# ANT SPIDER BEE

## Chronicling digital transformations in environmental humanities

Kimberly Coulter,
Wilko Graf von Hardenberg &
Finn Arne Jørgensen, eds.

# Ant Spider Bee:
# Chronicling digital transformations
# in environmental humanities

Kimberly Coulter, Wilko Graf von Hardenberg, and Finn Arne Jørgensen, eds.

Cover image: Modified excerpt from *Naturgeschichte, Klassification und Nomenclatur der Insekten vom Bienen, Wespen und Ameisengeschlecht.* Frankfurt am Main: in der Hermannischen Buchhandlung, 1791. Public domain. Via Biodiversity Heritage Library.

Cover and book design: Aline Neumann, PANDA

# Table of contents

## III. Mediations: New forms                                                 114

PREFACE

**W**e are writing this at the end of 2020. Ten years ago we could not have imagined the transformations the 2010s would bring: the global ascendancy of authoritarian populism, refugee crises, the increasing visibility of human-driven climate change, a global pandemic. At the same time, on a positive note, we have seen a growing interest in the methodologies and tool sets known as "digital humanities," and a convergence of environmentally-focused humanities and social sciences around "environmental humanities."

*Environmental humanities* is an emerging field concerning human engagement with and understanding of the environment (of which humans are, naturally, a part). Drawing on many more established fields and traditions, environmental humanities can be characterized by a strong ethical impulse: to recognize and challenge the false dualisms (e.g., nature/culture) that have been used to justify practices that exploit or harm the planet and its inhabitants, using more pluralist or justice-oriented perspectives to reframe what can be asked and known.[1] While such impulses are not new, in the last decade they have become increasingly institutionalized. State and private funders support research and teaching; universities open centers and award graduate degrees; museums curate exhibitions; open access publications and digital resources (like the journal *Environmental Humanities* and the Environment & Society Portal, both online since 2012) reach broad audiences directly, without paywalls. An excellent summary of the academic institutionalization of environmental humanities is available here.[2] As a result of this institutionalization, environmental humanities is becoming increasingly visible in academia as a source of ethical impulses for coping with growing crises. To the extent it is also influential depends on its efforts to communicate to broader audiences.

When Rachel Carson published *Silent Spring* in 1962, first serialized in *The New Yorker*, then published as a book, and discussed on American national television, she captured the public imagination and mobilized action in the US and abroad. More recently, we see the rapidly increasing value of digital media technologies not only for reaching audiences but also for collecting public knowledge, sharing knowledge outside expert circles, and using "big" bodies of data to generate new knowledge. These methodologies and tools, known as "digital history" or "digital humanities,"[3] were unevenly accepted outside a few core hubs in 2010; early efforts

---

1  Frédérique Apffel-Marglin and Stephen A. Marglin, *Decolonizing Knowledge: From Development to Dialogue* (Oxford: Clarendon Press, 1996).

2  Emily O'Gorman, Thom van Dooren, Ursula Münster, Joni Adamson, Christof Mauch, Sverker Sörlin, Marco Armiero, Kati Lindström, Donna Houston, José Augusto Pádua, Kate Rigby, Owain Jones, Judy Motion, Stephen Muecke, Chia-ju Chang, Shuyuan Lu, Christopher Jones, Lesley Green, Frank Matose, Hedley Twidle, Matthew Schneider-Mayerson, Bethany Wiggin, and Dolly Jørgensen, "Teaching the Environmental Humanities: International Perspectives and Practices," *Environmental Humanities* 11, no. 2 (1 November 2019): 427–60. doi: https://doi.org/10.1215/22011919-7754545.

3  Both terms are broad "umbrellas" that cover many interpretations, see, for example, Jason Heppler's fascinating "What is Digital Humanities" page: each time you refresh the page it shows a different definition.

Portrait of Francis Bacon, artist unknown. Public domain. Via Wikimedia Commons.

of mostly junior faculty were still regarded as public service at best and at worst viewed with skepticism or even fear that humans' interpretive powers would be thrown overboard and overrun by machines. A turning point came as more national funding bodies and private foundations began to intensify funding impulses to encourage open access, e-publication, humanities computing, long-term archiving, and digital collaboration, and especially the integration of those practices into traditional research calls. Changes in attitudes and practices followed, accelerating the hiring and promotion of digitally savvy scholars and the establishment of digital humanities chairs and institutes. Even many of the most tech-averse have come to appreciate the virtues of open access, crowdsourcing, and digital practices in peer review.[4] Digital media are essential to public history and humanities;[5] they rise, however, in parallel with populism, suspicion of science, and the spread of "fake news." It has been an earth-shaking transformation.

In 2011 we created the blog *Ant Spider Bee* to collect and reflect on ways technology was transforming the epistemologies, methods, and dissemination of environmental humanities research. We were inspired by Francis Bacon's ant, spider, and bee as models of collecting, processing, and transforming knowledge:

> *T*he men of experiment are like the ant, they only collect and use; the reasoners resemble spiders, who make cobwebs out of their own substance. But the bee takes a middle course: it gathers its material from the flowers of the garden and of the field, but transforms and digests it by a power of its own.

—Francis Bacon, *Novum Organum* (1620).

4 Conversation: "Open Access and the Environmental Humanities," *Environmental Humanities* blog (23 October 2013).

5 Serge Noiret, Mark Tebeau, and Gerben Zaagsma, eds., *Handbook Digital Public History* (Oldenbourg: De Gruyter, forthcoming 2022).

Our mission: to engage academics and practitioners in exploration, discussion, and reflection on digital practices, methodologies, and applications in environmental humanities work. We hoped to embolden scholars to try new things, and to affirm that the human power of reflection in creating and using media is in fact, everything. The project gained steam in 2015 with a grant from the Alfred P. Sloan Foundation for which we collaborated with the Roy Rosenzweig Center for History and New Media to pilot PressForward, a WordPress aggregator and publishing tool. For two years we experimented with PressForward and observed its impact on our curation processes. We grew our audience, mobilized volunteer editors, and published insightful essays from several dozen contributors. Finally, in order to make room for new projects, we stopped regularly updating the blog in 2017.

As we move on, we pause to reflect on this set of interventions during this particular scholarly, environmental, and political period. This collection presents a selection of "bee" posts, the featured essays. While they do not represent every possible intersection of digital and environmental humanities, they do highlight issues we deemed important in three areas: engagement, mediation, and metamorphoses. To support the open access publication of this e-book, all featured contributors agreed to the liberalization of their licenses from the original CC BY–NC–SA to CC BY. Please note that this license refers to text only; images may carry difference licenses. We take a pragmatic approach to "link rot": we update links when possible; we "gray-out" and deactivate broken links. All URLs are written out at the end of each chapter. This e-book also publishes a few short postscripts that revisit projects years later; these follow the earlier posts on the same projects.

In addition to chronicling and contextualizing these interventions, we tell the story of how and why we started *Ant Spider Bee*, and reflect on our technology-influenced curation practices. The entire blog, including published "ants" and "spiders" (news stories and academic announcements), can be viewed on the archived *Ant Spider Bee* site via Internet Archive's Wayback Machine. The e-book will be available via Environment & Society Portal and via Open Access LMU at the LMU University Library (UB).

A kind of time capsule, this e-book contains snapshots of transformations in knowledge practices during a period of rapid change. Yet novel as these digital interventions may seem, they, too, will become part of the history of science. To evoke a feeling for this continuity of knowledge, we bookend the collection's twenty-first-century screenshots with much earlier images from the Biodiversity Heritage Library. (BHL itself has celebrated the benefits of Flickr for bringing digitized archival natural history material to the public.)

**Links:**

https://doi.org/10.1215/22011919-7754545

http://www.environmentandsociety.org/exhibitions/silent-spring/overview

http://www.antspiderbee.net/

http://whatisdigitalhumanities.com/

http://www.antspiderbee.net/2013/10/24/environmental-humanities-and-open-access/

https://www.degruyter.com/view/title/511798

http://web.archive.org/web/*/antspiderbee.net

http://www.environmentandsociety.org/

https://www.en.ub.uni-muenchen.de/index.html

https://www.flickr.com/photos/biodivlibrary/albums/

http://www.antspiderbee.net/2012/03/26/flickr-bhl/

http://www.carsoncenter.uni-muenchen.de/index.html

https://commons.wikimedia.org/wiki/Category:Portraits_of_Francis_Bacon#/media/File:Francis_Bacon.jpg

https://flic.kr/p/2kwTyPM

---

Image: Detail from *Metamorphosis naturalis, ofte historische beschryvinghe van den oirspronck, aerd, eygenschappen ende vreemde veranderinghen der wormen, rupsen, maeden, vliegen, witjens, byen, motten en dierghelijcke dierkens meer; niet uyt eenighe boecken, maer alleeneli.* Middelburgh: Jaques Fierens, boeck-verkooper, inde Globe, 1662–1669: plate 46. Public domain. Via Biodiversity Heritage Library.

# I. EVOLUTION

*A*nt Spider Bee was born in 2011 in Finland during a meeting of the European Society for Environmental History. It was summer in Turku, and the sun never fully set. At this time Finn Arne was teaching history of technology and environment at Umeå University in Sweden, and Kim and Wilko were both at the Rachel Carson Center for Environment and Society in Munich, Germany. Each of us had observed the value of digital tools for environmental history and saw a need to promote open access and discovery as well as to inspire our colleagues to try out digital tools. We decided to edit a collaborative blog to reflect on "the digital" in the contexts of the young field of environmental history and the emerging field of environmental humanities. According to our notes, we wanted to address "environmental humanities academics (possibly env. social scientists) reflective about the use of digital tools in their research, analysis, publication, teaching, or public outreach." Our goals included:

- reflecting on digital humanities practices, methodologies, and applications in environmental humanities work
- reflecting on the development processes of specific digital environmental humanities projects
- promoting digital practices to environmental humanities scholars
- involving scholars in a shared process
- encouraging collaboration beyond *Ant Spider Bee*

In choosing a name, we aimed to refer to environmental and digital phenomena while also evoking the cozy, conversational atmosphere of a British pub. In an e-mail exchange, Finn Arne proposed "The Spider and the Cloud." Thinking of Bacon's metaphor, Kim suggested "The Spider and the Bee." Wilko replied, "I like it. Bees are actually a good metaphor for crowdsourcing, and the Bacon is great. But what about the poor ants?" We agreed on the name *Ant Spider Bee* for its hybrid quality. Our decision to divide content into "ants," "spiders," and "bees" was both utilitarian and resonated with Bacon's meaning and our goals. With the blog's tagline "exploring the digital environmental humanities," we hoped to set the tone as one of curiosity rather than institutionalization. We saw, and continue to see, digital environmental humanities not as a field, but as a family of methods, interventions, and practices such as curating and collaborating.

To start, we compiled a list of potential contributors. Eventually, those interested in contributing would contact us. Initially, we edited posts and collected news items on a rotating basis. After receiving the Sloan grant and meeting with other

PressForward partners, we implemented a volunteer editor system for the news (ant) curating. Key to this was providing very specific instructions about what we were looking for and specifically defining digital environmental humanities.

## How we understand "digital environmental humanities"

Is there really something you can call the "digital environmental humanities"? Does it have the standing and stature of what is, or could become in the foreseeable future, an autonomous academic field of inquiry?

In editing *Ant Spider Bee*, we've come to see "digital environmental humanities" as the small slither of an overlap between two broad, currently highly successful, and burgeoning disciplines: the digital humanities and the environmental humanities. Rather than a thriving field, it resembles an allotment garden requiring a whole lot of individual and community work to be kept alive. This analogy also fits the quote from Bacon's *Novum Organum* we appropriated to name our blogging experiment.

How you understand and interpret the digital environmental humanities depends a lot on where you come from and the elements you want to emphasize. For some, the focus will be about how best to apply digital methods to teaching and research in the environmental humanities or how to create web presences that actively reflect our sensibilities as environmental scholars. For others—or, better, in other instances—it will be an analysis that adopts the methods of the humanities to understand the environmental impact of our new digital world or our use of digital gadgets to perceive, appreciate, and navigate the natural environment.

*Ant Spider Bee* has published posts from each of these camps, and some broaching them, in an attempt to show the variety of approaches scholars in the humanities can adopt when discussing the digital and the environmental. From its beginning, the blog has aimed at being not a formal disciplinary journal of a non-existing field, but a place where the interventions between different fields in the humanities around the interactions between the digital and the environment could be traced and registered. Thus, rather than a normative description of a field of inquiry, this collection is a snapshot of the constantly transforming practices adopted in a specific period of time. It is an attempt at chronicling and documenting the process by which the very tiny community that has explicitly expressed interest in the digital environmental humanities has coalesced around these intersections, without trying to define what this set may represent as a whole.

## How do we curate this nexus between "digital" and "environment"?

Our curation approach concerned collecting and documenting 1) news items that could be relevant for communities interested in digital environmental humanities ("ants"); 2) announcements and documentations of scholarly activities where the digital and environmental intersect ("spiders"); and 3) reflections on how practices and tools transform research ("bees").



**Smart Meters Spot Wasteful Water Users**

⊙ April 7, 2015   ☐ The Ant   💬 0 Comments

For NPR (National Public Radio), Molly Peterson reports that in Long Beach, California, new "smart meters" record water use every five minutes and send this data to the cloud, helping…

**CFP: The Internet and Online Pedagogy**

⊙ April 6, 2015   ☐ The Spider   💬 1 Comment

Universities and Knowledge Society Journal (RUSC) is an electronic publication coedited by the Universitat Oberta de Catalunya and its eLearn Center, and the University of New England. Excerpt from the…

**"We must see digitally creative projects as essential to scholarship and teaching in the 21st century"**

⊙ March 31, 2015   ☐ The Bee   💬 2 Comments

By Gregg Mitman Digital media is rapidly transforming what it means to be a scholar. Never before has such a wealth of information been so easily accessible. Never before have…

Screenshot showing *Ant Spider Bee*'s three content categories: the ant (the gatherer) collects news related to digital environmental humanities; the spider (the reasoner) collects scholarly announcements and documentation of activities; and the bee (which digests) offers reflections on digital transformations in environmental knowledge.

For the core essays, the "bees," we tapped our networks, asking for contributions from colleagues near and far, and from others whose work we admired. Gathering the news items—the "ants" and "spiders"—proved time-consuming. We kept an eye open for content as we went about our regular reading of newspapers and digital publications, seeking news relevant to three overlapping areas: digital technology, the environment, and the humanities. We followed our professional networks. Of course, this has its limitations. Most difficult of all was fishing out relevant news items from the Web. Twitter hashtags (#envhum, #envhist, #dighum) helped somewhat, but because news items with relevance for digital environmental humanities could be found anywhere and were, of course, never labeled as such, there was no way we could hope to be comprehensive. This took time and effort; still, we missed a lot.

So we were delighted when, in 2015, we were approached about a digital tool that could help us augment our "ant." The Roy Rosenzweig Center for History and New Media (RRCHNM) at George Mason University, known for Zotero and Omeka, selected *Ant Spider Bee* as a pilot partner to test their new aggregation and publication tool, PressForward. An open-source plugin for Wordpress, PressForward aims to help content creators turn blogs into "content hubs." By aggregating content via RSS ("really simple syndication," which lets you subscribe to websites and pull in their

new content), PressForward lets curators more easily identify online developments in an area of interest. It also provides an interface to collaboratively review this content, and "press forward" selected items or annotated excerpts thereof as posts in one's own publication. A generous grant of $20,000 from the Alfred P. Sloan Foundation supported our integration of PressForward into *Ant Spider Bee.*

Perhaps even more important than the funding itself was the collaborative energy it generated. This resulted in increased visibility; in the first five months since we added PressForward, our traffic increased 138%. What had begun as an independent project would affiliate with the Rachel Carson Center for Environment and Society in Munich, where Kim directs the Environment & Society Portal. At a workshop at George Mason University from 13–14 August 2015, PressForward project manager Stephanie Westcott and colleagues offered ideas and support. We enjoyed discussing common challenges of "scholarly blogging" with the other three original pilot partners [PLoS, MicroBEnet, CitizenScienceToday (Zooniverse)], and other workshop participants (including Woods Hole Marine Biological Laboratory and the Association of College and Research Libraries' dh+lib). Some would become future contributors to *Ant Spider Bee.*
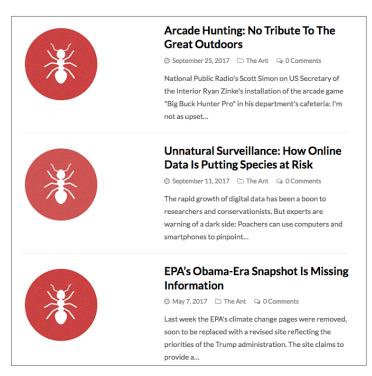
With an increased volume of news items to review, we followed the recommendation of the PressForward team and put out a call for volunteer editors. Enrolling volunteers forced us to more explicitly define guidelines for what to include or exclude, sharpening our understanding of what we find relevant for "digital environmental humanities." We modeled our guidelines for editors-at-large on that of RRCHNM's project Digital Humanities Now. Volunteer editors-at-large were responsible for reviewing *Ant Spider Bee*'s PressForward feed at least once during a specific shift (usually one week) and nominating relevant content for publication in the "ant" (news) and "spider" (calls for proposals and applications) categories.

Yet instructing others to identify "relevant" ants and spiders proved tricky. We put it this way:
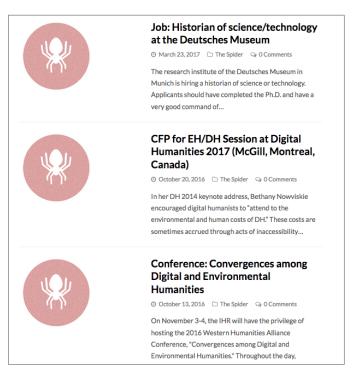
> *"Relevant" content can be anything of interest to digital, environmental, and humanities topics, even if one of those aspects is not explicitly addressed in the post. Possibilities include: Digital humanities projects/scholarship with environmental relevance; Environmental news with a digital component and humanities relevance; Reports, tutorials, or resources relevant to digital environmental humanities; Funding and opportunities;*

*Job announcements; Calls for contributions to collections, blogs, conference panels, etc.*

In addition to block-quoting and citing excerpts from these posts, we also tried to contextualize them for readers, describing what we found significant about each item. In spite of a reference collection of "ants" and "spiders," most student volunteers still found this task difficult. We document our experience with PressForward within the blog with "*Ant Spider Bee* relaunches as PressForward pilot partner" (23 March 2015) and "The 'scholarly blog': PressForward's many paths to success, and how to measure them" (26 August 2015).



A screenshot showing *Ant Spider Bee's* "ant" feed (news items at the intersection of digital and environmental news).



A screenshot showing *Ant Spider Bee's* "spider" feed (announcements and documentations of scholarly activities where the digital and environmental intersect).

While we agreed that we did not see "digital environmental humanities" as a field, it became increasingly clear that our "ants" and "spiders" together comprised a family of observations and opportunities that pointed at a family of interventions. In our curation efforts, we aimed to 1) suggest an attitude or orientation to these interventions, and 2) encourage scholars to experiment and cooperate in their relevant fields (e.g., environmental history, environmental humanities, and media

studies).[1] This collection offers a selection of *Ant Spider Bee*'s featured essays that show the development of projects and ideas during this period.

In this first section, we have gathered essays that set the stage for this digital environmental humanities work. Wilko Graf von Hardenberg introduces the power of the hashtag #envhist for building community and sharing resources. Charles Travis describes a workshop on "Networking the Digital Environmental Humanities" at Trinity College, Dublin, in 2015, providing recordings via Soundcloud. Finn Arne Jørgensen briefly recounts the role of twitter and digital topics at the 2015 meeting of the European Society for Environmental History and reflects on a "THATCamp" he organized before the 2016 meeting of the American Society for Environmental History. Marcus Hall describes the value of digital publishing "beyond the book" in the case of his Wilderness Babel project, and Kimberly Coulter discusses diverse ways of measuring the success of the "scholarly blog."

Links:

https://rrchnm.org/

https://rrchnm.org/zotero/

https://rrchnm.org/omeka/

http://pressforward.org/

http://www.environmentandsociety.org

http://blogs.plos.org/

http://microbe.net/

http://blog.zooniverse.org/category/citizenscience/

http://www.mbl.edu/

http://acrl.ala.org/dh/

http://www.antspiderbee.net/wp-content/uploads/2015/03/guidelinesforeditors-at-large1.pdf

http://digitalhumanitiesnow.org/

http://www.antspiderbee.net/2015/03/23/ant-spider-bee-relaunches-as-pressforward-pilot-partner/

https://www.routledge.com/Methodological-Challenges-in-Nature-Culture-and-Environmental-History-Research/Thorpe-Rutherford-Sandberg/p/book/9781138956032

https://web.archive.org/web/20201124231256/http://www.antspiderbee.net/

https://www.flickr.com/photos/biodivlibrary/50545181316/in/album-72157716667206373/
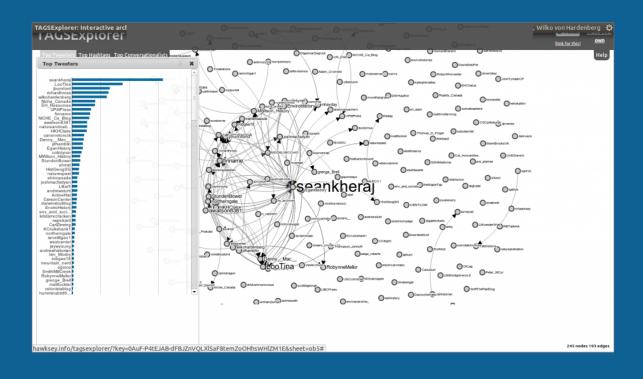
https://www.routledge.com/Methodological-Challenges-in-Nature-Culture-and-Environmental-History-Research/Thorpe-Rutherford-Sandberg/p/book/9781138956032

https://flic.kr/p/2k1vgro

---

Image: Detail from *Schou-burg der rupsen, wormen, ma'den, en vliegende dierkens daar uit voortkomende.* Amsterdam: Jan ten Hoorn, 1688. Public domain. Via Biodiversity Heritage Library.

---

1  To read more contributions on this topic, see Jocelyn Thorpe, Stephanie Rutherford and L. Anders Sandberg, eds., *Methodological Challenges in Nature-Culture and Environmental History Research* (Routledge, 2017).

Screenshot of a visualization of connections between Twitter users using the hashtag #envhist, made by Wilko Graf von Hardenberg on TAGSExplorer, 2012.

# #envhist: Social media and community-building in environmental history

_Wilko Graf von Hardenberg_

Social media represents a great opportunity to create communities that go beyond traditional circles of acquaintances. This is more so important in a field such as environmental history which openly aims at transdisciplinarity and transnationality. In fact, social media give the opportunity to be heard by and interact with an audience that goes way beyond, both geographically and conceptually, the limits of academia and includes not only amateur historians and practitioners of other disciplines (e.g., the natural sciences), but aims also to involve the general public.
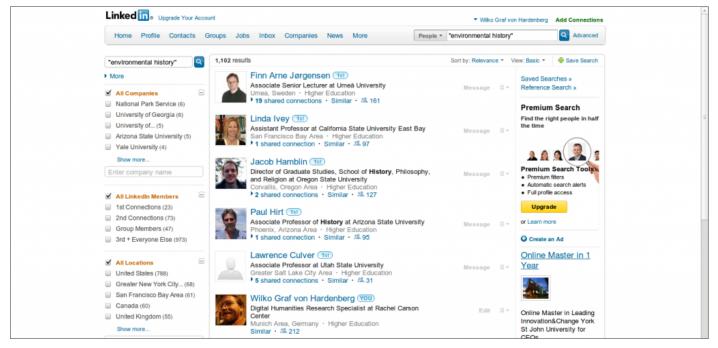
But how far is environmental history actually present on social networks?

A simple search of "environmental history" on Facebook gives an undetermined amount of results: its "interest page" has 213 "likes," while the ASEH is followed by 376 people and the European society ESEH by 166. GooglePlus similarly gives an unknown quantity of results. As regards professional networks, on LinkedIn the same search gives 1,100 results, while on academia.edu there are 631 people following environmental history as a research interest (and 371 papers, 10 questions and 3 journals). In all these cases however, in particular as a newcomer, it is difficult to filter out noise and nonrelevant information.

Here are some screenshots of the search results:[1]



Results of Facebook search for "environmental history."
Screenshot by Wilko Graf von Hardenberg, 2012.



Results of LinkedIn search for "environmental history."
Screenshot by Wilko Graf von Hardenberg, 2012.

---

1  To access these links, you need to be logged into the respective services.

Even if in GooglePlus it is easy to save searches for future reference, the main way to find relevant content in most social media is to add people to your friends/circles/acquaintances/followees. In other words there is no straightforward way to follow environmental history as a theme. The creation of dedicated groups on LinkedIn and Facebook could be a way to overcome, at least in part, this problem.



Results of a Twitter search for #envhist.
Screenshot by Wilko Graf von Hardenberg, 2012.

On Twitter the situation is slightly different, thanks to the widespread use of hashtags, which let you join "conversations" about specific topics. Conference hashtags, like #aseh2012, help to livestream and follow topical issues, allowing also people who are not able to attend to have a feel of what is going on. Moreover, conference hashtags may be used to do a sort of joint note-taking effort. In fact, taking notes directly on Twitter gives you the opportunity to discuss them immediately with other people interested in that topic, as well as to have a feed of notes about parallel sessions you are not able to be at. The hashtag #envhist is instead helping to build a community that virtually meets beyond conferences, a transnational community able to bring on the debate (even with the intrinsic length limits of the medium). But maybe the length limits are an asset: just recently at a conference about academic blogging @melissaterras (UCL-DH) has briefly summarized a history of blogging, stressing how by now Twitter, together with other microblogging tools, in part thanks just to its 140 characters limit, has taken over the original role of blogs: helping people to find interesting content

through linking. Sites like The Broadside aggregate links to information relevant to historians by tracking certain hashtags: obviously #envhist is the tag of choice for anything related to environmental history.

The possibility to post links to further content (75% of #envhist tweets contain a link), accompanied just by a description and maybe a short comment, is crucial in the creation of what is by now the fastest and most proactive source of information about environmental history relevant events. Even with a relatively small community of active users references to call for papers, research opportunities, interesting articles, conference live-streams and any other possible useful piece of information in environmental history spread almost instantly. And the potential community that may be affected by a #envhist post is much wider than its active users' group, reaching to all the followers of people who retweet a message.

The main problem of Twitter being its short memory (in this sense it definitely isn't an historian's friend) to find anything older than a week is a pretty tough endeavor that requires to delve into various online tools that promise, with various degrees of trustworthiness, to perform full searches of past tweets. The only possibility to overcome this flaw of the medium is to become also an archivist, and save interesting hashtags on our own (and this is crucial if you plan to use Twitter for the abovementioned crowdsourced note-taking effort). Therefore, in occasion of last year's conference of the ESEH, I've started to archive #envhist (thanks to @mhawksey's Twitter Analytics Google Spreadsheet). As to avoid to miss any #ASEH2012 tweet, as has happened unfortunately with the early #envhist tweets, the archiving of this hashtag has been ongoing already for a couple of weeks.

The first recorded #envhist tweet dates back to about two years ago, but it seems that the hashtag made only sparse appearances during its first year of existence. The moment in which it has started to be used somehow consistently dates to a year ago: 99.9% of the 2300 archived tweets (of which more than 700 are retweets) have been posted after April 2011.
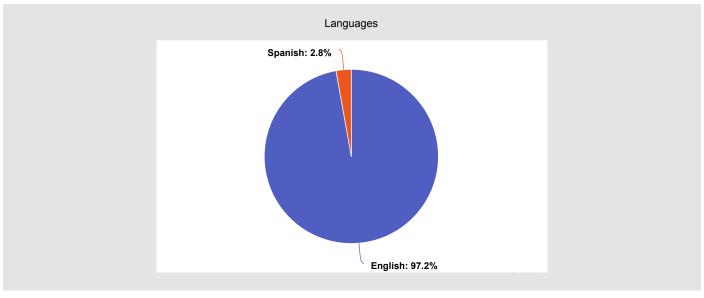
In any case, on the basis of the available data more than 200 people have used #envhist at least once (and this obviously includes many people who have used it inadvertently by retweeting) and ca. 100 have used it at least twice. At the moment only a group of about 35 people/organizations is however using it somehow regularly (>10 tweets). An idea of how the users' group clusters is given by this visualization. The arrows indicate either a mention, a retweet or a response, while the wide nebula of unlinked dots represents the occasional users.

Distribution of users using #envhist by location as shown on Google Maps.
Screenshot taken by Wilko Graf von Hardenberg, 2012.

The geographic distribution of the users' group seems to be concentrated in Europe and North America, with a quite important presence of the Canadian community, thanks to the efforts of our friends at NiCHE. It must be kept in mind that these specific data are limited to the latest tweets and to those users who have activated Twitter's geolocation feature. They may however be somehow indicative of a trend, as are the available data about linguistic distribution which show a total predominance of English.



Distribution of #envhist tweets by language in 2012, recreated based on a 2012 visualization from SocialBro.com.

What the #envhist community should try to do now, with the aim to divulge an even greater amount of information to an ever increasing audience, is definitely to enlarge its core users group and widen its geographic distribution to non-English-speaking areas.

**Links:**

http://www.facebook.com/pages/Environmental-history/106415826062343

http://www.aseh.net/

http://www.eseh.org/

https://plus.google.com/s/%22environmental%20history%22

http://www.linkedin.com/search/fpsearch?type=people&keywords=%22environmental%20history%22

http://www.academia.edu/People/Environmental_History

https://twitter.com/#!/search/#aseh2012

https://twitter.com/#!/search/#envhist

https://twitter.com/#!/melissaterras

http://thebroadside.org/category/bulletins/histscimedtech/

https://docs.google.com/spreadsheet/ccc?key=0AuF-P4tEJAB-dFBJZnVQLXlSaF8temZoOHhsWHlZM1E#gid=75

https://twitter.com/#!/mhawksey

http://mashe.hawksey.info/2012/01/twitter-archive-tagsv3/

https://docs.google.com/spreadsheet/ccc?key=0AuF-P4tEJAB-dDkyQm13LXMwYUVlS3IyX211Vndnd2c#gid=36

https://twitter.com/#!/SmithMillCreek/statuses/13437653793

https://twitter.com/#!/NiCHE_Canada/status/55613055542886400

http://hawksey.info/tagsexplorer/?key=0AuF-P4tEJAB-dFBJZnVQLXlSaF8temZoOHhsWHlZM1E&sheet=ob5

http://www.niche-canada.org/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2012/03/29/envhist-social-media-and-community-building-in-environmental-history/

Château de Versailles. This was thankfully not the line for the conference registration. Photo: Finn Arne Jørgensen. CCO.

# Ant Spider Bee at #ESEH2015

*Finn Arne Jørgensen*

Another European Society for Environmental History conference is over—this time, little over 300 scholars from the whole world met in beautiful and steaming hot Versailles in France to share their research, discuss the state of the field, and meet up with old and new friends. This conference was much smaller and more low-key than the massive and quite intense 2013 conference in Munich.

As has become customary, we have made a Storify collection of all the tweets from the conference (using the #ESEH2015) hashtag. We can note that the activity was rather low this time. While this may be attributed to the scorching heat, it is more likely that the unstable and sometimes completely missing wifi access in many meeting rooms was to blame. Still, we see that there is a value to the conference twitter stream in that you can get an idea about what people are talking about in other sessions, not to mention that people who are not attending the conference can see what is happening.

We can also note that while there weren't any sessions solely dedicated to digital environmental history, many sessions involved papers with explicitly digital approaches. This, we believe, is a good sign for the shape of digital environmental humanities. Looking through the conference program we can highlight a few of the papers as using digital approaches in one way or another:

- "The use of colonial land-grant documents and GIS to reconstruct soil carbon sequestration in sixteenth-century Mexico," Andrew Sluyter, Louisiana State University (1C)
- "Knowing, sharing, and experiencing wilderness in a connected world," Finn Arne Jørgensen, Umeå University (3B)
- "Industrialists and economic botanists: Developing commodities frontiers in the 19th century British world," Jim Clifford, University of Saskatchewan (4B)
- "Deepening understandings of place and world heritage through digital histories," Ann McGrath, Australian National University (5H)
- "The Rachel Carson Center's Environment & Society Portal: Environmental history in the age of digital humanities," Susanne Darabas, Rachel Carson Center (Poster 3)
- "Media environments: Icebergs on screens," Rafico Ruiz, McGill University (9B)
- "Using digital tools to track nineteenth-century leather tanning supply chains," Andrew Watson

*Storify was shut down in 2018 and the collection is no longer available.*

Links:

http://www.antspiderbee.net/wp-content/uploads/2015/07/eseh_final_programme.pdf
https://creativecommons.org/licenses/by/4.0/
http://www.antspiderbee.net/2015/07/08/ant-spider-bee-at-eseh2015/

# "Networking the Digital Environmental Humanities" podcast
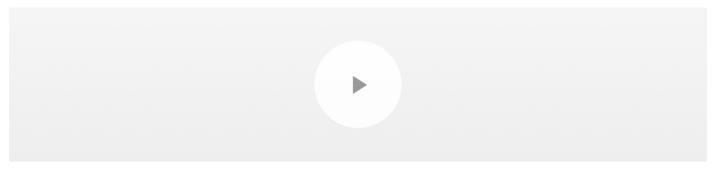
*Charles Travis*

On 18 June 2015, an Irish Research Council funded Digital Environmental Humanities (DEH) workshop at Trinity College Dublin convened international scholars from environmental, Irish, British, and American history, literary and historical geography, computer science, philosophy, languages and education, visual cultural studies, literature, and the digital humanities to discuss how digital practices, methodologies, and mapping can facilitate a deeper study between the humanities and the environment. One of the aims of the event was to address and explore the United Nations Intergovernmental Panel on Climate Change's call in 2015 "to facilitate and enhance further the consistent and coherent use of up to date digital technology for sharing and disseminating information." The event went one step further by discussing how the DEH can be used as both a platform and methodology to not only enhance the study of human-environmental relations, but to facilitate social and cultural transformation in regards to perception and agency in regards to global environmental change.

Human-centric analysis, crowd-sourcing,  and other types of digital practices and mapping activities, influenced by literary, historical, and cultural studies have a role to play in helping us understand the "cultural crisis" that is climate change, in addition to being our age's greatest environmental problem.

A PDF with all the presentation abstracts can be found here.

## Session 1: Digital Environmental Humanities Overview

This recording includes the following talks:

- Professor Poul Holm (Trinity College Dublin), "Digital environmental humanities – What is it and why do we need it?" (Workshop keynote)
- Alexander von Lünen (University of Huddersfield), "We are reading time in space, or: The end of history?"
- Charles Travis (Trinity College Dublin), "The digital environmental humanities and GIS: Discursive, cultural and social media integration."

## Session 2: Deep Maps, Narratives and Heritage

This recording includes the following talks:

- David Bodenhamer (Polis Center, Indiana University Purdue), "Connecting material and metaphorical space: Deep maps and environmental history."

- Mads Haar (Trinity College Dublin), "Literary play: Locative game mechanics and narrative techniques for cultural heritage."
- Theresa O'Connor (Skellig Foundation), "Joyce's Brain Atlas: A deep map of the Anthropocene and a roadmap for the environmental humanities."
- Annaleigh Margey (Dundalk Institute of Technology), "Moving from digital creation to the classroom: Utilising the 1641 Depositions as a pedagogical tool."
- Francesco De Pascale (Department of Languages and Educational Sciences, University of Calabria), "Geoethics and neogeographical education in an interdisciplinary study."

## Session 3: Ireland and the Digital Environmental Humanities
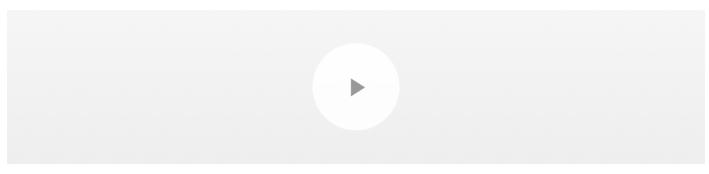


Session 4 (mislabeled as 3): Ireland and the Digital Environmental Humanities.
© 2015 Trinity Long Room Hub, on Soundcloud.

This recording includes the following talks:

- Mary Kelly (Kingston University London), "Mapping correspondence on famine and famine relief in Ireland, 1845–1846."
- Rachel Murphy (University College Cork), "Digital approaches to the study of landholding in Ireland."
- Hannah Smyth (Trinity College Dublin), "The forgotten majority: Mapping the civilian casualties of the 1916 Rising."

## Public Lecture: Professor David Bodenhamer (Polis Center at Indiana University Purdue)



Public Lecture: Professor David Bodenhamer, (Polis Center at Indiana University Purdue). © 2015 Trinity Long Room Hub, on Soundcloud.

This recording features Professor David Bodenhamer's talk "Beyond GIS: The Spatial Humanities, Deep Maps, and Spatial Narratives."

*This project was made possible by a grant from the Irish Research Council, and contributed to the publication* Digital Arts and Humanities: Neogeography, Social Media and Big Data Integrations and Applications, *co-edited by Charles Travis & Alexander von Lünen, Springer Press (2016).*

**Links:**

http://www.antspiderbee.net/wp-content/uploads/2015/07/DEH-June-18-Abstracts_Schedule.pdf

https://soundcloud.com/tlrhub/networking-the-digital-humanities-session-1?in=tlrhub/sets/networking-the-digital

https://soundcloud.com/tlrhub/networking-the-digital-humanities-session-2?in=tlrhub/sets/networking-the-digital
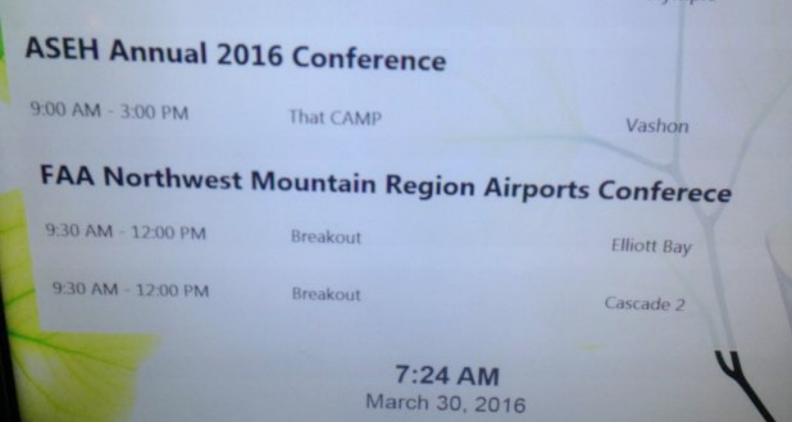
https://soundcloud.com/tlrhub/networking-the-digital-humanities-session-3

https://soundcloud.com/tlrhub/beyond-gis-the-spatial-humanities-deep-maps-and-spatial-narratives

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/07/28/networking-the-digital-environmental-humanities-podcast/

Terrible photo demonstrating how not to spell THATCamp.
Photo: Finn Arne Jørgensen. CC0.

# A THATCamp for environmental historians

*Finn Arne Jørgensen*

Immediately before the start of the American Society for Environmental History conference in Seattle in April 2016, a small group of people gathered for the first environmental history-themed THATCamp. In this post, *Ant Spider Bee* editor Finn Arne Jørgensen, the Camp's organizer, reflects on the experience.

Let us begin with the fundamentals. What is a THATCamp? The acronym stands for The Humanities and Technology Camp and the first one was organized at George Mason University in 2008. Since then, hundreds of THATCamps have been organized across the world. A THATCamp is intended to be an informal and energetic event where humanists and technologists of all skill levels can learn and build together, furthering digital humanities of all kinds. Following the unconference model, a THATCamp encourages and expects active participation and collaboration from all participants (thus, there are no spectators), with a focus on discussion rather than formal presentations. A THATCamp is low-cost, public, open, self-organizing, participatory, and safe. In short, it's a somewhat improvised and very dynamic event that is highly reliant on the contributions of and interactions between its participants.

As mentioned, the ASEH THATCamp was on the small side, with 11 participants, from grad students to full professors. We met from 9 a.m. to 3 p.m. in a standard hotel conference room and decided to sit in a circle to highlight the conversational character of the event. If the THATCamp had been bigger, we would have had to break into parallel session in order to keep this level of interaction. Like all THATCamps, we started by brainstorming possible sessions. We had thrown around some ideas before the meeting on the website and over email. After an initial discussion, we ended up with four sessions, all of them plenaries since we were few enough to make this manageable:

1. Mapping
2. Project Management
3. Collaboration, including pedagogy
4. Hacking session: Global environmental history sourcebook

No, we didn't take any photos at the THATCamp itself, but look how cool our conference hotel, The Seattle Westin, looked! Photo: Finn Arne Jørgensen. CC0.

In each of the sessions we discussed how digital tools can benefit our work as environmental historians. As may be seen from the Google doc that has been produced during the event, we brought in plenty of examples from what we ourselves or other people have done and spent a fair amount of time discussing how these things had been done. We shared our own experiences with trying out particular tools or brought up challenges that other people might have some suggestions for. The hacking session at the end deserves special mention, and is certainly a format that should be explored further. Here, we discussed a particular project idea in order to get a collaborative project started—in this case, the idea of *Ant Spider Bee* co-editor Wilko Graf von Hardenberg for a Global Environmental History Sourcebook.

While we only scratched the surface of such a project, having such a brainstorm around a shared idea has proven very useful, allowing to reflect jointly on both its possible benefits in teaching and research and the best and more cost-effective ways to set up the necessary technical framework. Ideally, a hacking session like this should, however, be even more hands-on. For instance, one of the activities at the 2014 THATCamp SHOT that I arranged at The Henry Ford in Dearborn was to improve the quality of SHOT's presence on Wikipedia and Facebook.

THATCamps are intended to be low-budget events, open for all at a very low cost for the participants. In this particular case, we ran the ASEH THATCamp as a completely free event, where ASEH sponsored the meeting room. We had no AV equipment, as conference hotels tend to charge a fortune for this. Instead we all brought laptops and tablets, and we used the abovementioned collaboratively edited Google doc as our workspace. We also opened this to outside participants so they could watch our discussions from afar. Sometimes Twitter fills this functions at events, but in this case just spreading the word about the collaborative document via our social media channels worked pretty well.

We are hoping more conferences in the environmental humanities will include such events, but also workshops with digital themes using different organizational models. Both ASEH and ESEH conferences have had numerous panels and roundtables on digital methods, GIS workshops have been increasingly popular, the 2014 ASEH meeting hosted a pre-conference workshop on digital environmental history at CESTA, and Finn Arne is looking into the possibility of a digital map-based workshop at the ESEH 2017 conference in Zagreb, most likely setup as an introduction to leaflet.js, a flexible and powerful tool for creating online interactive maps.

Tips for people who want to organize a THATCamp:

- It's fun and easy!
- Go to another THATCamp to get an idea of the format.
- Read the thatcamp.org guide to organizing a THATCamp.
- THATCamps can have themes, such as the 2016 THATCamp SHOT in Singapore, which will focus on pedagogy.
- Seek local sponsors for access to good conference venues.
- Invite local people from nearby universities, museums, organizations, and elsewhere.

- A THATCamp does not have to be run as part of a conference, but if you do, work with the conference organizers to ensure high visibility and possibly include a THATCamp signup option in the conference registration form.

## #THATCamp #ASEH2016 – a brief timeline in Tweets

*Serious #ASEH2016 question: is there interest in a 1-day #THATCamp #envhist right before the conference? What do you say, people?*

—Finn Arne Jørgensen (@finnarne) Oct 5, 2015

*Just registered for #THATCamp @#ASEH2016! Very excited to explore new ways to mix #envhist and #tech!*

—Dr. Jessica van Horssen (@Historiamagoria) Feb 22, 2016

*Hearing about SOOOOO many inspiring #digitalhumanities #digitalhistory projects at #ASEH2016 #THATCamp.*

—Alex Humphreys (@abhumphreys) Mar 30, 2016

*Relishing a break from #dissertationhell for a small but mighty #THATCamp at #ASEH2016 in Seattle. Going analog w a sweet paper flipchart.*

—Dr. Lisa Ruth Rand (@orbital_decay) Mar 30, 2016

*@DavidSalmanson I did the #ASEH2016 #THATCamp and it was great! Recommend highly if you can find one nearby.*

—Megan Jones (@megajones) May 4, 2016

Links:

http://thatcamp.org/

http://chnm2008.thatcamp.org/

https://en.wikipedia.org/wiki/Unconference

http://aseh2016.thatcamp.org/

https://docs.google.com/document/d/1KrhuFNLgVKy5Veux6IeCSDtsWNObFD44qXlb2EejpqY/edit?pref=2&pli=1

http://aseh2016.thatcamp.org/2016/03/23/virtualisation-and-online-collaboration/

http://shot2014.thatcamp.org/

https://docs.google.com/document/d/1KrhuFNLgVKy5Veux6IeCSDtsWNObFD44qXlb2EejpqY/edit?usp=sharing

http://aseh.net/conference-workshops/2014-conference-san-francisco/pre-conference-workshop-on-digital-environmental-history-1

http://cesta.stanford.edu/

http://leafletjs.com/

https://thatcamp.org

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2016/05/25/a-thatcamp-for-environmental-historians/

Smurfs enjoying *Ant Spider Bee* during the heatwave.
Photo CC0 2015 Wilko Graf von Hardenberg.

