Teaching history of technology: experiments, innovative methods, and approaches

A proposal for a 90-mns unconventional session (lightning talks of 6 minutes each) for the Annual Meeting of the Society for the History of Technology (SHOT 2023) Long Beach, Calif., October 25-29, 2023

This unconventional session aims to investigate and discuss new methods, approaches, and experiments for the teaching of HoT in academic settings. Through an open call for proposals, Andreas Fickers and Valérie Schafer (C^2DH, University of Luxembourg) invited early and advanced scholars to share their experiences, innovative ideas, and critical lessons learned in a variety of educational settings and academic cultures. The topics proposed by the colleagues include the following issues:

- Renewal of topics in existing curricula / case studies of curricular changes to the history of technology program
- New or/and challenging types of primary sources
- Reenactments and experiments with hands-on history classes
- Project-based learning and research seminars
- Use of born-digital content and digital tools for transmedia storytelling
- Ethnographic field work / oral history
- Interdisciplinary and cross-disciplinary approaches
- Inclusion and ethical considerations

The session is composed of 9 lightening talks reflecting on a variety of topics in the field of history of technology – environment, materiality, media – with a special emphasis on different methods of researching and teaching these issues, i.e. genealogies/biographies of objects, hands-on experiments, laboratory settings, and situated knowledge practices.

Teaching Socio-Eco-Technical Entanglements: Trajectories of Species Through the Columbian Exchange (Meredith Sattler)

At the nexus of two topics central to this panel, an interdisciplinary/cross- disciplinary approach to the history of technology, and hands-on project-based learning, **Meredith Sattler**, Assistant Professor of Architecture, Cal Poly San Luis Obispo, will present her approach to facilitate 'situated' ways of unpacking Anthropocene entanglements. This proposal presents a project based on one of these approaches, tentatively titled 'tangled hairball,' which uses the analogy of tracing a single hair's path through its tangled ball, in situ. She will begin by briefly outlining her undergraduate course, titled *Anthropocene as Global Environment*, whose mid-term "exam" is a hands-on project. She will succinctly summarize the learning module that directly supports the mid-term, *The Plantationocene: Construction of Colonial Environments and Laborers*, with an introduction to how the module's initial unpacking of *The Columbian Exchange and Engineered Extraction* sets up the project's approach. Loosely inspired by Amitav Ghosh's work on Nutmeg and Gregg Mitman's work on the Firestone Rubber Plantation, the project asks students to engage in historical research that traces one species' trajectory [drawn out of a hat] from its native environment, through its process of cultivation/extraction/processing, to its final market/site of consumption. The presentation will introduce the assignment's 2 parts and its deliverables: a map, a timeline, an "ANT" inspired diagram, and a text narrative of the trajectory, and will conclude by showing select examples of student work. Final remarks will include student feedback on the project, and a brief discussion of how the theoretical approach facilitates a clear, yet simultaneously entangled, understanding of how technologies have coproduced today's Anthropocene-world.

Planetary Boundaries, the *Titanic*, and the Iceberg: From the Holocene to SOS (James Schwoch)

The presentation by **James Schwoch**, Northwestern University, utilizes PowerPoint to narrate the well-known story of the *Titanic* tragedy from environmental and climatological perspectives. In this account, the story opens in the Holocene, about 12,000 years ago, with the decline of the last Ice Age and the early seaward movement of Greenland glaciers. James Schwoch demonstrates how the *Titanic* tragedy is an important and compelling story about new technologies, modernity, breaking news, miscommunication, wireless, the ITU, global technologies of communication, pop culture, and more. All of these facts remain integral to the story and are part of why the *Titanic* tragedy remains important in teaching histories of technology, communication, transportation, and globalization. But there is more: the *Titanic* tragedy is also a story about the awakening social awareness of safe planetary boundaries. Climate change, sea ice, global warming, and melting glaciers are part of thinking of and acting on the planet as a whole in the 21st century.

