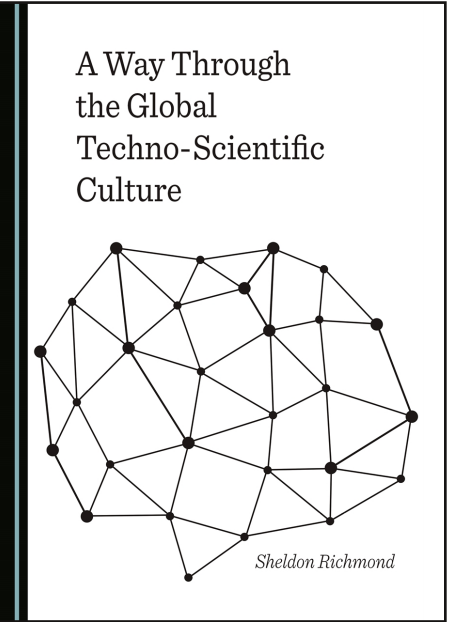
Pierre-Olivier Méthot (dir.), *Médecine, science, histoire. Le legs de Mirko Grmek* **(Éditions Matériologiques, 2019).**

L'œuvre du médecin et historien d'origine croate Mirko Grmek (1924-2000) représente un moment incontournable de l'histoire des sciences et de la médecine de la seconde moitié du XXe siècle. S'installant à Paris au début des années 1960, Grmek travaille aux côtés de Fernand Braudel, Pierre Huard, René Taton, Georges Canguilhem et Alexandre Koyré, puis devient professeur-chercheur aux États-Unis et directeur d'études à la Sorbonne. Personnage imposant par son savoir scientifique et sa connaissance des principales langues européennes, il participe à l'essor de l'histoire de la médecine et des sciences grâce à ses nombreux travaux sur la nature du vieillissement, le rôle de la quantification dans les sciences biologiques, l'histoire des maladies, l'œuvre de Claude Bernard, dont il reste l'un des plus grands spécialistes. Annonçant le « tournant pratique » en philosophie des sciences, Grmek renouvelle l'épistémologie de la découverte scientifique et les méthodes d'investigation en histoire des sciences. Éditeur fondateur de la revue *History and Philosophy of the Life Sciences*, son héritage se prolonge dans le cadre de l'école internationale en histoire de la biologie à Ischia, en Italie. Rassemblant des études récentes en français sur Mirko Grmek, cet ouvrage collectif se propose de dessiner les contours de son legs d'historien et de philosophe de la médecine et des sciences.
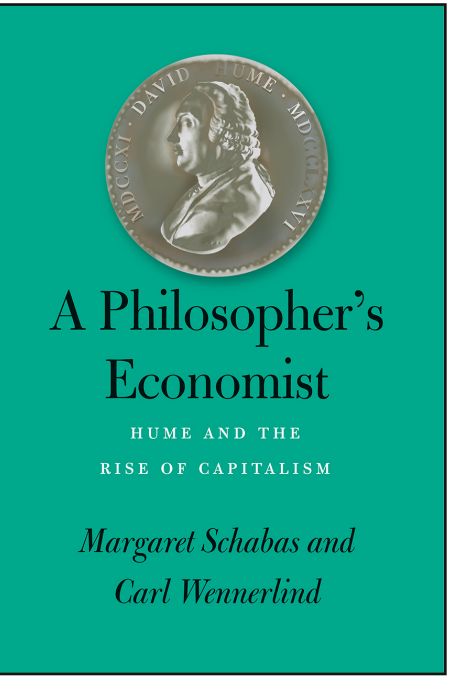
Sheldon Richmond, *A Way Through the Global Techno-Scientific Culture* **(Cambridge Scholars Publisher, 2020).**