# Reading the digital environmental humanities —
# Heat wave edition

*Wilko Graf von Hardenberg*

Summer is halfway over and the next academic year already looms. Here in Italy another heat wave is forcing me, again, behind barred windows and in front of whirring fans. Besides eating popsicles, reading seems the only option. What better time than these last weeks of freedom from the routine of the academic year than to have a look back and reread the latest in the digital environmental humanities, our small, but fast growing, subfield?

Let's start with the seven analytical posts by guest authors that *Ant Spider Bee* was honored to be able to publish since it was relaunched about four months ago:

- "We must see digitally creative projects as essential to scholarship and teaching in the 21st century" by Gregg Mitman
- "Knowledge gains and geeky pleasures: Adding digital to environmental history" by Giacomo Parrinello
- "'The Earth in Our Hands': How digital components help explain the Anthropocene in a 3D world" by Nina Möllers
- "How to archive a website: A short overview with examples from the Environment & Society Portal" by Martin Spenger

- "Growing games" by Alenda Y. Chang
- "The journey and the destination: Digital scholarship and environmental studies at Lewis & Clark College" by Miranda Wood and Nate Stoll
- "Creating a digital wonderland: Environmental and cultural history in the digital age" by Yolonda Youngs

A complete list of feature posts published since *Ant Spider Bee* was founded back in 2012 is available under the header of The Bee. Similarly, all the posts from other sources processed thanks to our partnership with PressForward are available as The Ant and CfPs and the such under The Spider.

Outside the boundaries of our own blog some very interesting articles touching on the topic of the "digital environmental humanities" have been published in the last years also by our friends at *Environmental Humanities*:

- "Global plants and digital letters: Epistemological implications of digitising the directors' correspondence at the Royal Botanic Gardens, Kew" by Anna Svensson, *Environmental Humanities*, vol. 6, 2015
- "Glacial time and lonely crowds: The social effects of climate change as Internet spectacle" by Margret Grebowicz, *Environmental Humanities*, vol. 5, 2014
- "The armchair traveler's guide to digital environmental humanities" by Finn Arne Jørgensen, *Environmental Humanities*, vol. 4, 2014

As regards books, my very own summer reading list, due to a seemingly ever increasing number of things that just had to be done, has shrunk appallingly. As it is the only thing in the field (interpreted broadly) I expect to read before summer ends is, very belatedly, Jo Guldi and David Armitage's much discussed *The History Manifesto*.

**Links:**

http://www.antspiderbee.net/2015/07/14/the-journey-and-the-destination-digital-scholarship-and-environmental-studies-at-lewis-clark-college/

http://www.antspiderbee.net/2015/07/21/creating-a-digital-wonderland-environmental-and-cultural-history-in-the-digital-age/

http://www.antspiderbee.net/category/the_bee

http://pressforward.org/

http://www.antspiderbee.net/category/the_ant

http://www.antspiderbee.net/category/the_spider

http://environmentalhumanities.org/

https://read.dukeupress.edu/environmental-humanities/article/6/1/73/8131/Global-Plants-and-Digital-Letters-Epistemological

https://read.dukeupress.edu/environmental-humanities/article/5/1/1/8134/Glacial-Time-and-Lonely-Crowds-The-Social-Effects
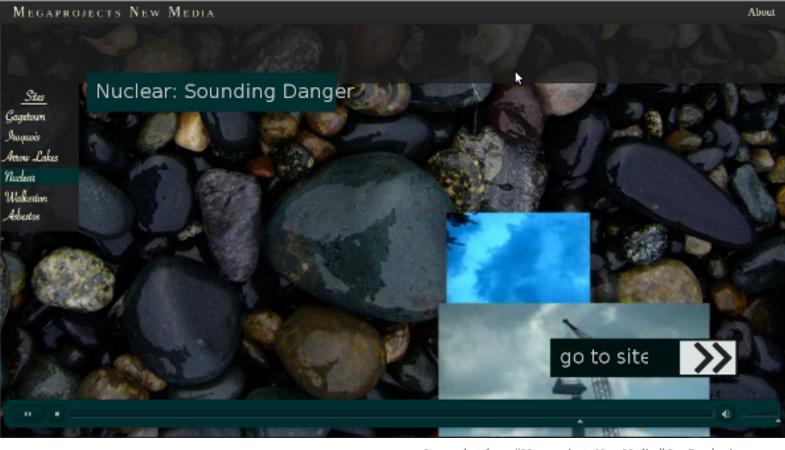
https://read.dukeupress.edu/environmental-humanities/article/4/1/95/26206/The-Armchair-Traveler-s-Guide-to-Digital

http://historymanifesto.cambridge.org/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/08/05/reading-the-digital-environmental-humanitiesheat-wave-edition/

Screenshot from "Megaprojects New Media," Joy Parr's site presenting new media representations of people living amidst Canadian megaprojects.

# Beyond the book

*Marcus Hall*

*At the last ASEH meeting in Madison Marcus Hall (University of Zurich) organized a panel titled "Beyond the book," in which he gathered a very diverse group of people to talk about the opportunities and challenges of creating research outputs that aren't the traditional book (or article). We thought that the following revised excerpts of an email he later sent to the interested attendees, and in which he recapped the contents of the panel, could also be of interest to a wider audience.*

Some people approached me [after the panel], asking what "going beyond books" was all about—and my answer was that our topic is purely exploratory, but very serious: creating non-books. [At the conference there were also a] digital humanities sessions [and an] image session, both subsets of how one may get out their messages in other-than-book ways. Our session included the following roundtable members . . .

- Anne Milne spoke of embodied learning, and the fact that some types of learning take place through the body. She asks, is deep-learning better accomplished through reading or online exhibits or some other means?

40

- Giacomo Parrinello pointed out that most of us are trained to write, and that if we want to communicate in other ways, perhaps we also need training in new media, film, or acting. Can we convince our colleagues that books are not the only way to judge serious scholarly endeavor?

- Joy Parr noted that since we use a variety of sources (books, oral sources, maps, photos, online info) in helping craft our stories, then we should also consider a variety of sources in presenting our results. I urge you to visit some of the projects that she and her students have created.

- Tor Oiamo spoke of his own project employing multimedia and narrative. He's using interactive maps to explore the places where people live. [...]

- Irene Klaver spoke of her own recent experience creating a film documentary about ranching, *The New Frontier*. Echoing Giacomo, she emphasizes that lots of skills were needed to create this film beyond conceiving the story line. Presenting insights on film, moreover, reshapes the epistemological questions and answers about how one presents this information. Thankfully, some of her colleagues are recognizing the scholarly value of going beyond the book.

- Myself, I simply gave a show-and-tell report of a side project called, "Wilderness Scratch-n-Sniff" which aims to present a handful of online essays describing what wilderness might be in non-English terms. Along with Wilko Graf von Hardenberg, Andreas Grieger, and others, we are hoping to add text, images, and sounds describing, e.g., Hungarian wilderness (Vadon) or Icelandic wilderness (víðerni), and place them on the Environment & Society Portal of the Rachel Carson Center.

Our session also enjoyed an excellent discussion, and the acknowledgement that there is so much more to talk about—and so much more to create!

*Postscript: The virtual exhibition "Wilderness Babel: What does wilderness mean in your language?" eds. Marcus Hall and Wilko Graf von Hardenberg, was published on the Environment & Society Portal in 2013.*

**Links:**

http://megaprojects.uwo.ca/

http://megaprojects.uwo.ca/

http://www.newfrontierfilm.com/about.html
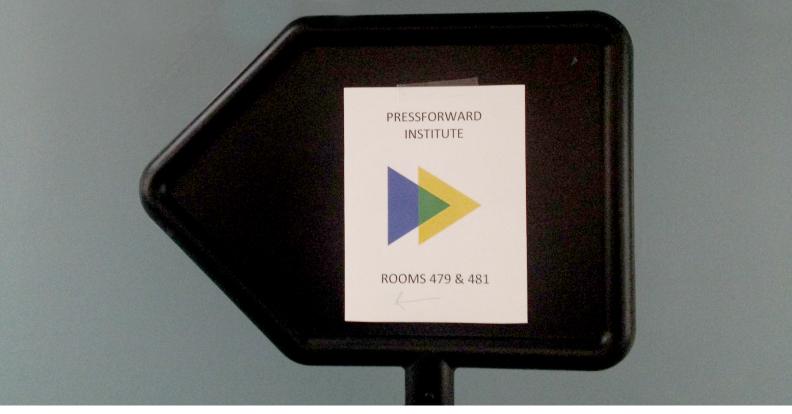
http://www.environmentandsociety.org/

http://www.environmentandsociety.org/exhibitions/wilderness-babel

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2012/04/18/beyond-the-book/

# The "scholarly blog": PressForward's many paths to success, and how to measure them

*Kimberly Coulter*

It has been five months since *Ant Spider Bee* relaunched its site with the WordPress web aggregation and publication plugin PressForward. Thanks to a generous grant from the Alfred P. Sloan Foundation, we have been able to pilot this tool as a partner of the Roy Rosenzweig Center for History and New Media. PressForward helps us review a collection of relevant RSS feeds, nominate the posts we deem of greatest interest to our readers, and repost excerpts. By doing the aggregating work of the "ant," it helps us be the "bee"—allowing more resources for digestion and cross-pollination.
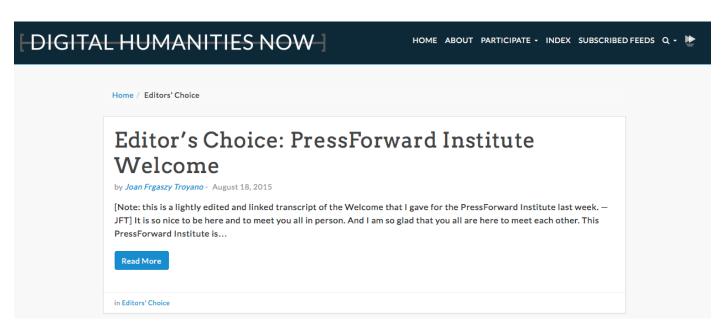
"Digestion" and "cross-pollination" are two main functions of scholarly blogs, electronic publications that may build community and curate, contextualize, or comment on issues in a field of study. Discussing how a tool like PressForward is relevant for scholarly communication, and in particular blogs that engage an academic community with relevant news along with original "gray literature" (meaning not peer-reviewed), was a focus of the PressForward Institute for Scholarly Communication at George Mason University from 13 to 14 August. We

enjoyed meeting RRCHNM staff and learned how to better manage our feeds and share them with others. It was great to meet the other three original pilot partners [PLoS, MicroBEnet, CitizenScienceToday (Zooniverse)] and other participants (including Woods Hole Marine Biological Laboratory and the Association of College and Research Libraries' dh+lib).

In these five months since adding PressForward we've seen our traffic increase 138%. Still, we ask: what does a successful scholarly blog look like for us, what role does PressForward play, and how can we measure this success?

## Models

As PressForward project co-director Stephanie Westcott pointed out, attracting researchers' online engagement means different things to different communities. PressForward aims to do this by semi-automating information-gathering, and in making it easy for community members ("editors-at-large") to participate in information curation. PressForward's "test blog" is Digital Humanities Now, to which visitors turn to for job postings, calls for proposals, news, and conversations relevant to digital humanities. The editors-at-large (particularly graduate students) view the work as career-relevant service. RRCHNM's Lisa Rhody reported that the "editor's choice" featured post has even become a quality stamp; a selected author sometimes includes the republication on his or her CV.



"Editor's Choice" feature in PressForward's test publication, *Digital Humanities Now*.© Digital Humanities Now.

While an aggregated feed may be presented as a stand-alone offering, as in Digital Humanities Now or Jon Christensen and Ursula Heise's attractive blog Environmental Humanities Now, which generally feature "editor's choice" posts selected from the aggregated feed, we also discussed other models. These alternative models generally fell into three categories: using the feed to 1) augment an original content publication with related postings that together may frame problems and offer resources; 2) emphasize community curation; and 3) contextualize a large body of scholarly literature.

At the workshop, pilot partners and others described diverse goals for using the aggregated feed. Using a dynamic feed to augment a regular original publication is what we're trying to do with *Ant Spider Bee*: ultimately creating a collection of short essays reflecting on the role of the digital in environmental humanities. We hope our feed not only serves its scholarly community but also draw it to the site. Ideally feed content should infect its original content as well, making it more current and engaged. Community building is a tacit goal of most scholarly blogs, but as a focus, it has potential for great impact. By casting a broad and inclusive net, presenting cool new projects from the community as news, and analyzing them—ideally in visual ways—it's possible to use PressForward to explicitly cultivate and strengthen a scholarly community. Popular also are aggregated opportunities and job postings, as are emphasized in Digital Humanities Now and dh+lib. Rosalind Reid, executive director of the Council for the Advancement of Science Writing and project director of New Horizons in Science, spoke about plans for a curated Compendium of Best Science Writing. In cases with large scholarly corpuses with a high number of users, it's possible to use aggregated feeds to pull in materials that contextualize peer-reviewed papers. The Public Library of Science (PLoS) has ambitious plans to create a blog for each thematic journal collection, to which PressForward feeds would aggregate related news and discussions.

Scholarly blog editors need expert understanding of the field, but also understanding of its experts' information-seeking and communication behaviors. In general their role serves a "meta" research function: contextualization, curation, and programming. In contrast to peer review's stamp of experts' quality assurance, content curation may mean an expert's assemblage of objects to narrate or interpret a story. While scholarly blogs generally do not perform rigorous peer review, they may influence a field's direction by defining its problems, programs, and roles (see Michel Callon on "Domestication of the Scallops"). Aggregation is a convenience, made possible by technology, that enables curators to cast a wider information net and filter it more finely. Curation itself cannot be automated, and it can serve a powerful function.

In addition to taking a big picture and influencing the framing of issues, scholarly bloggers are often invested in a project's extra-disciplinary, educational, or public value (open access, etc.). Yet there is usually a mismatch between this work and the traditional metrics. How can we measure the impact of such work?
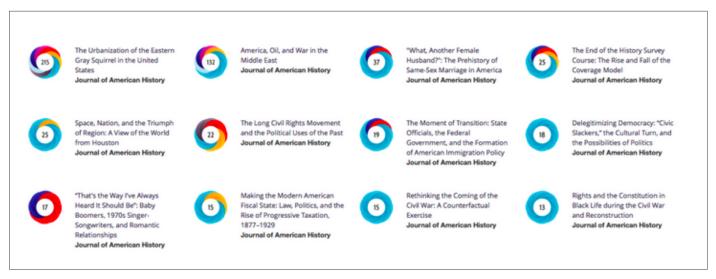
## Metrics

Different stakeholders measure the value of scholarly work with different metrics. It may be important that the work is heavily cited, gains funding, is adopted by policymakers, reaches the public, picked up by mainstream journalism, informs public debate, builds community, provides visibility for the field, or even sells books, magazines, or museum tickets. Thus it is essential to be clear about the goal before choosing what to measure. For example, Google Analytics offers tools more oriented to measuring stickiness (keeping users on a page) and sales, while, as Rhody points out, a successful feed aggregator should have a high "bounce rate," showing the site's success in directing users to relevant external content.

"Alternative" metrics measure high quality, high impact digital and other nontraditional outputs that may not be captured by traditional metrics. Tools like surveys might help capture "soft" outcomes like resulting collaborations, incorporation of recommendations into policy, public engagement, journalistic coverage, media appearances, speaking engagements, invitations to editorial roles, invitations to contribute to an edited product, growth of visibility of a community, visibility for the field, educating the public. In a metrics panel discussion on the workshop's second day, Robin Champeaux of Oregon Health and Sciences University introduced some alternative metrics resources but also pointed out that those committed to work with nontraditional value may need to do their own curation work to document its success with alternative metrics; a great deal of contextual knowledge is necessary to quantify alternative outcomes—and this requires a lot of contextual knowledge.

For measuring impact in the humanities, Web-sourced data can only grow in importance, as Stacy Konkiel writes in her post "We're overdue on altmetrics for the digital humanities." The Altmetric Explorer is one tool that aggregates webbased attention data, including an API to big policy indexes to track ideas' adoption into policy. It lets users monitor, search and measure conversations about publications, such as blogs, news, Wikipedia, or Twitter, offering an alternative to traditional journal-to-journal referencing via citations. It does, however, charge 3000GBP annual license for a team of five. Another tool that helps scientists share the diverse impacts of their work is Impactstory (now called Our Research), which

measures things like saves and code forks, and how frequently work is saved, viewed, and discussed. Users can contribute data from tools like Figshare, which makes research outputs sharable and citable; Publons, which hosts and aggregates open peer reviews; or LinkedIn's presentation sharing service SlideShare.

Alternative metrics can help to differentiate a candidate in a competitive field; they may lead to, or indicate, strong networks that lead to success in hard metrics like funding. Citation takes long times to build. The web can be complementary, and provide immediate impact.

While it's important to document successes, and to lobby universities to recognize alternative media scholarship for tenure and promotion, that is not the only avenue for thinking about "what counts." As tenure-track positions—even tenure itself—become less and less common, early career scholars are well-advised to broaden their avenues. As one workshop participant concluded, even if it's not about tenure and promotion, we will always be serving different masters. Building a community, connections, visibility, and exchange of ideas keep us adaptable and focused on our missions.

We came away from the workshop with a long list of ideas for *Ant Spider Bee*. To name a few: we'll be pruning our RSS feeds and welcome your recommendations of further feeds to follow; deploying a PressForward outbound OPML to make it easy for our users to subscribe to our same feeds; investigating alternative metrics tools; considering an ISSN for our featured posts; and starting in October, I'll

be teaching Digital Environmental Humanities at the University of Munich and asking my students to contribute to *Ant Spider Bee's* PressForward feed curation as "editors-at-large." We hope *Ant Spider Bee's* feeds are relevant for its audience, and that our posts influence the thoughtful framing and use of digital tools in our fields. We would be delighted if they made a small contribution to the advancement of digital and nontraditional scholarly projects and professional recognition for their authors. Whether or not we succeed in measuring this, we find the effort worthwhile.

**Links:**

http://pressforward.org/

https://rrchnm.org/

http://blogs.plos.org/

http://microbe.net/

http://blog.zooniverse.org/category/citizenscience/

http://www.mbl.edu/

http://acrl.ala.org/dh/

http://digitalhumanitiesnow.org/

https://digitalhumanitiesnow.org/

http://environmentalhumanitiesnow.org/

http://casw.org/new-horizons

http://www.vub.ac.be/SOCO/tesa/RENCOM/Callon%20%281986%29%20Some%20elements%20of%20a%20sociology%20of%20translation.pdf

https://stacykonkiel.org/were-overdue-on-altmetrics-for-the-digital-humanities/

https://www.altmetric.com/aboutexplorer.php

https://ourresearch.org

http://figshare.com/

http://www.slideshare.net/

https://www.altmetric.com/blog/not-just-science-articles/

https://creativecommons.org/licenses/by/4.0

http://www.antspiderbee.net/2015/08/26/the-scholarly-blog-pressforwards-many-paths-to-success-and-how-to-measure-them/

# II. ENGAGEMENT:
# NEW VOICES

**D**igital tools and methods offer many opportunities and challenges for environmental history and humanities. Perhaps the greatest one is the engagement of new voices—the reaching of new readers who share, challenge, or complicate scholarship. These voices include those of students, skeptics, promoters, networkers, citizen scientists, and "the crowd." This communication function— while obviously not the sum total of scholarship, is where it begins and ends. And public engagement is a main function of these digital tools.

In the realm of environmental communication, digital tools help alert audiences to environmental problems, amplify information, and engage users by mobilizing them to act (Cox and Pezzullo offer several examples of digital environmental campaigns).[1] These affordances are served by a variety of tools (crowdfunding, media mashups, sharing via social networks, learning through playing or simulations). Additional affordances important to environmental knowledge production and distribution are crowdsourcing of data (community data sharing); open knowledge (like Wikipedia); crowdfunding projects (like Kickstarter); citizen science (such as the Zooniverse platform or projects of the Smithsonian Natural History); sensors (for data collection); expertise (alternative peer review, alternative facts); access (new publishing models; accessibility considerations); and discovery (via tagging and thematic hashtags).

*Ant Spider Bee* highlights some of the last decade's diverse digital environmental projects that engage broad audiences in various contexts. Nina Möllers deploys some digital devices to engage museumgoers; and Jenny Price emboldens the public to ignore those "no trespassing" signs and dare to access their public Malibu beaches. Other projects draw on public expertise: Sheila Brennan reflects on her experience crowdsourcing memories following Hurricanes Katrina and Rita; and Chris Lintott demonstrates the power of digital Citizen Science in the Zooniverse. Digital tools transform the way we can get that science or archival material out to the public: the Biodiversity Heritage Library celebrates the unexpected benefits of reaching out with Flickr; Kimberly Coulter shows how virtual exhibitions bring archival gems to light; and Adam Mandelman describes how the blog *Edge Effects* brings the research of the Center for Culture, History, and Environment (CHE) to 5,000 users each month; in a postscript, Brian Hamilton updates us on the blog's development and the work of its volunteer editors. In "Floods present and past", Andreas Grieger introduces the peer-reviewed, born-digital micro publication *Arcadia* as an alternative to more traditional publication venues, and Jonatan Palmblad reports on same the project seven years later. In a post describing how to archive a website, Martin Spenger gives examples from the Environment & Society Portal. In a postscript, he and Iris Trautmann describe the same project's archiving

1  Robert Cox and Phaedra Pezzullo, *Environmental Communication and the Public Sphere,* fourth edition (SAGE, 2016).

practices years later. For his global environmental history course, Andrew Stuhl teaches his students to write born-digital mini environmental histories. And Gregg Mitman implores us to recognize digitally creative projects as essential for scholarship and teaching.

**Links:**

https://flic.kr/p/a88N99

Exhibition entrance "landscape" with flower bed. © 2014 Deutsches Museum. Photograph by Axel Griesch, courtesy of the Deutsches Museum.

# "The Earth in Our Hands": How digital components help explain the Anthropocene in a 3D world

*Nina Möllers*

Exhibiting the Anthropocene—the proposed geological "age of humans"—is a challenging and risky endeavor. The temporary exhibition "Welcome to the Anthropocene: The Earth in Our Hands," which opened in December 2014 at the Deutsches Museum as a collaborative project of the museum and the Rachel Carson Center for Environment and Society, is the first exhibition on such a large scale worldwide to tackle the issue. True to the museum's mission and collection, it features many technological objects, but also goes beyond traditional artifacts to include pieces of art, natural objects, and even ethnological artifacts. However, one of the main challenges the exhibition curators have faced is the embeddedness of objects in certain places and times. An airplane engine mass-produced in the 1950s can point visitors to the fascinating and far-reaching consequences of high-capacity air travel, the establishment of a global transport network and—maybe—its long-term and grave environmental impacts. But often the story around the object needs to be told with supplemental tools such as graphics and—too often—lengthy texts. Artifacts are static and situational and may leave different impressions on different visitors. This is what makes them fascinating, but it also constitutes a problem when curating a complex topic like the Anthropocene that is about movement and interdependencies.

In addition to being more flexible, digital tools have the advantage of longevity: while the temporary exhibition will be dismantled at some point, digital tools can live on and even grow after the exhibition is over.



View of the exhibition's urbanization island with objects and center installation with three scribble films. © 2014 Deutsches Museum. Photograph by Axel Griesch, courtesy of the Deutsches Museum.

It comes as no surprise therefore that the exhibition curators started early on to think about the integration of digital tools. In addition to being more flexible, digital tools have the advantage of longevity: while the temporary exhibition will be dismantled at some point, digital tools can live on and even grow after the exhibition is over. The three-dimensional exhibition consists of six theme islands next to a large "landscape" that houses the introduction including a large object wall and the participatory element on the future of the Anthropocene.

Digital tools were used in manifold ways in all of these elements, particularly on the six islands composing the core exhibition. In some instances, they help widen the perspective on the Anthropocene. For example, the integration of a media station using the digital material of the Informal City Dialogues by the organization Next City, broadens the focus. By focusing on cities like Chennai, India, or Nairobi, Kenia, urbanization in the Anthropocene is addressed from a less Eurocentric perspective than could have done with artifacts from the museum's collections alone since these traditionally come from and refer to European contexts.
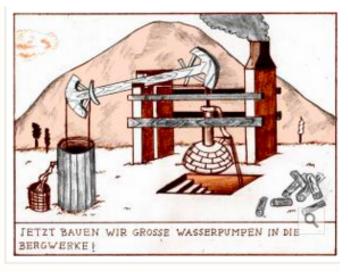
Using existing material as supplement in a museum exhibition is always convenient and the curating team has found it very easy to establish partnerships with organizations that provide online material, but it is not always sufficient to rely on existing material. Particularly with a complex topic such as the Anthropocene, it is also necessary and in fact worth the time and money to conceptualize digital material exclusively for the exhibition. In our case, we've concentrated on films as a great way of storytelling to go along with some of the objects that are exhibited. Using a comic-like style, 14 scribble films were developed and put into motion. All of them pick up crucial, but difficult to exhibit phenomena of the Anthropocene. While (historical) objects function as crystallization points in the storyline of urban centers where imputs (e.g., water, money, raw materials) are processed and products, profits or losses, waste etc., are put out, the scribble films highlight the processes themselves and the often incomplete metabolisms and circuits of Anthropocene city life.

The comic style proved to be a very accessible tool to reach different audiences both in the exhibition itself and online. In addition to the scribble films, short comic strips were developed by a class of illustration art students of the University of the Arts (UdK) in Berlin, putting thirty of the museum's most well-known objects from the permanent collections into a new Anthropocene context. These comics have proven to be versatile and cross-media elements: they appear on banners next to the objects themselves, serving both as advertisement for the temporary exhibition, but more importantly as a tool to connect the exhibition with the larger

and supposedly known permanent collections of the museum. Edited in a separate comic book published alongside the exhibition catalog, the comics offer a fresh and not so serious look on the Anthropocene and last but not least, were published in weekly installments on the RCC's Environment & Society Portal, they transcend the narrow confines of the physical world of the Deutsches Museum, making them available to a global audience.



Lifting Water with Fire
"What power this steam has!"
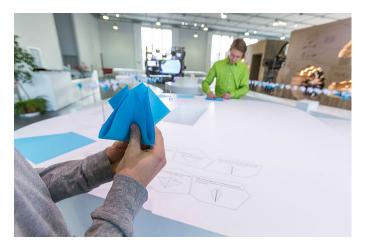
"We'll build large water pumps in the mines!"
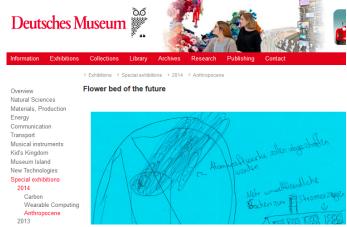
Another subject where traditional three-dimensional museum work and digital elements complement each other is technology-based nature protection. In the exhibition, we've chosen to focus on the local project of the reintroduction of the northern bald ibis in Europe. In the exhibition, an impressive ibis is accompanied not only with explanatory material such as texts, graphics and images, but also with an App providing online access to live tracking of the migrating birds. The key element of nature conservation efforts in the Anthropocene—the interdependencies between traditional methods and modern technologies like GPS—become much more visible this way.

A final example of cross-media work in the exhibition is the flower landscape at the end of the exhibition that gives visitors the opportunity to voice their own opinions on the Anthropocene, particularly their ideas, hopes, fears, and wishes for the future.
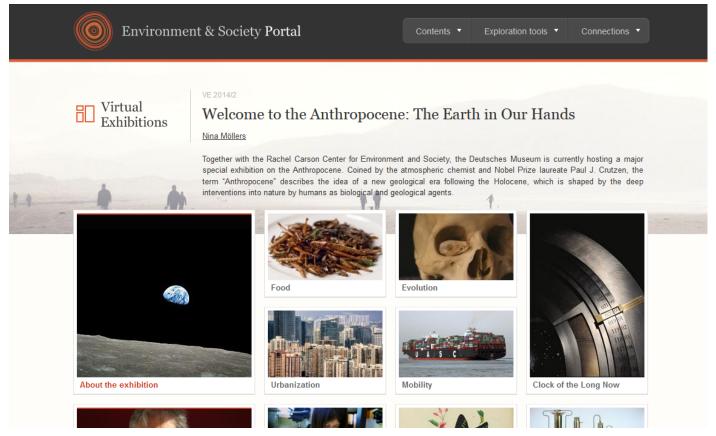
A visitor folds his opinion into an origami flower. © 2014 Deutsches Museum. Photograph by Axel Griesch, courtesy of the Deutsches Museum.

Screenshot of the Deutsches Museum's anthropocene flower digital gallery. © 2014 Deutsches Museum.

By writing down their opinions on a sheet of paper and then folding it as flower to be added to the flower bed, they become part of a wider discussion on the Anthropocene. But the exhibition does not end there: the flowers are periodically "harvested" and published in small booklets for other visitors to view—both onsite in the exhibition and online on the exhibition's website, therefore allowing for a much larger discussion than usual.



Screenshot of Nina Möllers's virtual exhibition "Welcome to the Anthropocene: The Earth in Our Hands," Environment & Society Portal, Virtual Exhibitions 2014, no. 2. Rachel Carson Center for Environment and Society. CC BY-NC-SA.

Incorporating feedback options on the website will soon allow for a two-way discussion bringing back opinions from the digital world into the three-dimensional exhibition. A companion "virtual exhibition" on the Environment & Society Portal further extends the exhibition's reach.

These are just a few examples of how digital tools enhance the Anthropocene exhibition. By combining traditional ways of curating with digital projects, the museum as site for reflection and participation has reached a new quality, making it even more relevant for education, but also playful investigation that is so necessary when we tackle the manifold challenges of the Anthropocene earth.

**Links:**

https://www.deutsches-museum.de/en/exhibitions/special-exhibitions/archive/2015/anthropocene/

http://www.deutsches-museum.de

http://www.carsoncenter.uni-muenchen.de/index.html

http://nextcity.org/informalcity

http://www.environmentandsociety.org/mml/collection/16226

http://www.environmentandsociety.org/node/6627/

https://www.deutsches-museum.de/en/exhibitions/special-exhibitions/archive/2015/anthropocene/
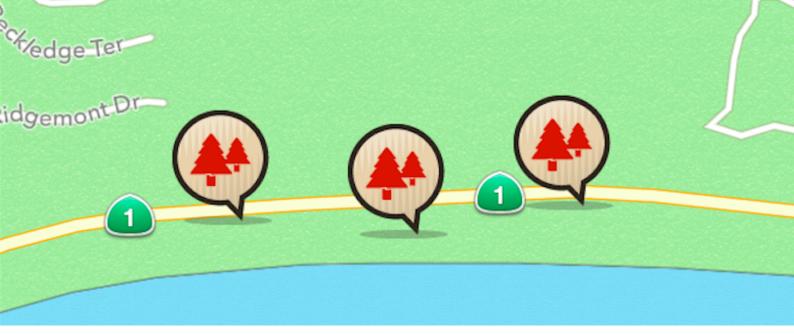
http://www.environmentandsociety.org/exhibitions/anthropocene

http://doi.org/10.5282/rcc/6354

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/04/21/the-earth-in-our-hands-how-digital-components-help-explain-the-anthropocene-in-a-3d-world/

---

# Open access to the beach

*Kimberly Coulter interviews Jenny Price*

When it comes to helping the public access publications and data, digital technology has been revolutionary. But what about beaches—can digital tools help make them openly accessible? All California's beaches, below the mean high tide line, are "public." Yet in practice, public access is thwarted with threatening signs and official-looking orange cones, and even obscured with fake garages. Along twenty miles of Malibu coast, there are only 17 access ways—most hidden.

To help the public find and enjoy these beaches, writer and environmental historian Jenny Price has produced an engaging mobile app. The app provides legal information about our right to enjoy this land (on wet sand or dry public easements), directions, photos of access points, tide data, and tips of what to do if challenged (make it a "teachable moment" or call the challenger's bluff). Even for those of us far from Malibu, the app is a heartening example of how individuals can use digital tools to improve public access—not only to information, but also to de jure public natural areas.

*Ant Spider Bee* co-editor Kimberly Coulter spoke with Jenny Price about her app.

The app "Our Malibu Beaches." Photo courtesy of Jenny Price & Escape Apps.

**ASB: Our Malibu Beaches is the first app you produced. Where did you get the idea to use a smartphone app to help people find these beaches?**

JP: Not my idea! The credit goes to my partners Ben and John Adair at Escape Apps. I had been working on this issue since the early 2000s—as a writer, and also with my public art collective the LA Urban Rangers—and Ben asked me if I'd like to turn an online guide I'd written into an iPhone app for their Know What series. I hate cell phones—just to be honest—and yet it sounded like a great way to continue to intervene in this issue.

**ASB: To crowdfund the app, you mobilized the support of hundreds of individuals, raising more than $32,000 though Kickstarter. Aside from the party invitation and beach towels, what do you think motivated them to participate?**

JP: Yes, we used Kickstarter to raise the funds for the Android version, and to be able to offer the app free of charge—and people contributed from all over the country. The beach in general, I think, just really galvanizes very strong feelings about public access. And the Malibu beach access battles just really symbolize the privatization of public spaces by affluent Americans—'cause Malibu is *so* affluent, and so celebrity-packed, and has so often been *so* horrible and devious about blocking public access. Though never underestimate the power of a nice beach towel.

Conflicting messages about an access way to Lechuza Beach.
Photo courtesy of Jenny Price.

## ASB: When working with the developer on the app's design, what compromises did you make?

JP: Well, the app is one in a series, and fitting all the info I wanted to include into a set format presented some challenges—e.g., we couldn't customize icons as much as I wanted to—though ultimately we figured out how to jam it all in there. I wish my picture wasn't on every page . . .

## ASB: I imagine developing this content meant not only writing, but also research, consultations with the relevant organizations, fundraising, and publicity. What was the most challenging part?

JP: It was all pretty challenging (and fun)—oodles of research, giving the writing a voice (not just the standard "yay with exclamation points!!" social media voice), doing the Kickstarter and handling the media storm—but I think the most nerve wracking part was just to try to get it all *right,* 'cause Malibu beachfront homeowners are a rabidly litigious bunch, and we don't want to waste our time hanging out with their lawyers. Yay!!!

## ASB: How would you describe the app's impact?
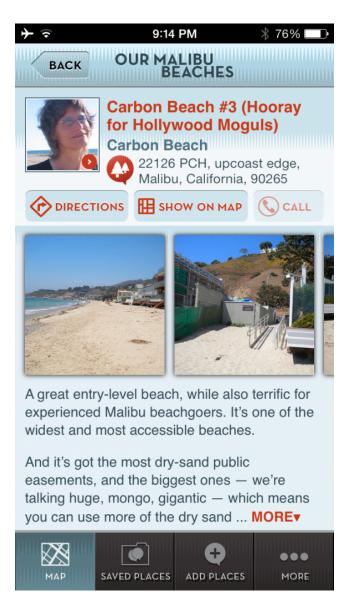
JP: As I said, I'm hardly a mobile phone fan overall—but I have to say that the app has far exceeded my expectations about what it could do. To find and use a public beach in Malibu can require a vast trove of byzantine information, and—lo and behold—this is a technology with which you can cram a ton of byzantine information into a pretty little hand-held portable object.

The app is now hard at work in the world, I think, at three levels. First, people are using the app to enjoy their beaches. We have over 28,000 downloads, and we know folks are using it. Second, it's generated PR and has served as an advocacy tool: for example, the *Los Angeles Times* ran an editorial on the importance of finally opening up these beaches; public agencies and nonprofits have used it to lobby state legislators; and state legislators and commissioners have contacted the state Coastal Commission to ask for tours of the beaches to see the fake garage doors, fake driveways, illegal signs, etc etc etc for themselves.

And finally, in the long term, the best way to make these public beaches truly public is to finally put the public on them—which, we hope, will change everyone's perceptions about who owns these lands. For so long, people have thought of the developed beaches—just take a look at the City of Malibu's website!—as private beaches that the public can use. Why not public beaches with adjacent private sands? It's difficult to see beaches as public when the public is basically MIA.

**ASB: Where public institutions had been stymied, your personal initiative empowers the public to enjoy their legal right to these beaches. How do you see apps' potential as tools for telling environmental stories or inspiring people to action?**

JP: Yes, though huge kudos to several state agencies—the Coastal Commission, Mountains Recreation and Conservation Authority, and Coastal Conservancy—that work like tigers to implement and enforce the public access laws. And for our app,



Screenshot of the app "Our Malibu Beaches," courtesy of Jenny Price & Escape Apps.

the Coastal Commission was an essential partner—and did a mountain of work to get us all the info, to fact-check, to do any PR they could.

I think apps of course do have the power to reach an unusually wide range of people—so I've been super pleased with its ability to actually enact the story I've long been trying to tell about who owns these lands, and about the importance of public spaces generally.

Though I think you still have to think really, really hard about audience, voice, writing, how much you want or need to control the info, etc.—e.g., I think the common assumption is that you need to have a user comments section in the app itself—but that would quickly become an egregious, horrible cesspool in this particular case. You can see that in the comments on the media coverage. Oooowww. User-generated content is a truly bad idea here—for such a contentious issue, and for one where the facts have to be 100% accurate. But the general point is that writing a useful app takes just as much thought and care as writing anything else that really works.

And shout-outs to just a handful of digital projects that I particularly like and I think just put these technologies to fantastic use: Invisible 5, Indeterminate Hikes, New Public Sites, POPOS. And my new collective Project 51 is about to go live with our Play the LA River project, which I hope will be worthy of this list.

## ASB: Tell us about your next projects, including your book, *Stop Saving the Planet, Already!* Will it have a digital companion?

JP: Oh, interesting question! I have no idea! Maybe... and maybe some tours, a treasure hunt, a film on 50 easy ways to stop saving the frickin' planet. I don't know, but something... I'd like to try some other storytelling formats . . .

**Links:**

https://itunes.apple.com/us/app/our-malibu-beaches/id565636167?mt=8

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2014/02/18/open-access-to-the-beach/

---

# Collecting and preserving memories of the 2005 Gulf Coast hurricanes

*Sheila A. Brennan*

Soon after Hurricanes Katrina and Rita roared ashore on the Gulf Coast in August 2005, the staff at the Roy Rosenzweig Center for History and New Media quickly realized that we were witnessing a very significant moment in American history. Working in partnership with the University of New Orleans (UNO), we quickly launched the Hurricane Digital Memory Bank (HDMB) in an attempt to collect and preserve as much of the "instant history" and personal stories from these events as possible.

Our target audience was anyone who was affected by the 2005 hurricanes: survivors, emergency responders, volunteers, and concerned citizens. Because the hurricanes created a diaspora of individuals, we believed that launching a website could reach the largest number of the affected—wherever they may have landed.

Drawing on experiences from other collecting projects, such as the September 11 Digital Archive, we knew we couldn't merely launch the site and expect people to visit and share their stories. First, we created a short and simple process for contributors to share and upload on-scene images, podcasts, or other born-digital files they might have, or to copy blog postings or emails and submit them to our archive.

Then, we developed a series of partners asking for assistance promoting the project and building trust among our audience. Our project staff members living on the Gulf Coast developed partnerships with universities, military units, non-profit community groups, and museums who informed their communities about the project and in some cases we archived materials they had collected. Because some of us were living on the Gulf Coast, we spoke to community groups, met with the local media, and attended events—everything from commemorations to Mardi Gras parades where we passed out drink cups and postcards printed with our URL.

One challenge we understood immediately was that the storms displaced thousands of individuals who were never wired and in the wake of the storms, remained so. First, we set up a local phone number through the online telephone service, Skype, that allowed those without connectivity, or for those wishing to talk through their ordeals, the opportunity to contribute via voicemail.

Second, we printed postage paid reply cards so that someone could pick up a card, write their story, and mail it in. We then scanned and uploaded cards to the archive. With these efforts combined with the broad publicity campaign, our outreach team sent a lot of traffic to the HDMB site.
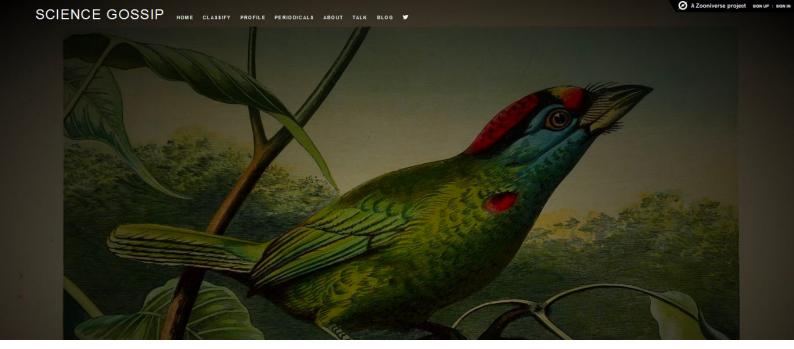
Our efforts definitely paid off, as HDMB contains over 25,000 digital objects and remains one of the largest digital archives focused on the 2005 Gulf Coast hurricanes.

Even still, we misjudged the intensity of destruction of these events when planning and budgeting for the project. While CHNM and UNO went to work soon after the hurricanes struck to begin collecting, we found that many residents, former residents, and volunteers were not ready to share their stories. The destruction along the Gulf Coast was structural, institutional, and emotional. For so many, dealing with the aftermath was difficult and for some that summer hasn't ended yet. For others, the magnitude of the destruction of their lives and their communities was so great that they find it impossible to put into words.

We secured a grant for two years, but discovered that for this particular disaster two years was not enough time. If, like us, your project is devoted to collecting the digital record of a tragedy, plan to spend more time on outreach than you thought you would. Additionally, even though you built a digital project, plan to spend much of your time off-line talking to individuals and building relationships. People need to trust you and your project before they will share their memories and digital materials.

**Links:**

http://hurricanearchive.org/

http://911digitalarchive.org

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2012/03/26/hurricane-digital-memory-bank/

---
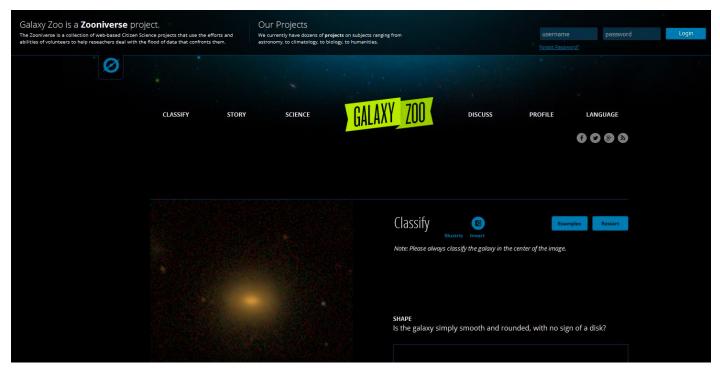
Screenshot, homepage for the Zooniverse project
Science Gossip.

# Digital citizen science: Creating meaning for the Zooniverse

*Chris Lintott*

*This sort of project—in the absence of a better name, we call it "citizen science"—certainly can be a short cut to sorting through data, but it's not a free ride, and plenty of effort has to go into the process of generating reliable results from classifications provided by multiple volunteers.*

Why is an astronomer writing for a blog aimed at those who spend their time thinking about the environmental humanities? It's true that I've published several papers on environmental influences, but the word in my Universe has a rather limited meaning—the environment of a galaxy simply means the density of its surroundings. Astrophysics, like the environmental sciences, has a long tradition of engagement with the humanities tradition, whether through inspiring philosophies or providing a (dark) canvas for authors, but there are plenty more qualified than I to write on those subjects.

Screenshot of Galaxy Zoo. Users are invited to classify galaxies.
© Zooniverse. Development of the Zooniverse.org platform is funded
by generous support, including a Global Impact Award from Google,
and by a grant from the Alfred P. Sloan Foundation.

