Principal Investigators: Kim Fortun, Mike Fortun

Platform for Experimental, Collaborative Ethnography (PECE):
Curating Cultural Complexity and Change

Abstract
We request NEH support to further design and build out the Platform for Experimental, Collaborative Ethnography (PECE), a digital platform that supports multi-sited, scale-crossing ethnographic research addressing the complex conditions that characterize late industrialism. The platform links researchers in new ways, and activates their engagement with public problems and diverse audiences. The goal is to allow platform users to toggle between jeweler's eye and systems-level perspective, connecting the dots to see "the big picture" and alternative future pathways.

PECE's design is both theoretically inflected and ethnographically grounded: platform design has been oriented by "design logics" drawn from critical cultural theory, and also by the constantly evolving needs of *The Asthma Files (TAF)*, a collaborative ethnographic project focused on the diverse ways people in settings around the world have experienced and responded to the global asthma epidemic and air pollution crisis. The PECE platform is now supporting collaborative ethnographic work on asthma and air pollution that connects researchers (including senior researchers, PhD students, undergraduates and high school interns) in New York, Houston, Los Angeles and Singapore. The TAF research group has now developed and tested ten digital functions that enable ethnographic collaboration. In the next phase of the project, we will refine these existing functions, and develop others, through side-by-side development of four ethnographic projects, on four separate PECE platforms. Each of the four ethnographic projects extend ethnographic and historical research already underway at Rensselaer focused on complex phenomena with significant cultural, socio-economic, political, ecological and technical dimensions: 1) the global asthma epidemic and air pollution crisis 2) the conditions and disasters of late industrialism 3) the social, health and environmental implications of shale gas development and 4) transformations and challenges in higher education and research, in the United States and globally.

The **humanities significance** of PECE is in its support for new kinds of collaboration among ethnographers, and between ethnographers and the array of stakeholders implicated in the issues ethnographers study. PECE allows for the nesting of many projects within a larger project structure so facilitates collaboration and project integration without undermining the individual project specificity that is so important to ethnographers, and to their cumulative body of research. The PECE provides structures for involving students in ethnographic research at all stages, reconfigures and intensifies peer review, and connects ethnographic research to contemporary public problems.

The **digital innovation** of PECE is in a design that reflects both critical cultural theory and the concrete practice of evolving and experimental, collaborative ethnographic research. PECE has been conceived and designed textually: it provides structure to write in new genre forms (the PECE file, for example) that animates digital capabilities, reconfiguring the relationship between research and writing, providing ways to traffic between writing for scholarly and broader audiences.

NARRATIVE

Introduction

We request NEH support to further design and build out the Platform for Experimental, Collaborative Ethnography (PECE), a digital platform that supports multi-sited, scale-crossing ethnographic research addressing the complex conditions that characterize late industrialism. The platform links researchers in new ways, and activates their engagement with public problems and diverse audiences. The goal is to allow platform users to toggle between jeweler's eye and systems-level perspective, connecting the dots to see "the big picture" and alternative future pathways.

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The project extends from work in cultural anthropology over the last few decades that foregrounds how cultural critique, innovation and change emerge, and the significance of the genre forms through which culture is expressed.[1] This thread of work in cultural anthropology has drawn on literary and language theory to address the significance of genre forms both in everyday enactment of culture in different settings, and in scholarly representations of culture. PECE extends this thread of work into the digital domain through a platform design that reflects critical insight from theories of language, literature and ethnography, built out organically with original ethnographic material. Thus, while designed to reflect critical theory, PECE is also ethnographically grounded, collaborative in nature, and expressly experimental: the platform is designed to permit change as called for by evolving ethnographic engagements. This entwined development process has been challenging but has proven robust, allowing us to identify needs and explore computational possibilities from *within* humanities work, learning about and building the kinds of tools that are critical when ethnographers work collaboratively, especially on complex topics involving multiple sites, scales and actors, and many different kinds of "data."

The PECE is built with an open source Plone content management system, which provides optimal capacity to archive ethnographic material, organize it, and customize access. The Plone allows for the creation of multiple user groups such that access to a particular set of materials can be delimited to one group; this is important when working with interview material that needs to have delimited circulation because of the type of (IRB approved) consent received from the interviewee; delimited access is also important in earlier stages of analysis, when material needs to be shared with collaborators but is not yet ready for public viewing.