Computers are supposed to be smart, yet they frustrate both ordinary users and computer technologists. Why are people frustrated by smart machines? Computers donâ (TM)t fit people. People think in terms of comparisons, stories, and analogies, and seek feedback, whereas computers are based on a fundamental design that does not fit with analogical and feedback thinking. They impose a binary, an all-or-nothing, approach to everything. Moreover, the social world and institutions that have developed around computer technology hide and reinforce the lack of alignment between computers and people. This book suggests a solution: we do not have to accept the way things are now and work around the bad social and technical design of computers. Rather, it proposes a diverse, distributed, critical discussion of how to design and build both computer technology and its social institutions.
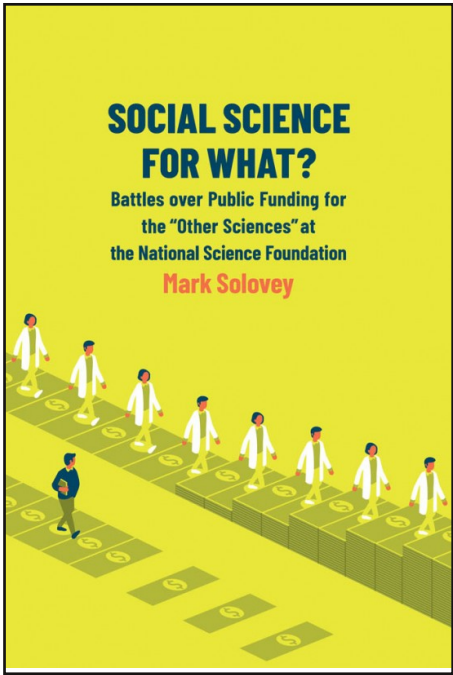
Margaret Schabas & Carl Wennerlind, *A Philosopher's Economist: Hume and the Rise of Capitalism* **(University of Chicago Press, 2020).**

Although David Hume's contributions to philosophy are firmly established, his economics has been largely overlooked. A Philosopher's Economist offers the definitive account of Hume's "worldly philosophy" and argues that economics was a central preoccupation of his life and work. Schabas and Wennerlind show that Hume made important contributions to the science of economics, notably on money, trade, and public finance. Hume's astute understanding of human behavior provided an important foundation for his economics and proved essential to his analysis of the ethical and political dimensions of capitalism. Hume also linked his economic theory with policy recommendations and sought to influence people in power. While in favor of the modern commercial world, believing that it had and would continue to raise standards of living, promote peaceful relations, and foster moral refinement, Hume was not an unqualified enthusiast. He recognized many of the underlying injustices of capitalism, its tendencies to promote avarice and inequality, as well as its potential for political instability and absolutism. Hume's imprint on modern economics is profound and far reaching, whether through his close friend Adam Smith or later admirers such as John Maynard Keynes and Friedrich Hayek.
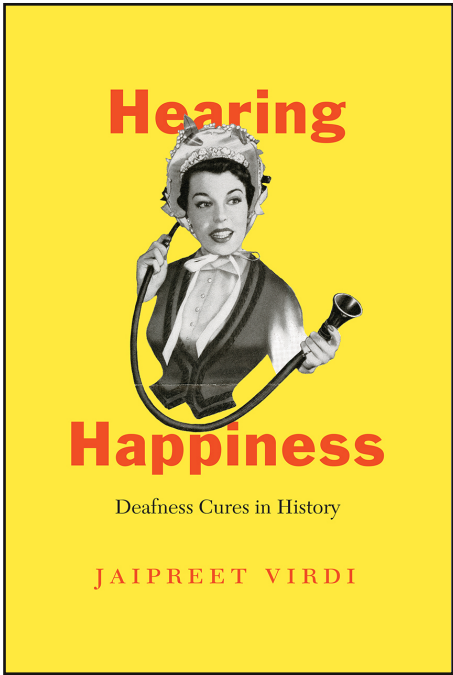
Mark Solovey, *Social Science for What? Battles over Public Funding for the "Other Sciences" at the National Science Foundation* **(MIT Press, 2020).**