I usually describe myself as a distracted astronomer, as I'm as likely to be discussing penguins, papyri or nineteenth-century scientific periodicals as I am the discovery of planets. In 2007, needing to sort through images of a million galaxies, I led a small team in creating a project called Galaxy Zoo, inviting the general public to help with our data problem. The response was beyond our wildest dreams — Galaxy Zoo has enabled hundreds of thousands of people to provide more than a hundred million classifications of galaxies, and more importantly showed the ability and willingness of the crowd to go beyond mere "clickwork" and start to investigate the unusual and interesting themselves. In the language of this site's mission statement, volunteers are acting not just as ants feeding data to professional spiders, but as bees in their own right.

A single project quickly expanded to become the Zooniverse, a platform for this sort of distributed analysis. The same software that presents an image of a galaxy for classification can as easily ask for the identification of animals in a camera trap image, or even coordinate the effort of volunteers who assist pathologists in sorting through stained images of cells from cancer patients. The key realisation was that the volunteers who take part in these projects do so not because of a pre-existing interest in astrophysics (or whatever the subject is) but out of a desire to make an authentic contribution to the scientific process.

*T*he key realisation was that the volunteers who take part in these projects do so not because of a pre-existing interest in astrophysics (or whatever the subject is) but out of a desire to make an authentic contribution to the scientific process.

This has profound consequences; the success of a project rests not on how beautiful its images are, but rather on how clearly the research that it enables can be explained. Our volunteers crave contact with the scientists and researchers behind the project—at a recent workshop, as we discussed whether we should provide swag (stickers for laptops and so on) one of the invited guests, a moderator on several of our projects blurted out: "Don't give us stuff—invite us to your conferences."
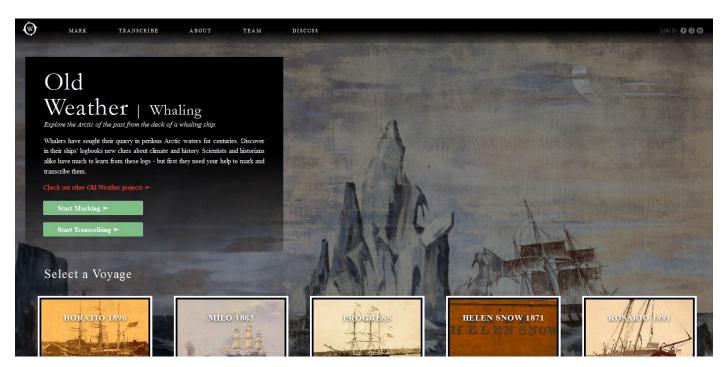


Screenshot of the website Snapshot Serengeti. The project invites users to classify animals photographed in Serengeti National Park. © Zooniverse. Development of the Zooniverse.org platform is funded by generous support, including a Global Impact Award from Google, and by a grant from the Alfred P. Sloan Foundation.

It also means that we go to great lengths to make sure that we're not wasting anyone's time. This means running projects only where human intervention is genuinely required, rather than just duplicating tasks which computers could conveniently do. It also means making sure that the researchers with whom we work have what's needed to make use of the classifications, and that we're providing the right kind of support. This sort of project—in the absence of a better name, we call it "citizen science"—certainly can be a short cut to sorting through data, but it's

not a free ride, and plenty of effort has to go into the process of generating reliable results from classifications provided by multiple volunteers.

Sometimes, though, what volunteers get from a dataset is very different from the original plan. Occasionally this should have been predictable—a community of birdwatchers settled in to our SnapshotSerengeti project to enjoy the reserve's avian life rather than necessarily concentrating on its four-legged inhabitants— but sometimes it's been a complete surprise.
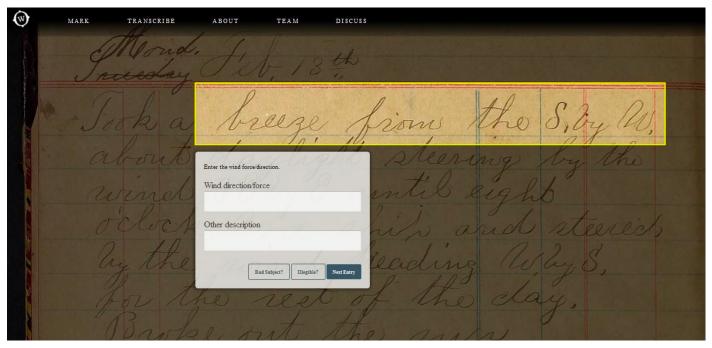
One of our early projects, Old Weather, has now transcribed more than a million pages of logbook from nineteenth- and early twentieth-century ships. The aim of the project is to add to meterologists' store of historical observations, the better to test their models of a changing climate, but the interest for most of the volunteers lies in the historical fragments that accompany the logs. Who, for example, will ever forget the tragic loss of chocolate recorded in the logs of the HMS *Mantua*?



The Zooniverse project OldWeather.org invites citizen scientists to mark and transcribe ships' logbooks.

These and other historical records are now recorded on the volunteer-run Naval History.net, whose archives now form part of the collection of the Royal Naval Museum. This engagement with historical records has led us to build more historically focused projects, including most recently ScienceGossip.org.

This latest endeavour is a citizen science project about citizen science, sorting through Victorian periodicals to understand a time when, like now, professional

and volunteer scientists depended on each other. Our hope is that by understanding the past we'll understand how to better collaborate today, but our success depends on the efforts of volunteers. Please click and give us a hand!



Interface for transcribing logbooks on the Zooniverse project OldWeather.org.

**Links:**

https://www.sciencegossip.org/

https://www.zooniverse.org/projects/zookeeper/galaxy-zoo/

http://www.galaxyzoo.org/

http://www.antspiderbee.net/about/

http://www.zooniverse.org/

https://www.zooniverse.org/projects/zooniverse/snapshot-serengeti

http://www.snapshotserengeti.org/

http://whaling.oldweather.org/#/

http://forum.oldweather.org/index.php?topic=1062.0

https://www.oldweather.org/

https://www.naval-history.net/
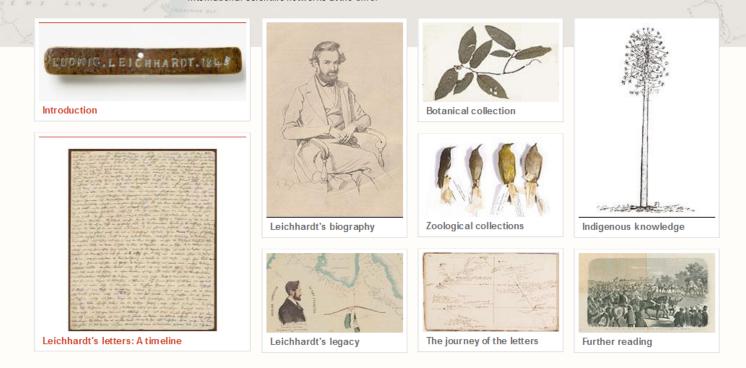
http://sciencegossip.org/

https://www.oldweather.org/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/11/05/digital-citizen-science-creating-meaning-for-the-zooniverse/

---

Screenshot of the landing page of Heike Hartmann's virtual exhibition "Ludwig Leichhardt: A German Explorer's Letters Home from Australia" on the Environment & Society Portal, 2015. CC BY–NC–SA.

# Intrepid German explorers: Virtual exhibitions and the digital revival of scientists' papers

*Kimberly Coulter*

Explorers of the nineteenth and early twentieth centuries were mainly men, often mavericks who elated in discovering something outside the ken of the European scientific establishment. Their career choice was a radical one. They were not always appreciated; they missed their loved ones; they ate unspeakable things. Sometimes, they never returned.

No one followed their adventures on Twitter, no Facebook friends "liked" their passionate descriptions of remote places. While their scientific contributions sometimes made their way into our corpus of knowledge, their triumphs and their grief had only the smallest audience. Their insights, methods, and observations are revealed in the personal papers they leave behind. These letters, diaries, or notes from the field describe technological achievements, difficulties with patrons and colleagues, daily challenges in extreme situations, even expressions of wonderment and awe. Finding their way to an archive, too often the papers remain there, occasionally unearthed by a doctoral student on her own expedition.
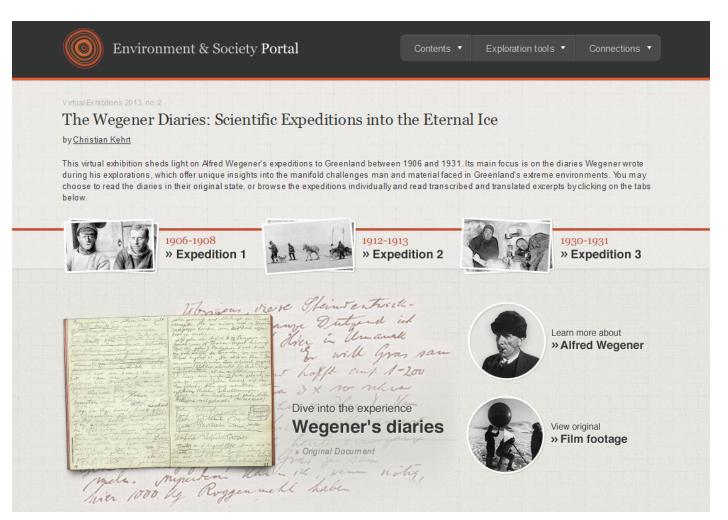
Alfred Wegener during his second expedition to Greenland. Unknown photographer, 1912–13, public domain. Originally published in Johann Peter Koch, Durch die weiße Wüste: Die dänische Forschungsreise quer durch Grönland 1912/13 (Berlin: Springer, 1919: 125). In Christian Kehrt's virtual exhibition "The Wegener Diaries: Scientific Expeditions Into the Eternal Ice" on the Environment & Society Portal, 2013.

Virtual exhibitions can revive these documents from archival obscurity and make them visible to broader audiences. They can also make them relevant: revealing this "human" side of what we miss from the formal writings, they build a bridge to those researchers who came before us. Virtual exhibitions are the most popular feature of the Environment & Society Portal, a gateway to open access resources on the human-environment relationship. Addressing a community of teachers, researchers, and the public, it reaches more than 10,000 individuals each month. In addition to its Multimedia Library and other publications such as *Arcadia*, it has published eight exhibitions so far, based on the research themes of the Rachel Carson Center for Environment and Society, its fellows, and its institutional partners. These exhibitions include Rachel Carson's *Silent Spring,* a Book that Changed the World; A History of Water in 20th-Century Bogotá; and Welcome to the Anthropocene: The Earth in Our Hands.

Intrepid German explorers—one polar geologist, one natural historian—are the subject of two virtual exhibitions based on holdings of the Deutsches Museum, one of our parent institutions. The Wegener Diaries: Scientific Expeditions into the Eternal Ice and Ludwig Leichhardt: A German Explorer's Letters Home from Australia are both based on newly digitized documents from the Deutsches Museum Archive, published for the first time on the Environment & Society Portal. The handwritten documents were digitized, transcribed, and translated into English. Now fully searchable, the texts are juxtaposed with digitized photographs, natural history specimens, films, and other archival materials. Commentaries put these objects into interpretive contexts; metadata connect them with related resources within the Portal and beyond. The Portal team tweets the most profound observations.

*Alfred Wegener: "The weather is marvelous."* http://dlvr.it/335Hqb #envhist

—Environment+Society (@env_and_society) Mar 7, 2013

Showcased within an environmental humanities knowledge portal, the documents find visibility within an international academic community, and often with the public as well. They become accessible from any place in the world. Assigned an ISSN number and digitally archived and cataloged by the Bavarian State Library, we hope they will never be lost.

Alfred Wegener (1880–1930) is known for proposing in 1912 the idea of shifting continents; only after his death was his idea modified and accepted as theory of plate tectonics. The digitized diaries encompass the Danish Danmark Expedition (1906–1908), the Danish North Greenland Expedition (1912–1913) and offer detailed knowledge about Greenland's extreme environments, the dynamics of its ice sheet and the local weather and climate conditions. The virtual exhibition The Wegener Diaries: Scientific Expeditions into the Eternal Ice was one of the Portal's first virtual exhibitions in 2013.

[020] 7. Juni [1912]. Gestern abend fuhren wir von Akureyri ab. Vigfus kam 1 ½ Stunden zu spät, dann aber im Galopp zu Pferde. Der Sysselmann war ihm begegnet und hatte ihn wegen der Tour über den Vatna-Jökul ausgefragt. Kochs Gelder haben gerade gereicht, es ist nichts übrig geblieben. Der Aufenthalt und die Reise auf Island waren erheblich teurer, als gerechnet worden war. – Nun sind wir mit der „Goothaab" in See, ohne Lundager. Er war auf der Islandreise den Anstrengungen nicht mehr recht gewachsen und wünschte daher selbst zurückzutreten. Es ist noch unsicher, ob wir einen Matrosen als 4. Mann mitnehmen. Wir haben auch einen isländischen Hund für 10 Kr. gekauft. Er heißt Gloë. Vigfus ist seekrank im Bett,

[020] 7 June [1912]. Last night we departed from Akureyri. Vigfus came 1 ½ hour late, but when he arrived, he was galloping on horseback. He had met Sysselmann, who had asked him about the tour across Vatna-Jökul. Koch's funding had just barely been enough; there is nothing left. The journey to Iceland and our stay there have been considerably more expensive than expected. Now, we are on the *Gothaab* on the ocean, without Lundager. During the Iceland trip he wasn't really able to cope with the strenuous demands anymore, and decided to leave the expedition of his own accord. It is still uncertain as to whether we will take on a sailor as a 4th man. We also bought an Icelandic dog for 10 kroner. His name is Gloë. Vigfus is in bed

Screenshot of Alfred Wegener's 7 June 1912 entry with transcription and English translation. Deutsches Museum Archiv, NL 001/008. In Christian Kehrt's virtual exhibition "The Wegener Diaries: Scientific Expeditions Into the Eternal Ice" on the Environment & Society Portal, 2013. CC BY-NC-SA.

Curator Christian Kehrt presents the complete digitized diaries, more than 400 excerpted pages that have been transcribed and translated into English, a film, photos, and commentary. He explains that the diaries "provide a detailed look at polar exploration in the first half of the twentieth century, illustrating the challenges of everyday life as well as the continuities and changes in exploration methods over the course of three decades." A Google Analytics content drilldown reveals more than 40,000 pageviews in the last two years. Two years after its publication, it is still generating more than 800 views per month.
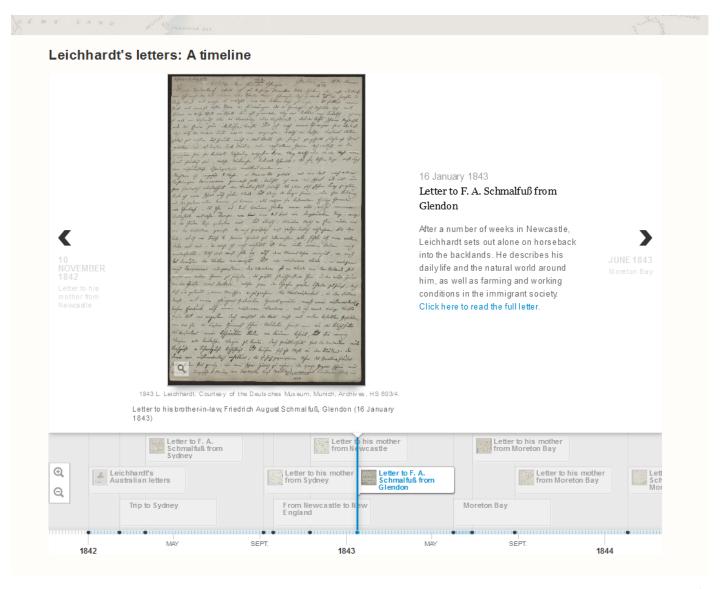
Lithograph by Thomas Ham (1821–1870), after a drawing by Joseph Pittman (1810–1882) in The Port Phillip Herald, Melbourne, 2 June 1846. Melbourne, State Library of Victoria. Public domain. In Heike Hartmann's virtual exhibition "Ludwig Leichhardt: A German Explorer's Letters Home from Australia" on the Environment & Society Portal, 2015.

Natural historian Ludwig Leichhardt (1813–1848) earned his reputation as the "Prince of Explorers" for mapping a viable route between Australia's east and north coasts during his first expedition. Everyone was surprised when he returned alive. In 1848 he set out to traverse the continent from east to west, but disappeared and was never found. Last week we launched the virtual exhibition Ludwig Leichhardt: A German Explorer's Letters Home from Australia. Curated by historian Heike Hartmann, the exhibition offers a lively new English translation of 17 of Leichhardt's richly detailed letters he sent to his relatives between 1842 and 1848. The letters vividly describe Australia's natural landscape and document his relationships with colleagues and patrons. They offer insight into the natural history of Australia, Europeans' encounters with its indigenous population, and international scientific networks at the time.

The exhibition's commentary contextualizes the letters together with other natural history objects, newspapers, drawings, maps, and photographs. Readers can view high-resolution scans of the original letters, and the new English translations, within an interactive timeline (created with the Drupal plugin JS Timeline).

Environment & Society Portal exhibitions coordinator Eliza Encheva explains, "by expanding, contracting, or scrolling through the timeline, a playful element is introduced, giving users an impression of the chronology of Leichhardt's experiences." It is also possible to zoom in on the digitized handwritten letters for a closer look.

## Leichhardt's letters: A timeline

**16 January 1843**

**Letter to F. A. Schmalfuß from Glendon**

After a number of weeks in Newcastle, Leichhardt sets out alone on horseback into the backlands. He describes his daily life and the natural world around him, as well as farming and working conditions in the immigrant society. Click here to read the full letter.

10 NOVEMBER 1842
Letter to his mother from Newcastle

JUNE 1843
Moreton Bay

1843 L. Leichhardt. Courtesy of the Deutsches Museum, Munich, Archives, HS 603/4.

Letter to his brother-in-law, Friedrich August Schmalfuß, Glendon (16 January 1843)

Letter to F. A. Schmalfuß from Sydney

Letter to his mother from Newcastle

Letter to his mother from Moreton Bay

Leichhardt's Australian letters

Letter to his mother from Sydney

Letter to F. A. Schmalfuß from Glendon

Letter to his mother from Moreton Bay

Lett Sch Mor

Trip to Sydney

From Newcastle to New England

Moreton Bay

1842     MAY     SEPT.     1843     MAY     SEPT.     1844

Screenshot of the interactive timeline in Heike Hartmann's virtual exhibition "Ludwig Leichhardt: A German Explorer's Letters Home from Australia" on the Environment & Society Portal, 2015. CC BY–NC–SA.

As it hosts and connects several large projects, the Environment & Society Portal uses the open-source content management system Drupal, there are easier ways for even small cultural heritage institutions and individuals to showcase their collections with virtual exhibitions. The free and open-source software Omeka, from the Roy Rosenzweig Center for History and New Media, is an easy way to showcase small collections using Dublin Core metadata. The Deutsches Museum also highlights its collections using Google Cultural Institute slideshows.

By creating virtual exhibitions, even small cultural heritage institutions can win large audiences for their treasures and spread the word about their significance.

Then anyone with an Internet connection can become an explorer—not only of far-away places, but of the past. And live to tell the story.

*Postscript: At the time of this e-book's publication, the Environment & Society Portal has published 28 virtual exhibitions.*

**Links:**

http://www.environmentandsociety.org/exhibitions/ludwig-leichhardt

http://www.environmentandsociety.org/

http://www.environmentandsociety.org/mml

http://www.environmentandsociety.org/arcadia

http://www.carsoncenter.uni-muenchen.de/index.html

https://doi.org/10.5282/rcc/8842

http://www.environmentandsociety.org/exhibitions/water-bogota

http://www.environmentandsociety.org/exhibitions/anthropocene

http://www.deutsches-museum.de/en

http://www.environmentandsociety.org/exhibitions/wegener-diaries

http://www.environmentandsociety.org/exhibitions/leichhardt

http://www.environmentandsociety.org/exhibitions/wegener-diaries/overview

http://www.environmentandsociety.org/exhibitions/leichhardt

http://www.environmentandsociety.org/exhibitions/leichhardt/timeline

https://www.drupal.org/

http://omeka.org/

https://www.google.com/culturalinstitute/collection/deutsches-museum?hl=de

http://www.environmentandsociety.org/exhibitions

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/06/25/intrepid-german-explorers-virtual-exhibitions-and-the-digital-revival-of-scientists-papers/

CHE graduate students and faculty members gathered in a circle of interdisciplinary conversation during our place-based workshop on "Landscapes of Extraction" in May 2014. Photo by William Cronon. Courtesy of *Edge Effects.*

# Edge Effects: A success story in creating an online presence

*Adam Mandelman*

*As part of a content-sharing agreement, we are reposting a reflection on the creation and evolution of* Edge Effects, *a website produced by graduate students at the* Center for Culture, History, and Environment (CHE). *The post, written by* Edge Effects' *founding managing editor, Adam Mandelman, on the occasion of the site's first anniversary, was published earlier today as "Working the Edge; or, How We Built This Thing."*

Just one year after launch on October 9, 2014, *Edge Effects* boasts almost 400 email subscribers and averages close to 5,000 views each month. That's an exceptional feat for what was originally going to be a humble little graduate-student led publication.

The site was officially conceived in the spring of 2014, but the idea for building something like it had actually been in the air for much longer. Two years prior,

graduate students Kate Wersan and Garrett Dash Nelson had first suggested creating a digital publication that would occupy the intellectual space of the Center for Culture, History, and Environment (CHE). Two years is a long time for something to materialize from daydream into reality, but overcoming inertia is one of the biggest and most common challenges of launching projects like *Edge Effects*. Although I can't offer much guidance on overcoming that particular obstacle, I hope this first-anniversary history of the site will prove instructive in other ways for those aspiring to build and maintain something similar.

## Beginnings



Desert tortoise hatching. Photograph courtesy of US Geological Survey, 2012. Public domain.

*Edge Effects* emerged from the twinkling eyes of a couple graduate students into a bona fide project—complete with a timeline and a mission—during one of Bill Cronon's mentoring discussion groups in early April of 2014. The topic was "Communicating via Alternative Media," and several grads felt strongly that it was time CHE had a digital venue for publishing work that didn't necessarily fit the models of scholarly articles and monographs. Together, we imagined a website that could host other expressions of our research, whether the tentative and speculative findings of work in progress, or the more unconventional scholarly forms like poetry, fiction, photography, film, and even comic strips.

Within a month, a few of us present at that meeting had come together to craft a proposal for CHE's steering committee. For the curious, I've embedded that document below.

## CHE's As Yet Unnamed Blog: A Proposal

**Note:** The CHE blog needs a name! We'll be soliciting recommendations and conducting a poll very soon.

### Mission
The Unnamed Blog shares CHE's conversations and scholarship about culture, history, and environment with the wider world.

### Vision (How we achieve our mission)
Led by CHE graduate students, the blog showcases the work of the entire CHE community. It offers CHE members the opportunity to learn the craft of producing multimedia content designed to engage public audiences. The blog invites experiment, speculation, and playful creativity alongside more traditional scholarly essays to explore environmental and cultural change in the full sweep of human history.

### Editorial Board & Process
We recommend that an editorial board manage the blog and serve at the direction of the CHE Steering Committee. The board would consist of 6-7 members: a consulting editor (faculty), a managing editor (grad), and 4-5 additional grad students. Terms are TBD, but we suggest staggered two-semester terms with no hard limits on number of terms served to encourage turnover as well as institutional memory. Although all blog entries will be edited, we recommend against a formal peer-review system; special types of content or curated thematic issues could, at the discretion of the editors, be reviewed with stricter academic scrutiny.

Editors would:
- Recruit authors and contributions
- Schedule content for publication
- Conduct light editorial work and escalate as needed
- Run training and writing workshops
- Produce content when there's a shortage in the queue
- Tag and categorize content; carefully manage those tags and categories

The initial working group would, with Steering Committee oversight, spend the summer of 2014 developing a platform that invites *everyone* to participate. The working group would establish management protocols, including everything from editorial process (e.g., how many sets of eyes on different kinds of posts?) and style guides, to training workshops and management documentation. The working group would produce some initial content for the blog, setting standards for tone, form(s), quality, etc., with the goal of launching the blog in September 2014.

### Content (maximum length: ~2,000 words)
The Place-Based Workshop thought pieces suggest one (but by no means the only) model for tone/style. We suggest 6-7 main *genres* of posts that would serve as guides for writers and editors. Visitors, however, will see a more textured classification of posts organized by categories (compare to a TOC: Animals, Food & Ag, Cities) and tags (compare to an index).

*Essays and Reflections:* More like traditional scholarly output, but with images and video.
*Commentary:* Focused on news/current events. Provocations, roundtables, etc.
*Reviews:* Of books, film, apps, websites, articles, etc.
*Galleries:* Alternative forms/media and experiments: creative writing, video, graphics, etc.
*Dispatches from Madison:* Reflections on CHE events as well as conferences we attend.
*Fieldnotes:* Reports from the archives/field, CHE in the classroom, posts on method, etc.
*Listicles:* Not that we want to replicate *Buzzfeed*, but top-ten lists are an important genre.

Proposal for the CHE's new blog (to become *Edge Effects*). Courtesy of *Edge Effects*.

Notice some of the goals and values that have been at the center of the project since its very beginnings:

- This would be an emphatically graduate student-led project, focused primarily on sharing the work of CHE grads, faculty, and other associates.
- Content published on the site would be explicitly oriented toward a broad audience, engaging not just an interdisciplinary set of scholars, but also wider publics.
- Creativity and play would embody some of the project's core values, and contributors would be encouraged to experiment with voices, media, forms, and themes not typically found in traditional scholarly publications.

After CHE's steering committee approved that document as a (sketchy) blueprint, I volunteered to lead development of the publication for an expected launch in early fall of 2014, in anticipation of the Anthropocene Slam workshop. (Side note: wherever possible with these kinds of projects, avoid arbitrary timelines in favor of hard deadlines over which you have relatively little control—your efforts are far more likely to bear fruit).

## Development



Working on the edge. Photograph by Lewis Hine, 1929, public domain.

Given the seasonal rhythms of academe, summer often seems like a natural time to embark on major new projects. The teaching, research, and service demands of a semester in full swing rarely leave room for building something like *Edge Effects*.

And yet, summer—with its enticements of fieldwork, family obligations, and even a few stolen moments of downtime—remains an acutely challenging time to coordinate a team. Nonetheless, we muddled through June, July, and August quite well with a revolving working group of grads and faculty. The team suggested features and offered feedback as I developed the actual site.

Like almost a full quarter of the Web, we decided to build *Edge Effects* using WordPress, a premium theme, several plugins, and some CSS and PHP customizations. One feature our development working group wanted to see implemented was a multi-column, Pinterest-style homepage, rather than the more traditional blog format. Although I resisted at first, the design has actually served us quite well, offering visitors a variety of material that can be scrolled through with a glance.

Readers will also notice from our proposal that we were quite uncertain about what to name CHE's new publication. That question wouldn't be resolved until late July 2014 and turned out to be one of the more difficult problems we faced during development. A first round of solicitations for naming the site resulted in about two dozen possibilities, none of which generated overwhelming excitement from the community. "Edge Effects" in fact emerged quite late in the name game, alongside one other possibility. When we conducted a final poll of CHE's membership, we found even and enthusiastic support for both of these two options, leaving the development working group to make the final call. After meditating on the numerous evocative ways "Edge Effects" seemed to embody our vision for the project, the rest was history. One of our first posts upon launch would be a lovely essay from Bill Cronon about what the phrase "edge effects" means for CHE.

And, as we hoped, *Edge Effects* has lived up to its name. Collectively, our contributors have trod and traversed the many intersecting edges of CHE's intellectual space, rendering more porous the boundaries distinguishing academic disciplines, theory from practice, laboratory from field, text from image, and even scholarly expertise from public knowledge. Our authors have posted a vast collection of photography, a poem or two, a comic strip, and almost a dozen interviews with some of the wisest and most inspiring thinkers we have found. Visitors to our site have discovered serious engagements with theater, video and other visual arts, music, children's literature, herpetology and rewilding, crafts like woodworking, and the African safari. A few deeply personal narratives have presented our readers with complex, beautiful ideas about human relationships with animals and insects. And thoughtful essays have shared emerging scholarship on themes ranging from the cultural landscapes of boom and bust to the idea of the Anthropocene; from death and citizenship, to the politics of belonging in postcolonial places.

## Mechanics

By August 2014 we had not only a name and a customized WordPress theme, but also an editorial board, consisting—as outlined in our original proposal—of five other graduate student editors and one faculty advising editor. Together we took the site from a template filled with dummy content to a fully operational blog, including four posts ready for an early-October launch and several more in the queue.

While I don't want to bore my readers with too many technical details, so few web publications reveal their inner workings (this ProfHacker piece is a nice exception) that it might be helpful if we shared some of our process.

*Edge Effects* has its own dedicated Google Drive where we maintain documents like our style guides and editorial manuals. I can't emphasize enough how important this kind of documentation is for maintaining institutional memory. Given that we operate almost entirely thanks to graduate student volunteers, having manuals and other documents on hand helps guarantee a consistent product even with regular editorial turnover.

Probably one of the most important of those documents is our Google Sheets editorial calendar (check out the screenshot below). While fairly simple, it's an indispensable tool for pushing out new content twice weekly (like clockwork, I might add). The entire editorial board meets twice monthly to discuss new pitches

and fill the calendar, typically for at least the next six weeks, if not more. For the vast majority of posts, we manage to stick to that schedule. On occasion, however, a post has been delayed, in which case we've brought something else forward for publication. In fact, we always try to have a post or two ready for immediate publication in the event of just such setbacks.

| | WEEK | TUESDAY | CATEGORY | EDITOR(S) | THURSDAY | CATEGORY | EDITOR(S) |
|---|---|---|---|---|---|---|---|
| 19 | 2/2/2015 | Peterson: Nevermind, Whatever Photoessay | Exhibit | Adam (Rachel) | Filipiak: Winter photo essay | Exhibit | Spring (Eric) |
| 20 | 2/9/2015 | Bullard: Poem | Exhibit | Rafi (Rachel) | Gibbons: Safari Tourism | Fieldnote | Rachel (Nathan) |
| 21 | 2/16/2015 | MacFadyen: Data Viz | Fieldnote | Adam (Eric) | Carlin on Symposium | Fieldnote | Nathan (Spring) |
| 22 | 2/23/2015 | Aso: Resilience in post-disaster landscapes | Reviews, Checklists | Rafi (Adam) | February Recs | Checklists | Adam |
| 23 | 3/2/2015 | Trumble on Mahon | Reviews | Rachel (Spring) | Rosenberg: "Meditation: Labor" | Exhibit | Nathan (Rachel) |
| 24 | 3/9/2015 | Rudnick: Interview with Elmore, "Citizen Coke" | Fieldnote | Eric (Adam) | Gant on Longhurst | Essay | Spring (Rafi) |
| 25 | 3/16/2015 | Roth: Sea-level maps | Checklist | Eric (Adam) | Davey: Interview with Michael Goodwin | Fieldnote | Spring (Nathan) |
| 26 | 3/23/2015 | Jandl: Arboretum Photography | Exhibit | Adam (Eric) | March Recs | Checklists | Adam |
| 27 | 3/30/2015 | Carlin on "Wrenched" | Reviews | Eric (Nathan) | Nelson: Interview w/ Jess Gilbert | Fieldnote | Rafi (Spring) |
| 28 | 4/6/2015 | Andrzejewski: Booms and Busts in West Texas | Essay, Fieldnote | Rachel (Adam) | Day on Oreskes & Conway | Reviews | Spring (Rachel) |
| 29 | 4/13/2015 | Sack: Mamata Akella interview on NPS cartography | Fieldnote | Rafi (Rachel) | Stuhl: Teaching Constructivism vs Science Denial | Fieldnote | Eric (Adam) |
| 30 | 4/20/2015 | Keogh: Landscapes of the Anthropocene exhibit review | Review | Nathan (Spring) | Cromwell et al.: Children's books | Checklists | Rachel (Spring) |
| 31 | 4/27/2015 | Gade: Praying for Forgiveness | Fieldnotes | Rafi (Rachel) | April Recs | Checklists | Adam |
| 32 | 5/4/2015 | Stack-Whitney: Harry Greene Interview | Fieldnote | Adam (Rafi) | Wagstaff: Niedecker and Dwelling-With | Essays | Nathan (Eric) |

A sampling of the editorial calendar. Courtesy of *Edge Effects*.

Notice also that each post is assigned two editors—another important element of our workflow. Although we evaluate submissions for scholarly content to some extent, our editorial process is far more journalistic than what you might experience with an academic journal. Clarity, accessibility, and liveliness of prose are fundamental to *Edge Effects*. As such, we do some fairly fine-grained editing of our authors, typically going through at least two sets of revisions with two different editors. Our managing editor also always does a final sweep for typos, misplaced modifiers, and the like.

Given that many of our contributors are often more accustomed to scholarly peer-review, clarifying the kinds of edits and revisions they should expect has been critical to the project's success. Our style guide runs just over three pages and is supplemented by a brief document offering guidelines for opinion pieces or essays that engage more polarizing issues, particularly around current events. Every

author is also given a publishing timeline and a rough sketch of what each stage in the editorial process looks like.

All told, our editorial process can be fairly labor-intensive, but it has also reaped real rewards. We not only manage to publish dutifully on-schedule, but also shepherd through content that has been of a consistently high quality, ensuring readers regularly return to the site and share its posts. The trade-off here, of course, is that *Edge Effects* has evolved into something much more demanding than the category "blog" often suggests. Balancing the openness and accessibility of a blog with the schedule, style, and rigor of a magazine or journal has been an edge we've tried carefully to tread.

## The Edge Ahead



Contemplating the edge ahead, Davos, Switzerland. Photograph by Robert J. Heath, 2010. CC BY.

From its initial development through the rich content that appears twice each week, *Edge Effects* has been a significant achievement for the CHE community. When we built the site, we did so without needing to hire a single person. Whether we were sorting out the pros and cons of working within the severe security constraints of university servers, solving knotty PHP coding problems, or imagining logo and banner design, the CHE community provided. As our editors have moved on to new projects and other commitments, our graduate students have enthusiastically stepped in to fill those vacancies. As the editorial expectations of the project have

grown and solidified, both our contributors and editors have worked to meet those expectations.

The vice of all that virtue, however, is that almost any community has limited human resources. Although we've happily and very successfully relied on the in-house expertise and voluntarism of our graduate students (and a few faculty), questions remain about the long-term sustainability of a project like *Edge Effects*. This is particularly true at a time when the academy still views such work at best as "service," or at worst as a distraction. Although these attitudes are changing, they may not be changing fast enough.

Despite this most fundamental of challenges, *Edge Effects* continues to share exciting and inspiring work from across the vibrant intellectual landscape of CHE. Our site remains one of the few projects out there that so deftly and creatively explores the boundaries of public scholarship across the arts, humanities, sciences, and social sciences. As *Edge Effects* celebrates its first go around the sun, it seems to have grown remarkably well into the space between a humble blog and something quite a bit more.

**Links:**
http://edgeeffects.net/
http://nelson.wisc.edu/che
http://edgeeffects.net/?p=4124
http://williamcronon.net/
http://nelson.wisc.edu/che/anthroslam/
http://wpengine.com/blog/wordpress-taking-web-check-live-wordpress-stats/
http://edgeeffects.net/
http://edgeeffects.net/why-edge-effects/
http://edgeeffects.net/tag/photography/
http://edgeeffects.net/incantation-to-be-spoken-lakeside/
http://edgeeffects.net/borderlands-places-landscapes/
http://edgeeffects.net/talking-waste-lepawsky/
http://edgeeffects.net/tag/interviews/
http://edgeeffects.net/tag/theater/
http://edgeeffects.net/meditation-labor/
http://edgeeffects.net/uneasy-temporality-in-the-anthropocene/
http://edgeeffects.net/dr-sarah-lappas/
http://edgeeffects.net/literature-for-little-ones/
http://edgeeffects.net/harry-greene/
http://edgeeffects.net/art-of-offering/
http://edgeeffects.net/safari-in-uganda/
http://edgeeffects.net/leopard-box/
http://edgeeffects.net/being-with-bees/
http://edgeeffects.net/texas-boom-and-bust/

http://edgeeffects.net/anthropocene-promise-and-pitfalls/

http://edgeeffects.net/death-burial-citizenship/

http://edgeeffects.net/belonging-in-darjeeling/

http://chronicle.com/blogs/profhacker/how-to-run-a-group-authored-blog/30080

https://drive.google.com/open?id=1Li28s4Ej0YhOp0SNN5QvLhT8cfNxdMve4CQdnBsyiXs

https://drive.google.com/open?id=1Xe0vQHpIRmDRn0SCtShaGCJsiieGcSe0zkXbaYmuD4w

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/10/08/edge-effects-a-success-story-in-creating-an-online-presence/

# Postscript: To what effects?

CHE graduate students and faculty members gathered in a circle of interdisciplinary conversation during our place-based workshop on "Landscapes of Extraction" in May 2014. Photo by William Cronon. Courtesy of *Edge Effects.*

*Brian Hamilton*

In the year and a half since Adam Mandelman wrote his reflection, *Edge Effects* has doubled its audience to 10,000 views per month, published over 150 more pieces, seen eighteen more graduate students serve on its editorial board, opened a Twitter account and gained 600 followers in under four months, collaborated with the Network in Canadian History and Environment (NiCHE) to showcase emerging scholars, and launched a podcast series.

This growth is improbable because it has come without solving the sustainability problem Adam outlined. Our editors remain volunteers. They elect to take on this work on top of the 20-hour/week gigs that fund their graduate education and, of course, in addition to their own scholarship. Why? Love, mostly. CHE is a community deserving of that threadbare word. Our editors stay up late reading draft after draft and helping each other catch typos and battle coding bugs to make our authors look good and give CHE a product in which it can take pride.

But it isn't all selflessness: *Edge Effects* offers its editors professional development opportunities unrivaled by any other feature of our academic training. The list of skills I acquired or sharpened in just my first semester on the board is frankly ridiculous: developmental editing, copy editing, headline editing, pitch development, WordPress, Photoshop, social media promotion, audio recording and editing, podcast RSS, search engine optimization (SEO), web analytics, style sheet and workflow development, annual reporting, copyright law and permissions requesting, meeting facilitation, as well as networking to recruit authors and increase readership. *Edge Effects*' place on my academic CV is modest, but on my professional résumé it does much of the heavy lifting—an important insight for graduate programs trying to figure out how to prepare their students for career searches that, by necessity, will need to look far beyond the tenure track.

The reason for signing up that our new editors give most often is their desire to learn the alchemy of transforming academic ideas into popularly accessible writing. That has been the project's goal from the start. Our structural interdisciplinarity helps us in this (with zoologists editing ecocritics, historians working with ecologists), as does our style sheet, which discourages footnotes and jargon. While we now can promise our authors more readers on the day they publish with us than any of their journal articles may ever receive, we continue seeking ways to make the magazine more inviting. We have come to understand this requires more than good copy-editing. It begins with the conception of the piece and runs through its promotion on Facebook and elsewhere. We have developed pitch guidelines that ask our authors to consider from the start how they will address non-experts, and the board now workshops our pieces' headlines. We also have ceased publishing self-referential content that appeals primarily to readers who care about CHE or the University of Wisconsin—or us: by repackaging our series of monthly recommendations around themes rather than around editors, we've quadrupled its popularity.

At the *Edge Effects* table at this spring's annual meeting of the American Society for Environmental History, a professor confessed, "I steal opinions from you guys all the time." Is there higher praise in the academy? This was one of several recent signs that *Edge Effects* has matured into a familiar, dependable presence in the digital landscape for those interested in the environmental past. By this time next year, it's likely our board won't include anyone who was present at the magazine's creation. I look forward to that milestone and to watching the graduate students who write for and read us become established in a variety of positions around the globe, as we pass the edge of one academic generation onto the next.

**Links:**

http://edgeeffects.net/editorial-board/

https://twitter.com/edgeeffectsmag

http://niche-canada.org/tag/seeds-new-research-in-environmental-history/

https://itunes.apple.com/us/podcast/edge-effects/id1174721985?mt=2

http://edgeeffects.net/pitch-guidelines/

http://edgeeffects.net/earth-day-readings/

http://edgeeffects.net/april-2016-recommendations/

https://creativecommons.org/licenses/by/4.0/

**Environment & Society** Portal

Exploration tools ▼    Contents ▼    Connections ▼

*Arcadia*

Disaster ahead: How Danube floods created telegraph networks

**Search the Portal**

[ Arcadia ▼ ]    → Search

**Collections**

→ National parks in time and space
→ Global environmental movements
→ Water histories

**About the author**

Screenshot of Arcadia Project, Environment & Society Portal, featuring image of painting by Leander Russ (1847): Viennese city dwellers get rescued after massive floodings in 1847. All rights reserved © Österreichische Nationalbibliothek, Bildarchiv Austria, Vienna, used in *Arcadia* with permission in Michael Neundlinger, "Disaster Ahead: How Danube Floods Created Telegraph Networks." Environment & Society Portal, *Arcadia* (2012), no. 7. CC BY-NC-SA.

# Floods present and past: Exploring historic precedents through the Arcadia project

*Andreas Grieger*

Earlier this summer (in June 2013) Central and parts of Eastern Europe experienced record floodings of some of its major rivers. In Germany, both the Elbe and Danube surpassed their historical flood marks in several locations and cities such as Passau, Grimma, and Magdeburg suffered from major water damage. The same was true for parts of the Austria, Hungary, and the Czech Republic.

The Danube, one of Europe's major connectors, suddenly became a threat to those societies living along its shores. In historic perspective, however, this threat is nothing new. As can be seen in a selection of articles from the Arcadia project, a collaboration between the Rachel Carson Center's Environment & Society Portal and the European Society for Environmental History (ESEH), the Danube and its constant floods have shaped and changed human-nature relations for centuries.

A collection of online environmental histories, the Arcadia project aims to broaden our understanding of sites, events, persons, organizations, and species as they relate to both nature and human society. Users can browse these stories by a map or by trace connections via related themes, keywords, and hyperlinks. *Arcadia*'s engaging histories encompass the entire spectrum of the field of environmental history: from efforts of nature conservation in the world's national parks, to the rise of global environmental movements, to water histories.

Taking the example of floods. *Arcadia* presents major floods such as the the Polesine flood of 1951, the North Sea flood of 1953, and the Great Flood of 1962 in Hamburg and offers opportunities to make connections. It also shows how people have learned to adapt to the threats caused by floods.

Especially in Vienna, where the river has always been vital to the city, floods have regularly caused major destruction. In his historic analysis, Severin Hohensinner shows how river regulation since the fourteenth century has gradually moved the Danube away from Vienna, marking the beginning of 500 years of human intervention to protect the city from floods: The struggle with the river: Vienna and the Danube from 1500 to the present. Hohensinner further explores this history of major Danube regulation in his *Arcadia* case study of Floodplain regulation in Austria's Machland.

The constant threats posed by Danube floods also led to the development of the first efficient warning measures during the nineteenth century. In his contribution Disaster ahead: How Danube floods created telegraph networks, Michael Neundlinger looks at how the introduction of wide-reaching telegraph networks enabled Habsburg authorities in Vienna to protect the most important city of the empire.

**Links:**

https://doi.org/10.5282/rcc/3747

http://www.environmentandsociety.org/arcadia

http://www.environmentandsociety.org/

http://eseh.org/

http://www.environmentandsociety.org/arcadia/collection/national-parks

http://www.environmentandsociety.org/arcadia/collection/global-environmental-movements

http://www.environmentandsociety.org/arcadia/collection/water-histories

http://www.environmentandsociety.org/arcadia/great-fear-polesine-flood-1951

http://www.environmentandsociety.org/arcadia/north-sea-flood-1953

http://www.environmentandsociety.org/arcadia/great-flood-1962-hamburg

http://www.environmentandsociety.org/arcadia/struggle-river-vienna-and-danube-1500-present
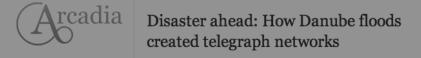
http://www.environmentandsociety.org/arcadia/taming-danube-floodplain-regulation-machland
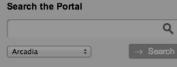
http://www.environmentandsociety.org/arcadia/disaster-ahead-how-danube-floods-created-telegraph-networks

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2013/08/20/floods-present-and-past-exploring-historic-precedents-through-the-arcadia-project/

Screenshot of Arcadia Project, Environment & Society Portal, featuring image of painting by Leander Russ (1847): Viennese city dwellers get rescued after massive floodings in 1847. All rights reserved © Österreichische Nationalbibliothek, Bildarchiv Austria, Vienna, used in *Arcadia* with permission in Michael Neundlinger, "Disaster Ahead: How Danube Floods Created Telegraph Networks." Environment & Society Portal, *Arcadia* (2012), no. 7. CC BY-NC-SA.