Teaching and Learning with STUFF: History of Technology and "Making" in a First-Year Seminar (Blair Stein)

Blair Stein would like to share her experiences with a course at her university called the "Clarkson Seminar." It is a mandatory first-semester seminar designed to help students hone their critical thinking, reading, and writing skills. Because Clarkson University is a STEM-focused school, the Clarkson Seminar may be a student's first and most significant exposure to the humanities. Her Clarkson Seminar theme is "STUFF." In STUFF, students explore seven different everyday objects, including menstrual pads, blue jeans, and cellphones, from a variety of perspectives: not just history, but also literature and popular culture, philosophy, social science, and activism. They also think critically about STUFF in general, from the psychology of collecting to the environmental impact of plastic waste. Students are assigned a variety of creative, argumentative, and expository writing assignments, which have included re-creating a historical advertisement for menstrual pads, writing a work of Victorian literature about trains, and analyzing twentieth-century pop-music lyrics about telephones. Recently, Blair Stein has begun thinking critically about "making" as a component of argumentation and has been thinking about "stuff" not just as a *topic* for a first-year seminar, but as a method for teaching and learning about that topic. She would like to share her experiences on two significant fronts: how teaching this interdisciplinary course has informed her approach to the history of technology as an instructor and scholar; second, her experiences with "making" in the classroom and how the history of technology may be incorporated as both method and theme.

Doing Experimental Media Archaeology, intertwining Practice & Theory (Andreas Fickers)

In September 2019, **Andreas Fickers**, a professor at the university of Luxembourg and head of the C^2DH, launched the "Doing Experimental Media Archaeology" (DEMA) project which provides a systematic reflection on the methodological underpinnings of experimental media archaeology as a practical and sensorial approach to the history of media technologies / past media usages. In their 2014 essay "Experimental Media Archaeology: A Plea for New Directions", Andreas Fickers and Annie van den Oever underlined the heuristic potential of hands-on approaches for re-sensitising scholars to the materiality of bygone media technologies and the tacit knowledge involved in their technical, social, and cultural usages. Since then, he has been doing hands-on history experiments in seminars and hands-on history workshops, exploring different types of experiment (basic, technological, and performative experiments) and discussing the epistemological dimension of experiments as heuristic tools in the history of technology. Both the theoretical and practical insights of the project and of related activities within the DEMA-network have recently been published in a two-volume book

series which form the empirical basis for the presentation. In a self-reflexive manner, he will discuss the educational potential and practical challenges and limitations of doing experimental media archaeology in classroom and in public performances.

Recreating the User Experience in a Retrocomputing Lab (Thomas Haigh)

At the University of Wisconsin-Milwaukee, **Thomas Haigh** has put together a small retrocomputing lab to support an undergraduate honors seminar structured around his book *A New History of Modern Computing*. The lab holds several dozens of working computer systems from 1980 to 2005, together with software, books, reviews, magazines, price lists and other ephemera. Many of the seminar meetings are held in the lab, allowing for interactive demonstrations of the machines and features discussed in the readings. For example, in one class students pretended they had just purchased a BBC Microcomputer, spending time reading its manual and loading the sample programs from the bundled Welcome cassette tape (discussed in one of the readings).
Example projects included looking at the evolution of word processors, spreadsheets, windowing operating systems, adventure video games, and accessibility features. Student evaluations point to the retrolab experience as the highlight of the course. Without such experience it is hard for students, many with no background in computing, to mentally reconstruct the experiences of historical computer users or to appreciate the significance of the various technological details discussed in the course readings. Setting up and maintaining the lab has required a significant investment and time and personal resources by Haigh, but has supported his research as well as his teaching. By bringing him into contact with the large enthusiast communities of retrocomputing hobbyists it has challenged him to think more deeply about who is invested in the history of these technologies and why.