In the early Cold War years, the U.S. government established the National Science Foundation (NSF), a civilian agency that soon became widely known for its dedication to supporting first-rate science. The agency's 1950 enabling legislation made no mention of the social sciences, although it included a vague reference to "other sciences." Nevertheless, as Mark Solovey shows in this book, the NSF also soon became a major—albeit controversial—source of public funding for them. Solovey's analysis underscores the long-term impact of early developments, when the NSF embraced a "scientistic" strategy wherein the natural sciences represented the gold standard, and created a social science program limited to "hard-core" studies. Solovey shows how the NSF's efforts to support scholarship, advanced training, and educational programs were shaped by landmark scientific and political developments, including McCarthyism, Sputnik, reform liberalism during the 1960s, and a newly energized conservative movement during the 1970s and 1980s. Finally, he assesses the NSF's relevance in a "post-truth" era, questions the legacy of its scientistic strategy, and calls for a separate social science agency—a National Social Science Foundation. Solovey's study of the battles over public funding is crucial for understanding the recent history of the social sciences and ongoing debates over their scientific status and social value.
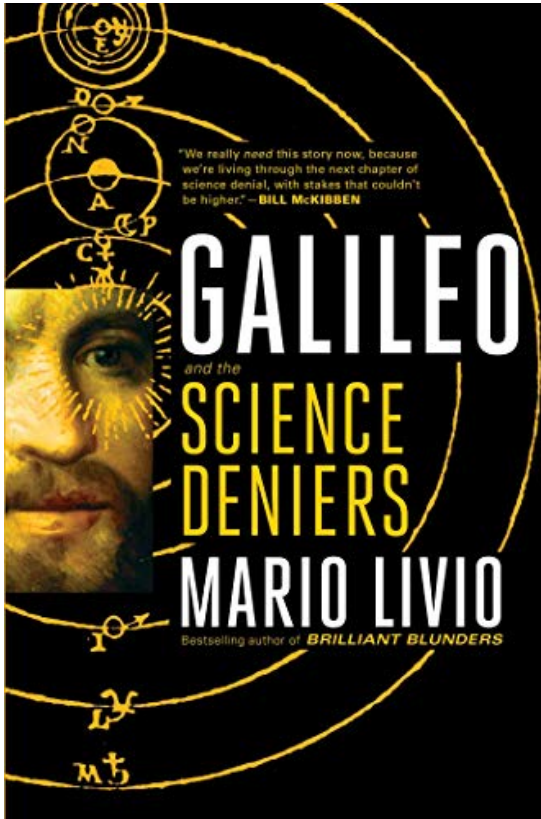
Jaipreet Virdi, *Hearing Happiness: Deafness Cures in History* **(University of Chicago Press, 2020).**

Through lyrical history and personal memoir, Hearing Happiness raises pivotal questions about deafness in American society and the endless quest for a cure. Taking us from the 1860s up to the present, Virdi combs archives and museums in order to understand the long history of curious cures: ear trumpets, violet ray apparatuses, vibrating massagers, electrotherapy machines, airplane diving, bloodletting, skull hammering, and many more. Hundreds of procedures and products have promised grand miracles but always failed to deliver a universal cure—a harmful legacy that is still present in contemporary biomedicine. Weaving Virdi's own experiences together with her exploration into the fascinating history of deafness cures, *Hearing Happiness* is a powerful story that America needs to hear.

Book Reviews

Mario Livio, *Galileo and the Science Deniers* (Simon and Schuster, New York, 2020), xv + 286 pp.

For my last birthday, my wife gave me Mario Livio's 2020 *Galileo and the Science Deniers*, joining ten other Galileo books including Stillman Drake's annotated translation of the Dialogue Concerning the Two Chief World Systems, and his personal copy of the Discoveries and Opinions of Galileo.

Livio is an engaging writer. Unfortunately, the end notes begin with a serious error of misdirection. On p. 241, Livio claims that "Favro's Le Opere di Galileo Galilei (1890 - 1909) … is now available online at www.gallego.fr …." As I guessed, it's at Bibliotheque nationale de France 's <gallica.fr>.

For Livio, Drake leads the list of eleven English translators. In addition to Discoveries and

Opinions of Galileo (1957), Livio also uses Drake's translations of De Motu Antiquoria (1960), Discorsi … intorno a Duo Nuove Scienze … (1974) and two Galileo papers by Drake from 1967 and 1973, and one book about Galileo, the magisterial Galileo at Work (1978).

Livio's Galileo is a fine example of scientific popularisation: a well-documented overview of Galileo's life and work, with Galileo's legacy in the context of combating climate change and defending natural evolution. The science deniers of that time clearly parallel ours with the demented pandemic leadership of Trump, Johnson, and Bolsonaro. It was written too early to include public health denial, but a more recent interview with Minnesota Public Radio "weighs in on science denial then and now."

This book sets the scene for Galileo's infamous heresy trial, saying there was no justification, and recounts the trial and its sorry aftermath. In 1623 Galileo, at audience with the new Pope Urban VIII (Matteo Barberini), was told "[W]e cannot limit the divine power and wisdom in this way." From this, Galileo felt he could "present the Copernican model as a hypothesis" only. Galileo presented himself as a pious Catholic, not choosing Copernicanism "for higher motives." But soon changes in the political situation led Urban "to demand absolute obedience on all fronts from all those surrounding him."