*Jonatan Palmblad*

Ten years have now passed since *Arcadia: Explorations in Environmental History* (ISSN 2199-3408) published its first articles on the Environment & Society Portal's custom Drupal platform. The journal, created as a collaboration between the Rachel Carson Center and the European Society for Environmental History (ESEH), has a simple goal: to publish radically short, open-access, and peer-reviewed articles on events in the history of environment and society around the world. Subjects range from wooden palaces in China, beekeeping in Mexico, and ice jams in Finland, to tobacco pests in colonial Zimbabwe, and the contributors range from early-career researchers to renowned scholars.

Of *Arcadia*'s ten years online, I have served as its managing editor for three, during which visibility has increased significantly. As of 2018, our most popular article has been viewed by over 69,000 unique users and our 50 most popular articles have each attracted more than 1,000. Since then, our submissions have also increased. Since I started in 2018, we have received 210 new submissions out of which 137 have been published. As a reference, *Arcadia* has published 277 articles in ten years, meaning that 49.5% of all articles were published in the last three. Previously a fortnightly publication, *Arcadia* is now publishing articles weekly.

Many factors have contributed to *Arcadia*'s success, which, beyond the numbers, is accounted for by other factors: it has been included in the Directory of Open Access Journals (DOAJ), we receive more submissions from scholars in the Global South, and we have often been told by contributors and reviewers that it has

become one of their teaching tools. Previous managing editors—Wilko Graf von Hardenberg, Andreas Grieger, and Katrin Kleemann—built momentum by working closely with the European Society for Environmental History and ICEHO, not only promoting *Arcadia* at events but also enlisting their members for the *Arcadia* board and leaning on them to identify potential reviewers and contributors. Positive developments over the years included extending the maximum length from 500 to 850 words, a liberalization of the license to CC BY, and archiving with the LMU University Library's Open Journal Systems. A redesign of its publication platform, the Environment & Society Portal, also brought *Arcadia* and a responsive layout including the orientation map detail and author profile.

Experiments with commenting tools and social media have had mixed results. My efforts to make readers (and authors) interact via the Disqus plugin did not yield many comments. Nevertheless, it is a convenient plugin that is easy to moderate and that highlights older articles when commented on. Our older Facebook and Twitter accounts drew comments and site visits. By contrast, the Environment & Society Portal's Instagram account quickly grew in popularity, attracting followers interested in our topics, but we could not see a significant increase in the number of users visiting *Arcadia* or the Portal from the application itself. Instagram allows only for one link in the biography for smaller accounts, which makes it hard to direct traffic. Even so, I think that being present on Instagram—a platform that lends itself well to our visual material—reminds and makes people aware of what we are and what we do.

My most successful contribution as a managing editor has perhaps been to increase the geographical diversity of both contributors and article themes. Thanks to the Environment and Society Portal's Map Viewer it is easy to find *Arcadia*'s blindspots, and by explicitly asking for submissions on these areas in our calls—as well as by reaching out to international scholars and networks—we have managed to cover more non-European events. To make our growing body of articles easier to navigate, I have also created four of our twelve thematic collections together with international scholars at other institutions: Histories across Species, Religion and Place, Coastal History, and Technology and Expertise. In retrospect, I realize that I should have created more such collections early on: working with experts on various fields attracts a more diverse set of contributors and subjects while making the journal even more interesting for its readers.

Of course, none of the gains made during these last years would have been possible had it not been for the idea established back in 2011: to create an open-access journal for and by a wide range of people. *Arcadia* has always been a venue for

early-career scholars who seek to publish a part of their research for a considerable readership, but also for established researchers who want to reach out to a wider audience. Conversely, from the readers' viewpoint, the articles are comprehensible for the interested public, yet they are thorough and well-researched scholarly works—all while being accessible for free to anyone with an internet connection. Scholarly output, public outreach, teaching material, and interdisciplinarity all come together to make *Arcadia* more than the sum of its articles: a map for and to environmental history.

**Links:**

https://doi.org/10.5282/rcc/3747

http://www.environmentandsociety.org/arcadia/

http://www.environmentandsociety.org/node/9133/

https://doi.org/10.5282/rcc/9130

http://www.environmentandsociety.org/arcadia/aura-river-ice-jam-turku-march-1903

https://doi.org/10.5282/rcc/8766

https://doaj.org/

https://arcadia.ub.uni-muenchen.de/arcadia

http://www.environmentandsociety.org/

https://www.facebook.com/EnvironmentSocietyPortal

https://twitter.com/env_and_society

https://instagram.com/environment_and_society_portal?igshid=hgxwse41njkc

http://www.environmentandsociety.org/tools/map#/content/arcadia_item/

http://www.environmentandsociety.org/arcadia/collection/16979

http://www.environmentandsociety.org/arcadia/collection/17897

http://www.environmentandsociety.org/arcadia/collection/17807

http://www.environmentandsociety.org/arcadia/collection/17659

https://creativecommons.org/licenses/by/4.0/

Screenshot showing the record for the Environment & Society Portal in the online catalog of the Bayerische Staatsbibliothek. © 2015 Bayerische Staatsbibliothek.

# How to archive a website: A short overview with examples from the Environment & Society Portal

*Martin Spenger*

Many great sites are floating around the World Wide Web and scholars are using and citing them frequently. Sometimes, those sites can disappear without a warning and often the content is gone. If the preparations for sustaining the website are not properly realized, the website might be lost forever. This post offers suggestions on what can be done to avoid this. I mention how we have addressed this for the Environment & Society Portal, the Rachel Carson Center's open access digital archive and publication platform (with which *Ant Spider Bee* is affiliated). In addition to its two peer-reviewed born digital publications (*Arcadia* and Virtual Exhibitions), the Portal curates a variety of scholarly and popular materials on the relationship between nature and society. The website is rapidly growing and has monthly version updates.

Digital archiving is a process of preserving data for long-term retention. This can extend the life span of content and metadata and rationalize the ways to access. In order to avoid future issues, it makes sense to address the question of how to archive ones work rather at the beginning than the end of a project.

One of the first steps should be the search for a cooperation partner. Many libraries and similar institutions have great archiving programs and are often very helpful in

95

answering questions and assisting with sustainability concerns. One of the leading institutions in digital archiving is the Internet Archive, the largest Web archiving institution in the world. Among other features it allows you to browse older versions of existing as well as deleted websites through their Wayback Machine. Also the Library of Congress has a large project with the purpose to archive websites and create collections out of them. The UK Web Archive is doing a similar job and has a fast growing archive. All these projects collect news coverage and governmental records that could be relevant for environmental historians.

The German National Library selectively archives websites and most of the larger academic libraries in Germany have similar programs. The Environment & Society Portal is glad to have the Bavarian State Library (BSB) as a partner. The Library Archiving and Access System (BABS) for long-term preservation at the Bavarian State Library is an exemplary service. With simply submitting a website URL to the BSB, the site will be professionally harvested by crawler software twice a year. The result can be accessed from all around the world through the OPAC and the content is gets a persistent identifier through an URN. The Environment & Society Portal has been archived since March 2014 and already has three complete backups. Many university libraries around the world offer similar options.

In addition, requesting an ISSN number may bring your website more visibility and recognition in the academic world. ISSN numbers, used for periodicals, can be assigned not only to a printed publication, but also to other media. A blog or a regular publication is eligible for an ISSN if it is properly marked as a periodical. Here you can find more information on how to do that. An ISSN helps to make a website better archivable. With the ISSN number, your website can be easily added to a library catalogue or an Electronic Journals Library. Two sections of the Environment & Society Portal have their own ISSN numbers, *Arcadia* and the Virtual Exhibitions.

If there isn't a partner institution that can help, there are simple ways to archive a website yourself. One thing that can be very helpful is the accessibility of your source code. Especially if your website is designed and written in a unique code, you can share the code via GitHub or other source code hosting platforms. One positive effect of making your code available is that upcoming projects can use your code, or parts of it, as a basis for their projects. Then also other researchers and programmers might add to the code and can possibly help find bugs or optimize the website. All code is documented for the future and can be easily accessed. We hope to make much of the Environment and Society Portal code available in 2016.

To archive a website for your own personal records, there are also several options. The recommended way is to back up the website through your server hosting

company. Most hosts offer the option to export all data in a MySQL database file. This file is perfect for your own archiving records and can be helpful if you plan to move the website to another server or to re-launch it. It is also a great emergency backup to have. If you want, you can also use software to convert your website for offline usage and save it on portable drives. In the past, some scholars included CDs of their websites as an addition to their books.

There are many other options on how to sustain your content. The following links might be helpful:

- Web archiving at the Library of Congress
- nestor (German competence network for digital preservation)
- The National Archives: Web archiving guidance (pdf)
- Rockwell, et al.: Burying dead projects: Depositing the globalization compendium

**Links:**

http://www.environmentandsociety.org/

http://www.environmentandsociety.org/arcadia

http://www.environmentandsociety.org/exhibitions

https://archive.org/

https://archive.org/web/

http://www.loc.gov/webarchiving/

http://www.webarchive.org.uk/ukwa/

http://www.dnb.de/EN/Home/home_node.html

https://www.bsb-muenchen.de/en/

https://www.digitale-sammlungen.de/de/p/cd0e2957-7654-429c-ae42-fce445c4c54b

http://langzeitarchivierung.bib-bvb.de/delivery/DeliveryManagerServlet?dps_pid=IE589143&dps_custom_att_1=staff&change_lng=

http://www.issn.org/understanding-the-issn/assignment-rules/the-issn-for-electronic-media/

https://github.com/

http://www.infotoday.com/cilmag/dec11/Grotke.shtml

https://www.dnb.de/EN/Professionell/ProjekteKooperationen/nestor/nestor_node.html

http://nationalarchives.gov.uk/documents/information-management/web-archiving-guidance.pdf

http://digitalhumanities.org:8081/dhq/vol/8/002/000179/000179.html

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/06/15/how-to-archive-a-website/

---

OPACplus

BSB Bayerische StaatsBibliothek
Information in erster Linie

Suche | Merkliste | Meine Daten | Magazin-Bestellung | Weitere Angebote    Anmelden  Anfragen  Hilfe

environment and society portal    Suchen    Erweiterte Suche ändern

🖶 Drucken   ✉ Versenden   💾 Speichern   🔗 Permalink   📤 Bookmark & Share

BSB-Katalog (1/31)    ‹‹ Zurück zur Trefferliste    ‹  1/31  ›

Website

Online lesen

Screenshot showing the record for the Environment & Society Portal in the online catalog of the Bayerische Staatsbibliothek.
© 2015 Bayerische Staatsbibliothek.

*Martin Spenger* and *Iris Trautmann*

Since Martin Spenger posted "How to archive a website: A short overview with examples from the *Environment & Society Portal*" in 2015, the Environment & Society Portal has undergone a responsive redesign, improved several interactive publication and browsing features, and increased its publication rate for peer-reviewed open-access publications [now totaling 277 *Arcadia* articles (ISSN 2199-3408, see Jonatan Palmblad's update in this e-book) and 27 virtual exhibitions (ISSN 2198-7696)]. As Martin wrote in 2015, the Portal site is regularly archived via the Bavarian State Library and Internet Archive. Although we had intended to publish our code on GitHub, we realized its high level of customization makes it of limited use; a summary and discussion of the project on GitHub is forthcoming. Our current challenge may be one of the most important: archiving the Portal's publications.

Beyond archiving a website or archiving its source code, archiving individual publications enhances their discoverability as freestanding works and ensures their long-term preservation. The Environment & Society Portal is archiving all its born-digital publications—*Arcadia* and virtual exhibitions (and associated retrodigitized primary sources)—with the LMU University Library. These are archived within the framework of the library's Open Access publishing platform using the software Open Journal Systems (OJS). Full-text books and other materials that do not fit the journal format are archived via the library's open-access document server "Open Access LMU." This requires preparing key metadata (author info, abstract, how to cite, relevant copyright information, place and date of publication, persistent identifiers) and manually entering it either directly into the OJS or into XML files for submission to the library. The works are then included into the library's OPAC. (These works are also included in the *Fachinformationsdienst Geschichtswissenschaft* (FID), a DFG-funded history research portal of the Bavarian State Library and

Deutsches Museum, and thus into a national research service/discovery platform/ database). Use of Persistent Identifiers like DOIs and ORCID iDs ensure that the contents can be easily found and accessed through discovery systems and widely used search engines.

The main challenge in archiving these publications is capturing their dynamic qualities in a static, archivable format. To evaluate the general archivability of a website, the use of specifically designed tools like ArchiveReady might help to get an overview of the situation and to identify content that can be easily archived. While dynamic contents are difficult to preserve, many institutions are working on technological solutions to present and archive digital documents and objects. The University Library LMU in Munich, for example, offers various presentation tools and viewer technologies like Kitodo Presentation, EPrints and Project Blacklight. To address current archiving standards and to keep possible publication use cases open, the Portal team decided to create PDF/A versions of each publication; in 2018 we created templates for the various content types in order to automate the process while preserving some of their special features (such as interactive timelines, galleries, author biography widgets). In the end, the production of these PDFs still requires some hands-on work due to numerous special multimedia features. As we chose to produce static PDFs, we inserted "dynamic content blocks" describing dynamic content and any relevant source and copyright information. In the case of our virtual exhibitions, dynamic content types range from interactive galleries or timelines, embedded videos, sound bites, live maps, and additional content sourced from external websites. By adding the descriptive labels, the interactive character may be lost, but a reader will always be able to understand what was presented in the original. In addition, we also made sure that all metadata associated with our content—citations, DOIs, linked URLs, copyright and source information, author biographies—is included in the archivable PDFs.

A particular challenge is the archiving of complex sets of retrodigitzed primary source material presented within the Environment & Society Portal's virtual exhibitions. Digitized handwritten letters—translated and transcribed for presentation—from explorers, lonely homesteaders, and nature writers. So far, we have handled on a case-by-case basis, depending on their size, complexity, integration within the exhibition, licensing issues, and how they may be preserved or available elsewhere. In creating archival versions of dynamic content, one size does not fit all; doing so requires editorial judgement. But by describing dynamic content and archiving PDFs of our materials on the servers of our university library, we ensure that these materials are not only preserved in case the Environment & Society Portal one day goes offline, but that they will continue to be discoverable for a long time to come.

# Ludwig Leichhardt: A German Explorer's Letters Home from Australia

**Heike Hartmann**
Deutsches Historisches Museum, Berlin

## ABSTRACT

Seventeen letters sent by Ludwig Leichhardt from 1842–48 vividly depict his stay in Australia. In this exhibition curated by historian Heike Hartmann, we are introducing a brand new English translation of the letters and a timeline tool with which to view those, this virtual exhibition documents Leichhardt's adventurous stay in Australia and opens up new perspectives for the environmental history of the land, Europeans' engagement with its indigenous population, and international scientific networks at the time.

## AUTHOR BIOGRAPHY

**Heike Hartmann, Deutsches Historisches Museum, Berlin**

Heike Hartmann is a museum curator and researcher in the field of cultural studies with a focus on visual culture, postcolonial criticism, and the transcultural history of science and archives. She was a member of the ATN-DAAD research project "Leichhardt's Legacies: Locating the Disappeared," curator of the exhibition "'Gut möglich, dass meine Knochen für immer auf den Ebenen dieser Kolonie bleichen werden': Der Australienforscher Ludwig Leichhardt" (Marstall Schloss Branitz, Cottbus, 2013), and editor of the accompanying volume *Ludwig Leichhardt: Spuren eines Verschollenen*.

Heike Hartmann is currently curating an exhibition on German colonialism at Deutsches Historisches Museum in



📄 **LUDWIG LEICHHARDT**

Screenshot of the LMU University Library Open Journal Systems entry for Heike Hartmann's virtual exhibition "Ludwig Leichhardt: A German Explorer's Letters Home from Australia." The OJS allows us to archive a PDF of the virtual exhibition and include relevant metadata such as the date of publication, copyright licenses, abstract, and author biography. Exhibition CC BY–NC–SA Heike Hartmann.

# Leichhardt's letters from Australia: A Timeline

Even before he departed for Australia, Ludwig Leichhardt kept in touch with his family via letters written during his travels. Between 23 March 1842 and 22 February 1848, he sent 17 letters back home from Australia; these letters document the period from his arrival on the continent until the disappearance of his final expedition. Leichhardt's letters are an important source of information about his experiences, plans, and everyday concerns, as well as securing his reputation as a scientist. Like Leichhardt's correspondence with important scholars of the time, some of his letters to his family have also reached a wide audience: they have been published in academic journals including *The London Journal of Botany, Monatsberichte über die Verhandlungen der Gesellschaft für Erdkunde zu Berlin, and Fortschritte der Geographie und Naturgeschichte.* In 1907 the geophysicist Georg von Neumayer gave the collection of letters to the archive of the Deutsches Museum in Munich.

> The digital exhibition contains an interactive timeline that allows the user to scroll through key letters and events in Leichhardt's life. While the timeline contains images of the letters, this PDF simply links to the full letter within this archival document.

## Screenshot of the Timeline



March 23, 1842

**Letter to F. A. Schmalfuß from Sydney**

Leichhardt describes his voyage and his arrival in Sydney. He reflects upon daily life in the city, the significance of the harbor, the settlement's past as a penal colony, and the type of society that grew out of it. He tells how he was welcomed into Sydney society, emphasizes his scientific aspirations and his desire to partake in an expedition into the interior of the continent.

Click here to read the full letter.

FEBRUARY 14, 1842
Ludwig Leichhardt travels to Sydney on the ship Edward Paget

SEPTEMBER 6, 1842
Letter to his mother from Sydney

1842 L. Leichhardt. Courtesy of the Deutsches Museum Munich, Archive, HS 803/1.

Letter to his brother-in-law, Friedrich August Schmalfuß, Sydney (March 23, 1842)

Hartmann, Heike. "Ludwig Leichhardt: A German Explorer's Letters Home from Australia." Commentaries translated by Brenda Black. Environment & Society Portal, *Virtual Exhibitions* 2015, no. 1. Rachel Carson Center for Environment and Society.
doi.org/10.5282/rcc/6348.
**Chapter:** Leichhardt's letters from Australia: A Timeline
**Source URL:** http://www.environmentandsociety.org/node/6481
**PDF created on:** 27 January 2021 12:38:15

Screenshot of the archived PDF showing the in-exhibition interactive timeline. For situations in which a live virtual exhibition on the Environment & Society Portal features dynamic content (e.g., timelines, embedded videos, audio files, or scrollable galleries) we created a field in Drupal backend to describe this content for the static, archival version. Exhibition CC BY-NC-SA Heike Hartmann.

**Links:**

http://www.environmentandsociety.org/

http://www.environmentandsociety.org/arcadia

http://www.environmentandsociety.org/exhibitions

https://github.com/ES-Portal

https://rccve.ub.uni-muenchen.de/rccve

https://epub.ub.uni-muenchen.de/

https://www.historicum.net/home/

http://archiveready.com/

https://rccve.ub.uni-muenchen.de/rccve

https://creativecommons.org/licenses/by/4.0/

Students in Andrew Stuhl's Global Environmental History class produced twenty-four "Places & Events" entries that were published on the Environment & Society Portal in 2015. CC BY-NC-SA.

# On teaching global environmental history with Places & Events

*Andrew Stuhl*

> *T*he saw works only across the years, which it must deal with one by one, in sequence . . . It is not until the transect is completed that the tree falls, and the stump yields a collective view of a century. By its fall the tree attests the unity of the hodge-podge called history.

—Aldo Leopold, "The Good Oak"

After spending a semester teaching global environmental history with a new digital tool, I am reminded of Leopold's allegory. What do our technologies make visible about nature and time? How can we best wield them for student learning?

In Fall 2014, I taught with the Environment and Society Portal's "Places & Events" database, which contains brief summaries of environmentally significant sites and historical episodes from across the world, linked to related resources within

the Portal and beyond. Users can <u>search the collection by keyword</u>, slicing the historical record in a manner unlike the saw (or wedge or axe). They can also organize "hodge-podge" contents through <u>mapping</u> and <u>timeline</u> functions. For these reasons, the Places & Events database is more than just a "Wikipedia" of environmental history—it is a means of exploring the human-nature relationship at the broadest scales of space and time.
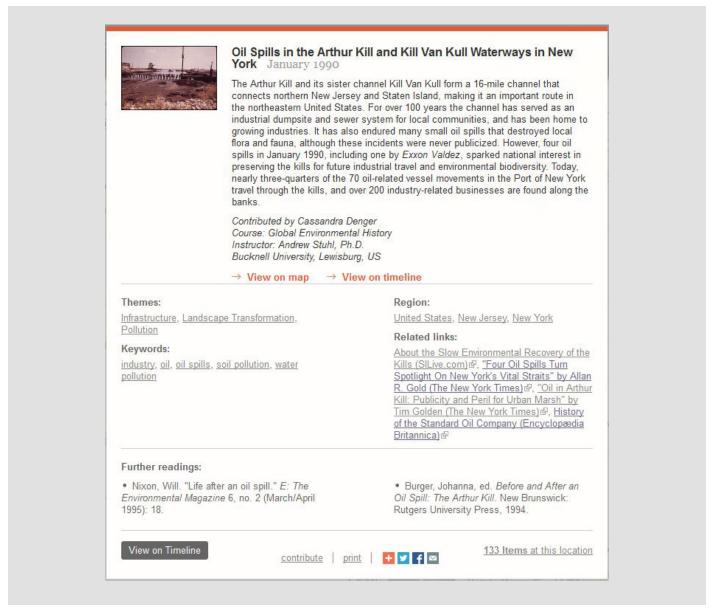
My initial pedagogical interest in Places & Events arose after learning about <u>Wilko Graf von Hardenberg's assignment in his Modern Global Environmental History course</u>. As part of a pilot project, he invited students to draft five contributions to the database following the Portal's guidelines. An entry included a title, a summary of no more than 50 words, a description capped at 150 words, one image, a related link, a few suggestions for more scholarly reading on the subject, and some other information (date, region, and keywords). I had hoped a similar exercise would freshen up History for the students entering my classroom at <u>Bucknell University</u>— nonmajors from disciplines like Neuroscience, Economics, and Environmental Studies. Here was a chance to learn about environmental history by doing it, even if in a bite-sized fashion.

Working with Places & Events fulfilled this goal: enthralled by the assignment, my students added two-dozen items to the database. But it was the process, as much as the end products, that made this experience so fulfilling. Such a compact writing task led students into the challenging, creative space of doing history. In the gap between particulars and patterns—between a specific event at one time, and a history about the world—students sharpened the oldest, most distinctive tool in our belt: storytelling.

## Places & Events as model: Demonstrating expectations for digital scholarship

A Places & Events entry has its trade-offs. As a piece of writing that does not exceed 200 words, it is no substitute for the nuance and depth of the historical essay or the historiographical review. And because the items are published digitally, they have requirements that at first seemed idiosyncratic to students in a history class— like copyright licenses and metadata, for instance. Like other historians teaching digitally have demonstrated, however, these constraints can be opportunities. The entries forced students to be concise, to write for a public audience, and to curate examples (and not just collect them). Surely other assignments meet these learning outcomes. Perhaps none are as engaging for non-History majors tasked with learning about global environmental history, though. And perhaps none make

so tangible the <u>emerging expectations scholarly communities have for rigor and representation in the internet age</u>.



**Oil Spills in the Arthur Kill and Kill Van Kull Waterways in New York** January 1990

The Arthur Kill and its sister channel Kill Van Kull form a 16-mile channel that connects northern New Jersey and Staten Island, making it an important route in the northeastern United States. For over 100 years the channel has served as an industrial dumpsite and sewer system for local communities, and has been home to growing industries. It has also endured many small oil spills that destroyed local flora and fauna, although these incidents were never publicized. However, four oil spills in January 1990, including one by *Exxon Valdez*, sparked national interest in preserving the kills for future industrial travel and environmental biodiversity. Today, nearly three-quarters of the 70 oil-related vessel movements in the Port of New York travel through the kills, and over 200 industry-related businesses are found along the banks.

*Contributed by Cassandra Denger*
*Course: Global Environmental History*
*Instructor: Andrew Stuhl, Ph.D.*
*Bucknell University, Lewisburg, US*

→ View on map    → View on timeline

**Themes:**
Infrastructure, Landscape Transformation, Pollution

**Keywords:**
industry, oil, oil spills, soil pollution, water pollution

**Region:**
United States, New Jersey, New York

**Related links:**
About the Slow Environmental Recovery of the Kills (SILive.com), "Four Oil Spills Turn Spotlight On New York's Vital Straits" by Allan R. Gold (The New York Times), "Oil in Arthur Kill: Publicity and Peril for Urban Marsh" by Tim Golden (The New York Times), History of the Standard Oil Company (Encyclopædia Britannica)

**Further readings:**

- Nixon, Will. "Life after an oil spill." *E: The Environmental Magazine* 6, no. 2 (March/April 1995): 18.

- Burger, Johanna, ed. *Before and After an Oil Spill: The Arthur Kill*. New Brunswick: Rutgers University Press, 1994.

View on Timeline          contribute | print |          133 Items at this location

Contribution to the Environment & Society Portal's community-sourced collection "Places & Events" by Cassandra Denger for the course Global Environmental History at Bucknell University. Denger's entry is viewable via the Environment & Society Portal's map and timeline. CC BY–NC–SA, 2015.

To get at these opportunities, I tweaked von Hardenberg's assignment and integrated the exercise throughout the course. Rather than collect five items over the semester, I asked students to turn in four. The first of these was a practice exercise in which students drew only from course material to document a place or event we had already considered in class. I wanted to take the pressure of students who were unfamiliar with historical scholarship and give them a chance to get accustomed to the Places & Events requirements. The lead-up to the deadline for

this practice run produced a few teachable moments. In class, I called up published items on episodes featured in our readings, to give students a sense of how a lecture or discussion might be condensed into a paragraph or two. I also seized the moment to consult with my colleagues in the library. Instead of giving the standard tour of databases, librarians talked with students about the importance of footnotes, copyright licenses, and metadata. In another context, this conversation might have been lost on students, or appeared as merely academic hoop-jumping. In light of the digital and public interface for their entries, however, students appreciated the importance of attention to detail, organizational structures, and the legal aspects of knowledge sharing.



Students in Andrew Stuhl's Global Environmental History class produced twenty-four "Places & Events" entries that were published on the Environment & Society Portal. CC BY-NC-SA, 2015.

## Places & Events as practice: Doing global environmental history

For the other three Places & Events entries, I asked students to think of these as a set. What story about global environmental history could be told through them? After our meeting with librarians, they were comfortable mobilizing our library's resources to answer such a question. They were ready to make the leap to independent research.

To guide them, I presented a number of ways of approaching the trio of places and events. First, students could target a single place and track changes there over three different eras. As a second option, they could choose one period of environmental change and compare its manifestations in three different landscapes of the world. Third, they could take up one of the twelve pre-selected themes of the Places & Events database (like biodiversity, population, resources, or disasters) and situate this theme in time or space. Talking with students about these options—whether in class or in one-on-one meetings—felt like a pedagogical Trojan Horse. On the surface, I was laying out the expectations of the assignment. But, on a deeper level, we were examining the potential of both digital tools and a global lens on history. Through the computing power of the database, students were thrust into the position of assembling discrete historical phenomena from across the world and the historical record. Like other environmental historians have noted, these moments of conscious, experiential learning are profound for students and teachers alike.
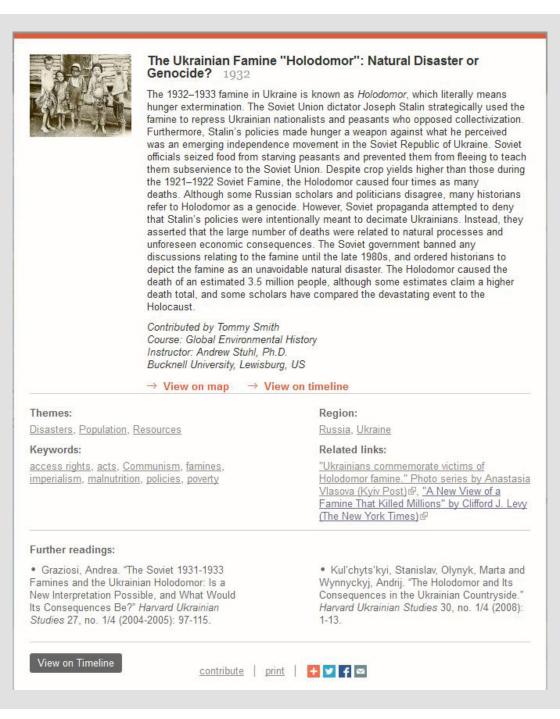
Students responded to these discussions with equal parts excitement and trepidation. Given the material at their fingertips and the scope of the course, they were eager to get started, but had trouble deciding where (or when) to begin. To launch them, I encouraged them to survey the existing collection, both to get a sense of what intrigued them most and to avoid duplicating entries. I also asked them to turn in one of their set of three entries in mid-November, while the remaining two were not due until the last day of the term. This allowed me to coach students more effectively, whether to correct a project veering off track or encourage one in a deeper, more nuanced direction. As an added bonus, the earlier deadline gave me a batch of entries to send off to the folks at the Environment & Society Portal. Only some of these were selected for inclusion—which prompted me to return to students before the end of the semester to review the expectations for the assignment and digital scholarship more generally.

Below, I include a map of all my students' entries eventually selected for publication. A glance reveals decent geographical coverage, but notable gaps. In hindsight, I would have incorporated this image as a touchstone in wrap-up activities. Why did we choose these places and events? Where are areas of concentration, whether historically or spatially? What places and times are left out? Why? How does this map, and the narratives it makes possible, compare with our course text, J. R. McNeill's *Something New Under the Sun*?

## Places & Events as story: Situating, curating, and juxtaposing

Though I didn't have the map to spark closing conversations, students did reflect on

their Places & Events contributions. In addition to the three entries, I had students submit a reflection essay of 750–1000 words. There, students explained their choice of items, described their research process, and explicated the lessons about global environmental history found in their trio of entries. The sophistication in these essays startled me. Students who had little prior training in history or historical research pinpointed some of the most crucial skills in our subfield, all orbiting the craft of storytelling.



## The Ukrainian Famine "Holodomor": Natural Disaster or Genocide? 1932

The 1932–1933 famine in Ukraine is known as *Holodomor*, which literally means hunger extermination. The Soviet Union dictator Joseph Stalin strategically used the famine to repress Ukrainian nationalists and peasants who opposed collectivization. Furthermore, Stalin's policies made hunger a weapon against what he perceived was an emerging independence movement in the Soviet Republic of Ukraine. Soviet officials seized food from starving peasants and prevented them from fleeing to teach them subservience to the Soviet Union. Despite crop yields higher than those during the 1921–1922 Soviet Famine, the Holodomor caused four times as many deaths. Although some Russian scholars and politicians disagree, many historians refer to Holodomor as a genocide. However, Soviet propaganda attempted to deny that Stalin's policies were intentionally meant to decimate Ukrainians. Instead, they asserted that the large number of deaths were related to natural processes and unforeseen economic consequences. The Soviet government banned any discussions relating to the famine until the late 1980s, and ordered historians to depict the famine as an unavoidable natural disaster. The Holodomor caused the death of an estimated 3.5 million people, although some estimates claim a higher death total, and some scholars have compared the devastating event to the Holocaust.

*Contributed by Tommy Smith*
*Course: Global Environmental History*
*Instructor: Andrew Stuhl, Ph.D.*
*Bucknell University, Lewisburg, US*

→ **View on map**   → **View on timeline**

**Themes:**
Disasters, Population, Resources

**Keywords:**
access rights, acts, Communism, famines, imperialism, malnutrition, policies, poverty

**Region:**
Russia, Ukraine

**Related links:**
"Ukrainians commemorate victims of Holodomor famine." Photo series by Anastasia Vlasova (Kyiv Post)⌐, "A New View of a Famine That Killed Millions" by Clifford J. Levy (The New York Times)⌐

**Further readings:**

• Graziosi, Andrea. "The Soviet 1931-1933 Famines and the Ukrainian Holodomor: Is a New Interpretation Possible, and What Would Its Consequences Be?" *Harvard Ukrainian Studies* 27, no. 1/4 (2004-2005): 97-115.

• Kul'chyts'kyi, Stanislav, Olynyk, Marta and Wynnyckyj, Andrij. "The Holodomor and Its Consequences in the Ukrainian Countryside." *Harvard Ukrainian Studies* 30, no. 1/4 (2008): 1-13.

View on Timeline          contribute | print | 

For the same course, Tommy Smith contributed a "Places & Events" item on "The Ukrainian famine 'Holodomor': Natural disaster or genocide?" This entry is viewable via the Environment & Society Portal's map and timeline. CC BY–NC–SA, 2015.

Consider commentary from Katelyn Young, a Neuroscience major, on how historiography provided the point of entry into her work on international environmental legislation. "I was intrigued by the ideas that Arthur McEvoy introduced in his work on California fisheries," she wrote, "particularly his discussion about how activities that are associated with oceans are notoriously difficult to regulate." From here, Katelyn detailed how she used McEvoy's perspective as a lens on the 1972 United Nations Conference on the Human Environment—what did participants have to say about marine ecosystems and fisheries?. "Thus, my overall approach in selecting [Places & Events] entries," she continued, "was to show that the United Nations has formally recognized the broad range of human effects on the environment." With just a few entries, she linked the 1971 UN Seabed Arms Control Treaty and the reforms to marine regulations found in the 1982 UN Law of the Sea. Other students deftly situated their own work within a body of scholarly knowledge, from the conception of the first entry to the synthesis of the set of three.

The strongest student essays demonstrated an awareness of how curating and juxtaposing entries could enrich historical narratives. Since they could only select three Places or Events, students leaned in to obvious geographical and temporal differences—or similarities—to offer parables about the human relationship with nature. As Cassie Denger, an Economics major, noted, exploring oil spills in three different regions provided "insight to how consumer habits can affect the responsiveness of different agencies to oil spills, technological progress, and the publicity of environmentally destructive events." For Denger and many others, the simple act of comparing and contrasting exposed the complexity of global history.

The format of the Places & Events entry worked to the advantage of student learning in a final direction: making most advantage of the combination of text and image. Especially because of word limits, students found that the summary and description were but two components of a larger whole, and not the only mechanisms for conveying information. Rather, these pieces of the entry combined with the title, the links, and the selected readings to produce a more comprehensive effect. Students writing essays, articles, and monographs can learn this too, through careful meditation on the mainstays of traditional historical scholarship: tables of contents, chapter titles, footnotes, and subheadings. In the context of the Places & Events entry, though, students structured their work with a different use in mind— rather than incite the reader to turn a page, students thought about how to get the user to connect their Place or Event to other interesting phenomena, through clicks. Like other digital history, then, the Places & Events entry has embedded within it the potential for more than one kind of reading. Users can explore a Place

or Event in relation to scholarly knowledge on it, current media coverage of it, or political responses to it. These aspects of the entry allowed a synopsis of one isolated moment in global environmental history to feel much more developed and integrated than a few hundred words might ordinarily allow.

## New tool, same principles

Above all, the Places & Events entry assignment works in a Global Environmental History course because the principles between the two are the same. Both, at base, are about transforming fine details into broad patterns and big arguments. In terms of the student experience, the entry wraps these principles in attractive packaging. Not only does it build from an exciting digital interface, but it also provides a genuine audience. Students relished the chance to translate their own work in the classroom into meaningful scholarly contributions in the public domain. When student-produced entries went live, there was a heightened sense of accomplishment among a cohort who had scarce prior knowledge of environmental history or the historian's craft.

These aren't just my words—this is what students said. Senior Tommy Smith, an Environmental Studies major whose entries documented global environmental injustices, was one of a handful of students who evaluated the Places & Events entry this way. "I think this was a very enlightening experience," he wrote. "The more people know about past atrocities the more we can do to stop future acts of injustice or genocide from occurring. I think it is important that their often ignored stories are given a voice."

Recently, the Environment & Society Portal has paused development of the Places & Events database to evaluate its utility and alignment with other in-house activities. Given how the database fosters student engagement, it would be wonderful to see this particular project continue. If a new tool for historians can inspire students as it did mine—with such appreciation for people, nature, the past, and the future—it is a very powerful tool indeed.

Links:

http://www.environmentandsociety.org/mml/collection/16233

http://www.environmentandsociety.org/tools/keywords

http://www.environmentandsociety.org/tools/map#/content/interactive_display_item/query//

http://www.environmentandsociety.org/tools/timeline

https://history.wisc.edu/history228_spring2014.pdf

http://www.bucknell.edu/

http://www.environmentandsociety.org/tools/map#/id/6881

http://www.environmentandsociety.org/tools/timeline#6881

http://www.antspiderbee.net/2015/03/31/we-must-see-digitally-creative-projects-as-essential-to-scholarship-and-teaching-in-the-21st-century/

http://www.antspiderbee.net/2015/07/14/the-journey-and-the-destination-digital-scholarship-and-environmental-studies-at-lewis-clark-college/

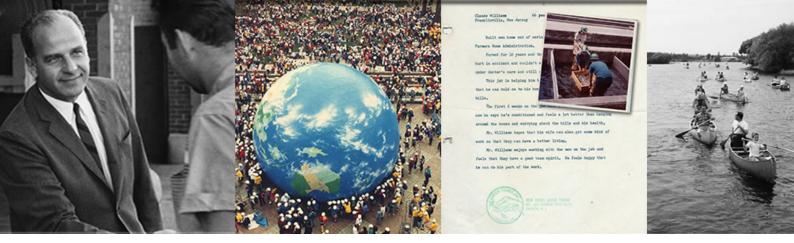http://www.jstor.org/stable/40608545?seq=1#page_scan_tab_contents

http://www.environmentandsociety.org/tools/map#/id/6889

http://www.environmentandsociety.org/tools/timeline#6889

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/09/16/on-teaching-global-environmental-history-with-places-events/

Screenshot from the digital project "Gaylord Nelson and Earth Day: The making of the modern environmental movement," by Brian Hamilton and Melanie McCalmont.© 2010 The Nelson Institute of Environmental Studies, University of Wisconsin–Madison. Used with permission.

# "We must see digitally creative projects as essential to scholarship and teaching in the 21st century"

*Gregg Mitman*

Digital media is rapidly transforming what it means to be a scholar.  Never before has such a wealth of information been so easily accessible.  Never before have so many platforms been available to reach diverse publics.

In 2010, when we launched a public history/archive website, "Gaylord Nelson and the Making of the Modern Environmental Movement," in advance of the 40th anniversary of Earth Day, we were shocked when traffic to the site reached 1 million hits and 15,000 unique visitors for the month of April alone. The collaborative project of the Nelson Institute for Environmental Studies and the Wisconsin Historical Society made clear to me the potential of digital projects to rethink and push the boundaries of what it means to be an engaged scholar.

Anyone who has worked in a university setting knows how slow such institutions can be in adapting to change.  Despite more than a decade of dire warnings about the death of the scholarly monograph, it is still the rite of passage for achieving tenure in the humanities at most academic institutions in the United States.  Part of the issue, I believe, is that humanists are unfamiliar with and afraid of passing judgment on creative work.  What standards, what criteria, are evaluation committees to use in critiquing a website, video, or blog?  How does one assign authorship and/or credit to projects that necessitate collaboration?  These are tricky issues for disciplines that have long held up sole authorship and the solitary life of the mind as scholarly ideals.  But we must begin to value such work not as an addition to everything

else that is asked of junior scholars in ever dwindling tenure-track positions. We must see digitally creative projects as essential to scholarship and teaching in the twenty-first century.

The digital humanities are challenging the image of the solitary humanities scholar on many fronts. Collaboration, creative design, curation, and project management are just a few of the critical skills needed in successfully adapting to the many niches opened up for scholars in the digital landscape. More and more I find my days occupied working with people, rather than alone. When producing digital videos, the team will often include cinematographers, sound recordists, editors, and musicians. When building websites, collaborators may include graphic designers, programmers, scholar/advisors, and content managers. Such digital projects, when successful, teach valuable artistic, social, and technical skills vital to the pursuit of careers inside and outside the academy.

The digital sphere is also challenging us to imagine projects across different media platforms. What kind of work can a digital short video do that an article cannot? A blog entry? A virtual exhibit? A podcast? An op-ed? Each of these forms represents different possibilities for creative expression of ideas and engaging multiple publics.

Sites like *Ant Spider Bee* offer important and exciting outlets for experimental work in the digital environmental humanities, at a time when the digital matters more than ever in how we think and communicate with our peers, students, and the wider world.
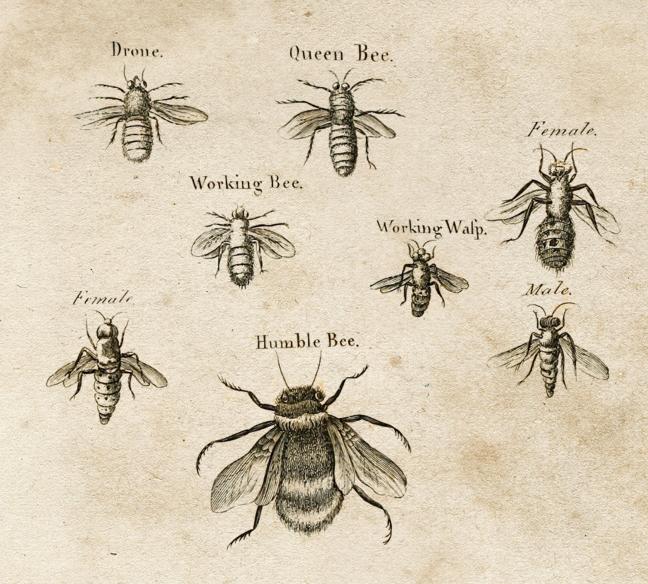
**Links::**

http://www.nelsonearthday.net/index.php

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/03/31/we-must-see-digitally-creative-projects-as-essential-to-scholarship-and-teaching-in-the-21st-century/

Drone. Queen Bee. Female.

Working Bee.

Working Wasp.

Female. Male.

Humble Bee.

# III. MEDIATIONS: NEW FORMS

In addition to facilitating engagement, the digital mediates in new ways how our environmental knowledge is produced and presented. As Nathan Ensmenger puts it, "in the same way that to write something down is to transform it, to represent something in digital format is to fundamentally alter its nature."[1] And, as this digital environmental information becomes more available and diffuse, we need new ways to discover and interpret it. Here, the humanities offer methods or frameworks for understanding how different levels of perception (the digital and the analog, the mass produced and the individual) can be mediated. The posts in this section showcase a rich variety of mediational forms and reflect on them in diverse non-profit or commercial contexts, ranging from small individual interventions to expansive government-funded efforts.

Some consider visualizations for historical analyses: Giacomo Parrinello writes on the advantages and geeky pleasures of historical GIS for studying water resource use in the Po River Valley; Matthew Booker shows how mapping marshes, oyster beds, salt mines, and a wildlife refuge help us visualize San Francisco Bay's history and imagine its future. Wilko Graf von Hardenberg appreciates the US Geological Survey historic topographic map viewer topoView and laments the dearth of online cartographic repositories for non-US regions. Others share  alternative ways to narrate the environment. Jessica Van Horssen reflects on the process of "going graphic"; bringing historical scholarship to the form of the graphic novel.  Kimberly Coulter reflects on a "Media Ecologies" workshop in Heidelberg and recounts co-panelists' shared lessons. Then she has her own ecological paradigms recalibrated as a museumgoer at Bruno Latour's participatory exhibition "Reset Modernity!" Citing the Norwegian Broadcasting Corporation's birdcam Piip Show, Finn Arne suggests environmental humanities scholars could do more with environmental sensors. Serafine Lindemann and Ludwig Braun discuss sound artist Kalle Laar's "Calling the Glacier," an environmental art and awareness project using telecommunications technology "to establish a real-time acoustic connection" and "individual emotional contact" with one of the many disappearing glaciers of the Alps.

Other essays reflect on the positive impact (and intrinsic limits) of new kinds of born-digital and retrodigitized sources on our research practices. Shih-Pei Chen discusses a project about material network analysis of Chinese local gazetteers (difangzhi 地方志) that helps researchers connect ways of classifying and organizing information—including environmental information—across different regions and time periods, yielding patterns and insights for environmental historians. Etienne Benson describes his interactive web-based map plotting publicly available

government data about polar bear trophy import permit applications, discusses its implications, and encourages scholars to tap such newly available regulatory data to encourage public discussion. From the perspectives of the "Public Me," the "Teaching Me," and the "Scholarship Me," Richard Ross asks, "What could, what should, a dissertation—the nineteenth-century gift to the historian—be in the context of these twenty-first-century digital technologies?" Showing how digital methods allow us to read sources in innovative ways, Alicia Peaker imagines ways the biospheres of fictional worlds could be visualized digitally; and Katrin Kleemann tests out the Flyover Country App, which draws on open geological and paleontological data from new heights, as well as "Eruptions, Earthquakes & Emissions" from the Smithsonian Global Volcanism Program. Each of these projects creates new layers of mediation between society and the natural environment.