Creating a "Living Book about History" on Women, Gender and ICTs (Valérie Schafer)

Valérie Schafer, a professor at the C^2DH at the university of Luxembourg, aims to discuss the experiment she conducted over 14 weeks with her master students in creating a Living Book intertwining sources and research articles on the topic "Women, Gender and ICTs".
The plan of the anthology as well as the choice of sources was made by the students, who were however constrained to introduce a certain number of designated works by the teachers. The selection of sources also had to meet the constraints of accessibility and openness of the resources, as it is to be published online (https://livingbooksabouthistory.ch/en/), thanks to a collaboration with a historical association, Infoclio. The students were instructed to try to vary the types of sources (films, advertisements, posters, web content, oral interviews, etc.). They were also asked to write the descriptions, which were reviewed as a group to harmonize the narrative. These moments of collective rereading allowed the introduction of the notion of *peer-review*.
This experience went through some trial and error. However, at the crossroads of the history of computer science and gender, but also of digital and public history, this Living Book has allowed for scientific learning and reading, and for the development of skills related to the analysis and criticism of sources, to scientific mediation, to digital publishing (openness, licenses, etc.).

Innovating Public History Education: The Impact of Digital Tools and Collaborative Projects (Chloe Bell-Wilson)

Chloe Bell-Wilson, a UCLA PhD Student at the Department of History, will explain how using technology in the history classroom encourages students to become active participants in the making of history. This lightning talk highlights UCLA's undergraduate public history

classrooms, directed by the Public History Initiative (PHI), emphasizing the role of digital tools in enhancing project-based learning and interdisciplinary approaches. In these classrooms, students combine theoretical understanding with hands-on work, culminating in student-created exhibits for public consumption. Students learn to use digital tools like ThingLink, which allows users to add annotations, links, and multimedia elements to images, videos, and 360-degree content, creating immersive experiences that effectively engage audiences. ThingLink-supported projects involve synthesizing primary and secondary resources, annotating images, and crafting write-ups to explain historical moments to a public audience, including major moments in the history of technology and science. Developing a collaborative exhibit helps students acquire practical skills while deepening their understanding of technology's social and cultural implications. This lightning talk shares insights from these projects, discussing the benefits of using digital tools, including making learning accessible, engaging students, offering agency and creative control, and fostering an active citizenship mindset.

Do zip codes have politics? A Historical Examination of Proxies for an Introductory Class on Race and Technology (Fabian Prieto-Ñañez)

As we confront the issue of algorithmic bias, it has become clear that we must reexamine the technologies we use for data collection. One approach involves opening up the "black boxes" of algorithms and scrutinizing the construction of racial proxies, which are often based on problematic assumptions and historical biases. By taking a historical perspective on technology, we can gain a deeper understanding of the power dynamics that shape these proxies and use this knowledge to inform more equitable solutions.
In this presentation, **Fabian Prieto-Ñañez**, an Assistant Professor at Virginia Tech's Department of Science, Technology, and Society, will explore the use of history to discuss racial proxies in technology in an introductory class on race and technology. Drawing on the specific case of the history of Zone Improvement Plan (ZIP) codes in the United States, I will illustrate how thinking historically can help students to identify patterns of exclusion and inequality that persist in our data-driven systems. By examining the pedagogical impacts of this approach, I will show how it can inform new strategies for addressing contemporary problems, including developing more inclusive algorithms, designing fairer data collection methods, and promoting greater transparency in the use of technology.

The case for investment in public universities (Andrew Russell)

Andrew Russell is a professor of history and officer-in-charge of SUNY Polytechnic Institute. He is the author or co-author of books including Circuits, Packets, and Protocols (with James Pelkey and Loring Robbins); The Innovation Delusion (with Lee Vinsel); and Open Standards and the Digital Age. In his current role as interim president of his institute, he find himself talking to executives, elected officials, and the media about the trajectory of the campus as it fits into the broader landscape of state, national, and industry investments in semiconductor manufacturing and workforce training. He has found that they highly value his comments when he tells them he has a PhD is in the history of technology, because he can speak to the different configurations of public-private partnerships in high-tech industries, using insights or anecdotes from history to indicate where the institute is on the right track, or where it needs some corrective action.