Submitted to Father Riccardi, the Roman Censor, additions were expected that "would emphasize the hypothetical nature of the Copernican model." Thus, Galileo's pious preface. The Dialogue depicts a four-day discussion, in a Venetian palazzo, with the Copernican Salviati, the avid Aristotelian Simplicio, and their host, the judicious Sagredo. Salviati makes the running by first showing the equivalence of terrestrial and celestial spheres, and then demonstrating celestial motions

better explained by the Earth moving around the Sun. On the third and fourth day Salviati proves annual motion through the path of sunspots and finally by the ebb and flow of the tides, and even predicted stellar parallax: "[O]bservations … may … discover[　] those minimal changes that Copernicus took to be imperceptible."

Defensively Galileo concluded through Simplicio, "It would be excessive boldness … to limit and restrict the Divine power to some particular fancy of this own." Salviati agreed: "We cannot … penetrate the profound depths of His infinite wisdom.' Soon the censor at Florence, where the Dialogue was actually printed, was asked to "stop distribution of the book until some corrections were sent …." Jesuits pounced on Galileo, saying the book was not as the Pope expected. The Florentine Ambassador secured an audience on behalf of Galileo, where the Pope vehemently denounced Galileo's not following his orders. Then Urban struck a commission to investigate.

A 1616 admonition to Galileo, from Cardinal Bellarmine, against Copernicanism, was dredged up, and the sixty-eight year old Galileo was ordered to Rome to stand trial. After health-based delays, Galileo wrote his will, and had to head Romewards. Like today, raging plague quarantined Galileo before crossing from Tuscany into the Papal States. The Inquisition's ten cardinals were led by Vincenzo Maculano; Carlo Sinceri, the in-court prosecutor. At trial Maculano introduced the 1616 injunction. Galileo testified that advance permission to write wasn't sought, because the purpose was to refute Copernicansim. But Urban's commission concluded "Galileo teaches and defends … and indeed he holds it."

In a letter discovered in 1998, Maculano states that Galileo was very sick and the "case should be expedited quickly." A prompt settlement was desired. A plea bargain? Galileo was ready to confess and accept house arrest. Next session, Galileo stated his book appeared in "several places to be written [so] that a reader,

not aware of my intention," might believe Copernicanism to be true. "My error … was vain ambition, pure ignorance and inadvertance." He offered a new book, extending the Dialogo, "to clarify the falsity of the Copernican view." Galileo's reaction was a clear demonstration of intimidation "of even the most independent of thinkers, evoking horrifying memories of totalitarian regimes past and present."

Finally, "Galileo's and Einstein's Thoughts on Science and Religion" has "Galileo… trying to save the Church from committing a monumental error," but there is no good deed that goes unpunished. Similar repressive dogmatism is be found in the chapters "Creationism" and "Intelligent Design". Livio exemplifies scientism by declaring that "today's particle physicists have managed to discover all the basic constituents of ordinary matter" and concludes that "Science attempts to explain and predict the universe. Literature and the arts provide our emotional response to it." But how do we decide "What is to be done?"

-David Orenstein

Resource Guide

During the last few months, several teaching resources related to the pandemic and anti-racism have cropped up or are recirculating. Compiled by Sarah Qidwai, this annotated guide is for those looking to incorporate new resources into their courses.

Indigenous Canada

A Massive Open Online Course at the University of Alberta

This course, offered by the Faculty of Native Studies, "explores Indigenous histories and contemporary issues in Canada. From an Indigenous perspective, this course explores key issues facing Indigenous peoples today from a historical and critical perspective highlighting national and local Indigenous-settler relations."

See: Indigenous Canada

Native Land Digital

"Native Land Digital is a Canadian not-for-profit organization, incorporated in December 2018. Native Land Digital is Indigenous-led, with an Indigenous Executive Director and Board of Directors who oversee and direct the organization. Numerous non-Indigenous people also contribute as members of our Advisory Council. The Board of Directors govern finances, set priorities, and appoint staff members as required. Native Land was created in 2015 by Victor Temprano, a settler hailing from Okanagan territory."

The map is a great teaching resource and a way to move beyond land acknowledgments in virtual settings.