**Links:**

http://ngmdb.usgs.gov/maps/TopoView/

http://www.nrk.no/piipshow/

https://flic.kr/p/aBuN88

---

Image: Excerpt from Plate 14, *The natural history of insects.* Perth: Printed by R. Morrison Junior, 1792. Public domain. Via Biodiversity Heritage Library.
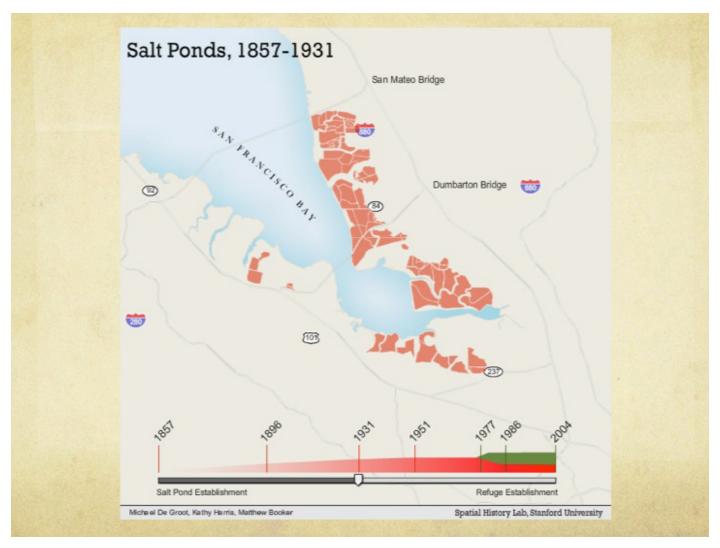
San Francisco Bay National Wildlife Refuge, 1972–2004. Michael De Groot, Kathy Harris, and Matthew Booker. © Spatial History Lab, Stanford University. Used with permission.

# Visualizing San Francisco Bay's forgotten past

*Matthew Booker*

To begin: One question and one metaphor. The question is, what use is visualization to historians? How does this method add value to the work we do? The metaphor is accretion, the term geologists use to describe the building up of new soils through deposits of materials eroded elsewhere. Accretion works to describe the process by which generations have modified San Francisco Bay without destroying that which came before. That history remains, even if it is invisible to the naked eye. Visualization helps us recapture the forgotten past.

Archaeologists see the past as a series of layers. They dig through one past into another. Historians can think in similar terms. Many people in the American West think of nature as timeless and human creations as quite recent, even superficial. The San Francisco Bay is in fact a young land with deep human history. The current bay has only existed for some five thousand years or so, as rising seas flooded river valleys already inhabited by Indian peoples. Their forgotten but not erased past was visible in the hundreds of shellmounds these people raised over the millennia.

117

Salt Ponds, 1857–1931, graphic by Michael De Groot, Kathy Harris, and Matthew Booker. © Spatial History Lab, Stanford University. Used with permission.

But rather than this astonishing story of Indian persistence—inhabiting the same places and eating the same foods for more than a thousand years!—many Americans think San Francisco Bay's history began with one of the great geo-engineering events in American history, the California Gold Rush.

The usual story of the Gold Rush is the story of individual miners making their fortune. In fact most miners never did find wealth. Nor was this a story about individuals. Surface gold quickly ran out and the miners with pans gave way to the nation's most heavily capitalized corporations. Mining companies hired men to dam rivers and use water cannons to wash down the mountains for the gold inside. From the 1860s through the 1880s, hydraulic miners washed more soil, sand and gravel out of California's Sierra Nevada Mountains than all of the earth ever excavated from the Panama Canal. This soil filled San Francisco Bay by more than a meter. The gold rush also led to another, lesser known mining industry, one that flowed in the opposite direction.
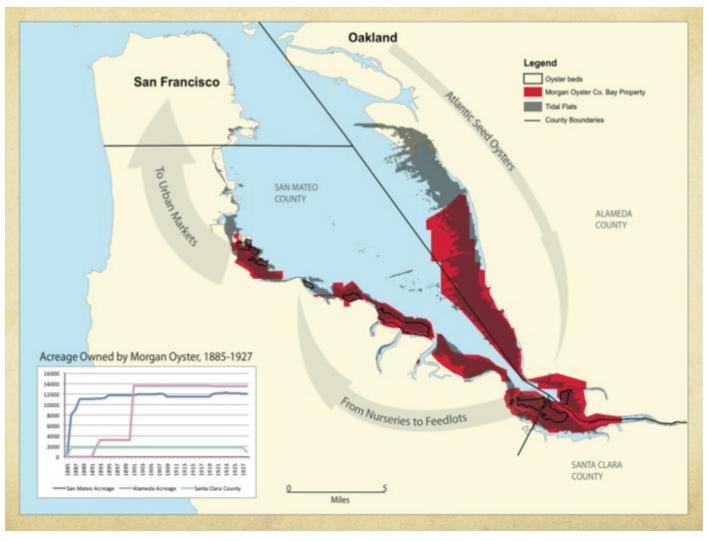
Leslie Company, 1931–1972, graphic by Michael De Groot, Kathy Harris, and Matthew Booker. © Spatial History Lab, Stanford University. Used with permission.

Beginning in the 1850s, salt miners converted much of south San Francisco Bay's tidal marsh and wetlands into evaporative salt ponds. Salt miners adapted an ancient method to industrial production. The ancient part was the steady ocean wind evaporating water and leaving salt behind. The industrial part was the use of windmills, later electric pumps and bulldozers to move the brine through a series of pools and to produce millions of tons of sea salt each year.

Salt was and remains one of the most important mining industries in California. Indeed by volume and by value salt often surpassed gold. By the 1930s salt mining was among the largest land uses in the San Francisco Bay region.

Only a tiny fraction of this salt went to preserve food, such as in the canneries of the Sacramento Delta where generations of Asian and later Mexican workers packed asparagus for the world market. Most salt went to mines in the mountains where it leached gold and silver from rock, to chemical plants to make chlorine gas for the paper mills of the Pacific Northwest, to Western oil refineries to make gasoline, and to make napalm jelly for the war in Vietnam.

Morgan Oyster holdings. © Spatial History Lab, Stanford University. Used with permission.
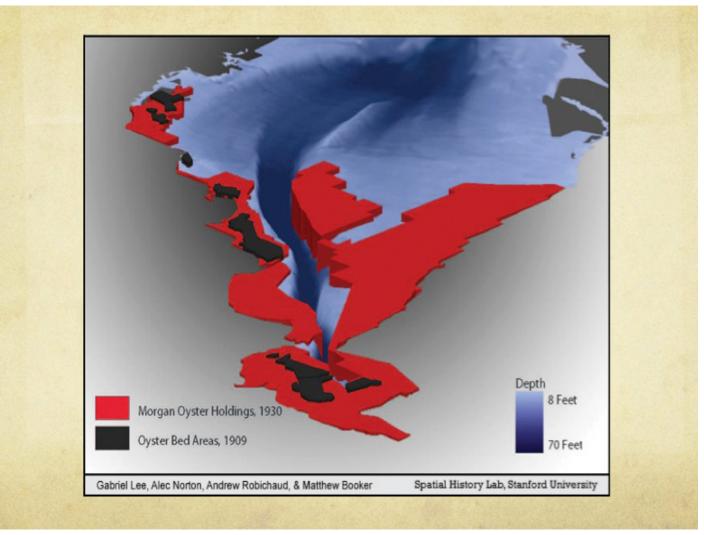
Here too what began as a family business rapidly became a corporate endeavor, then a monopoly as one company, Leslie Salt, bought up all the others and converted almost the entire shoreline of the bay south of San Francisco into vast stagnant pools walled off from the tides of the bay.

When salt companies converted the marshes and beaches of the bay into salt ponds they destroyed other uses of the edge. The margin of nineteenth-century San Francisco Bay was a public space, a place where people picnicked, played, rested, made love—and where thousands of people hunted, fished and foraged for food. These uses depended on the bay remaining a commons, a shared space open to all. The mudflats and marshes were not just ideal locations to build salt mines. They were also the bay's nursery for young fish and crabs, the most important links in the Pacific flyway hosting millions of ducks and geese each year, and vast factories for shellfish and shrimp.

In fact some of California's first commercial fishermen netted bay shrimp, dried them on the shoreline, and then sent dried shrimp powder across the Pacific to

China. At least three Chinese shrimping villages survived into the late nineteenth century. Chinese shrimpers were the focus of thirty years of discriminatory state licensing laws, gear and seasonal restrictions, and harassment.

One of the California Fish Patrolmen who would persecute Chinese shrimpers was a young Jack London. Like many policemen, London joined the Fish Patrol after first leading a life of crime. At age 14 he became an oyster pirate to escape a dead-end factory job. He used the lawless spaces of the bay's edge to find freedom.

Jack London, the family from Berkeley, the Chinese shrimpers and clam diggers—these people give us a tantalizing glimpse into the social world of the working majority in nineteenth century California. Most Californians then and now were city dwellers. Most, like Jack London's family, were lifelong renters who moved frequently, often to escape debt. For Jack London and for many other common people, the public spaces on the shore were essential to their economic livelihood but also to their sense of personal freedom.



Morgan Oyster holdings, 1930, relative to oyster bed areas. Gabriel Lee, Alec Norton, Andrew Robichaud, and Matthew Booker. © Spatial History Lab, Stanford University. Used with permission.

Jack London described factory work as slavery, bondage he got free of only by stealing and selling oysters. London did not see it as stealing. He claimed that the oysters he pirated grew in a public space and were therefore the property of everyone. San Francisco economist, philosopher, and labor leader Henry George spoke for millions of Americans when he argued that monopoly control of land was the greatest threat to the American democracy. But George failed to see it was in the bay and not on land where monopoly was most obvious.

With assistance from students at Stanford University, I mapped the process by which oyster growers first colluded to fix prices, then combined to crush competition, and finally absorbed into a single company with monopoly ownership of all the oyster beds of San Francisco Bay. We found that as the state of California sold its underwater lands to raise money for the University of California, Morgan Oyster Company bought them up. All of them. Sometimes Morgan did this directly, sometimes with middlemen, and sometimes it simply claimed land that the state never sold.



Richard M. Nixon, signing statement
San Francisco Bay National Wildlife Refuge, July 1, 1972

Word Cloud of Richard M. Nixon's signing statement, San Francisco Bay National Wildlife Refuge, 1 July 1972.
© Spatial History Lab, Stanford University. Used with permission.

Like many monopolies, Morgan did not last long. The company closed in 1930, selling some of its land to cement manufacturers and some to salt miners, who coincidentally were finishing their own period of consolidation into a monopoly called Leslie Salt Company.

Leslie ruled the bay from 1931 to the late 1970s, when they sold their remaining salt ponds to Cargill, a multinational that is one of the world's largest privately-held corporations. Like the oyster growers, Leslie fenced the public off its tens of thousands of acres. [This series of images, also from our team at the Spatial History Project, is from an animation we made to depict the rise of salt ponds and their transition ultimately to an unexpected national wildlife refuge.]



San Francisco Bay National Wildlife Refuge, 1972–2004. Michael De Groot, Kathy Harris, and Matthew Booker. © Spatial History Lab, Stanford University. Used with permission.

As Leslie drowned the marshes behind its dikes, one predictable and one very unlikely thing occurred. Predictably, the populations of salt marsh-dependent

species in California plunged until a handful of animals and plants were on the verge of extinction. Unexpectedly, however, the salt ponds turned out to be great habitat for certain species of waterfowl, including the ones that people like to hunt. And so for forty years, salt mines fed and sheltered millions of waterfowl. The privatized bayshore was off-limits to hunters, fishers and foragers, but it was a paradise for ducks.

I want to emphasize that it was an accident that salt ponds fed birds. Leslie was a corporation and it existed to maximize profits. From the beginning, it is clear that Leslie intended to make salt only until some other more profitable use could be found for its ponds. After the Second World War, as the San Francisco Bay Area boomed, Leslie began making plans to fill its salt ponds and build housing developments modeled on the suburban waterways of Florida. At the same time, the shoreline re-entered the public consciousness as conservationists protested the plans to fill in the remaining marshes and citizens groups pointed out that in 200 miles of shoreline, San Francisco Bay had only four miles where the public could actually reach the shore. In 1968 California created a new state agency to manage San Francisco Bay. This stopped new fill, but it created no new public space.

That changed in 1972 when Republican Congressman Pete McCloskey got a bill through Congress authorizing the nation's first urban national wildlife refuge. President Nixon added a signing statement, in which he pointed out that San Francisco Bay was more than a third smaller than it had been in 1850, and that nearly three quarters of the bay's marshes had been destroyed for housing, industry, airports, and salt mines.

Changing ownership had surprisingly little impact on how the salt ponds were managed. The federal government managed the land for a very narrow vision of the public good. The salt ponds were now primarily managed for waterfowl, with some environmental education. Joggers were also allowed onto the tops of the dikes, and board sailors got a handful of launch points. But no one was allowed to forage, new fences went up, and the margin remained off limits to the broad sense of public that had characterized the nineteenth century.

Then in 2003 Senator Dianne Feinstein announced a deal to purchase most of Cargill's remaining salt ponds and to double the size of the refuge. It would be one of the largest restoration projects in history. The 2003 acquisition coincided with a powerful new push to make the shore public once again. In the 1980s and 1990s local citizens groups rallied around the idea of historical ecology—of opening up creeks that had been buried for decades, restoring marshes for endangered species, and allowing greater public access to the shoreline. Empowered with maps like this

one, comparing the current bay to how it looked when Europeans arrived, local groups pushed for not just managing the refuge lands for waterfowl but rather to open the seawalls and let the tides in again. That process is ongoing, and it is far more democratic and science-based than any previous management of the bay's margin. Foragers are still largely left out of the conversation, but at least it is a conversation.



Area flooded by 41cm sea-level rise

This image is based on a map produced by the San Francisco Bay Development and Conservation Commission. © Spatial History Lab, Stanford University. Used with permission.

If our story ended there it might be an interesting one. But the future promises to exacerbate the contest over access to the bay's edge. Sea level has been rising since the 1850s, and it is projected to accelerate in coming decades, rising somewhere between 16 inches and 3 feet by 2100. This rise throws into question all that has come before. If we do nothing the bay will likely rise to fill its profile in 1849, flooding the ports, factories, and freeways built since then.

But this society is not going to let nature take its course. Americans are too invested in the current users of the shore, and recently they have doubled down. Both Google and Facebook, the stars of Silicon Valley, have built immensely expensive headquarters on filled land right on the bay margin. Both expect the public to defend their property.

Local environmental organizations use historical ecology to make a claim for a previous system that worked. Implicitly they also claim a voice for the everyday people of this place in managing the bayshore. But do environmentalists remember the inhabited bayshore, the human uses and purposes of the nineteenth-century bay?

What has been eroded from our memories of the shoreline is that human bay, the many uses that an open access bayshore offered. Those older uses are layers of accreted history—marshes, oyster beds, salt mines, and wildlife refuge. Until it is an edible landscape once again this place cannot be considered whole, or healthy. If we cannot even visualize what that past looked like, it becomes much more difficult to imagine its future.

**Links:**

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2012/06/11/visualizing-san-francisco-bays-forgotten-past/

Composite image courtesy of Richard Ross.

# The 3 Me's and the digital environmental dissertation

*Richard Ross*

## Hashtags, the 3 Me's, and the digital environmental dissertation

During the last few decades, new ways to find, share, and tell stories have emerged using digital technologies—I use "technologies" here to reference tools (software), methods (programming), and formats (publishing). I have, over this past decade, used a number of these digital technologies from Zotero and Web Development to Markdown and Twitter to aid me in my graduate studies. This past spring at the ASEH, I participated in a panel, Digital Environmental History: Tools and Projects, which sought to engage the wider EH community about the digital tools and projects being used and developed, and to encourage the community to think about how digital technologies are and could change our scholarship. My participation in the Digital Environmental History: Tools and Projects panel was not related to any significant scholarship, digital or otherwise, on my part. Rather, I used to Twitter to engage with a community of environmental historians and other scholars using the EnvHist hashtag. As I have used these digital technologies and with sometimes gentle and not so gentle prodding from my advisor, I have come to recognize that I use this myriad morass of digital technologies along three lines, and define them as the "Digital 3 Me's": the Public Me, the Teaching Me, and the Scholarship Me. Specifically, the Public Me and Teaching Me have led me to wonder: "What could, what should, a dissertation—the nineteenth-century gift to the historian—be in the context of these twenty-first-century digital technologies?"

## The Public Me

The Public Me is that aspect of my digital technologies engagement centered on finding, sharing, and connecting with other ideas, tools, and people using social media formats, specifically blogs and Twitter. For over a decade, I have used a number of web-based digital technologies, primarily RSS, to lurk and learn about standards based web development—HTML, CSS, and Javascript—introducing me

to a vast array of web-based digital projects. More recently, I have switched to using primarily Twitter to accomplish this task.

Twitter has not only helped me connect to digital technologies, but it also has helped link me with a greater community of standards-evangelists as well as environmental scholars. Indeed, I have found Social Media to be an invaluable tool for finding and sharing information not only related to digital technologies but also to digital projects, environmental and otherwise, being developed using these tools—DHNow, NiCHE, and *Ant Spider Bee*. But how can "digital technologies and projects strengthen collaborative networks among environmental historians while involving the public and private institutions such as libraries, broadcasters, publishers, and the media?" An answer lies in what I have learned as the Teaching Me; in that guise I learned and taught others how to use digital technologies and to explore their considerable potential in research and teaching.

## The Teaching Me

The Teaching Me is that aspect of my digital technologies engagement centered on learning and teaching digital technologies to <u>find</u>, <u>manage</u>, <u>do</u>, and "<u>publish</u>" research. Recently, this Teaching Me has come to wonder "How can digital projects represent environmental histories and engage broader publics in their interpretation?" How can learning about as well as teaching digital technologies help us create projects that engage the public and scholarly community in representing and interpreting environmental histories? How can these technologies help us tell a story?

This past spring, a cultural studies student in my digital humanities research tool course developed a <u>Pinterest</u> clone. The student's original intent was to provide an online space for cultural studies students and faculty to share their interests. However, as the student worked on the project and through some prompting on my part, she realized that the site could serve beyond a mere scholarly sharing service. The student realized it could become a site to collect evidence, share that evidence, and help users engage in collectively interpreting the collected evidence. This led me to wonder if digital projects had the potential to change how we share information and how we interpret it, but also to change how we tell the stories that emerge from the evidence and interpretation in new ways. Such a teaching dynamic has helped me become a better instructor and made me more knowledgeable about the nuts-and-bolts of using these digital tools; it has also made me more aware of the opportunities and challenges digital technologies present and represent for the Scholarship Me.

## The Scholarship Me

The Scholarship Me is that aspect of my digital technologies engagement centered on using digital technologies to <u>tell a good, well-documented, conscientious story</u>. This Scholarship Me is a recently developed persona that arose out of the questions the Public and Teaching Me's have uncovered. All three "Me's" along with my participation in the Tools panel at this year's ASEH meeting—about the challenges and opportunities digital technologies present Environmental History—have combined to make me more aware of doing research and writing a dissertation in the context of digital technologies. In general, the Scholarship Me is considering "What structural, methodological, and representational challenges and opportunities do digital tools and projects present?" If digital tools and methods do not and should not supplant but enhance and transform our ability to tell stories about the human interaction with the environment—i.e., to produce knowledge or rather contribute knowledge to our understanding of EH—then the Scholarship Me wonders:

*How do we/I write the good analytical narrative that is legitimate within the nineteenth century's legacy of scholarship and the twenty-first century's possibilities for "new" visions of scholarship available via digital technologies. What would this "good" scholarship look like; what could it be; what should it be?*

For example, in researching and writing my dissertation, I will explore and use a number of digital technologies in conjunction with traditional, analog tools and methods:

- finding evidence/data—the "story"—using <u>advanced search methods</u>;
- collecting and managing that evidence in Zotero;
- managing and displaying the evidence using <u>Omeka</u> to build a "<u>mini-archive</u>," open or closed;
- doing or analyzing the evidence using visualizations tools, like <u>GIS</u> and <u>Gephi</u>;
- sharing the evidence and analysis through social media formats, like Twitter and a blog;
- using digital tools and languages, like <u>Multi-Markdown</u>, to manage and format the project for dissemination in traditional formats like .pdf and across digital networks using .html and .epub.

Indeed, I can imagine building what I call a digital documentary layer, the "raw" material—the maps, the graphs, the sounds, the photos, the videos, and all the rest of the evidence that can be collected and efficiently managed using digital tools— that contextualizes and presents and represents the narrative, the story. This process is something that the Public and Teaching Me have spent time connecting, learning, and sharing, something I have become quite adept at doing. Yet, I believe that there are other potentialities for transformation of the traditional, text-driven dissertation into something deeper, far more interactive, and, most importantly, accessible and engaging with a broader set of communities, particularly the communities that lay outside the traditional academy.

## Conclusion

The emergence and adoption of digital technologies and formats as a component of historical methodologies to tell these stories is more than a means to an end; digital tools have had and will have a significant and vital role in shaping historical scholarship, including environmental history, from connecting and sharing to building and publishing. There are a number of <u>fine</u> <u>projects</u> like Daniel J. Cohen and Tom Scheinfeldt's <u>crowdsourced</u> book *Hacking the Academy*; the collaborative, interdisciplinary, and international visualization project about the world of early modern scholars, "<u>Mapping the Republic of Letters</u>"; and Jessica van Horssen's *Asbestos, PQ: A Graphic Novel*. These digital humanities projects point to the potential that the digital has in shaping scholarship.

The questions the Scholarship Me is asking, predicated upon what I have come to understand about digital technologies from the Public and Teaching Me, may be, at some level, obvious if not prosaic. I am not suggesting either that the dissertation or any other traditional storytelling format historians use need be transformed. Rather, I would like to suggest that in questioning what the traditional dissertation could be using digital technologies, I hope to further our thinking, in general, about how digital projects can represent environmental histories and engage broader publics in their interpretations; about how digital technologies can strengthen and broaden networks among environmental historians while involving public and private institutions such as libraries, broadcasters, publishers, and the media in general; and about what structural, methodological, and representational challenges and opportunities digital technologies present to us. Ultimately, how may digital technologies enhance the environmental historians' research, teaching, and outreach while maintaining (or transforming) academic standards and expectations? I believe that digital technologies have helped us do some of this, but I think its potential is even greater to help us as members of a society and

as environmental historians tell good, conscientious stories—stories that help us make sense of the past, the present, and those future opportunities and challenges that our collective histories embody and represent.

**Links:**

http://www.zotero.org/

http://clioweb.org/2008/04/06/digital-humanities-design-and-development-process/

http://daringfireball.net/projects/markdown/

http://twitter.com/

https://aseh.org/

http://www.asehmadison2012.com/program.html

https://twitter.com/search?q=twitterstorians

https://twitter.com/i/#!/search/envhist

https://en.wikipedia.org/wiki/Hashtag

http://ea.pomona.edu/faculty/char-miller/

http://goatrockresearch.org/

https://twitter.com/richardhross/

http://www.mezzoblue.com/subscribe/

http://www.webstandards.org/about/mission/

http://html5doctor.com/

http://meyerweb.com/eric/css/

http://ejohn.org/about/

http://www.regular-expressions.info/

http://www.zotero.org/

http://programminghistorian.org/

http://anthologize.org/

https://pinterest.com/

https://www.jstor.org/stable/2079346?seq=1

https://chronicle.com/blogs/profhacker/stephen-ramsays-guide-to-regular-expressions/22588

http://omeka.org/

http://lenz.unl.edu/papers/2011/01/11/on-building.html

http://medievalplaces.com/

http://www.stanford.edu/group/spatialhistory/cgi-bin/site/index.php

https://dhs.stanford.edu/gephi-workshop/

http://fletcherpenney.net/multimarkdown/

http://vectors.usc.edu/journal/index.php?page=Introduction

http://hurricanearchive.org/

http://www.dancohen.org/2009/04/16/the-spider-and-the-web-a-crowdsourcing-experiment/

https://www.digitalculture.org/books/hacking-the-academy-new-approaches-to-scholarship-and-teaching-from-digital-humanities/
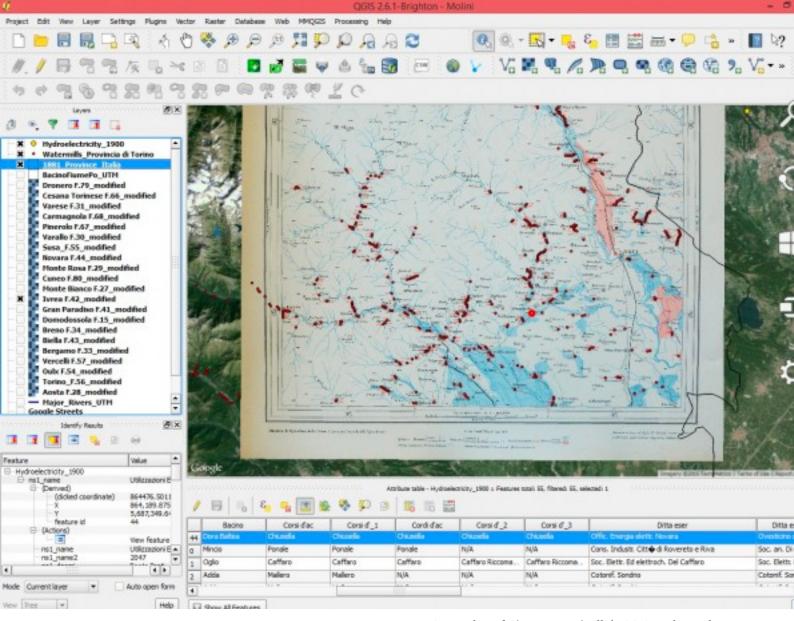
https://republicofletters.stanford.edu/

https://megaprojects.uwo.ca/asbestos/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2012/10/03/the-3-mes-and-the-digital-environmental-dissertation/

Screenshot of Giacomo Parrinello's QGIS work panel, 2015.

# Knowledge gains and geeky pleasures: Adding digital to environmental history

*Giacomo Parrinello*

Like virtually everyone who has grown up after the PC revolution, I have used digital tools for work or entertainment as early as I can recall. However, work on my second book–length project entitled *Entangled Flows: The Remaking of the Po River Valley*, has encouraged me to consciously and programmatically explore digital methods more fully.

Colleagues and friends who are not involved in the digital humanities have often asked me why I have chosen to go digital. This is a legitimate question, and a very important one. Before showing how I integrate digital methods in my project, I should thus explain why. There are at least three major reasons. First and foremost,
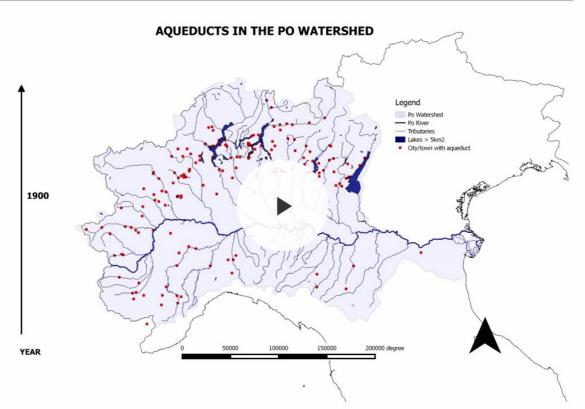
my environmental history project would simply be unfeasible without utilizing digital methods—in particular, without historical geographic information systems (HGIS). Second, digital tools open up a field of new possibilities for research dissemination and outreach, which in turn increase public accessibility of scientific knowledge. Finally… because it's fun! Although personal pleasure has seldom a place in compelling scientific arguments, humanities scholars should know better than anyone how important emotions are in stimulating or constraining creativity. We will get back to that. But let me first say something more about the project.

My current project, funded by the European Union with a Marie Curie Fellowship, aims to understand the genealogy of today's problematic interdependencies in water resource use in the Po River Valley. The Po River Valley is one of the most densely urbanized, industrialized, and agriculturally developed regions of the planet. Cities, industries, and agriculture in the valley depend on particular arrangements of water circulation, and water flows interconnect them all. In this project, I study how the current configuration of water circulation in the Po Valley has been produced through history. More specifically, I analyze the transition from a predominantly agricultural society to the modern urban–industrial society, and the ways that water circulation structured this transition. This endeavor has two major implications: 1) the analytical focus of my research are water flows and their modification across the entire watershed of the Po River; 2) I take into account a multiplicity of water uses (agricultural, urban, industrial) over more than 150 years.

When I first designed this project in the form of a proposal for a Marie Curie Fellowship, I realized that I needed to find a way to systematize sources and information, or else their sheer abundance would have overwhelmed me. Besides working on more traditional text–based research and outputs, I thus decided to build a geographical database of water uses. I planned to utilize it in order to spatially organize the sources and information I would collect on irrigation and drainage canals, hydroelectric reservoirs, urban waterworks, floods and so on. Although by then I had only a superficial knowledge of GIS, what I knew was enough to guess that it could serve well to that purpose.

It turned out it was not a bad idea. I have been implementing a historical GIS of water uses for almost one year now, and I have already derived several benefits from it. First, it has effectively helped me to never lose sight—quite literally!—of the big picture. This is very important, since it is incredibly easy to get entangled into local stories when using archival or other narrative sources. By constantly getting back to the GIS, I am forced to always relate every specific case I encounter—be it a canal, a
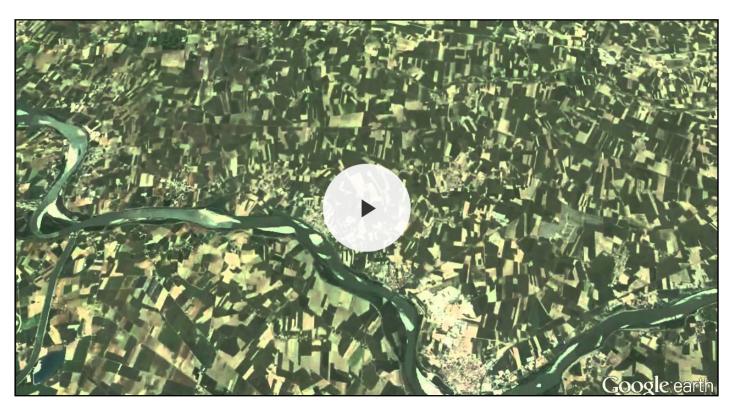
drainage initiative, or a dam, to the larger regional context. This helps me to avoid the risk of overemphasizing the single episode, and to gain a clearer perspective of its relative importance and historical interconnections. Moreover, building the database has driven me toward sources that otherwise I would have overlooked. Searching for comprehensive information on large-scale processes, I have turned to inventories of irrigation canals, surveys of aqueducts and hydroelectric power plants, and maps. These sources are probably not as "fleshy" or "spicy" as reports or letters, and can be of little or no use if taken alone. However, once digitized and put into a GIS, they can be extremely valuable to keep track of extent, patterns, and features of environmental change on a large scale. Furthermore, GIS is proving extremely helpful as an analytical tool. Let us take hydropower as an example. I have digitized five inventories of hydroelectric power production compiled between 1927 and 1970, and I am now completing the digitization of an 1880s survey of watermills. Visualizing and analyzing these data via GIS offer new insights about the difference between the two modes of waterpower production, the localization, diffusion, and functions of the hydropower plants, and their impact on watercourses. By cross-matching waterpower sites and irrigation canals, then, it becomes possible to identify locations where the overlap between the two types of uses was intense and precocious, and where it is thus worthwhile to pursue more fine-grained investigations.

GIS is also a great resource for creative outputs. As geographers and cartographers know well, geo-visualizations can communicate spatially situated information in an extremely effective manner. Visual information comes across very differently than written words, and sometimes can be more easily accessible than scholarly articles or books, especially for a non-specialist audience. Nowadays, most of the free pieces of GIS software such as QGIS or Google Earth allow users to produce very powerful and attractive geo-visualizations of various kinds. QGIS, for example, has a map-drawing tool that produces high-resolution image files out of GIS data. I have used it to produce a sequence of maps concerning the diffusion of aqueducts in the Po Valley from 1800 to 1940. I have then composed the resulting image files into an animated sequence by means of a free video editing software.

I have published the animation on my Youtube channel, on my blog, and on twitter. This is by no means a replacement of a scholarly article, but it can be a nice complement to it, and one that has more chances to reach a wider audience. Map animations can also be easily created with Google Earth Pro (now free). Google Earth Pro indeed allows for the creation of short HD videos out of virtual tours. I have used this feature to create a visual narrative of the 1951 Polesine flood, the worst flood disaster in twentieth-century Italy. The video shows the points where the river overflowed the embankments, the flooded area, and the locations that were abandoned as floodwater advanced.



Video © 2015 Giacomo Parrinello, on YouTube.

These are just examples of the many possibilities that free GIS software offers to create digital historical narratives of environmental change capable to reach a broader audience. Even more potential lies in integrating GIS with other multimedia formats. I have used Google Maps Engine to map a field trip in the drained wetlands of the Po River delta I did in the summer of 2014. The map shows each stop in the trip, and includes brief field notes, pictures, video recordings, and links to relevant web pages. Users can navigate the map and get a better sense of the geography of the field trip, while learning more on some features of the landscape I explored.

Part of my project consists of replicating this model on a larger scale, by creating an interactive map that would allow users to select and visualize the data on water uses and water infrastructure I have digitized, including dams, hydropower plants, irrigation canals, and so forth. I envision this instrument as a way to help people understand the interconnectedness of apparently unrelated processes of social and environmental change, and thereby enhance the public debate on water uses and interdependency in the Po Valley.

While digital methods and tools are now playing a decisive function for both primary source analysis and project outreach, they have also been a refreshing complement to my scholarly practice. GIS, videos, and websites can expand storytelling into new and fascinating directions, and liberate creativity from some of the constraints of textual narratives. Moreover, playing with maps, learning how to use pieces of software, shooting and mounting videos, are all activities that I have always enjoyed.

In these moments, I become oblivious of time, a sensation that I also experience when reading a good book or sifting through archival records. My academic training in history, however, has led me far from digital media production. The digital humanities represent a way to finally integrate this longstanding passion with my professional practice. I find this extremely rewarding, and increases the pleasure that I attach to the work I do. Is that not already enough?

**Links:**

http://www.berghahnbooks.com/title.php?rowtag=ParrinelloFault

https://youtu.be/uXn085ckK0g

https://youtu.be/Ke8U99GZQHQ

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/04/07/knowledge-gains-and-geeky-pleasures-adding-digital-to-environmental-history/

---

# Going graphic!

_Jessica Van Horssen_

What is the role of the historian in society? Are we simply charged with teaching undergraduates about the assassination of Archduke Franz Ferdinand, year after year, or is there something more? We all know the oft-repeated mantra, that we study history in order to better understand the present and avoid the mistakes of the past, but is this mantra merely theoretical, or can we apply our historical knowledge to present day situations?

In my research and teaching, I have always kept J. R. McNeill's wise words from his article, "Drunks, Lampposts, and Environmental History," in mind: ". . . the most urgent duty of environmental history is to abandon the shelter of ivory towers for

the blood–spattered arena of public discourse and the dangerous task of infiltrating the corridors of power."

Now, I know the ivory tower of academia is often lovely and safe and warm, and the things we do within it do have integrity and use, but I hope to share with you my experience bringing my academic work outside of it, to encourage you to consider new options that can be enriching for your own research, the academy, and perhaps, society as a whole.

When I write about "going graphic," what I'm referring to mainly is bringing historical research to graphic novels. I've done two historical graphic novels thus far, and the one I'm mainly going to focus on is the one I did based on my doctoral dissertation, on the town of Asbestos, Canada, home to what was once the largest chrysotile asbestos mine in the world.

This project evolved out of another digital project I had done with Joy Parr and an intense need within me to shake up my dissertation, and to look at the topic from a new perspective. Parr and I had just discovered Pascal Blanchet's *White Rapids/ Rapide Blanc*, which focuses on the history of a community in Quebec that was built around the province's hydroelectricity industry. Inspired by this work, Parr and I developed the idea of a digital graphic novel that focused on the town of Asbestos for her Megaprojects website. As a new scholar within the field of environmental history, I found this to be an exciting opportunity to relate the history of Asbestos not from an omnipotent, omnipresent observer, but from the ground up: the graphic novel would tell the community's history from the perspective of the Jeffrey Mine.

I found the graphic novel form to be ideal for three main reasons:

1. The population I study is largely French Canadian, and my academic work is in English. Through the process of doing my doctoral research, I felt I was taking from this somewhat marginalized community, learning things about past community members that they themselves were not aware of, and giving nothing back; the graphic novel would be in both French and English, and its online location meant that anyone, anywhere, could access it.

2. My friends and family had no idea what I was doing. At this stage in my research, I loved my topic and wanted to share it, but it's more difficult to convey how exciting the history of Asbestos is to people outside of academia than I first believed. Writing a dissertation, an article, or a monograph can be incredibly isolating. Taking my study beyond traditional publications

was a way I could break this isolation. My mom now understands—to a degree—what it is I do, and my research no longer exists in an academic bubble.

3.  The history of Asbestos is both fascinating and relevant to today. Researching this community made me laugh, made me cry, and made it clear to me that the more contemporary issues surrounding Canada's asbestos trade had deep historical roots. With the graphic novel, I really wanted to relate a different story than one many assume of this community by bringing historical context to a complicated subject.



Artwork CC BY-NC-SA 2012 Radha-Prema McAllister.
Used with permission.

The process of creating the graphic novel was an amazing experience. I got to share my research with one of my oldest friends, Radha-Prema McAllister, who was the artist for the project, and who came with me to Asbestos on several research trips, absorbing a sense of the community, and helping me see it from a completely different perspective. Radha and I met in Grade 9 art class and bonded over my

inability to draw a shoe/banana/triangle. I created a storyboard and supplied her with hundreds of archival photos of the town, the mine, and community members. As she brought the history to life with her drawings, I wrote the text to accompany them, and upon seeing the first draft, Parr encouraged me to embody the Jeffrey Mine more fully in the text; to really try to tell the history of the community from the massive opencast mine that so defined it. We had a vernissage at Concordia University in Montreal to launch the site, and then . . . it was out there!

This was both thrilling and terrifying. The thing about putting your work online, is that once you do so, it has a life of its own. To my knowledge, the graphic novel has been used extensively in high schools to teach history, especially in alternative schools for at-risk youth. It's part of reading lists for environmental literature courses at several universities. It is certainly on many of my course outlines, and those of others teaching environmental history. Most surprisingly, it's on a lot of

union websites in Canada and the United States, and Lung Associations have used it in their anti-asbestos trade campaigns.

These are forums where my more traditional scholarship, wouldn't have reached, and the process of "going graphic" with my dissertation, especially from looking at the history of Asbestos from the perspective of the mine, really added to the approach I have since taken in my more traditional scholarly activities, including writing.

Writing the graphic novel was so rewarding that it's something I include in my courses as an option my students can take to accompany their more traditional writing and research assignments, which is an opportunity many embrace, even when they discover it's more difficult than they first believed.

Again, this is something perhaps more tangible than the traditional research paper, which students can show their friends and families, post to social networking sites, and which can be placed on departmental websites to draw new students in, and create a general excitement about history.

However, as inspiring and productive as I have found digital projects like the graphic novel to be, it still doesn't count as a publication. I understand why, of course, because of the lack of scholarly debate or reference in the medium, but as a new scholar, knowing how much research was put into the project, this was frustrating. Despite this frustration, I do know these types of projects are appreciated by departments, especially those looking to address the tricky issue of student retention and engagement.

Furthermore, the reach of the graphic novel, as well as my other digital projects, keeps surprising me. This past winter I gave a talk in Montreal on Quebec's asbestos industry, and I was reminded of McNeill's motivating words. While there were some historians at my talk, the room was packed with people from a wide range of departments, as well as members of the Montreal community and press. My topic was interesting to them, but more than this, they knew of my work because of the graphic novel and the short web-based documentaries I did as part of the EHTV series Sean Kheraj and Lauren Wheeler run on the NiCHE website.

Asbestos is a big issue in Canada today because the government continues to subsidize the collapsed industry and market it to places like India, Mexico, and China, where health and safety regulations are almost nonexistent. After my talk, I was swarmed by scientists and medical professionals who had devoted decades to trying to get the Canadian asbestos industry closed for good. They had seen my

graphic novel and short documentaries, which led to an incredible conversation with one epidemiologist about how the water balloon demonstration in part 2 of my documentary didn't accurately convey the tennis-court size of the pleural lining of the lungs. What an amazing discussion to have!

My digital work has a reach I continue to underestimate, and it did more than draw people to my talk: after the questions, many of these scholars thanked me for making this issue so public, acknowledging the importance of history and the complexity of the local-global asbestos industry, and insisting that with my work, I was contributing to political-environmental change. It is not all positive, of course, and I have received complaints that my work is too sympathetic towards the community, which continues to export the deadly mineral to developing countries. Again, this is all valuable feedback that I can bring into my traditional academic work. Further to this, my graphic novel has been printed in a special issue of _Women and Environments International Magazine_ and distributed at the UN's Rio+20.

The experience of "going graphic" with my academic research has convinced me that J. R. McNeill was right: environmental historians should engage with the outside world, and even if it doesn't result in a sweet tenure-track job, we can only imagine where it will take us, and our work is all the better for it.

**Links:**

http://www.jstor.org/discover/10.2307/3985845?uid=3738984&uid=2129&uid=2&uid=70&uid=4&sid=21101400146393

http://megaprojects.uwo.ca/asbestos/

http://megaprojects.uwo.ca/morton/

https://drawnandquarterly.com/tags/white-rapids

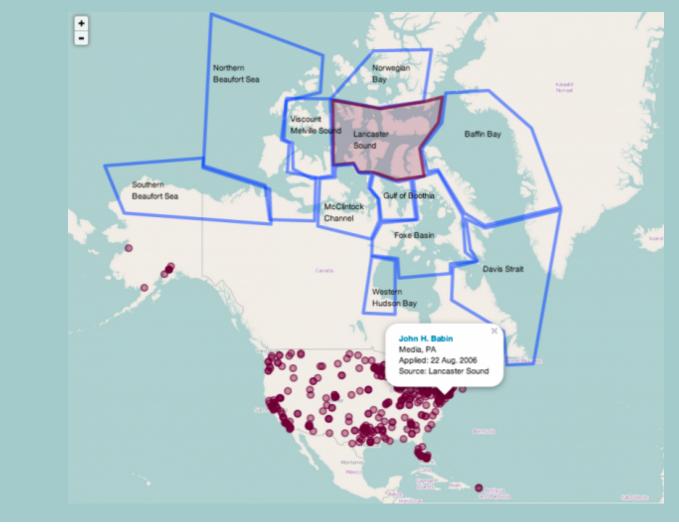http://megaprojects.uwo.ca/

http://niche-canada.org/ehtv?page=1

http://niche-canada.org/

http://www.yorku.ca/weimag/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2012/12/04/going-graphic/

---

# New media and new publics: An example with polar bears

*Etienne Benson*

I know very little about John H. Babin of Media, Pennsylvania—really not much more than the snippets and fragments that one can discover about most people in developed countries in the course of a few minutes on the web. One database of political contributions indicates, perhaps accurately and perhaps not, that he has donated to the campaigns of both Democratic and Republican candidates over the past ten years, and that he has worked in the construction industry. Other websites offer phone numbers, addresses, and background checks, some for free and some for a fee.

It is difficult to know how accurate any of this information is. One thing I do know with some certainty, however, is that sometime before April 22, 2006, Mr. Babin shot and killed a polar bear in the Lancaster Sound region of the Canadian Arctic, most likely with the assistance of an Inuit guide. I know this because is it is in the public record, and it is in the public record because of the peculiar way that the U.S.

Marine Mammal Protection Act was amended in 1994 to allow, for the first time in more than two decades, the skins and skulls of sport-hunted polar bears to be imported to the United States from Canada.

Between 1997 and 2008, Mr. Babin's name and the names of more than 900 other polar bear hunters appeared in the U.S. Federal Register. They did so because the 1994 amendment to the Act placed permits for sport-hunters in the same regulatory category as permits for scientists and zoos, which meant that the applications were, nominally at least, subject to the same expert review and public comment process that was legally required for other permitted activities. The last of these applications was submitted in 2008, when Ursus maritimus was listed as "threatened" under the Endangered Species Act and imports were once again banned.

In practice the review process for individual polar bear trophy imports was less rigorous and in most cases much less public than for those for scientific research and public display. There is, moreover, a big difference between "public" and "accessible." Until recently even the electronic version of the Federal Register, which in hardcopy reaches into the tens of thousands of pages of small print each year, was difficult to search and therefore, in practice, accessible only to the devoted few. Under such conditions the notices that Mr. Babin and his fellow polar bear hunters had submitted permit applications were, even if technically public, effectively invisible.

That has begun to change with the advent of new online tools for accessing regulatory documents. Since 2010 a revamped web interface to the digital version of the Federal Register, launched under the name Federal Register 2.0, has made it easy not only to search for regulatory notices according to a variety of criteria but also to automatically query the database via an Application Programming Interface (API). At the moment, the earliest records accessible in this manner date to 1994, when the Federal Register was first published electronically, but older records may eventually be digitized and included. In the meantime the Federal Register web interface and others like it have simultaneously opened up new technical possibilities and begun to change the visibility—indeed, the very public-ness—of regulatory matters.
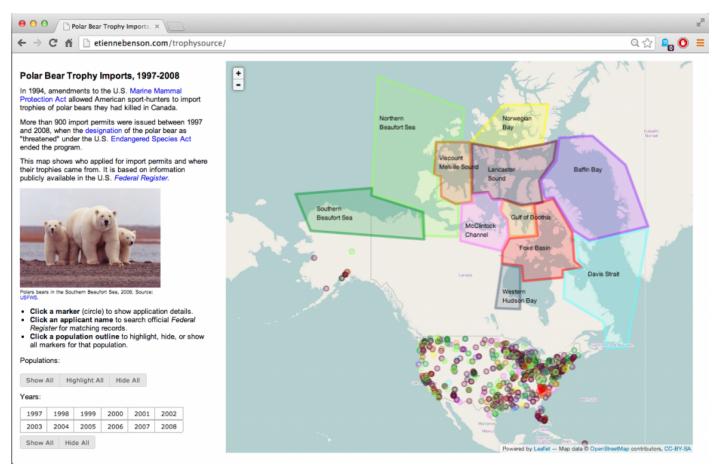
One might state this point even more generally: as the media of publication shift, so does the very meaning of "public." This observation is not limited to the Internet age; it applies just as well to the 1930s, when the distribution of the newly created Federal Register to depository libraries throughout the United States was a critical part of the implementation of the New Deal regulatory state. New laws and regulatory agencies made the Federal Register necessary; in turn, the Federal

Register, issued daily and collated each year into increasingly massive volumes, helped make regulatory matters public. Public, that is, for those who had the access, the skills, and the will to read it.

But to get back to polar bears. The great white bears of the north are of interest not merely for their own sake but also because of the symbolic role they have come to play in discussions of global climate change. When the U.S. Fish and Wildlife Service decided to list the species as "threatened" in 2008, it was the first time that it had done so primarily on the basis of climate change models—specifically, models that predicted large reductions in Arctic sea ice in the coming decades. Despite widely circulated images of drowning, starving polar bears, most populations are presently in reasonably good condition. It is only in the "foreseeable future" of the coming decades, as made real by climate and population models, that the continued existence of the species is in doubt.

As a result of the listing, projections of the future status of polar bear populations became the focus of a debate that has pitted environmentalists and animal rights activists against sport-hunters and the indigenous hunting guides who, according to Canadian law, must be included in any polar bear hunt. For the moment, he debate over imports seems to have been settled as the result of the 2008 listing and a series of subsequent lawsuits that have been decided in favor of the ban. Nonetheless, it would not be surprising to see the issue of trophy imports re-emerge, either with regard to polar bears or one of the other species that can be legally imported. In any case, legal wrangling over the length to which the U.S. government should and will go to protect polar bears from the effects of climate change continues.

Earlier this year I took advantage of the new interface to the Federal Register to create an interactive web-based map that makes it easy to see exactly who applied for polar bear trophy import permits, when they applied, where they lived when they submitted the application, and in which regions in Canada they had killed their polar bears. I conducted this experiment partly out of curiosity about the open government and government 2.0 movements, partly out of a desire to try my hand at coding a map-based web app, and partly for scholarly reasons: I thought that this information might help clarify whether voters in particular regions of the United States were more likely to support the import ban or oppose it.

"Polar Bear Trophy Imports, 1997–2008" website by
Etienne Benson. CC BY–SA.

Those not interested in the technical details can skip to the next paragraph. In the course of previous project, I had already extracted the underlying data for the map by writing a program in Python that used the Federal Register API to automatically download all notices that included the terms "polar bear" or "polar bears." The program then isolated applications for trophy import permits using regular expressions. This resulted in a spreadsheet-like tabular list of personal names, towns, dates, permit numbers, and source populations. To create the interactive map, I used Javascript and the Leaflet mapping library with OpenStreetMap data. Finally I added some controls to make it possible to click directly on the map for more information about each applicant or to show or hide all of the applications for polar bears from a particular source population. I've posted the code for the mapping interface on GitHub under the name TrophySource; the code to extract the underlying data can be found as part of the Polar Bear Feed, which was one of the first apps to take advantage of the Federal Register API.

I had hoped that by mapping the data, and by particularly color-coding the applicants according the source population to which the polar bear belonged, I would discover interesting patterns in space and time that were not visible in tabular format, let alone in the original data as presented in the Federal Register. In fact, no clear patterns emerged. I suspect that one would find them if one dug

deeper, but it would probably require aggregating data from other sources or collecting new data oneself. In any case the lack of clear geographic patterns is itself a finding of interest, suggesting that polar bear hunters are scattered broadly across the United States and do not make decisions about where to hunt based on geographical proximity. Support for polar bear hunting, this data suggest, is spread thin but wide.

Although its scholarly significance may be slight, I hope that TrophySource can serve as an example of the uses to which newly available regulatory information might be put. Such data are available for many other regulatory matters, including matters that are subject to intense, ongoing debate. I expect that such data will prove to be useful for historians and social scientists as well as for those who hope to directly influence policy, whether they are sport-hunters or animal rights activists or other special interest groups. Whatever its other effects may be, regulation produces vast amounts of documentation. These texts are clearly biased and limited in many ways, but they can nonetheless be tremendously informative and remain, as of yet, still underutilized by scholars.

One last comment about Mr. Babin, whose digital traces I have taken advantage of for two more or less arbitrary reasons: first, because TrophySource revealed his application to be the one that was geographically closest, at the time of its publication, to my current place of residence; and second, because the name of his place of residence, Media, seemed particularly appropriate to my theme. Earlier this year an American journalist received death threats and national attention after creating a similar map using the publicly available names and addresses of more than 33,000 holders of gun permits in two New York counties. I have not yet reached any firm conclusions about where the border between the technically possible and the ethically acceptable in such matters lies, but I recognize that there are serious discussions to be had about how new media and open government initiatives can radically change the meaning of "public" and "private," even if the underlying laws and regulations remain unchanged. Transparency is a value that the drafters of the original Marine Mammal Protection Act of 1972 and other environmental legislation of the era held very dear, but it is neither a panacea nor free from its own ethical quandaries.

**Links:**

http://www.etiennebenson.com/trophysource/

http://www.campaignmoney.com/political/contributions/john-babin.asp

https://www.federalregister.gov/articles/2006/08/22/E6-13813/receipt-of-applications-for-permit

https://www.federalregister.gov/

http://twobits.net/read/

http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0IJ

http://limn.it/unbearable-future/

http://www.ifaw.org/sites/default/files/Polar Bear Hunt Economic Study.pdf

http://www.etiennebenson.com/trophysource/

http://www.python.org/

https://www.federalregister.gov/blog/learn/developers

https://en.wikipedia.org/wiki/Regular_expression

http://leafletjs.com/

http://www.openstreetmap.org/
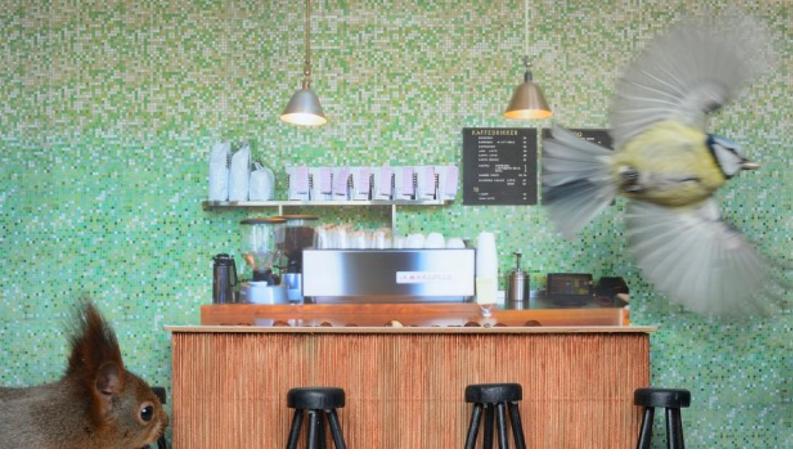
https://github.com/esbenson/trophysource

https://github.com/esbenson/pbearfrfeed

http://www.archives.gov/press/press-releases/2012/nr12-22.html

http://www.nytimes.com/2013/01/07/nyregion/after-pinpointing-gun-owners-journal-news-is-a-target.html

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2013/09/12/polar-bears/

# Where are all the nature bots?

*Finn Arne Jørgensen*

Planet Earth is under intense monitoring, with billions of sensors of various types providing data about environmental conditions. What are we as environmental humanities scholars doing to engage with this vast amount of data being generated?

Humanistic engagement with the natural world has long traditions, especially within literature and philosophy. Scholars and writers tend to describe environmental change in predominantly negative terms, as a turn for the worse, though we also find stories of hope and redemption. There is a reorientation happening in scholarship right now. Scholars across a wide range of disciplines are debating the new state of nature that characterizes what many call The Anthropocene—the age of man, where not just ecosystems, but also the geology of the planet has been irrevocably changed by human activity. Yet, I feel that environmental humanities scholars have not yet come to terms with the vast new sensory apparatus that we use today to know and sense the world around us. It isn't just nature that has changed—our senses and our knowledge of nature has been augmented and transformed through digital technologies. Weather, pollution, seismic activity, landscape change, and animal movements are but some of these types of data. Another trend is that these

sensors are increasingly providing real-time data, and that they have APIs that allow other applications to interact with the data generated.

*Ant Spider Bee* is dedicated to exploring the digital environmental humanities, or the place where the digital humanities and the environmental humanities meet. These are two very broad umbrella terms, both replete with attempts to define what they actually mean (see for instance Jason Heppler's fascinating "What is Digital Humanities," a website that offers 817 different definitions).

Our explorative mindset means that we embrace the multitude of interpretations and meeting places between the digital, the environmental, and the humanities. This can take the shape of environmental humanities scholars using digital tools in their research practices, but can also include topics such as the digital transformation of the natural world. More importantly, we should be as concerned with the speculative—the things we haven't done yet—as with the things that we are already doing.

I have been trying to create an overview of real-time (or close to real-time) environmental data streams over the last year, mostly out of curiosity. While some such sources of data can be found, there are surprisingly few examples of scholars in the humanities actually doing anything with them. The most interesting examples are typically placed at the intersection between play and experimentation. One compelling example is Mark Sample's twitterbot "Station 51000," [*Twitter has suspended the account*] based on one of the National Oceanic and Atmospheric Administration's data buoys, now lost at sea but still generating data. Sample combined the environmental data collected by the buoy with Markov-chained content from Hermann Melville's Moby-Dick, mashing up these two sources into something with its own identity.

> *Ye, the sensors say the waves are average tonight, at Dominant Wave Period: 11 sec ft. THE OTHER. Exception might be his.*
>
> —Station 51000 (@__LostBuoy) April 13, 2015

> *Ah, wind blows from the west by in, at Wind Gust: 11.7 knots. The hated whale has lungs and warm blood. I would add, that in the stern.*
>
> —Station 51000 (@__LostBuoy) April 12, 2015

"Station 51000" is an example of critical inquiry through playful making. A broken environmental sensor, lost at sea, can still talk to us and still deliver data about the world. But without the accompanying spatial metadata—its exact location—the data has no meaning. It is a commentary on the Internet of Things and the vast amount of data generated by sensors in the modern world. Things see and sense, but what do they know? What can we know about the world of things?

Connecting with environmental sensors through digital media might allow us to open up windows to nature. Another playful example of this is Piip Show, a webcam set up by the Norwegian Broadcasting Corporation (NRK) in 2014. Putting a webcam in a birdhouse is not new, but NRK took this concept to a new level in Piip Show. They built a miniature coffee shop that functioned as a bird feeder, complete with a tiny screen on the wall displaying Instagram photos tagged #piipshow.



Piip-Show, reality television with live birds © Norwegian Broadcasting Corporation, via YouTube.

Over the course of three months, this coffee shop became a hit in Norway and across the world, and the regulars in the coffee shop as familiar characters as on any other TV show (the squirrel was my favorite).

As fascinating as these examples are, it seems to me like we could be doing so much more with digital environmental sensors as scholars. Must the digital spring be so silent, with no birds tweeting?

**Links:**

https://www.nrk.no/piipshow/

http://jasonheppler.org/

http://whatisdigitalhumanities.com/

http://www.samplereality.com/

https://twitter.com/_lostbuoy_

http://www.ndbc.noaa.gov/station_page.php?station=51000

http://en.wikipedia.org/wiki/Markov_chain

https://www.instagram.com/explore/tags/piipshow/

http://www.youtube.com/watch?v=wWu7q8j-3YM

https://www.theguardian.com/world/2014/mar/18/norway-launches-wild-bird-reality-tv-show

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/04/14/where-are-all-the-nature-bots/

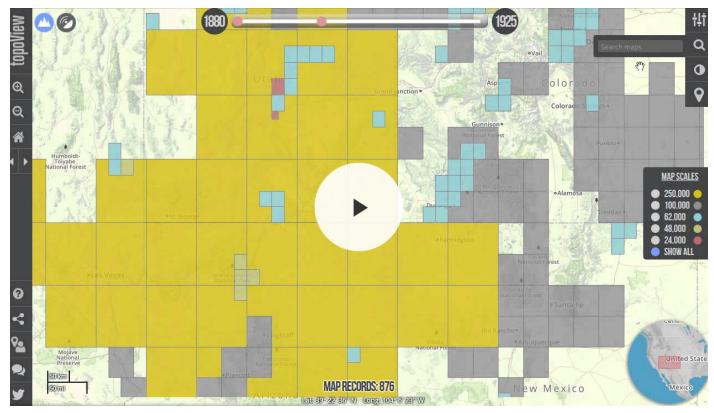A screenshot of topoView's homepage, public domain.
USGS 2015.

# The topography of envy

*Wilko Graf von Hardenberg*

Last week, enthusiastic praise of the new US Geological Survey historic topographic maps viewer topoView has made the rounds of the Internet. The response to this new service has been so overwhelming that, as of today, the servers are down for maintenance because of the excess in requests. But, technical glitches and excessive enthusiasm notwithstanding, this is a great service, that offers access—for free and through an incredibly user-friendly map-based interface—to an incredible vault of high-quality cartographic resources in a variety of (actually usable) formats.

It is definitely a great asset for anybody interested in historical cartography, landscape transformation, and, more in general, nature in place, space, and time. Being the map geek I am, I almost drooled over my keyboard. But, then, as happens way too often when it comes to sources available to the "armchair historian," the full realization dawned on me: as neat as it is to have a look at a map of Madison in 1880, it isn't much useful when your geographical specialization is western Europe.

Roy Rosenzweig's digital world of scarcity and abundance often looks rather like a desert when you are an environmental historian of, say, Italy. Just to stay focused on maps, as far as I know nothing comparable to the new USGS viewer is available for any major European country. The Italian Istituto Geografico Militare only offers access to historic maps through a very clunky interface based on drop-down menus [an updated version can be found here]. And when you at last reach them, they are not geo-referenced, low quality images. To have, possibly, actually usable images you'd have to send an email and inquire about the sale's arrangements. And the catalogue doesn't even include a whole set of topographic maps. A few years ago I also participated in a group reflecting about the possibility to crowdsource the digitization of the Italian topographic series of 1936, which stalled because of our inability to figure out all the related copyright issues.

A historian of France, Germany, or Austria would apparently encounter similar difficulties in getting hold of decent topographic maps. The German Bundesamt für Kartographie und Geodäsie only offers reprints of selected maps. The private Landkartenarchiv project doesn't give users the possibility to download the maps, which makes it less useful for actual research. The Historical Maps of the Habsburg Empire, while it has to be commended for its wonderful interface and the possibility to view the maps in 3D on Google Earth, also doesn't offer users the possibility to download and reuse the maps. On the site of the French Institut Géographique National I, frankly, got lost: I was able to see that historical maps should be available

for free for the purpose of research and teaching, but I still wonder how to get hold of them. My best bet is that you'd have to order a CD.

Obviously the wonderful David Rumsey Map Collection offers some solace to the global map geek or the historian interested in landscape transformation, but it is far from a complete archive of global topographies.

The envy for the wonderful work done by the USGS should however not remain a mere feeling of discontent, but rather become a motivation to act: there is much to be done to improve the availability of topographic maps outside the US. As I already suggested to do for libraries, archives, and museums we should pressure our national cartographic agencies to follow the example of the USGS and make their historical data freely available for research and study. Or, we can go back to the study table, clarify all copyright issues, and crowdsource the topography of our past.

**Links:**

https://ngmdb.usgs.gov/topoview/

http://www.williamcronon.net/researching/maps.htm

https://chnm.gmu.edu/digitalhistory/links/pdf/introduction/0.6b.pdf

http://www.igmi.org/ancient/

https://www.igmi.org/en/carte-antiche#c3=now-past&c3=now-0&b_start=0

http://wiki.gfoss.it/index.php/IGM_1936

http://www.bkg.bund.de/

https://www.landkartenarchiv.de/

http://www.mapire.eu/
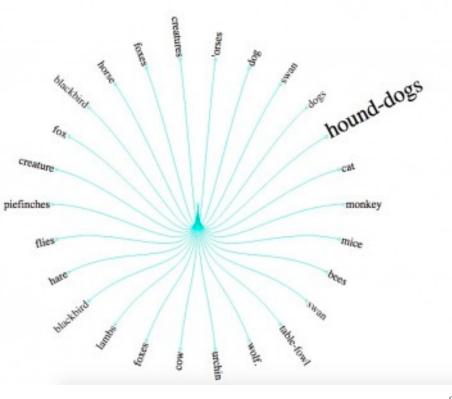
http://professionnels.ign.fr/

http://www.davidrumsey.com/

https://web.archive.org/web/20200517021419/http://environmentalhumanities.org/2013/10/23/open-access-and-the-environmental-humanities/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/05/12/the-topography-of-envy/

# Hazel Amidst Fauna

saw what seemed to her fabulous splendour. A foxhound rose from the moth-eaten leopard-skin by the hearth as they came in. Hazel stiffened. 'I canna-d-abear the **hound-dogs**,' she said. 'Nasty snabbing things.' 'Best dogs going.' 'No, they kills the poor foxes.' 'Vermin.

Screenshot of a visualization produced by the author on bl.ocks.org, CC BY Alicia Peaker 2015.

# Digitally modeling the biospheres of novels

*Alicia Peaker*

I began with a single question: How might the natural worlds of novels be represented digitally? The more I grew into the question, the more I loved the imaginative possibilities and space provided by the word "might." Freed from the onus of having to find a single model, I entered the realm of what was possible.

My single research question grew into a series of questions (as they so often do): What would a digital representation of an ecosystem or biosphere of a novel even look like? Can we develop useful digital models for better contextualizing human characters within the fictional natural worlds they inhabit? And what impacts might such models have on the ways we read and understand literatures of the environment?

To begin to get at these questions, I selected Mary Webb's 1917 novel *Gone to Earth* as a primary text for some initial prototypes. *Gone to Earth* tells the story of Hazel Woodus, a young woman who lives with her father and a menagerie of rescued animals in the mountains of East Wales. Though Hazel is supremely happy in her world, two male suitors (one a minister, the other the local squire) begin vying for her attention—with tragic results.
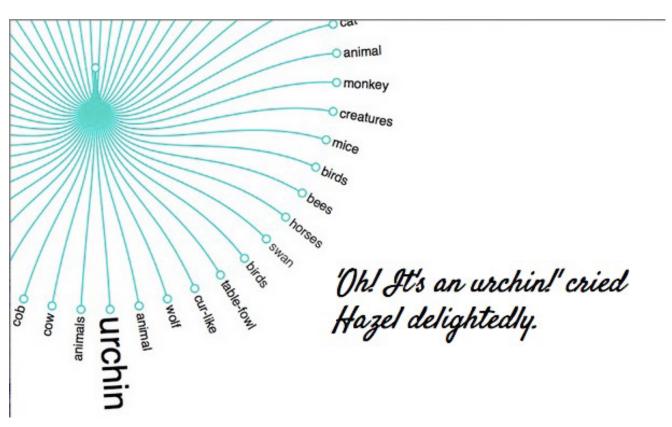
I opted to begin with this novel in large part because it has a high incidence of what might be called "nature words" and because Webb has fallen into some obscurity,

in spite of critical acclaim during her lifetime. If she is remembered at all, it is often as a major source of Stella Gibbon's parody *Cold Comfort Farm* (1932). What follows are some early attempts to get at my larger research questions via Webb's novel.

As part of this project, I have been developing a series of interactive web apps that attempt to visualize the connections between the humans and the more-than-human world they inhabit within the novel. In the visualization below, I have collected and displayed all of the words tagged "fauna" that appear within 45 characters (the average length of a sentence) of words tagged "Hazel."
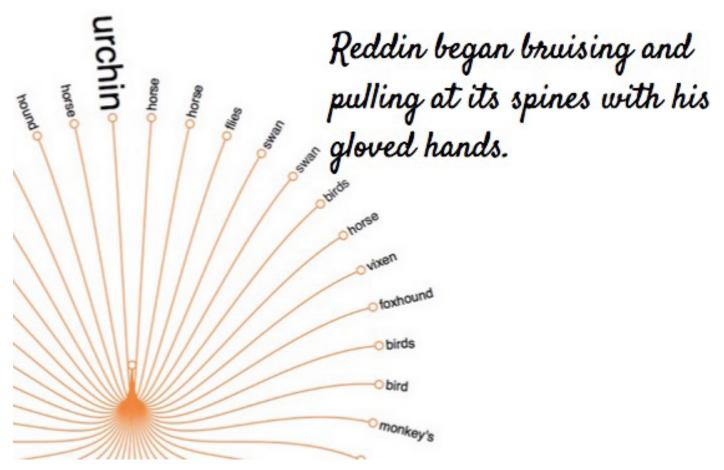
I think of these pieces as modeling moments of interspecies textual cohabitation. Though the image above is static, you can interact with the weblike diagrams of all of the visualizations in this series by visiting http://bl.ocks.org/peakera.

One of the major drawbacks of these visualizations is that they put humans at the center of the diagram. If my goal is contextualize humans within the environments they inhabit, these visualizations do that—but at the expense of visually overemphasizing the importance of human beings.



Screenshot of a visualization produced by the author on bl.ocks.org, CC BY Alicia Peaker 2015.

Second, the strands that connect humans with their natural worlds don't tell us anything about the kind of relationships they have with nonhuman others. For example, in one poignant moment in the novel, Reddin brings an urchin (a colloquial word for a hedgehog) back to Hazel. "'Oh! it's an urchin!' cried Hazel delightedly." Reddin then proceeds to torture the hedgehog "bruising and pulling at its spines with his gloved hands" (Ch. 28).

In the visualizations, both Hazel and Reddin are linked to the urchin, but their relationships are dramatically different. Though the tendrils that connect the two humans to the urchin appear as if weighted equally, users can select a word in the radial diagram to view the context from the novel, providing at least a partial picture of the depth and tenor of the interaction.

I want to be clear that these visualizations in no way stand in for the novel, or even for readings of the novel. Instead, I think of this work aligning with Jerome McGann and Lisa Samuels's argument that "interpretation of works of imagination call . . . for responsive works of imagination, not reflexive works of analysis."[1] These visuals are my response to the novel, and to the possibilities of representing biospheres of fictional worlds.

**Links:**

https://bl.ocks.org/

http://www.gutenberg.org/ebooks/7055

http://www.theguardian.com/books/2014/oct/20/100-best-novels-cold-comfort-farm-stella-gibbons

http://bl.ocks.org/peakera

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/09/25/digitally-modeling-the-biospheres-of-novels/

1  Jerome McGann with Lisa Samuels, "Deformance and Interpretation," in Jerome McGann, *Radiant Textuality: Literary Studies after the World Wide Web* (New York: Palgrave Macmillan, 2001), 109.

# Eruptions, earthquakes & emissions: Visualizing the planet's heartbeat

*Katrin Kleemann*

When the Smithsonian's National Museum of Natural History announced the "Eruptions, Earthquakes & Emissions" application, they said, "At last, we can see the planet's heartbeat." When you look at the application, you can see this heartbeat. If you now also turn on the application's sound, you can even hear it, with different drum noises for earthquakes and volcanic eruptions.

On 6 October, the Smithsonian Global Volcanism Program released a new internet application called "Eruptions, Earthquakes & Emissions," or simply "E3." This time-lapse application visualizes the 250,000 events of volcanic eruptions and earthquakes that occurred between 1960 and today, it also shows sulfur dioxide emissions ($SO_2$) since 1978. In that year, satellites were launched that were designed for the ultraviolet spectra and could monitor sulfur dioxide globally. The timeframe chosen was the last half-century as it is the first period that scientists had the equipment and knowledge to be confident to have recorded every volcanic eruption and every earthquake that occurred in the world.

Every month, 40 volcanic eruptions occur on land and many others on the seafloor. Millions of people on Earth live in the proximity of volcanoes. The Deep Carbon Observatory and the Deep Earth Carbon Degassing (DECADE) initiative are also

involved in the E3 application and are working on improving volcanic eruption forecasts.

Earthquakes are depicted as blue dots of different sizes. With the application you can see earthquakes of a magnitude of 5 to 9, smaller ones have been excluded. The largest eruption that took place in recorded history occurred on 22 May 1960 in the Bío Bío Region, Chile, with a magnitude of 9.6.



Global Volcanism Program, 2016. Eruptions, Earthquakes & Emissions, v. 1.0 (internet application). Smithsonian Institution. Accessed 16 October 2016.

Volcanoes are shown as orange triangles, here the volcanic explosivity index (VEI) is used as a scale. The scale goes from 0 to 8, but between 1960 and today eruptions ranged "only" within 0 to 6 on the VEI. The largest eruption during this time was the Indonesian Pinatubo eruption of 1991, reaching a 6 on the volcanic explosivity index. The last eruption that reached a 7 on the VEI was the Indonesian Tambora eruption of 1815.

Sulfur dioxide emissions are shown as yellow circles, the bigger the yellow circle is the greater the emissions. If you jump to May 1980 on the timeline you can see the Mount St. Helens eruption in the USA, in April 1982 you can spot the El Chichon eruption in Mexico, and in April 2010 you can witness the Eyjafjallajökull eruption in Iceland. If you click on the yellow circle you can even see how the sulfur dioxide cloud developed during the eruption. (Here in "view as globe" mode.)
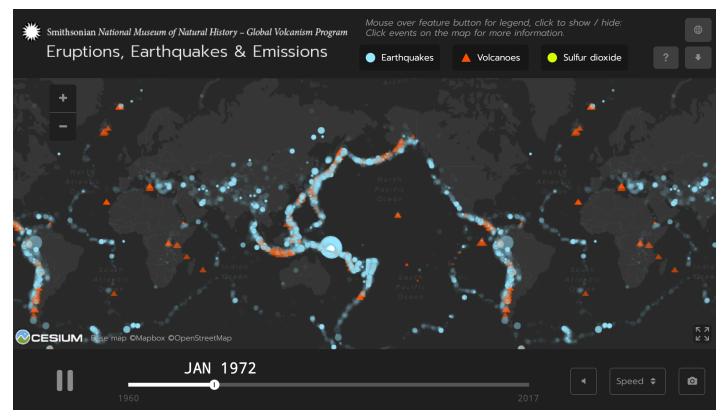
The data about the volcanic eruptions and gas emissions come from the Volcanoes of the World database, which is managed by the Smithsonian's Global Volcanism Program. The database currently contains 1520 volcanoes that erupted during the Holocene period (the last circa 12,000 years). Additionally they also have a Pleistocene Volcano List, with 1166 volcanoes that are thought to have been active within the last 2.5 million years. The earthquake data is drawn from the United States Geological Survey (USGS) Earthquake Catalog. The E3 application also allows its users to download and use the data, which might enable researchers to find correlations that weren't as visible when looking at a spreadsheet with numbers.

To try the Eruptions, Earthquakes & Emissions application yourself, follow the link to the full-size application.

Global Volcanism Program, 2016. Eruptions, Earthquakes & Emissions, v. 1.0 (internet application). Smithsonian Institution. Accessed 16 October 2016.

## References

- "Exhaling Earth: Scientists Closer to Forecasting Volcanic Eruptions." *Deep Carbon Observatory.*

- Gill, Victoria. "Volcano insight: Fifty years of eruptions revealed." *BBC News*, 6 October 2016.

- Kaplan, Sarah. "Watch Earth pulse with earthquakes and eruptions in this stunning visualization." *The Washington Post,* 10 October 2016.

- St. Fleur, Nicholas. "What 50 Years of Earthquakes and Volcanic Eruptions Look Like." *The New York Times,* 10 October 2016.

**Links:**

https://volcano.si.edu/E3/

https://twitter.com/NMNH/status/784113497483448320

http://volcano.si.axismaps.io/

https://deepcarbon.net/

http://earthquake.usgs.gov/earthquakes/eventpage/iscgem879136#executive

http://volcano.si.edu/

http://volcano.si.edu/list_volcano_pleistocene.cfm

http://earthquake.usgs.gov/earthquakes/search/

https://deepcarbon.net/feature/exhaling-earth-scientists-closer-forecasting-volcanic-eruptions#.WAN-YZOLQyn

http://www.bbc.com/news/science-environment-37569152

https://www.washingtonpost.com/news/speaking-of-science/wp/2016/10/10/watch-earth-pulse-with-earthquakes-and-eruptions-in-this-stunning-visualization/

http://www.nytimes.com/2016/10/11/science/earthquakes-volcanos

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2017/02/06/eruptions-earthquakes-emissions-visualizing-the-planets-heartbeat/

---

Screenshot of the Local Gazeteers project homepage on the website of the Max Planck Institute for the History of Science, 2016.

# Material network analysis: An exemplary project on Chinese local gazetteers

*Wilko von Hardenberg interviews Shih-Pei Chen*

The Max Planck Institute for the History of Science (MPIWG) is very active in the promotion of projects that unlock the power of digital tools to innovate the ways in which the history of knowledge production is researched and understood. One project in particular, dedicated to Chinese local gazetteers, also appears to have particular potential to provide new ways to look at environmental issues in a historical perspective.

Shih-Pei Chen, digital content curator in the Institute's Department 3 Artefacts, Action, and Knowledge, directed by Dagmar Schäfer, has kindly agreed to discuss the project and how it is positioned in the broader field of digital humanities with *Ant Spider Bee* co-editor Wilko Graf von Hardenberg.

## ASB: What is the overall aim of the Local Gazetteers project?

SPC: The project's aim is to turn an important genre of historical Chinese texts, the so-called local gazetteers (difangzhi 地方志), into new formats that will allow researchers to ask questions in new ways. These new ways sometimes concern the scale, sometimes the scope of research. We are particularly interested in "material network analysis," which we understand in relation to "social network analysis" as a way to follow the historical "ties" drawn between materials. Such ties sometimes were linguistically defined. They can have a spatial dimension or follow a geographical logic. We want to understand how terminology for specific materials traveled or not. Some ties were social: which materials spread with social change. The intellectual tying together is another facet: how people classified and organized materials in different ways. We look for associative patterns of thoughts in or across this large text corpus and ask questions of a quantitative and qualitative range that have not been researched yet, because they require a comprehensive view over all materials. In the Local Gazetteers project we transform the digitized text into an easy-to-work-with database, allowing historians to aggregate local knowledge from individual local gazetteers from different regions and different time periods and compile comprehensive datasets across historical China.

## ASB: Could you briefly explain what a local gazetteer is in this context and tell us what time frame your project covers?

SPC: A local gazetteer is a summary term for regionally defined administrative synopses compiled by local officials or gentry since the tenth century. At least 8,000 local gazetteers from all over historical China are extant today, and some of them have been digitized as both images and searchable text. Their continuity and wide spatial existence make them a fantastic source of information for cross-regional and long-durée research.

At the same time each writing by itself provides a unique set of meticulous/detailed insights into a region's (a province, a prefecture, a city, a town) social, political, economic and religious characteristics, its topography and specialties. While not all the local gazetteers are organized in exactly the same manner, more or less they follow a similar structure and contain similar records. For example, almost every known local gazetteer provides information about local products, making them excellent sources for issues such as the regional distribution of material goods, trade relations, standardization of language, but certainly also on questions of environmental development or change.

The time-frame covered by this project ranges from the earliest local gazetteers that have been digitized (which, at the moment, date from the eleventh century) to the end of Republican China (1949). Most of the early local gazetteers were however lost, and most digitalized gazetteers date from the Qing Dynasty (1644–1911) and the Republican period (1912–1949).

## ASB: What relevance do you think this project could have for practitioners of the environmental humanities? What kind of environmentally relevant information may be found in the sources you work on?

SPC: Local gazetteers contain detailed environmental information: for example, the flora and fauna of a region, rivers and mountains, hydraulics, weather records, natural disasters, and more. But they were local and thus are scattered without any central record keeping. Now we can collect them and aggregate them across broad geographical and chronological scales, and then compared or visualized to see comprehensive patterns. This could be very interesting for environmental historians.

## ASB: In the project's brief description on the Max Planck Institute website you state that you are "interested in exploring how the change of scales—by turning local records from individual gazetteers into a single global database—can reshape the study of historical China." Could you briefly elaborate on this? This seems as an exceptionally important endeavor, in particular to understand environmental changes in a longue durée perspective.

SPC: Local gazetteers have been major sources for Chinese historians for decades. However, historians used to study individual local gazetteers through close-reading. This is due to two main reasons:

1. Chinese local gazetteers are physically preserved in different institutions in China, Japan, Taiwan, and Hong Kong and thus it's often difficult to access different local gazetteers at the same time;
2. The core idea of local gazetteers was to collect regional knowledge for the purpose of local administration. This lack of a national dimension made it difficult to work comparatively on large batches of gazetteers. Only the advancement of digitalization programs has allowed blurring the boundaries of the knowledge contained within individual gazetteers.

What our project wants to contribute to the existing databases of local gazetteers are digital tools able to facilitate the aggregation of records kept in individual gazetteers. For this purpose we aim at producing a relational database collating records from all over China. In contrast to traditional full-text searchable databases that still require scholars to read and digest information by themselves, a relational database provides more structured results that can be easily mapped and analyzed by computers. Such a database can also support more research-oriented queries at the semantic rather than the textual level. For example, a query could be issued to retrieve all the grains recorded in available gazetteers, see the records from individual gazetteers immediately with their overall temporal and geospatial patterns, and analyze whether there are major changes in the patterns across regions and periods and what might be the causes.

## ASB: Coming more specifically to the digital component of the project, we would like to know what tools you developed in-house and which instead you are getting off-the-shelf.

SPC: We are putting together three layers of digital tools in order to provide a full workflow from collecting and extracting to analyzing and visualizing data. The first layer of tools is a semi-automated tagging interface that helps the scholar to transform a section of text into a data table and thus records from individual gazetteers can be collected.

The large quantity of text makes it almost impossible to perform the transformation process in-house with limited human resources and diverse research interests. We want thus to set up a sharing platform where data collected by different scholars can be aggregated and contributors can get proper credit. We call this platform a "research data repository." Right now we are trying out the Dataverse Project, an open source software package developed by the Harvard Institute of Quantitative Social Sciences. We chose this platform because it already implements the idea of citing scholarly datasets as a way to promote data sharing in the academia. For data mapping and visualization we are using PLATIN (Place and Time Navigator), a tool developed in-house with funding from TOPOI, a Berlin-based excellence cluster dedicated to the study of space and knowledge in antiquity.

## ASB: And how do you proceed in practice? Could you tell our readers about the acquisition process of the sources, the encoding, and what final output you get?

SPC: The pivotal aspect of this project is that it aims at facilitating the transformation of texts, which are not immediately meaningful to computers, into structured data,

which computers can easily manipulate and analyze. Our major issue here is how to acquire proper "text mining" rights allowing our extraction interface to access copyrighted digital sources. MPIWG is working with the Berlin State Library on a pilot project in which the Library acquires a license with text mining rights from Chinese commercial vendors (through a network called CrossAsia set up by its East Asian Department) and MPIWG develops the digital tools to better use and exploit the sources.

Our extraction interface transforms the plain texts we get from the vendors into tabular datasets in CSV format. The tagged texts are also saved as XML files in order to keep track of all the changes made by each individual scholar. However, since these XMLs contain the original texts, they cannot be re-distributed on our research data repository. To avoid copyright violation the only thing available on the repository are spreadsheets.

## ASB: Where does the project position itself within the digital humanities? Are there any projects that inspired you to start yours? How do you cooperate with the community beyond the Max Planck Institute?

Ours is a text-mining project, a branch of digital humanities that comes in two varieties. One is to use algorithms to mine hidden information in a large set of digital data without much human intervention. Examples of this approach include n-gram, named entity recognition, and topic modeling. The other approach is to rely on human interpretation to tell computer the meaning of (parts of) the texts before the computational analysis in order to improve its accuracy. For example, linguistic and literature scholars have been using TEI (Text Encoding Initiative) to mark up their texts before proceeding with the analysis. Our project also adopts the second approach, since the information recorded in local gazetteers are often very specialized and thus not easy to be retrieved by automatic algorithms.

The idea to allow more flexible and research-oriented queries of historical texts was inspired by the China Biographical Database project (CBDB), a relational database with biographical information about historical Chinese figures. Instead of including the biographical texts in its database, CBDB divides up each biographical text into different types of information such as names, places, methods of entering the government, postings, kinships, social relations, and stores them in different tables. In this way, CBDB allows to go beyond traditional person-specific queries and to look instead at whole groups of people with certain common backgrounds

(for example, the national exam passers in the whole Song dynasty). This way it becomes possible to research the patterns of their family or social attributes (for example, to see from which major regions Song exam passers came).

As regards collaboration with external partners, in 2015 we hosted a workshop on Chinese local gazetteers: we invited historians, computer scientists, and librarians to jointly explore what new questions can be generated and what new knowledge can be produced when enlarging the scale of analysis. In August 2016 MPIWG will host another workshop, in which eight invited scholars will test use our prototypes to explore their impact on actual, ongoing research projects. In the future, we hope to work with the Berlin State Library to make these tools available to a larger community of scholars within CrossAsia.

**Links:**

https://www.mpiwg-berlin.mpg.de/

https://www.mpiwg-berlin.mpg.de/en/research/projects/departmentSchaefer_SPC_MS_LocalMonographs

https://www.mpiwg-berlin.mpg.de/en/users/schen

https://www.mpiwg-berlin.mpg.de/en/research/projects/departmentschaefer

http://dataverse.org/

http://platin.mpiwg-berlin.mpg.de/

http://www.topoi.org/

http://projects.iq.harvard.edu/cbdb/home

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2016/04/19/material-network-analysis-an-exemplary-project-on-chinese-local-gazetteers/

Photo © 2016 Katrin Kleemann.
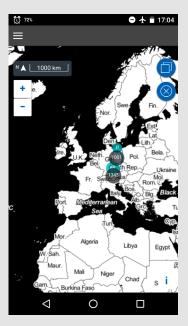
# Flyover Country App, or What do airplanes and dinosaurs have in common?

*Katrin Kleemann*

On my flight home to Berlin from Munich last month (7 April 2016) I tested an app I recently read about. The app allows you to learn about places, points of interests, and geological features, such as lakes and mountains, when you fly over them. As you have to switch to airplane mode on the flight, the app allows you to download a flight path in advance, so you can access it when you are in the air.

The app Flyover Country was developed by Shane Loeffler, at the time a geology student at the University of Minnesota, with the help of a grant from the National Science Foundation. The app is fed by geological and paleontological databases. The content is linked to Wikipedia and the app also downloads the articles for you, so you can read them offline, but it's saved without the images—for reasons of memory space.
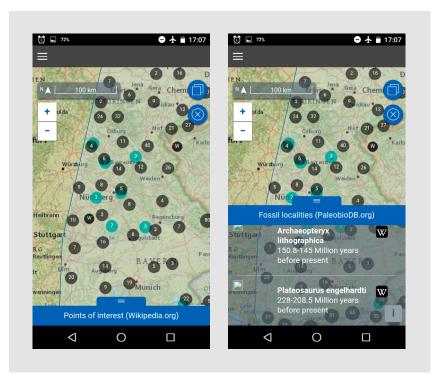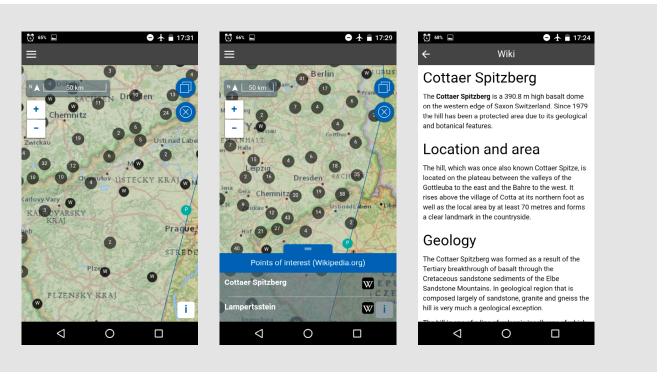
Here you can see the app's logo, and the downloaded path Munich–Berlin Tegel, all the black and turquoise dots contain several points of interests. The black ones are Wikipedia articles, the turquoise ones contain information about dinosaur fossils, which is fed from PaleobioDB.org. © Flyover Country. Author screenshots.

I recently switched my minor to geology and I was particularly interested in learning more about geological features, but I was happy to find out that there are also turquoise dots with information—specifically about dinosaur fossils below my flight path!



Did you know there were so many dinosaur fossils around Bavaria? © Flyover Country. Author screenshots.

The offline version of your flight path is quite broad, which is good, as you don't always fly in a straight line. For the first half of the flight there was no point of orientation on the ground as it was very cloudy. So it was useful that the pilot announced half way through the flight that we were flying over Pilsen in the Czech Republic, towards Dresden, and then descending to Tegel Airport.
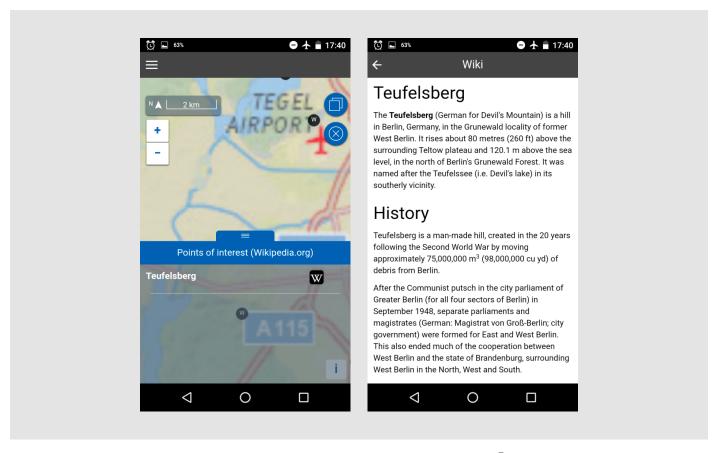
Flight over Pilsen and Dresden towards Berlin. One of the geological features in this region is the Cottaer Spitzberg.
© Flyover Country. Author screenshots.

My plane even flew over / in the proximity of a geological point of interest that also happens to be one of my research subjects: the Cottaberg (Cottaer Spitzberg) near Dresden. Contemporaries in 1783 believed it to be the source of a volcanic eruption, which explained all the extraordinary weather phenomena of the summer. The Cottaberg is in fact of volcanic origin, but its last eruption did not occur some 200 odd years, but rather circa 25 million years ago. The real reason behind the summer's strange weather was in fact a volcanic eruption, but it was located in Iceland.



A view out of the window reveals: We are in Berlin; the TV Tower is clearly visible in this shot. Photo © Katrin Kleemann.