See: Native-Land.ca | Our home on native land

Syllabus: A History of Anti-Black Racism in Medicine
By Antoine S. Johnson, Elise A. Mitchell, and Ayah Nuriddin

Focusing on the history of anti-Blackness in American medicine, this syllabus offers insights into the historical legacies of American health and healthcare disparities by drawing on a wide range of scholars. The readings are meant to be a starting point for further discussions about Anti-Black Racism in Medicine

See: Syllabus: A History of Anti-Black Racism in Medicine

Recent *Isis* Articles on the history of race and racism in science

This resource, compiled by the co-editors of Isis, is a selection of articles from recent years that examine the "role of science in constructing and perpetuating assumptions about race, and the consequences of these practices for society. The works listed on this page are critical examinations of Western science, and of the discipline of history of science."

See: Recent Isis articles on the history of race and racism in science

Jstor: Institutionalized Racism, A Syllabus

The United States has seen escalating protests over the past week, following the death of George Floyd while in custody of the Minneapolis police. Educators everywhere are asking how we can help students understand that this was not an isolated, tragic incident perpetrated by a few bad individuals, but part of a broader pattern of institutionalized racism. Institutional racism—a term coined by Stokely Carmichael (later known as Kwame Ture) and Charles V. Hamilton in their 1967 book Black

Power: The Politics of Liberation in America—is what connects George Floyd and Breonna Taylor with Ahmaud Arbery, Philando Castile, Sandra Bland, Eric Garner, Emmett Till, and the thousands of other people who have been killed because they were "black in America."

This context seems vital for discussions both inside and outside the classroom. The following articles, published over the course of JSTOR Daily's five years try to provide such context. As always, the underlying scholarship is free for all readers. We have now updated this story with tagging for easier navigation to related content, will be continually updating this page with more stories, and are working to acquire a bibliographic reading list about institutionalized racism in the near future.

See: Jstor: Institutionalized Racism, a Syllabus

Research Guide: "History of Anthropology and Science and Race"
by Sadiah Qureshi

"The literature on science, race and anthropology is vast. This Resource is a very limited introduction and geared towards those interested in the subject of race mainly from a history of science perspective."

See: History of anthropology and science and race | Research guide | HPS

The Humanities Coronavirus Syllabus
A crowd-sourced syllabus edited by Sari Altschuler and Elizabeth Maddock Dilion

This resource is created to "To help us think and teach about contagion, global health, and community in a time of social distancing and fear, we are collecting contributions to this crowd-sourced syllabus, which focuses on literary, historical, philosophical/religious, and cultural aspects of the current health crisis and its history."

See: Humanities Coronavirus Syllabus

American Historical Association's Remote Teaching Resources

The AHA's Remote Teaching Resources " compiles materials and tools to help historians develop courses and teach remotely in online and hybrid environments. The site is a central location for resources that have been professionally vetted by historians, offering instructors access to high-quality materials that meet professional standards."

See: Perspectives on History | AHA

Submissions

All submissions and inquiries should be emailed to **cshps.communique@gmail.com**

Issues are published three times a year: in Winter, Summer, and Autumn. Submissions are welcome and can be sent in both official languages. We welcome submissions in the following categories:

Announcements: details about conferences, worshops, job openings, departmental or program news, and call for papers.

Research & Pedagogy: launches of any new and innovative research or techniques used to teach HPS or original topics addresed in their classes and seminars. We are especially interested in digital humanities projects and student engagement pedagogies. Descriptions should be no more than 800 words(with e-links, if available).

Reports & Reviews: we are interested in receiving short reports (500 words max.) from conferences or workshops our members have attended during the fall, together with photos they would like to share with us. Book reviews (500 words max) are also welcome.

In Conversation: we encourage graduate and early career scholars to contact the Editors if you have an idea of an individual to interview. We are especially looking for interviews of scholars who adopt intersectional approaches to HPS or who advocate non-traditional scholarly avenues.

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

Member Updates & New Books: once a year we'll publish member updates, but welcome new book announcements year-long. Please send no more than 200 words blurb and a high-res image of the cover.

Our aim is to keep the HPS community abreast of what is going on in the field, here and abroad, intellectually and institutionally. 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. We thank you for your contributions. The editors are grateful to York University for assistance with archival printing costs.

The newsletter layout was designed and created by Jaipreet Virdi using Scribus, an open source desktop publishing program.

REMINDER TO RENEW/RAPPEL DE COTISATION

This is a good time to remind members that your 2020 memberships have expired, so it is time to renew for 2021. In order to attend and/or participate in annual meetings, you do 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 2020 vient d'arriver à son terme et qu'il est donc temps de renouveler leur adhésion pour 2021. Pour assister et/ou participer au congrès, vous devez être à jour dans votre cotisation: http://www.yorku.ca/cshps1/join_fr.html