One of the only landmarks near the airport in Berlin was the Teufelsberg (Devil's mountain), which was also visible on the horizon while we were landing—thanks to its location on top of an artificial mountain, easy to spot in an otherwise flat landscape, it is not a naturally occurring geological feature but was made of debris and rubble from the air-raided and destroyed city of Berlin after WWII.

I was lucky to have gotten a window seat, but the app is great even if you happen to be sitting by the aisle or there is low visibility outside due to clouds or bad weather. The app is certainly a great way to broaden your horizon while you are sitting on a plane waiting to get from A to B. It can be a great exploratory tool to get to know a foreign land, or indeed, your own country. You can download the app in iTunes or Google Play.

The lower dot on the first picture symbolizes the Teufelsberg, when you tap on it, you receive the information shown here in the second picture, and when you are lucky enough to have a window seat on this side of the plane (and good weather), you can see it, too! Photo © Katrin Kleemann.

Post scriptum: Yesterday (13 April 2016) the app was updated on my (android) phone and the app now has a few new, fantastic features, which seems very helpful in terms of locating yourself on the map. I was lucky the pilot mentioned where we are flying, now you can see for yourself:



© Flyover Country. Author screenshot.

The updated version comes with new buttons in the bottom corner on the right-hand side: If you enable the GPS, you can see where you are, which direction you are travelling in. In the framed field at the top of the screenshot you can see your altitude and the speed you are travelling at (in this case, the speed you are travelling at when you are sitting on a couch making a screenshot).

The logo is taken from the Flyover Country website.

**Links:**

https://flyovercountry.io/

https://itunes.apple.com/us/app/flyover-country/id1059886913?mt=8

https://play.google.com/store/apps/details?id=com.ionicframework.app303739&hl=de

https://flyovercountry.io/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2016/05/04/flyover-country-app-or-what-do-airplanes-and-dinosaurs-have-in-common/

The exhibition "Reset Modernity!" (2016) seeks to challenge visitors' (ecological) assumptions about how they represent and perceive the world. Procedure two, "without [outside] the world or within," deconstructs globes as created within ecosystems of materials and power relations. Photo: Kimberly Coulter.

# Exit counselling for the Modern?

*Kimberly Coulter*
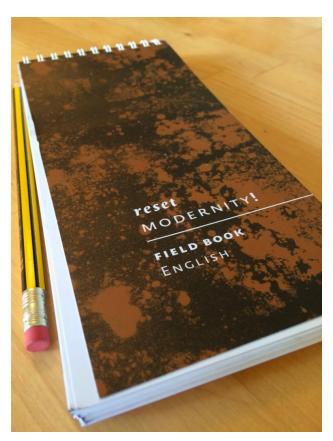
Environmental destruction has often been fueled by such taken-for-granted tenets of Modernism as "progress," the imperative of growth, and the nature/ society dichotomy. The exhibition "Reset Modernity!" at the Zentrum für Kunst und Medientechnologie (ZKM) in Karlsruhe aims to disorient and "reset" visitors' paradigms of (ecological) observation and representation. Co-curators Bruno Latour, Martin Guinard-Terrin, Donator Ricci, and Christophe Leclercq, all of the SciencesPo Médialab and its digital project AIME (An Inquiry into Modes of Existence), suggest that our observation sensors require a gentle recalibration:

*Modernity was a way to differentiate past and future, North and South, progress and regress, radical and conservative. However, at a time of deep ecological mutation, such a compass is running in wild circles without offering much bearing anymore. This is why it is time for a reset. Let's pause for a while, follow a*

*procedure and search for different sensors that could allow us to recalibrate our detectors, our instruments, to feel anew where we are and where we might wish to go.*

—

Accessible yet smart, playful yet serious, the exhibition offers tableaus of natural and social phenomena together with critical attention to their ecologies—the material and social environments, including their infrastructures, patronage, and discourses.



A "field book" [© ZKM] orients the exhibition around six procedures designed to denaturalize visitors' Modernist assumptions. Photo: Kimberly Coulter.
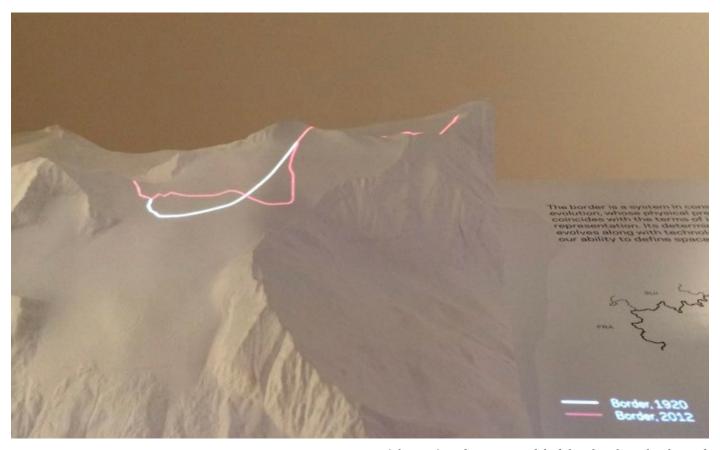
The exhibition is oriented around six procedures designed to denaturalize visitors' Modernist assumptions. The first three, "relocalizing the global"; "without [outside] the world or within"; and "sharing responsibility: farewell to the sublime," are about raising awareness of one's positionality. The visitor is shown how "scale" is not a reified, inscribed area, but actually a relational and representational concept; visitors are instructed to notice how all views are perspectives requiring a positioned viewer, and that this viewing makes him not just a spectator, but a responsible participant.

The fourth procedure, "from disputed lands to territories," was my favorite. One installation, by a collective called Folder, in collaboration with the Italian Glaciological Committee, reveals the ephemeral nature of the watershed-defined Italy-Austria border. Thanks to a cartographic robot arm and data transmitted from the melting glacier, I could set into motion the nearly real-time mapping of the changing boundary. One hears a lot of talk about the "global," so it is refreshing to see a reminder of territorial boundaries, along with their complex genesis and ephemeral nature. In these first four procedures, I felt an affirmation of my training in

deconstruction and actor-network theory (ANT). I was elated to find the pillars of my intellectual values so beautifully materialized, like the stations of the cross. Hallelujah!



Lights projected on a 3D model of the Alps show the changed border, in the installation Italian Limes (2014) by the collective Folder, as part of the exhibition Reset Modernity! (2016). © 2014 Folder. Photo: Kimberly Coulter.

The exhibition was not disorienting for me until I reached the fifth procedure, "secular at last!" This segment seemed to depart from the exhibition's ecological focus. Through film clips exploring the often pernicious political nature of religion, this procedure argues that to be attentive to the earth, we must be mundane; it seems to conflate the need to "resist the violence of iconoclastic passions" with a requirement to be secular. This overlooks not only the homogenization and violence of imposed secularism, but also the environmental engagement of faith communities. Why not take a broad interpretation of religion, attentive to the imagined, constructed, and political nature of all communities, including national—or even academic—ones, and the violence latent in group imperatives? The transition from procedure D, "from disputed lands to territories," would be natural.

A sixth procedure, "innovation not hype," encourages visitors to look behind facades of objectivity to become aware of the complicated material and social projects that yield shiny new technologies. This echoes messages of procedure two, "without [outside] the world or within," which deconstructs globes as created within ecosystems of materials and power relations. Perhaps the distinction is one of "new" versus "old" technologies. Yet to present future technologies as constructed under radically different terms from the technologies of the past, is also to create hype.

A playful presentation of didactic content, the exhibition has been criticized for being closed to unexpected outcomes. Writing for Seismopolite, Mylène Ferrand Lointier asked Latour:

> *But you also deliberately chose to make a dogmatic exhibition? Dogmatic is a positive term for me! Because it is provocative. You give the directions, and after that, people do as they want. This is not dogmatic in the sense of imprisoning, but in the sense where you construct an itinerary [the field book]. . . .What is expected of intellectuals, is that they make a coherent proposition, and after that each and every one make their own decisions and actions. Concerning the question of modernity, there are points about which we can say that they are not to accept or refuse, rather they need to be negotiated. In any case, before knowing what needs to be negotiated, the point needs to be made. This is what the version of the AIME project does: one cannot make diplomacy between different worlds, if one has not already defined the world one belongs to oneself. The problem of the moderns is that they do not know which world they belong to. They have a vision, for explainable reasons, so it is necessary to help them identify which instrument(s) their world is built upon.*

—Bruno Latour in an interview by Mylène Ferrand Lointier for *Seismopolite*

Helping visitors identify the instruments on which their world is built is a formidable task. The curators, though working in second, or maybe fourth languages, beautifully distilled the concepts without jargon, condescension, or artifice. This alone is a

triumph, and a mark of courage and imagination. The exhibition's use of a print and digitally accessible "field book" guides the visitor to "reset" (in the sense of replacing a dislocated shoulder) her metanarrative about the modern condition (with the assumption that not all that is modern is to be jettisoned). Themselves a product of the European Enlightenment, field guides prescribe a way of viewing, possibly narrowing focus at the expense of a larger ecology. Here the medium is cleverly turned upon itself, using Modernity's own toolkit to point out its conceits.



Printing a map with real-time data, the author engages with the installation Italian Limes (2014) by the collective Folder, as part of the exhibition Reset Modernity! (2016). Video courtesy of Daniel Münster.

Yet I'm not sure the exhibition achieves its stated aim. For the most part, for me, the exhibition felt like a refreshment rather than a recalibration. If it is intended to be a deprogramming of unexamined Modernist paradigms leading to the destruction of the earth, how to command the attention of the target audience? A person can get a lot of ideas, some better than others, from reading the publications of the movement Earth First!, but I found no mention of museum exhibitions. Museum exhibitions are, however, increasingly being held on this topic. At the Deutsches Museum, "Welcome to the Anthropocene: The Earth in Our Hands" took a thematic approach to human transformation of the earth, attracting visitors with a playful and interactive approach. The exhibition lives on in part through a companion virtual exhibition on the Environment & Society Portal. By framing the topic as a geologic era characterized by human environmental impact, the Anthropocene exhibition uses the language of science to present these transformations to the public;

though it challenges some assumptions, it does not systematically deconstruct Modern thought and its representation.

Of course such an exhibition is not exit counseling—we cannot compel visitors to complete these procedures any more than we can leave our Modern world. But I admire the assemblage of exhibition objects and the brilliant field guide. I expect its visitors will continue to reflect on it for a long time to come, and it will surely live on in graduate education toolkits...and maybe even inspire a cultlike devotion.

*Reset Modernity! ran from 16 April to 21 August 2016 at the Zentrum für Kunst und Medientechnologie (ZKM) in Karlsruhe.*

**Links:**
http://zkm.de/en/event/2016/04/globale-reset-modernity

http://www.medialab.sciences-po.fr/

http://www.medialab.sciences-po.fr/projets/aime/

http://zkm.de/en/event/2016/04/globale-reset-modernity

http://www.italianlimes.net/

http://www.seismopolite.com/interview-bruno-latour-on-the-show-reset-modernity-at-zkm

http://zkm.de/media/file/en/2016-zkm-reset-modernity-fieldbook_e.pdf

https://placesjournal.org/article/cloud-and-field/

http://www.environmentandsociety.org/mml/collection/11571

http://www.deutsches-museum.de/de/ausstellungen/sonderausstellungen/rueckblick/2015/anthropozaen/

http://www.environmentandsociety.org/exhibitions/welcome-anthropocene

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2016/10/07/exit-counselling-for-the-modern/

# Ant meets ANT: A gathering on "media ecologies"

*Kimberly Coulter*

Earlier this summer I visited Heidelberg as a panelist for the "Media Ecologies" event  hosted by anthropologist Carsten Wergin. The aim: to discuss how concepts from digital and environmental humanities could "foster a more sustainable engagement with human and other-than-human spheres in a globalized world in crisis." This held potential for broad interpretation.

While the crisis is indisputably an environmental one, its framing in terms of "ecologies" goes beyond what is commonly regarded as the natural environment. Implicit in this framing is Bruno Latour's relational ontology approach, which encourages the examination of the material and conceptual relationships among human and nonhuman actors/actants, the "assemblage thinking" or actor-network theory (ANT) that represented a paradigm shift in my field, human geography, and related fields in the 2000s.  Ecology, Latour writes, is a "new way to handle all the objects of human and non-human collective life… Nature is here considered as what assembles all entities into one whole" ("To modernize or to ecologize?" 1998: 249 incl. fn.). Media ecologies, it follows, may illuminate not only such relationships, but also the mediated nature of connections, representations, and engagement opportunities. Still a broad brief.

Yet in the panelists' reflections on practice, the focus congealed: each of the five panelists was engaged in some way in projects at the intersection of digital and environmental humanities. Addressing the event's aim to "foster sustainable engagement," we described ways we have witnessed digital or environmental humanities succeeding (destabilizing paradigms, allaying fears, cultivating diplomacy, and amplifying serendipity) or failing (reinforcing power, fueling anxiety, or stoking resentment).

Haidy Geismar, director of the Digital Anthropology program at University College London, drew attention to projects' community engagement and political effects. In one example of a digital archival object, a Maori cloak scanned like a landscape and presented as being of a place—maybe even placelike—found more resonance within its aboriginal community than a common 3D digital simulacrum. Such sensitivity is endangered, she cautioned, when universities focus on technical skills at the expense of critical ones, pointing to a polemical article alleging that digital humanities hype is being exploited to displace progressive projects. Geismar called for a reclaiming of "digital anthropology" by academic Anthropology, to safeguard it against anti-interpretive and uncritical applications.

As a practitioner working to engage both scholars and publics outside academia, I spoke on how digital media enhances (and complicates) environmental understanding through access, aggregation, and discovery in *Ant Spider Bee* and the Environment & Society Portal. We have observed that by facilitating unexpected connections, digital tools amplify serendipity. The Portal offers three tools for such discovery; I showed early iterations of the Portal's (freshly updated) timeline and described what we learned about the importance of usability.

Werner Krauss of CliSAP, the excellence cluster on "Integrated Climate System Analysis and Predication" at the University of Hamburg, looking back at his work in light of (Latour's) "diplomacy," the ability of an anthropologist to speak well to someone (i.e., a research subject) about something that really matters to that person (2013). As a participant observer in a world of climate science, he has engaged in diplomacy himself, publishing his discursive exchanges with climate skeptics in the blog he co-edits, *Die Klimazwiebel.*

Together, Christophe Leclercq and Donato Ricci of the Science Po médialab described the ambitious Latour project which they managed and designed. "Inquiry into Modes of Existence" (AIME), funded by the European Research Council, developed a protocol to investigate what our mode of existence has been, if not modern. In contrast to ANT tracing of networks, this protocol follows "connectors" that

"provide those networks with their specific tonalities." Through a digital platform, some 200 "co-enquirers" were invited to collaboratively document an interim report by Latour and, through comments and marginalia, inquire into discrepancies between Moderns' experience and their accounts of it. This application of DH tools (the participation platform) was then analyzed by tracing "clues, anomalies, and understanding." The project fell short, however, in cultivating correspondence with contributors, as platform use and terms of attribution for contributions were unclear. Contributors did, however, receive invitations to events like the final exhibition Reset Modernity!, a parallel project which, perhaps due to its more accessible and established format, succeeds in disorienting a broader audience.

In a "globalized world in crisis," it is easy to become paralyzed. Yet by sharing our successes and failures, and acknowledging the anxieties and efforts that underlie them, we can become more aware of our true goals and more mindful about our engagements as we reach for them. It was a delight for me to participate and—especially—to benefit from the engagement of an insightful public. Remarkably, it was the only time I have witnessed an audience member respond in improvised song. Prof. emer. Fletcher DuBois, reflecting on Francis Bacon's ant and Latour's ANT, calls on us to "be the bee":

<div align="right">

Spontaneous song © Prof. emer. Fletcher Ranney DuBois.
Audio clip used with his generous permission. Prof. emer.
Fletcher Ranney DuBois can be found on Spotify.

</div>

*The event "Media Ecologies" took place at the University of Heidelberg on 2 June 2016.*

**Links:**

http://www.uni-heidelberg.de/md/iwh/angebot/poster_mediaecologies_web.pdf

https://www.uni-heidelberg.de/transculturality/carsten_wergin.html

https://www.haidygeismar.com/

https://lareviewofbooks.org/article/neoliberal-tools-archives-political-history-digital-humanities/

http://www.environmentandsociety.org/

http://www.environmentandsociety.org/tools/timeline

https://www.clisap.de/

http://klimazwiebel.blogspot.de/

http://www.medialab.sciences-po.fr/

http://www.medialab.sciences-po.fr/projets/aime/

http://www.bruno-latour.fr/node/252

http://www.antspiderbee.net/wp-content/uploads/2016/07/Visible-Language-CM-2015-Ricci-deMourat-Leclercq-Latour-34-61.pdf

http://zkm.de/pressemappe/2016/globale-reset-modernity

http://www.antspiderbee.net/about/

https://play.spotify.com/artist/0CGe1T88JTIF3Mt4Ma5Qrx?play=true&utm_source=open.spotify.com&utm_medium=open

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2016/10/07/ant-meets-ant-a-gathering-on-media-ecologies/

# Calling the Glacier

_Serafine Lindemann, with Ludwig Braun and Kalle Laar_

_This guest post by Dr. Serafine Lindemann presents a digital environmental humanities–themed project by sound artist Kalle Laar, curated by Dr. Lindemann. Dr. Ludwig Braun provides a geological contextualization of the Vernagtferner glacier._

Images, static or in motion, are always spatially displaced representations of our reality. Before they can touch us emotionally this intrinsic distance has to be overcome. Sound knows no such barriers. Sounds reach the mind and the subconscious directly. Although this difference seems almost negligible, it is nonetheless essential.

The project series "Call me!" researches sounding signals of nature phenomena caused by climate change. Telecommunications technology is used to establish a real-time acoustic connection or, if this is technically impossible transmitting the sonic survey of one whole day. For any participant, active calling provides the possibility of individually experiencing locations normally unreachable and mostly neglected by headline news.

Pure information transfer is not the main issue with projects like Calling the Glacier, devoted to the melting ice around the world, or Defroster, focusing on the methane emissions of the permafrost regions in Siberia. Much more important is the individual emotional contact created by listening live to the sounds, unobtruded by any visuals. Activating this perspective in connection with social, political, and scientific aspects is the aim of Call me!



Photos of Calling the Glacier project. © Kalle Laar. Used with permission.

Calling the Glacier is a direct telephone connection to a glacier. A microphone installed on site transmits sounds from nature, directly and without editing, to the caller. You hear flowing water of varying intensity, sporadic cracking and other sounds, which a "living glacier" utters with the change of seasons.

In the meantime the reality of climate change has reached a large part of the general public. The glaciers of this planet are a striking symbol of this change. They resemble giant living creatures, which are slowly and in many cases frighteningly quickly shrinking, literally leaking off and disappearing. Calling the Glacier invites the caller to get in touch. Of course, the glacier itself is not in a position to answer, but when a caller makes the decision to dial this number, he will find himself there, in real time, any time, from anywhere. The focus is not on sensational reporting from strange, far-away worlds, but on a personal experience of a process that concerns us all.



Calling card, Calling the Glacier project. © Kalle Laar. Used with permission.

*For more information and a list of related exhibitions, visit http://www.callingtheglacier. org and www.artcircolo.de.*

# Glaciers as sensitive indicators of climate change: enhanced water yield from Vernagtferner, Oetztal Alps, Austria

*Ludwig Braun*

The Vernagtferner has been observed carefully since the year 1600, as it had shown numerous rapid advances into the Rofen valley, causing the formation of an ice-dammed lake which often drained catastrophically. The first detailed map of Vernagtferner was drawn in 1889 by S. Finsterwalder, with an accuracy comparable to modern maps, and since then glacier volume changes have been calculated, describing quantitatively the general retreat of this glacier since 1850 due to global warming. These results demonstrate the long history of scientific investigations of glacier behaviour and its relationship to climate conditions in the Ötztal Alps, Austria.

Annual glacier mass balances of the Vernagtferner have been determined by the Commission for Glaciology since 1964 using the direct glaciological method. Precipitation and other climatological variables, as well as discharge have been measured since 1974 at the gauging station "Pegelstation Vernagtbach." This high alpine basin has an area of 11.4 km², extends from 2640 m to a maximum elevation of 3630 m, and the glacier area decreased from about 10 km² (88%) in 1964 to 8 km² (70%) in 2006.

The drastic changes in runoff conditions demonstrate the impact of global change in this high alpine environment, and the monitoring efforts should be continued so that we have the footprint of this global experiment in progress also in the future. It also shows that we are presently living in a period of excess water yield from these high mountain regions, which will eventually fade away if the glaciers should disappear. Most alpine rivers then will run dry during hot summers with scarce precipitation—a situation that we are experiencing already today in the Po River basin, just to name one example.

**Links:**

http://www.callingtheglacier.org/

http://www.artcircolo.de/

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2013/09/01/calling-the-glacier/

---

# IV. METAMORPHOSES:
# NEW NATURES

**A**third important strand for *Ant Spider Bee* is the ways "the digital" has become a part of nature itself. The digital technologies that comprise these "new natures" are, as Finn Arne Jørgensen points out, simply the latest set of technologies to extend human senses, as done by the compass or binoculars, or representational or mediating technologies like mapping. All technologies, like media, change—possibly even create the fundamental conditions for—how we experience, know, and communicate about, nature. What we know about nature, or wilderness, is inseparable from the media by which we came to know it. William Cronon's "How to read a landscape," a page in his web guide to doing historical research, explains that "landscape consists not only of the physical and material elements we encounter in a place, but also the representations of these things via texts, including arts, maps, and pictures." Or, we can see media as nature, as a kind of aether.

*N*atural facts are media, and cultural facts have elemental imprint.

—John Durham Peters in *The Marvelous Clouds* (2015, 48)

The essays in this section reveal these metamorphoses and show how devices can in fact make new perspectives available to us, challenging our assumptions. What nature do we see when "filtered" through digital devices, or digitally augmented with open data? How does technology help us define nature and find meaning by sharing it? Finn Arne Jørgensen argues that infrastructures and knowledge are intimately tied together, made visible in "breakages"; he provides an example in an essay describing how the nineteenth-century footpath infrastructures developed by the Norwegian Trekking Association brought nature within reach of growing numbers of Norwegians. In her proposal for ecological game studies, Alenda Y. Chang points to video games as "a place where the natural and the digital collide" and prompt "reexamination of our assumptions about nature, realism, and the virtual," from toxic material environmental effects as well as ways of experiencing nature. In a post on her project "Growing Games" she offers concrete tips for teaching environmental humanities through games. Finally, Rafico Ruiz examines icebergs' telegenic life on screens and their production by the media as "emergent commodities across our global imaginaries of resource extraction."

**Links:**

http://www.williamcronon.net/researching/landscapes.htm

https://flic.kr/p/2kwTyPM

Image: Excerpt from *Metamorphosis naturalis, ofte historische beschryvinghe van den oirspronck, aerd, eygenschappen ende vreemde veranderinghen der wormen, rupsen, maeden, vliegen, witjens, byen, motten en dierghelijcke dierkens meer; niet uyt eenighe boecken, maer alleeneli.* Middelburgh: Jaques Fierens, boeck-verkooper, inde Globe, 1662–1669: plate 46. Public domain. Via Biodiversity Heritage Library.

*Zwer*—the sound of partridges taking flight. Robert Havell after John James Audobon. Virginian Partridge, 1830. The Birds of America: Plate LXXVI. Public domain. Courtesy of the National Gallery of Art.

# Adding digital to the dictionary of nature words

*Finn Arne Jørgensen*

There is a relationship between landscape and language. Being able to read a landscape and to name the things we see is a critical skill for nature lovers and environmental humanists alike. In observing and experiencing a landscape, we draw on both our senses and our accumulated knowledge to identify landscape features and characteristics. In doing so, nature becomes a collection of signs from which we can derive meaning and information. Trees, moss, grass, stones, hills, streams, and lakes are but some examples, but also evidence of human activity such as trails, structures, signs, tracks, and trash all give us clues to the various layers of meaning in landscapes.

A website developed by William Cronon and his graduate students is a wonderful resource for learning what it means to read a landscape. As Cronon's guide states,

"Landscape consists not only of the physical and material elements we encounter in a place, but also the representations of these things via texts, including arts, maps, and pictures." Nature writing is very often centered on the bodily experience of nature, on accessing nature through the five senses (sight, touch, smell, hearing, and taste). At the same time, it is evident that we are also drawing on a wealth of cultural knowledge, in language, tradition, history, when sensing through the body.

Every language has a highly specialized vocabulary to characterize such landscape features, tied up with the long history of the cultural usage of landscapes. In a recent article discussing his new book *Landmarks,* the British nature writer Robert Macfarlane explored these relations between landscape and language and his attempts to catalogue local words for nature phenomena. Some examples:

- *Ammil,* "a Devon term for the thin film of ice that lacquers all leaves, twigs and grass blades when a freeze follows a partial thaw, and that in sunlight can cause a whole landscape to glitter"
- *Zwer*, an Exeter onomatopoeic term for "the sound made by a covey of partridges taking flight"
- *Smeuse*, an English dialect noun for "the gap in the base of a hedge made by the regular passage of a small animal"

Even though we may never have heard these words before, or even thought about the need for such precise words, it is easy to relate to them, often recognizing the phenomena they refer to. Macfarlane recognized the impossibility of a complete dictionary of such words, preferring to think of them as wunderkammers or chambers of curiosities rather than archives.

The problem with Macfarlane's position is that there is no room for the digital in his landscape lexicon. He reinforces an imagined oppositional relationship between nature and the digital, with "the outdoor and the natural being displaced by the indoor and the virtual," as he writes. He and many others responded with outrage when the *Oxford Junior Dictionary* decided to replace 50 nature words in the 10,000 word children's dictionary with words they considered more relevant for today's children, such as "broadband," "cut and paste," and "analogue." This is the age-old authenticity debate all over again, where new technologies can only make the experience of nature into something less than it was.

If we are to take the digital environmental humanities seriously as a field of study, we should look for the ways that the digital is part of nature; we should look towards

what new and valuable words and ideas can be created. Macfarlane concluded his article by deciding "to leave blank the final glossary of the book – there to hold the place-words that have yet to be coined." Will some of these words refer to nature phenomena we can only experience when augmented by digital media? Can the digital add to the dictionary of nature words rather than just forcing such words out? Do we need new words for phenomena such as:

- the anticipation of physically visiting a place we have only seen on Google Maps?
- distinguishing a landscape that has been augmented with openly accessible digital data about flora, fauna, and geology from one that has not?
- a landscape where the GPS signal is unreliable due to geological features?

While this is in part a speculative question, it is also an extension of already existing ways of sensing and naming nature. Various technologies have extended these senses for a long times – take for instance the compass telling the direction, the map revealing surrounding terrain, the binoculars bringing the faraway closer. Cronon and his students recognized that digital technologies play a role in our reading of a landscape, as their landscape reading guide encourages us to study a place in Google Earth, zooming in and out to "toggle the scale at which you frame your attention." Some landscape features are only visible—and may only be appreciated—from what we can call a more-than-human viewpoint, extended by digital senses.

**Links:**

http://www.williamcronon.net/researching/landscapes.htm

https://www.penguin.co.uk/books/213/213416/landmarks/9780241967874.html

http://www.theguardian.com/books/2015/jan/13/oxford-junior-dictionary-replacement-natural-words

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/05/06/adding-digital-to-the-dictionary-of-nature-words/

A cheerful call for urban development in Zynga's CityVille, on Facebook (author's screenshot).

# "Slow violence": A proposal for ecological game studies

*Alenda Y. Chang*

Critical game studies is by now a well-developed field. Thus far, however, there has been little sustained interest on behalf of game scholars in connections to the life sciences and pressing modern environmental issues. Popular perception of computer and video games as mere technology and recreation has also arguably shielded them from important questions about how they model natural environments, and the recent, all too familiar furor over video game violence makes these dual oversights rather evident.

About a month ago, on Christmas Day, the front page of *The New York Times* featured a <u>disquieting article</u> about the growing ties between the video game industry and firearms manufacturers, in the wake of public outcry after the tragic Newtown, Connecticut, mass shooting on December 14.[1] Given the accessibility and apparent popularity of the assault-grade weapons used by the shooter (including a Bushmaster semi-automatic military-style rifle and Glock pistol), the article's authors drew attention to the licensed representation of purchasable guns in well-known, first-person shooter games like Electronic Arts' Medal of Honor and Activision's Call of Duty titles. However, the article rates attention less in terms of its predictable media-effects finger pointing, than in its evidence for both the increasing commercialization and branding of game content and the persistent and problematically narrow ideal of realism in game design.

---

1  Meier, Barry and Andrew Martin. "Real and Virtual Firearms Nurture a Marketing Link." *New York Times*, 25 December 2012: A1. Print.

Environmental collateral damage in Call of Duty 4: Modern Warfare (image courtesy of Activision.com).

For decades, violence and video games has been a particularly fraught topic for anyone involved with the design or study of games, from scholars and researchers to industry employees. Having regularly come under Congressional examination, most often after high-profile shooting sprees of the Columbine and Newtown variety, video game violence is no doubt the game-related issue that most people, non-players especially, are most likely to have encountered in the mainstream media. Though in June 2011 the Supreme Court struck down a California law prohibiting the sale of violent video games to minors, ruling that games, like gruesome fairy tales, are Constitutionally protected cultural forms of free speech, politicians and pundits continue to press legislative reform over video game violence and its potential effect on minors and pathological individuals (much has already been written about Vice President Joe Biden's investigations into violent media in prologue to President Obama's recent recommendations on gun control). Video games (as well as other forms of screen violence) almost always bear the brunt of public and official reprisal, rather than lack of services for the mentally ill, our culture's general glorification of military strength, and the distinctively American rhetoric of survivalism and frontier individualism (ironically, spokesmen for the National Rifle Association have done their best to redirect blame toward video games, despite the recent release of an NRA-licensed shooting practice iOS app).

While I agree with those that think games are too convenient a scapegoat for heinous acts committed by armed killers, I am more concerned that the obsession with game violence has diverted our attention from other, equally important forms of game realism, other aesthetic and experiential avenues for gameplay and design,

and other vital ways in which virtual game worlds inflect and cross over into our lived social and material worlds. Without exempting games from necessary scrutiny of their often extreme and tasteless violence, what might we gain by leaving behind the perpetual struggle between First and Second Amendment rights and instead identifying and addressing what I see as unfortunate but telling lacunae in the study and reception of games?
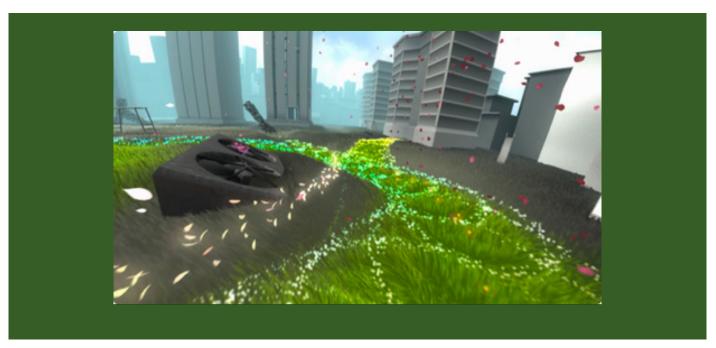
In the first place, not all games are violent, at least in the sense that they involve shooting, maiming and killing, or assassinating one's virtual enemies. As evidenced by the rise of so-called "art" games and "serious" games (sometimes called "games for change"), more and more games are being created outside of the channels of mainstream entertainment, with forms and goals tightly enmeshed with art, education, and political and social activism. On another level, one might also productively argue that limiting the definition of violence to the kinds of spectacular brutality common in fighting, action-adventure, and shoot-'em-up games—that is, overt and often graphic physical harm generally committed by humans against other humans—ignores the reality that a different and more pervasive violence is constantly being perpetrated in today's world, what Rob Nixon has called the "slow violence" of environmental destruction and cumulative toxic effects. Games both duplicate and deny this less sensational but equally destructive sort of violence, often by dissociating industrial and commercial activity from the social and ecological realities of labor, pollution, and waste:



Global environmental upheaval and destruction in the wake of a dragon's awakening in World of WarCraft: Cataclysm (2010) (image courtesy of Joystiq.com).

And while only some games may be labeled as violent, all games feature a game world or environment in which gameplay occurs, though that environment may range widely in terms of detail and visual fidelity, from the relatively impoverished worlds of text-based or single-screen games to the intricate and immersive three-dimensional worlds of massively multiplayer online games (MMOGs) and blockbuster console games. This suggests that a disproportionate amount of attention has been paid to a particular type (violence) and subtype (graphic violence) of game material, without considering a broader and in many respects more pertinent aspect of games, namely their environmental content.

This is where I have focused my thinking for the past four years, while writing a dissertation on the ecology of games (and I really do mean ecology, as in the science presaged by figures like Ernst Haeckel and Jakob von Uexküll, not merely the loose suggestion of significant interrelation implied by terms like political or media ecology). Happily, my work in Playing Nature has found a congenial home in the nascent environmental humanities and ecomedia studies communities, by making an unlikely pair out of the disciplines of literary environmental criticism and new media theory (in particular critical game studies). In my mind, these academic areas offer each other much-needed correctives in a time of both widespread digital technology and environmental crisis, as the one has tended to exclude designed landscapes and modes of mediated interaction perceived as detracting from direct experience of the natural world, while the other has, with rare exceptions, failed to acknowledge emerging technologies' embeddedness in material circumstances and finite natural systems.



Urban revitalization in Flower (2009) (image courtesy of thatgamecompany.com).

In brief, Playing Nature accepts that our experiences of the natural world have been increasingly mediated by technology, in order to consider the tacit ecological lessons offered by both historical and contemporary gameplay. While a depressing majority of mainstream game environments fall into what I have called the "graphical spectacle" and "resource extraction" camps of environmental modeling, I would argue that games lend themselves to the representation and exploratory manipulation of simulated ecological functions, and that they are especially well equipped to remedy the common difficulties faced by environmental educators and activists—including the question of how to successfully render the scale and urgency of global environmental change in less didactic or declamatory and more dynamic and intrinsically engaging forms.

In my work, the term "game environments" is intended to designate more than a game's scenery, or the pictorial components of its in-game world, or diegesis. Though many remember the scrolling clouds and colorful obstacles of Super Mario Bros., or the desert sands and garden palaces of Prince of Persia, as the defining elements of their respective game settings, game environments extend beyond surface appearances to the underlying mechanics with which programmers establish the "rules" of game universes. From motion physics to seasons and climatic zones, from resource availability and creature "spawn" rates to concept art and ambient sounds, players operate within a multitude of environmental parameters that determine not only what the game world looks like, but also how it responds to player input.



The logic of resource extraction and capital expansion in Zynga's FarmVille 2 (author's screenshot).

While environmentalism, environmental science, and environmental history have by now a decades-long intellectual history, the current groundswell of cross-disciplinary interest in environmental criticism that we are witnessing in the postmillennial aftermath of Deepwater Horizon, Hurricanes Katrina and Sandy, and largely ineffectual international efforts to mitigate climate change, are evidence of both fresh wounds and radically felt anxieties and excitement over the ways that our scholarship can stretch beyond classroom walls and printed pages to the world we inhabit. Though many may rebel against the proposition that something as patently artificial and removed from the elements as a virtual game world might be thought of as environmental, how virtual is the virtual in an era when digital technology premises its eventual ubiquity on controlling a vast share of the world's resources and transforming discarded electronic waste into othernational problems? And for how many millions of people do the hours spent in game environments vastly outnumber the hours spent outdoors or in wilderness areas, or even engrossed in books, movies, and television? Ontologically and epistemologically speaking, computer and video games present a rich limit case for the claims of environmental scholarship—a place where the natural and the digital collide and prompt careful reexamination of our assumptions about nature, realism, and the virtual.

## Further reading from the author

- Growing Games blog
- "Back to the Virtual Farm: Gleaning the Agriculture-Management Game," in *Interdisciplinary Studies in Literature and Environment*
- "Games as Environmental Texts," in *Qui Parle: Critical Humanities and Social Sciences*

## Related Links

- New journal *Environmental Humanities*
- Ecomedia Studies blog
- The Association for the Study of Literature & Environment (ASLE)
- Terra Nova, an online home for video game scholars
- The Critical Gaming Project at University of Washington
- Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Harvard 2011).

**Links:**

http://www.nytimes.com/2012/12/25/business/real-and-virtual-firearms-nurture-marketing-link.html?_r=0

http://kotaku.com/5975805/on-friday-joe-biden-asked-the-video-game-industry-to-improve-its-image

http://www.theatlantic.com/entertainment/archive/2013/01/how-the-video-game-industry-already-lost-out-in-the-gun-control-debate/267052/

http://www.forbes.com/sites/erikkain/2012/12/21/while-nra-blames-video-games-during-press-conference-another-mass-shooting-takes-place-in-pennsylvania/

http://usnews.nbcnews.com/_news/2013/01/15/16524425-new-practice-range-app-says-its-from-nra-which-blamed-video-games-for-violence?lite

https://www.hup.harvard.edu/catalog.php?isbn=9780674072343

http://muse.jhu.edu/journals/qui_parle/v019/19.2.chang.html

http://www.ecomediastudies.org/

https://growinggames.net/

https://academic.oup.com/isle/article-abstract/19/2/237/724702

https://muse.jhu.edu/article/430995

https://environmentalhumanities.org/

http://www.ecomediastudies.org/

https://www.asle.org/

https://terranova.blogs.com/

http://depts.washington.edu/critgame/

https://www.hup.harvard.edu/catalog.php?isbn=9780674072343

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2013/01/27/slow-violence-a-proposal-for-ecological-game-studies/

---

Pluck your own Thanksgiving turkey in PETA's "Cooking Mama: Mama Kills Animals" game. © PETA. Author screenshot.

# Growing games

*Alenda Y. Chang*

Years ago, I started <u>an academic blog</u> while in the thick of researching and writing a <u>dissertation chapter on farm games</u>, games made popular by Zynga's bucolic bobblehead paradise, <u>FarmVille</u>. Pressed for a catchy tagline for said blog, I came up with the following high-minded slogan: "You grew up with games. Now games need to grow up with you." While its finger-wagging tone still strikes me as somewhat cringeworthy, I stand by the general sentiment—not only do mature gamers need a wider selection of mature games to choose from (and by mature, I don't mean blood-spattered or full of sexualized content), we also quite literally need games about growing things and things that grow. As players, whether we are cultivating calm through <u>Zen gardening</u> or <u>wandering the ruins of human civilization</u>, it seems clear that games provoke conversations about stewardship, world design, and human interaction with the environment.[1]

Despite this, relatively few teachers and scholars are directing their energies in this direction, so the following post has been designed as a broad introduction to digital gaming for academics in the environmental humanities. In it, I will share some

---

1 See the "Relaxation" chapter in Ian Bogost's *How to Do Things with Video Games* (Minneapolis: University of Minnesota Press, 2013) for games that resemble the Japanese dry garden, or *karesansui.*

of the on- and offline resources that I have found useful for work in this area, as well as a few ideas for using games in the environmental-humanities classroom. (Keep in mind that I am most familiar with resources related to literary and media studies, and thus may unwittingly neglect resources in history, environmental studies, and other areas.)

## Resources

First, let's be clear. Environmentally minded work on games is still a rarity, but you may find pockets here and there either through industry-focused and design-oriented conferences like the annual GDC, E3, PAX, SXSW, CHI, and DiGRA meetings, or, more likely, under the media or "new media" umbrella in the organizations you already frequent. For instance, games occasionally crop up at MLA in association with the digital humanities or the Media and Literature discussion group, ASLE has an "Ecomedia Studies" interest group, and SCMS is home to separate Media and Environment and Video Game Studies scholarly interest groups.

If attending those conferences presents a challenge, you can also find a number of specialized web sites both for the analysis of games and downloading or playing games themselves. "Eco" game blogs like http://ecogamer.org/, https://greeningthegame.wordpress.com/, and my own http://growinggames.net/ are simple, yet curated places to start, or you can peruse the swollen ranks of online and downloadable games for relevant titles on a multitude of sites and platforms. Some of my go-tos include Kongregate, Steam, the radical art games by Molleindustria, and the journalistic games at newsgaming.com. Furthermore, any major environmental media or activist organization has probably developed games as part of its kit of public-relations tools—all you need to do is look (more on this in a moment).

## Teaching the environmental humanities through games

Teaching with games is easier said than done. As with any technology-dependent activity, it requires a great deal of advance preparation and a fair amount of technical know-how. Is your classroom equipped with a data projector and HDMI inputs for a laptop or game console? Is there built-in sound? Is there a wired Internet connection for lag-free, networked or multiplayer play?

Before using games in a class of yours, give some serious thought to how you want the play experience to unfold. Do you want to play altogether, as a class, with students taking turns, or with you in the demo seat? Would you rather divide them into groups, or have them play individually for homework? Are you going to play

the game from the beginning, or do you need to begin play from a saved file in order to highlight a particular scene or level? Will you allow spectating students to chime in while someone is playing, which could, depending on the students, create an atmosphere of teamwork or terrorize shy students? Ultimately, what do you want them to get from the experience, and how quickly? In my experience, these are all questions you must consider beforehand, to encourage the greatest possible participation and avoid allowing the game to consume the lesson. In practice, this often boils down to the following tenets:

*K*now your gear—I know few people who could remain cool while untangling a rat's nest of cables or calling university tech support while students watched and waited, hence the need for advance preparation.

*S*et ground rules—The classroom is not a living room. Students need to understand that the overarching objective of playing a game in class is not just to have fun, but to better grasp a concept or theory (for instance, misogyny, resource extraction, or colonialist rhetoric). In other words, this is not the time to break out soda and chips, but a notebook!

*B*udget more time than you think is necessary—Speed runs notwithstanding, you can't rush gameplay. Your play time needs to accommodate false starts, less confident players, curious wanderings, and that essential facet of any game, replay

Now, if the idea of troubleshooting connections or buying extra cables and adapters for every contingency doesn't sound appealing, or if you're not already a seasoned gamer willing to tow your heavy game console and all its appendages to class, or if you're concerned about finding games that all of your students can play, it may make sense to begin with analog games—after all, everyone has played a board game or a card game, and this relieves much of the intimidation factor present with console-based games. Did you know, for instance, that the Union of Concerned Scientists has a climate-change card game called Cool It!? Or that one of the most acclaimed general-interest board games of 2010–2011, Forbidden Island, is basically a game

about sea-level rise (in it, the players must work together to collect four treasures from different parts of the island before it sinks into the sea)?

You could also begin with simple, free Web games, many of which are overtly polemical or commercial in nature and can make great starting points for discussions of the branding of nature or the challenges facing environmentalism and environmental activism. For example, Discovery Communications' Animal Planet hosts a variety of games for kids geared toward domestic and wild animal appreciation, with names like "Mutt Maker," "Survival of the Fittest," and "Creaturefy Yourself." People for the Ethical Treatment of Animals (PETA) has a variety of games geared toward kids, young adults, and adults, ranging from "Seal Slalom" (avoid sealers on a downhill course) and "Pirates of the Carob Bean" (seek the magical Golden Tofu to bring an end to chicken nuggets) to one of my favorites, a spoof of Nintendo's Cooking Mama oh-so-subtly subtitled Mama Kills Animals.

That said, environmental game selection need not be limited to games explicitly promoting environmental activism or knowledge, like the heavy-handed and not particularly well-designed Greenpeace games. In my experience, students are often put off by the blatant rhetoric and slapdash construction of such games, while they may be genuinely moved by less didactic games like Flower or Journey, which deliver compelling environmental stories without shaming or lecturing. Games tailor made for #envhum areas of research and teaching may be found across a variety of game genres and run the gamut from mainstream to indie, contemporary to vintage. Consider, for instance, cutting-edge, open-world simulation games like Spore and the much-heralded No Man's Sky and historical and pseudo-biological models like John Conway's Game of Life or SimEarth's Gaia scenario.

I hope this admittedly brief excursion into digital games inspires you to include them in your research or on your syllabi—they are well worth the effort! And do look out for a future post, where I will focus on using game design as a pedagogical tool, with one of my own under-construction games as an example.

Links:

http://growinggames.net/

http://isle.oxfordjournals.org/content/early/2012/03/01/isle.iss007

https://zynga.com/games/farmville

http://www.nintendo.com/games/detail/0X-vrLA4M_eVVgdVtkc3CcOA5iUnbREn

http://www.thelastofus.playstation.com/index.html

https://www.gdconf.com/about-gdc

https://www.e3expo.com/home

https://www.paxsite.com/

https://www.sxsw.com/conference/

http://www.sigchi.org/conferences

http://www.digra.org/

https://www.mla.org/convention

http://www.asle.org/

https://www.cmstudies.org/

http://ecogamer.org/

https://greeningthegame.wordpress.com/

http://growinggames.net/

http://www.kongregate.com/

http://store.steampowered.com/

http://www.molleindustria.org/

http://newsgaming.com

http://store.nexternal.com/ucs/games-c10.aspx

http://www.gamewright.com/gamewright/index.php?section=games&page=game&show=245

http://www.animalplanet.com/games-puzzles/

http://www.petakids.com/games/

http://www.peta2.com/games/

http://www.peta.org/features/games/

http://www.greenpeace.org/international/en/multimedia/goodies/Games/

http://thatgamecompany.com/games/flower/

http://thatgamecompany.com/games/journey/

http://www.spore.com/ftl

http://www.no-mans-sky.com/

http://www.bitstorm.org/gameoflife/

https://archive.org/details/msdos_SimEarth_-_The_Living_Planet_1990

https://creativecommons.org/licenses/by/4.0

http://www.antspiderbee.net/2015/07/02/growing-games/

# Breaking the wild with digital devices?

*Finn Arne Jørgensen*

This is the first of two posts on wilderness in the information age. This first post argues that we can best study ideas of wilderness when something breaks—and that it is at these points that we see most clearly how wilderness and information infrastructures are intertwined. The second post will apply this approach to a concrete historical example.

What does the experience of nature look like when filtered through digital devices? How wild is "wilderness" in the information age? Such questions underpin many current attempts to articulate the authenticity of nature, made urgent by the increasing presence of smartphones, GPS trackers, social media, and other forms of connectivity in nature. Many such stories place nature and wilderness under considerable pressure from information technology, while others bring our attention to potential digital augmentation of nature. See for instance Yolonda Youngs' digital wonderland and Sarah Wilson's observations on "the natureness of nature" and the digital, and the Environment and Society Portal's "Wilderness Babel" for some examples of the last category.

While it may not be all that fruitful to say that one side is correct and the other is wrong, it is obvious that nature is many things to many people. We can focus on a subset of nature in this post—the idea of wilderness, arguably the most "authentic"

form of nature. Even so, wilderness also makes it clear that nature is an intensely mediated space. While there are physical landscapes out there that we designate as "wilderness" we do so in the form of narratives shared in public in a variety of media, imbuing wild landscapes with meaning and significance.

William Cronon's influential and (for some) controversial 1991 article "The Trouble with Wilderness" has shaped environmental historians' understanding of wilderness in fundamental ways. Cronon leans quite heavily on the history of ideas and the history of religion when looking for the historical articulation of a particular idea of the sublime in nature—in other words, the thing we now know as wilderness. And in this process of articulation, wilderness was not only tamed, but also made as a cultural category. While the landscapes we designate as wilderness existed as physical entities before we came up with the modern idea of wilderness, it held an entirely different meaning. This double move is a classic constructivist approach that made Cronon unpopular among nature conservationists and activists. Scholars like Eileen Crist argues that considering nature as socially constructed is an ideological move that is "as dangerous to the goals of conservation, preservation, and restoration of natural systems as bulldozers and chainsaws."

"Wilderness" as a cultural concept has evolved through this intertwining of landscape and narrative over long time periods, but can also go through rapid changes in short time. At the moment wilderness became a thing, something we as a society would recognize as wilderness—it became so to a large degree through media. What's more, it was enabled and preserved by particular kinds of infrastructure. As a cultural concept, it is not entirely in our own heads, but shared (if often contested) between us and made material in a variety of ways. If we think about wilderness in these terms, as embedded in media and information infrastructures, seeing wilderness as fundamentally in opposition to digital becomes difficult.

With infrastructure, I here mean particular types of technology; not individual artifacts, but large systems, interconnected and distributed. In the classic study *Sorting Things Out* by Geoffrey Bowker and Susan Leigh Star (1999), they pushed against the idea of infrastructures as technology, and instead directed our attention to the way ideas and categories come into being, and how infrastructures make them become ordinary.

Furthermore, infrastructures have spatiality in ways that aren't as obvious in artifacts. As Paul Edwards writes, "mature technological systems—cars, roads, municipal weather services, sewers, telephones, railroads, weather forecasting, buildings [. . .] reside in a naturalized background, as ordinary and unremarkable

to us as trees, daylight, and dirt. Our civilizations fundamentally depend on them, yet we notice them mainly when they fail . . ." (185). Can we say the same thing about wilderness; we tend to notice technology as a threat to nature when the infrastructures that bind nature and technology together break?

Breakages demonstrate how infrastructures are intimately tied up with knowledge. They are both ways of doing and ways of thinking. Yet, infrastructure becomes invisible: when it works, it retreats into the background, and only becomes visible when it breaks. This does of course make breaking points valuable for scholars like us. What can we find the breaking points of the infrastructure of wilderness? I think one place is simply when it becomes visible—as a danger to nature. In order to function as infrastructure that can support and enable the wilderness story, a careful balancing act needs to take place, one that is both practical and rhetorical.

In the next post in this series, I will use a concrete historical case to trace how the increasingly dense web of transportation infrastructures and cultural information layers in the late nineteenth-century Norwegian countryside not only connected the urban and the wild, but also served to define and articulate these as separate categories. I will pay particularly close attention to the tensions between knowing, sharing, and experiencing wilderness that followed new media and new mobility in this period, and how these tensions came into play when wilderness protection became an issue in the beginning of the twentieth century. Today, when the wilderness experience seems to be more endangered (or illusory) than ever, it is critical that we pay close attention to how cultural and technological mediation creates connections between landscapes, values, actors, and nations.

**Links:**

https://commons.wikimedia.org/wiki/File:Collins_Overland_Telegraph_Line.gif

http://www.antspiderbee.net/2015/07/21/creating-a-digital-wonderland-environmental-and-cultural-history-in-the-digital-age/

http://theamericanistdiversion.com/2015/04/14/from-stars-to-microbes-the-natureness-of-nature/

http://www.environmentandsociety.org/exhibitions/wilderness-babel

http://www.williamcronon.net/writing/Cronon_Trouble_with_Wilderness_1995.pdf

http://www.eileencrist.com/images/pdf/Against-the-Social-Construction-of-Nature-and-Wilderness.pdf

http://www.worldcat.org/oclc/460439847

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/08/13/breaking-the-wild-with-digital-devices/

Skogadalsnåsi. Maradalstinder. Gjertvasnåsi. Styggedalstinder. Hillerhöi.
5100'. 6236'. 5554'. 7490'. 5110'.

HORUNGSTINDERNE
seet fra Gravdalen.

"Horungstinderne," Den Norske Turistforenings årbog for 1873.

# Knowing, sharing, and experiencing wilderness

*Finn Arne Jørgensen*

*This is the second in a two post series on wilderness in the information age. (Read the first post here).*

In 1866, a circle of largely urban travel enthusiasts embarked on a mission to open up the Norwegian countryside for tourists and travelers alike. They founded the Norwegian Trekking Association, which had as a key premise to not only promote the experience of the authentic nature of Norway, but also to make this experience practically accessible. By paying close attention to the tensions between knowing, sharing, and experiencing wilderness in the activities of the Trekking Association, we can see how wilderness is a concept that has modern transport and information infrastructures at its core.

The Trekking Association built a network of footpaths and cabins in remote areas to make nature more convenient in the years following its foundation. This extensive infrastructure allowed travelers to experience nature in a controlled—

even standardized—fashion, whether in rural areas, along fjords, in the highlands, in the forests, or in the rugged mountains. At the time, Norway had few urban centers, connected by the sea, by rough roads, and a nascent railroad network. The rest of the country was wild and untamed, or at least so it seemed from the urban perspective. The infrastructures developed by the Trekking Association brought this wild nature in reach of ever-larger groups of Norwegians.

The founders of the Norwegian Trekking Association wrote incessantly about the nature they experienced when traveling, the scenic sites they identified, the people they met, and the national identity they extrapolated from the landscapes they traversed. It was in nature and not in the urban they found the sources of a new and authentic Norwegian national identity after 400 years under Danish rule. They wrote the new national identity into being, while simultaneously writing a new nature into being. What's just as important, they intended their knowledge of nature to be shared, as were the nature experiences they described.

*Fra Christiansand* (S. 81) med **Jernbanen** fra Stationen i Vestre Strandgade over *Grimsmoen,* forbi *Krossen.* Saa gjennem en af lave Aaser omgiven Dal, med vakker Trævækst, Naale- og Løvtræer, forbi Gaarden *Dalene* (tilv.). Uden at overskride nogen Høide frem til *Øvre Strai* og ind i *Torridalselvens* Dalføre, med (7 km.) Stat. *Kvernvolden* ved *Strai.* Derfra langs Elven og over *Høiebækken* til (10 km.) *Mosby,* som ligger i en stor Grend paa en Flade ved Elven. Bækken driver *Høie* Spinderi, Væveri og Møllebrug. Langs Bækken gaar den sætersdalske Hovedvei op tilv. Snart paa *Kvarstein Bro* over Elven og videre paa dennes v. Bred til (15 km.) *Vennesla,* hvor Elven ved *Vigeland* danner de vakre Fald, *Vigelandsfossen* og *Hundsfossen (Helvedesfossen)* med Fabriker; alm. Maal for Udflugter fra Christiansand. Siden kort op til *Vennesla* Kirke og til (21 km.) *Grovene.*

**Vei til Vegusdal;** 40 km.? Ingen Skydspligt. Tilh. ind i et Sidedalføre og over *Aamdalsvandet* (8 km.) op til den vidt forgrenede | Indsø *Ogge,* i hvis Nærhed Veien gaar, og videre forbi *Vegusdal* Kirke paa *Engesland* til † *Vegusdal* i Ruten Arendal—Evje, S. 81.

*Ovenfor Grovene* over paa Elvens h. Bred, hvor det vakreste og interessanteste Parti begynder. Jernbanen ligger her i den bratte Fjeldvæg i et trangt Dalføre langs Elven, som danner det ene vakre Stryk efter det andet. Siden efter Elven op til (29 km.) *Røiknes,* hvor tilv. en Elv kommer ned fra *Langevandet.* Siden langs Hovedelven til (35 km.) *Iveland,* hvor tilh. *Frøiselven* kommer ned fra Heierne i *Iveland.* Atter langs Elven til (59 km.) *Gaaseflaa* og videre langs et Vand op til *Soget,* forbi dette Stryk og frem til

We can see this in *Reisehaandbog over Norge*, an exceedingly popular book written by Yngvar Nielsen, published in 12 editions between 1879 and 1915. The 1915 edition had grown from the original 234 pages to be 540 pages long, containing several fold-out maps and illustrations. Later editions were split geographically into four parts. The books described travel routes across all of Norway in great detail, including travel distances, transport and lodging options, prices, itineraries, and scenic routes, as well as historical and cultural overviews and a general guide to trekking for inexperienced travelers. Over the years, Nielsen traveled repeatedly across all of Norway, both following and to some extent guiding the development of new transportation infrastructures.

Later he and others were joined by photographers like <u>Anders Beer Wilse</u>, who took photos of more or less everyone and everything, everywhere in Norway. Like Nielsen, Wilse traveled extensively and brought visual impressions of remote and scenic areas into the homes of Norwegians. This particular combination of nature and media is not only key to understanding the intertwined Norwegian ideas of wilderness and nation that developed, but also to understanding the privileged place that wild nature got in discourses of the value of different types of nature.

Sharing ideas of nature and wilderness through media wasn't enough, however. While most of the founding members of the Trekking Association were lawyers, officers, or natural scientists, it was the poet and editor <u>Aasmund Olavsson Vinje</u> who most cogently phrased their motivations for starting such an association:

*It is a pity that it is so difficult to get to the most beautiful places and that you can't have a roof over your head in the places that are furthest away from people.*
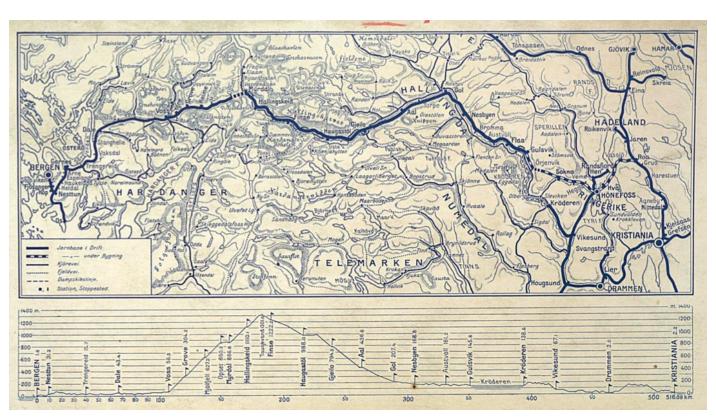
Vinje pointed to the need for physical infrastructure development, to "improve certain mountain paths such as at Vøringfossen and Maristigen, and then build some cabins here and there in the mountain plateaus. And then people can look around without fearing for their lives and learn to know their country both scientifically and aesthetically." In other words, the rediscovery and reinterpretation of the Norwegian landscape as a particular kind of wilderness was tied to the development of an infrastructure for convenient traveling—roads, bridges, food and lodging, as well as travel guides. Without this infrastructure, nature was simply too wild to provide authentic natural experiences for most travelers.

The Norwegian Trekking Association provided both, and was highly successful in its mission. In fact, the organization was so successful that its members soon began lamenting the new accessibility. A rapidly growing number of travelers discovered that while they enjoyed convenient access to nature, they did not enjoy all the other people there quite as much—a classic case of the tourist's dilemma. In other words, the Trekking Association realized that through their work, nature had become culture. The wild was tamed through sharing. As a result, the 1933 general assembly of the Trekking Association declared that "we need to protect nature from ourselves."

The organization thus reconsidered its own expansive activity to accommodate nature tourism in Norway and made a conscious effort to scale back, become less

visible, and in particular less accommodating for cars. The wild was broken and had to be rebuilt.

The Trekking Association was not alone in driving the infrastructural development past the breaking point. In the last half of the nineteenth century, new railroads, roads, and boat routes were paired with a growing service industry of maps, guides, food vendors, and lodging, all aimed at urban national and international tourist-travelers. These infrastructures opened up formerly remote regions and connected them to the rest of the nation, but were profoundly intertwined with the work of writers, photographers, artists, and travelers, as well as private and governmental institutions that sought to articulate the cultural meaning of landscape on a national scale. The landscapes of the Scandinavian countryside became increasingly covered in a dense web of transportation infrastructures and cultural information layers. Wild nature and not quite so wild nature were closely intertwined here, and not so easy to distinguish.



Bergensbanen railroad map, from Yngvar Nielsen's book *Norske jernbaner II. Bergensbanen*, 1908.

Taking a cue from Steven J. Jackson, who argues in his essay "Rethinking Repair" that we should take breakdown, dissolution, and change as our starting point rather than innovation, development, and design, we could consider breakage and breakdown the starting point of our particular conceptions of wilderness, rather

than an idea of wilderness emerging from a pure state of authentic and undisturbed nature. It is in dealing with breakdown we build a world—a nature, a wilderness—that we can live with and live in.

I have in these two posts asked what wilderness means in the information age, and what we see is that wilderness really starts with the information age. Information technology has a history that predates the computers in our offices and the cellphones in our pockets. While digital devices are obvious interfaces to information infrastructures, so were the media—maps, books, drawings, paintings, and photos—created and shared by nineteenth-century travelers. The history of old and new media is thoroughly entangled with our idea of what wilderness is and should be.

If we consider how tightly entangled the first articulation of wilderness was with sharable media, we should adopt a more nuanced stance on this strange technological nature that wilderness can be said to be. Our definitions of wilderness have of course evolved over time, and the things the 1860s travelers called wild might not be the same as we call wild today. But we still find the same tendency towards defining wilderness and nature as an experience through sharing in media. Information technology and perpetual connectivity is not necessarily a threat to wilderness—yet full of contradictions and by no means unproblematic.

**Links:**

https://www.dnt.no/

https://en.wikipedia.org/wiki/Anders_Beer_Wilse

https://en.wikipedia.org/wiki/Aasmund_Olavsson_Vinje

http://sjackson.infosci.cornell.edu/RethinkingRepairPROOFS(reduced)Aug2013.pdf

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/09/09/knowing-sharing-and-experiencing-wilderness/

---

# Objects of amplification: Icebergs, Northern history, and their emerging media environments

*Rafico Ruiz*

Icebergs at present are living a second life on screens. While they are without a doubt one of the natural world's most amenably photogenic objects, icebergs, amongst a raft of other natural phenomena, are increasingly subject to parametric modeling applications. As I outline in a recent article in a wonderfully-curated issue of The Journal of Northern Studies on northern environmental history, the purpose of this telegenic life on screens is largely confined to determining how, and under what conditions, icebergs can be made a source of potable water for the planet. While this is a practice with a rather long history, going back millennia to indigenous forms of water provision, for metropolitan, Western social formations it dates back to the middle of the nineteenth century and the early industrialization of converting icebergs into water destined for human purposes (Cruikshank 2005; Gosnell 2005; Pyne 1986). Icebergs, and the potential they hold as a source of water for the dry and drought-ridden regions of the world, constitute a little-known touchstone in historical and contemporary debates on the ethical and ecological limits of the extractive industries. As I contend in the article, to understand how
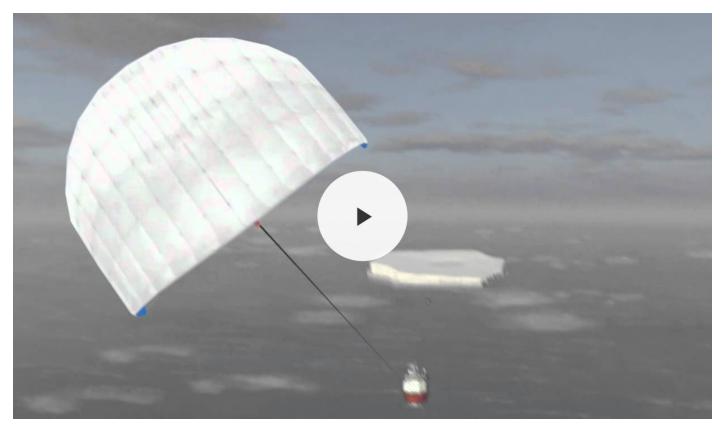
icebergs are conceived as emergent commodities across our global imaginaries of resource extraction requires us to know how and why they are appearing on screens—in what could be thought of as media environments in their own right.

In my understanding of the concept, "media environments" are co-implicated in the production of many important environmental issues that revolve around institutional and corporate decision-making, the impacts of emerging and contentious resource industries, as well as anthropogenic environmental change. In contexts wherein data sets, modeling, and "parametrization" often narrow the group of actors involved in making decisions that affect environmental outcomes (Edwards 2001: 64), models and model-making processes are mobile forms of semiosis that can be historicized across scales of decision making that are not always "global" nor "environmental," but corporation- and institution-specific. As some of the historical episodes I recount in the article show, such models deploy visualization and projection in order to mobilize public opinion, further geopolitical interests, or raise funds for schemes on the borderlands of ethical and ecological responsibility.

It is productive to think about icebergs as newly central nodes across "media environments" that subtend and support emergent extractive resource industries. From the screens tracking the locations and movements of North Atlantic icebergs via satellite technologies to the modeling softwares forecasting and simulating the transportation of icebergs to the drought prone regions of the world, much of my research tries to situate emergent natural resources such as icebergs within the disciplinary concerns of media theorists and environmental historians. Icebergs and their trade as twenty-first commodities are produced in and by highly-mediated predictive and virtual environments. This situation prompts a reconceptualized understanding of "the environment" that extends its boundaries to include the media technologies that re-present and mediate its proximities, distances, and temporal registers. A focus on the role of communication media in making icebergs available as commodities suggests that there really is no such thing as a "natural" resource prior to mediation. "Control of information technology," as Jody Berland writes, "shapes the parameters of communication, knowledge, and memory, and determines the proximity to and nature of power itself" (2009: 76–77). The demands of our ongoing engagement with natural resources also drive developments in techniques and media of communication that become central to the organization and extension of social power in general.

Where such approaches to northern environmental history perhaps meet is around the question of appropriate and contestable representation. Recognizing that the

mere act of "rendering" is both a contentious process and practice in making out icebergs as emergent resources is a necessary first step, and one that equally implicates assumptions around water scarcity, the ownership of natural resources, and the ecological effects of large-scale iceberg harvesting. For environmental historians, these visual, discursive, and broadly "cultural" concerns have, of late, begun to be foregrounded through recent scholarship, that Finis Dunaway (2005; 2010; 2015), Gregg Mitman (1999), and others have characterized as exemplifying a "cultural turn" in the discipline. Yet, as David Biggs (2014), Mark Carey (2007; 2010), and others have noted, the question of the politics and the power relationships underpinning visualization as a set of practices and simulated environments as products have not been fully or adequately addressed. One way of starting to address these emerging, largely visual (and virtual) environments is by coming to understand the particular media technologies through which they are co-created, as the human beings and the social relationships underlying this production should not be pushed aside in any privileging of "visuality" as a scholarly mode of analysis. As the media theorist Friedrich Kittler puts it, "media determine our situation" (1999: xxxix). It is incumbent on historians, environmental and otherwise, to come to recognize how the media we deploy and read through to engage with the past are available for reflexive engagement.

In this reading, ice is not a material nor a natural process nor a state of water, it is a series of evolving relationships that hold the potential to be made. The Arctic and the Antarctic are vast deposits of phenomenal and human history that are constantly being assembled and reassembled. Most scholars would agree that we should not take the politics and power-dynamics of our objects of study for granted, and yet little attention has been paid to the ways in which digital representational tools construct northern environments (and their phenomena) for the purpose of specific activities. It is through these very interfaces that certain iterations of icebergs get "made." Human-environment relations are inherently worked through at these interfaces, where mediated environments come into being, so it follows that we should come to know the (institutional, corporate, communicative, and ecological) processes of becoming that underpin them. Environmental historians are particularly well-placed to read through these layers of signification, to take them apart and reassemble them in ways that tell context-responsive stories that can address our emergent here and now of water scarcity, definitive anthropogenic environmental change, and a neoliberal expansion of the boundaries of resource extraction, particularly at the Poles (Carey 2010: 166).

Dassault Systeme simulation of how an iceberg can be towed to warmer climates, video, 3:37, via YouTube.

It would seem that media environments take their diverse points of departure through interfaces that look to the future, such as forecasted melt rates and predicted transportation routes. Yet the choice of what parameters and characteristics to employ within a media environment is far from self-evident. Analyzing why icebergs have been represented on screens in the way they have reveals much about the people who construct the representations in addition to the icebergs being represented. Much as Paul Edwards provides "the climate" with its data-driven past (2010), so too can icebergs extend their reach back to past modes of calculation, epistemologies of extraction, and practices of visualization. "Modern 4D assimilation systems," as Edwards writes, "literally synthesize global data, constrained but not determined by observations" (2010: 433). The drive to generate truly accurate global data, derived and adopted from the established practices of meteorologists and their associated institutional settings (Harper 2008: 226), can, in part, be read through the current, largely corporate efforts to forecast the potential tow-paths of North Atlantic icebergs. In my JNS article, I show how the creation of icebergs as phenomena open to potential commercial exploitation is linked to their representation as media objects with controllable, predictable characteristics. Icebergs, to follow Julie Cruikshank, can be objects of amplification for environmental historians; that is both very concrete and measurable markers (or predictive models) of anthropogenic environmental change, and equally mobile,

metaphorical, and generative emblems of the meeting point between a warming atmosphere and ice.

## Bibliography

Berland, J. *North of Empire: Essays on the Cultural Technologies of Space.* Durham: Duke University Press (2009).

Biggs, D. "New Spaces for Stories: Technical and Conceptual Challenges to Using Spatial Imagery in Environmental History," *Environmental History,* "Field Notes;" http://environmentalhistory.net/field-notes/2014-biggs/ (20 April 2014).

Carey, M. "The History of Ice: How Glaciers Became an Endangered Species," *Environmental History,* 12 (2007): 497–527.

——— *In the Shadow of Melting Glaciers: Climate Change and Andean Society.* New York: Oxford University Press (2010).

Cruikshank, J. *Do Glaciers Listen? Local Knowledge, Colonial Encounters, and Social Imagination.* Vancouver: University of British Columbia Press (2005).

Dunaway, F. *Natural Visions: The Power of Images in American Environmental Reform.* Chicago: University of Chicago Press (2005).

——— "Cultures of Nature: Twentieth Century," *A Companion to American Environmental History,* ed. Douglas Cazaux Sackman. Malden: Blackwell (2010): 266–84.

——— *Seeing Green: The Uses and Abuses of American Environmental Images.* Chicago: University of Chicago Press (2015).

Edwards, P. N. "Representing the Global Atmosphere: Computer Models, Data, Knowledge about Climate Change," *Changing the Atmosphere: Expert Knowledge and Environmental Governance,* eds. Clark A. Miller and Paul N. Edwards. Cambridge, Mass: MIT Press (2001): 31–66.

——— *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming.* Cambridge, Mass: MIT Press (2010).

Gosnell, M. *Ice: The Nature, the History, and the Uses of an Astonishing Substance.* Chicago: University of Chicago Press (2005).

Harper, K. C. *Weather by the Numbers: The Genesis of Modern Meteorology.* Cambridge, Mass: MIT Press (2008).

Kittler, F. *Gramophone, Film, Typewriter.* Trans. by Geoffrey Winthrop-Young and Michael Wutz. Stanford: Stanford University Press (1999).

Mitman, G. *Reel Nature: America's Romance with Wildlife on Film.* Cambridge, Mass: Harvard University Press (1999).

Pyne, S. *The Ice: A Journey to Antarctica.* Iowa City: University of Iowa Press (1986).

**Links:**

http://www.jns.org.umu.se/

https://www.youtube.com/watch?v=KusNajaesAk

https://creativecommons.org/licenses/by/4.0/

http://www.antspiderbee.net/2015/11/26/objects-of-amplification-icebergs-northern-history-and-their-emerging-media-environments/

V. AN EXPERIMENT IN
COLLECTING AND CURATING

*A*nt Spider Bee is not only about collecting and curating, the knowledge-generating functions Francis Bacon describes in the passage from which we've taken our inspiration and our name. It is also an experiment in these processes.[1]

Since Bacon's time, collecting and curating have changed remarkably, and—in some ways—not at all. The sixteenth century saw the emergence of the natural history *Wunderkammer,* a displayed collection or "cabinet" of curious objects, a precursor to today's museums. For some men of a certain social position, these served as a scientifically-oriented hobby, a display they could show to their guests. Now, in the digital age, a search for "Wunderkammer" on Pinterest yields endless collections of photographed curiosities ready to be shared on social media. Then as well as now, curating is a practice of gathering and displaying objects to tell a story, share knowledge, or raise questions. Such displays reveal  something about the curator and their relationship to the audience (showing off learning, social position, or good taste). Today, of course, curation is a much more accessible activity, as one no longer needs to own objects in order to care for their data and interpretation. We can also collaborate with other curators—even visitors. Digital tools augment our sensory observations; they expedite some reasoning operations, and help distribute information instantly and widely. Yet the digestion—the work of the bee—we still have to do ourselves.

By reflecting on ways digital tools and methods are transforming environmental humanities knowledge, and ways we share this knowledge with others, we wanted to provide the community examples of news in this rapidly-developing area, examples of projects, and impulses for teaching and research. PressForward, described in the introduction, aims to help content curators turn blogs into "content hubs." Did this digital aggregation technology make us better curators?

When we started our project, social media seemed positioned to replace feed readers as a way of curating information. But social media has downsides: it feeds bubbles, shows advertising, and encourages us to spend more time within its closed systems and less time on the open web. This might be OK for entertainment, but not for getting informed. For this reason, some believe RSS is poised for a comeback.[2] The advantage of a feed reader is that it is less biased: I choose the feeds I subscribe to; I tell the algorithm what I am interested in. Thus most bias comes from me, not from an entity invested in my behaviors. The quality of the feed depends on how much I shape it, how much time I invest in fine-tuning it. It is also worth noting

---

1  Kimberly Coulter, "Ant Spider Bee: An experiment in collecting and curating," (Virtual) lecture at the Zentrum für Digitalisierung und Digitalität, University of Applied Sciences Düsseldorf, 2 November 2020.

2  Brian Barrett, "It's Time for an RSS Revival," *Wired*, March 2018.

that the pool of content available depends on the political economy of publishing. PressForward uses RSS to aggregate content from the open web (if content is behind a gate, the reader can't pull it in).
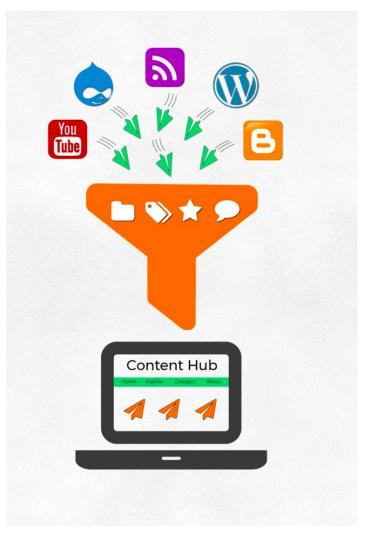


Diagram showing how PressForward works, from the PressForward website. CC BY Joshua Catalano for the Roy Rosenzweig Center for History and New Media.
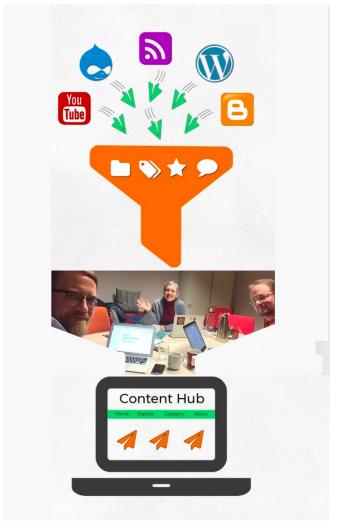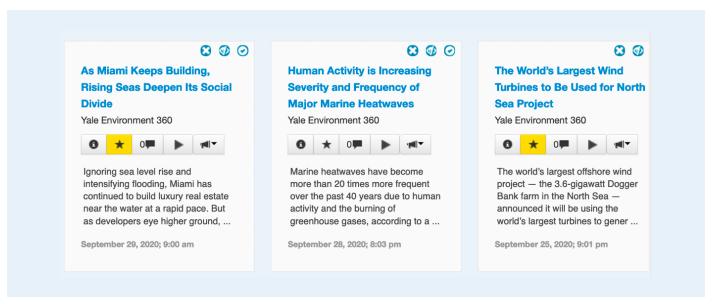


Diagram showing how PressForward works (CC BY Joshua Catalano for the Roy Rosenzweig Center for History and New Media). Modified by Kimberly Coulter to include the funnel of labor. Photo: Wilko Graf von Hardenberg. ASB editors at the Max Planck Institut für Wissenschaftsgeschichte, Berlin, 2017.

Whereas one might anticipate that PressForward's aggregation technology would directly lead to the discovery of new content, it turned out that the major impact was to make content curation more collaborative. Early technical glitches aside, simply curating RSS feeds to yield relevant results proved challenging. We followed 48 websites' RSS feeds, but over the years we ended up disabling 80% of them, either because they were broken, not updated, or not yielding relevant results. Additional news items we added manually. Yet even with a limited number of RSS feeds that would regularly publish content relevant to

us (e.g., *Grist,* or *Yale Environment 360*), we found it time-consuming to review and difficult to identify more than one or two relevant items per day. For this reason, as described in the introduction, we engaged volunteer editors-at-large. In addition, Kim's students at LMU Munich helped to suggest new websites to follow, select news items, and draft posts. This let the students contribute to a concrete project, for which they practiced digital competencies like finding and evaluating information, integrating and re-elaborating content, understanding copyright and licenses, and creating new content. Volunteers and students each had interests and often specialized on a topic like job announcements or museums. By having more people working to choose items, we had more diverse content. So while the technology collects, we can only benefit from its facilitation with a great deal of skilled and discerning human labor, which remains mostly invisible.

In this interface, editors and editors-at-large would view the aggregated feeds and collaborate in selecting items and posting about them, marking or commenting on items of interest. The volume of incoming news meant we created shifts to stay on top of it. With more collaborators, we found ourselves considering a wider array of what is "relevant." When we'd select an item, PressForward would generate a draft post with a link (and possibly some tags if the site provides them). This is a good start, but it's missing context. Editors-at-large would read an article, maybe choose to feature a quote, and add a few contextualizing sentences, as well as metadata like tags and publication information. Finally, one of the editors would review and publish the post.



Screenshot of the "all content view" in *Ant Spider Bee*'s PressForward backend.

The aggregator supported our collection and curation processes, but it did not fully

augment them—in fact, and probably by design, it created more work! The stream of items it delivered took time and labor to review and contextualize. The input of more editors energized the project and expanded our view of the field. Still, this expanded view had limits: the limits of our feed were the limits of our knowledge and the limits of our networks. Feed readers that use artificial intelligence could improve this situation by letting us train the algorithm to understand our priorities, and scour the entire open web for relevant content. A future course could work with students to do a systematic comparison of these AI aggregators. Another way we can expand our view is by expanding collaboration. Depending on the project we could also give not only volunteers, but all users the chance to tag items, suggest priorities, and draft posts, making them content co-creators.

You could say that through its ant-like gathering function, PressForward helped us "be the bee," putting more resources into organization and digestion. By energizing us, it energized our community. This blooming community engagement helped us attract more "bees"—more original essays on how digital tools shape our knowledge. For students, such projects are a great opportunity, not only practice using tools, but to choose and evaluate them, with a product to show and share.

Digital curation—whether it's a virtual exhibition, a digital installation, a virtual tour, or a blog—is about identifying a need for orientation and working out how to provide it. As the use of digital technologies to gather and process knowledge becomes increasingly natural, we hope that this digital time capsule will offer insights about the past, for the future. We wish you luck!

**Links:**

https://www.pinterest.com/

https://www.wired.com/story/rss-readers-feedly-inoreader-old-reader/

https://pressforward.org/

https://commons.wikimedia.org/wiki/File:RitrattoMuseoFerranteImperato.jpg

Image: Excerpt from Ferrante Imperato, *Dell'Historia Naturale* (Naples 1599). Public domain. Via Wikimedia Commons.

# About the editors

**Kimberly Coulter** is founding director of the Environment & Society Portal at the Rachel Carson Center for Environment and Society at LMU Munich, where she also teaches digital environmental humanities. She studied architecture and philosophy and earned a PhD in geography from the University of Wisconsin–Madison and held a DAAD research fellowship at the University of Bonn. Her interests include transnational and transdisciplinary practices in knowledge production and distribution, and the crafting of its mediated forms, especially those intended for public audiences. ORCID iD: https://orcid.org/0000-0001-5856-6005.

**Wilko Graf von Hardenberg** is a senior research scholar at the Max Planck Institute for the History of Science in Berlin, where he coordinates the Art of Judgement research cluster and is working on a history of the concept of the sea level and its shifting materiality. Trained as a political historian and a geographer in Turin, Brussels, and Cambridge, his research activities focus on the intersection between the history of science and technology and environmental history, paying particular attention to issues relating to environmental change, socio-ecological conflicts, and nature conservation. ORCID iD: https://orcid.org/0000-0002-8704-6997.

**Finn Arne Jørgensen** is Professor of Environmental History at University of Stavanger, Norway, where he co-directs the environmental humanities initiative The Greenhouse together with Dolly Jørgensen. He holds a PhD in Science and Technology Studies (2007) from the Norwegian University of Science and Technology. From 2010 to 2017 he was associate professor of History of Technology and Environment at Umeå University, Sweden. His research includes studies of waste and recycling histories in Scandinavia and the US, the history of the Norwegian leisure cabins, material culture and consumption studies, and the connections between environmental humanities, media studies, and digital humanities. ORCID iD: https://orcid.org/0000-0003-3696-4189.

# About the contributors

**Etienne Benson** teaches in the Department of History and Sociology of Science at the University of Pennsylvania.

**Matthew Booker** is associate professor of environmental history at North Carolina State University, where he directs the Science, Technology & Society program. His new volume, *Food Fights: How History Matters to Contemporary Food Debates,* pairs essays by eminent scholars debating food safety, agricultural and food subsidies, GMOs, and other urgent disputes. Matthew has published articles, books, and digital mapping projects on the transformation of urban estuaries from food producers to real estate, the history of food safety, and the U.S.'s first urban national wildlife refuge. His current book, begun as a Rachel Carson Fellow, explores the rise and fall of aquaculture in American industrial cities. ORCID iD: https://orcid.org/0000-0002-3413-7801.

**Ludwig Braun** is former Director of the Commission for Glaciology, Bavarian Academy of Sciences and Humanities, Munich. He retired in 2017. He holds a doctorate from the ETH Zurich. www.glaziologie.de.

**Sheila A. Brennan** is former Director of Strategic Initiatives at the Roy Rosenzweig Center for History and New Media and Research Associate Professor in the Department of History and Art History at George Mason University. She currently works at the National Endowment for the Humanities (US) and as an independent digital public historian. Orcid iD: https://orcid.org/0000-0002-7883-2996.

**Alenda Y. Chang** is an associate professor of film and media studies at the University of California, Santa Barbara. Her first book, *Playing Nature: Ecology in Video Games* (University of Minnesota Press, 2019), develops ecological frameworks for understanding and designing digital games.

**Shih-Pei Chen** is a Digital Humanities researcher at the Max Planck Institute for the History of Science (MPIWG). She organizes digital research projects in collaboration with scholars at MPIWG that explore ways of analyzing historical texts, including text mining, visual and geospatial analytics, for the study of history of science, technology, and medicine. Her goal is to develop digital research methodologies that are useful for the broader field of historical and humanities research. ORCID iD: https://orcid.org/0000-0001-5930-4736.

**Andreas Grieger** is a historian and career coach based in Weilheim, Bavaria. Previously he was a research associate at the Rachel Carson Center for Environment & Society, LMU Munich.

**Marcus Hall** is a senior lecturer in the Department of Evolutionary Biology and Environmental Studies at the University of Zurich, where he teaches courses in environmental history and ecohealth and co-convenes Environmental Humanities Switzerland. ORCID iD: https://orcid.org/0000-0003-3572-5442.

**Brian Hamilton** was managing editor of *Edge Effects* in 2017. He currently teaches history, political science, and environmental justice at Deerfield Academy and hosts the podcast New Books in Environmental Studies.

**Katrin Kleemann** is a historian. She is currently a postdoctoral researcher at the German Maritime Museum | Leibniz Institute for Maritime History in Bremerhaven, Germany. She was previously a postdoctoral researcher at the Department of History at the University of Freiburg and a fellow at the John Carter Brown Library in the US. In 2020, she obtained her doctorate from LMU Munich with a major in history and a minor in geology. Her dissertation investigated the impacts of the Icelandic Laki eruption of 1783 on the northern hemisphere. ORCID iD: https://orcid.org/0000-0002-9719-3413.

**Kalle Laar** is a sound artist with an extensive international history in performance, theater music, and educational projects. He studied history of science at LMU Munich.

**Serafine Lindemann** is an independent curator and initiator of the art platform artcircolo, predominantly focusing on the issues water, resources, cultural identities and social processes of change. In 2009 she founded the forum pilotraum01 together with experts in technology and communication, industrial design and glacier research, art and biology. She holds a doctorate in art history from University of Hamburg.

**Chris Lintott** is a Professor of Astrophysics at the University of Oxford, and Principal Investigator for Zooniverse.org. He's one of the editors at Citizensciencetoday.org, a site that—like *Ant Spider Bee*—uses PressForward to collate articles from around the web.

**Adam Mandelman** developed *Edge Effects* and served as its founding managing editor from October 2014 to May 2015. He is the author of *The Place With No Edge: An Intimate History of People, Technology, and the Mississippi River Delta* (Baton Rouge:

Louisiana State University Press, 2020). He currently lives in Amsterdam, where he practices experience design.

**Gregg Mitman** is the Vilas Research and William Coleman Professor of History, Medical History, and Environmental Studies at the University of Wisconsin–Madison. He is an award-winning author, filmmaker, and teacher whose interests span the history of science, medicine, and the environment in the United States and the world. A past president of the American Society for Environmental History, he is the recipient of fellowships from the Alexander von Humboldt Foundation, the Carnegie Corporation of New York, and the John S. Guggenheim Memorial Foundation, among others. His books and co-edited volumes include *Future Remains: A Cabinet of Curiosities for the Anthropocene* (University of Chicago Press 2018), *Breathing Space: How Allergies Shape our Lives and Landscapes* (Yale University Press 2007), and *Reel Nature: America's Romance with Wildlife on Film*, rev. ed. (University of Washington Press 2009). He co-produced and co-directed two films, *In the Shadow of Ebola*, an intimate portrait of the Ebola outbreak in Liberia, and *The Land Beneath Our Feet*, a documentary on history, memory, and land rights in Liberia. His latest book, *Empire of Rubber: Firestone's Scramble for Land and Power Liberia*, will be published by The New Press in the fall of 2021.

**Nina Möllers** is head of BIOTOPIA Lab and Events at BIOTOPIA in Munich, Germany. Before that, she was researcher, curator and project director at Deutsches Museum where she headed the and curated the special exhibition "Welcome to the Anthropocene: The Earth in Our Hands." She holds a PhD in History from the University of Trier.

**Jonatan Palmblad** is the managing editor for *Arcadia* and a curator for virtual exhibitions on the Environment & Society Portal. He is also a PhD candidate at the Rachel Carson Center for Environment and Society, working on a dissertation on the environmental philosophy of Lewis Mumford. ORCID iD: iD https://orcid.org/0000-0002-4227-2616.

**Giacomo Parrinello** is an assistant professor of environmental history at the Center for History at Sciences Po (CHSP), Paris, France. He has researched earthquakes, river basins, coasts, and deltas, seeking to understand how biophysical processes and interdependencies shaped human histories, if and why historical actors understood this or not, and with what consequences. His first book, *Fault Lines* (Berghahn Books 2015) told the history of two earthquakes in twentieth century Sicily and their impact on long-term trajectories of urban and environmental changes in the affected areas. While finishing his second book on the modern history of water management in the Po watershed, he is also leading a project on

the history of sediment fluxes and geomorphological changes in Mediterranean deltas. ORCID iD: [iD] https://orcid.org/0000-0001-8957-8711.

**Alicia Peaker** (PhD, Northeastern University) is currently the Director of Digital Scholarship, Critical Making, and Digital Collections Management at Bryn Mawr College. Previously a CLIR/DLF Postdoctoral Fellow in the Digital Liberal Arts at Middlebury College, she has also served as the Co-Director for Our Marathon: The Boston Bombing Digital Archive and the Project Manager for The Women Writers Project. This piece is based on a larger project described in more detail at http://aliciapeaker.org/?p=253. ORCID iD: [iD] https://orcid.org/0000-0002-5576-3799.

**Jenny Price** is a public writer, artist, and historian, and a Research Fellow at the Sam Fox School of Design & Visual Arts at Washington University in St. Louis.

**Richard Ross** is the Assistant Director of the Transdisciplinary Studies Program at Claremont Graduate University. His post is based, loosely, on a five-minute lightning talk he delivered as a member of the "Digital Projects and Tools" panel at the 2012 ASEH annual meeting.

**Rafico Ruiz** is Associate Director of Research at the Canadian Centre for Architecture. He was recently a SSHRC Banting Postdoctoral Fellow in the Department of Sociology at the University of Alberta.

**Martin Spenger** worked as a library associate at the Rachel Carson Center where he also finished his PhD in 2020 with a thesis on the American poet Gary Snyder. He works as a librarian at University Library LMU in Munich with a focus on research data management. ORCID iD: [iD] https://orcid.org/0000-0002-8841-5985.

**Andrew Stuhl** is Associate Professor of Environmental Studies at Bucknell University. He is author of *Unfreezing the Arctic: Science, Colonialism, and the Transformation of Inuit Lands* (University of Chicago Press 2016).

**Charles Travis** is an Assistant Professor of Geography & Geographical Information Science at the University of Texas, Arlington, and a Research Fellow with the Trinity Centre for Environmental Humanities, Trinity College Dublin. ORCID iD: [iD] https://orcid.org/0000-0002-9278-5364.

**Iris Trautmann** is the Digital Humanities Research Associate for the Environment & Society Portal responsible for managing and maintaining the Portal backend, developing and implementing new features, and archiving Portal content with the LMU University Library and Bayerische Staatsbibliothek. She received a PhD in Physical Anthropology from the University of Tübingen in 2007.

**Jessica Van Horssen** is a Senior Lecturer in North American History at the School of Cultural Studies and Humanities of Leeds Beckett University. Her Twitter handle is @historiamagoria. She specializes in the history of environmental health and contamination.