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[1] Marcus, George and Michael Fischer. *Anthropology as Cultural Critique: An Experimental Moment In the Human Sciences*. University of Chicago Press, 1986; Clifford, James and George Marcus. *Writing Culture: The Poetics and Politics of Ethnography*, University of California Press, 1986.

Thus far, we have identified and developed ten functions to support collaborative and experimental work amongst ethnographers on the Plone platform: including bibliographic, archival, analytic and presentational functions, described further below.

The **humanities significance** of PECE is in its support for new kinds of collaboration among ethnographers, and between ethnographers and the array of stakeholders implicated in the issues ethnographers study. PECE allows for the nesting of many projects within a larger project structure so facilitates collaboration and project integration without undermining the individual project specificity that is so important to ethnographers, and to their cumulative body of research. The PECE provides structures for involving students in ethnographic research at all stages, reconfigures and intensifies peer review, and connects ethnographic research to contemporary public problems.

The **digital innovation** of PECE is in a design that reflects both critical cultural theory and the concrete practice of evolving and experimental, collaborative ethnographic research. PECE has been conceived and designed textually: it provides structure to write in new genre forms (the PECE file, for example) that animates digital capabilities, reconfiguring the relationship between research and writing, providing ways to traffic between writing for scholarly and broader audiences.

Four Test Projects: Engaging Complex Conditions

Over the last five years, we have developed what has become PECE through development of *The Asthma Files*, a collaborative ethnographic project designed to enhance scholarly understanding and public engagement with the kind of complex condition that the global asthma epidemic is an instance of. Staggering rates of asthma occur in very different settings around the world, exacerbated by an array of triggers, involving tangled natural, technical and social systems. Responding to asthma (and other complex conditions) requires extraordinary coordination of both intellectual and operational activities. Building PECE around our study of how people, communities and organizations have responded to asthma has thus been both methodologically challenging and promising. Through a focus on asthma, we have dealt with many different kinds of data (original recordings of interviews, found media, pharmaceutical advertising and educational material, historical documents, etc.) and have encountered real challenges in ethnographic collaboration: the need to share extremely heterogeneous primary material in a manner that makes sense to diverse researchers, the need for analytic annotation of material so that the archive doesn't become a dump for everything; the need for genres of writing through which interpretive scholars can share their work as it progresses; the need to link jeweler's eye level analyses (in varied settings) to systems levels analyses; the need for ways of describing a complex scholarly project and its findings to diverse audiences, which can be articulated by researchers in different contexts and at different career stages. *The Asthma Files* project has involved senior researchers across the United States, PhD students, undergraduates and high school interns. A key aim (and success) of *The Asthma Files* has been to create structures within which students at all levels can be involved in the research collaboration. Another key aim (and very preliminary success thus far) is to create structures and forms of representation that will draw diverse users to ethnographic scholarship, through the PECE.

The Asthma Files project explores diverse illnesses experiences, the "thought styles" through which people understand and deal with illness and the socio-cultural formations that enable – or prevent— attention to the many factors that shape asthma occurrence. It involves ethnographic engagement with asthmatics and their care givers, and also with an array of other actors: scientific researchers and environmental activists concerned about air pollution, for example, urban designers and city officials. *The Asthma Files* works with an array of data types, and, and connects the work of diverse academic institutions. There is ongoing collaboration with the Center for Persian Studies and Culture at the University of California-Irvine, for example, and emerging collaboration with researchers at the National

University of Singapore and the Singapore University of Technology and Design. The three other projects we will develop as a way to understand the functionality needed in the PECE will also have these three core elements: a focus on socio-cultural formations that enable or prevent engagement with complex conditions; ethnographic engagement with diverse actors and types of data; and partnerships with diverse academic institutions.

Our second project, *Academia 3.0*, ethnographically explores the way people in diverse academic settings have developed careers, commitments and ideas about the future of education, research and the university. The goal is to develop a historically attuned, cosmopolitan perspective on the contemporary university by building a body of materials through which we can think comparatively – across national contexts, about public and private institutions, and the impact of commercial interests, about the kind of education, research and university needed to address the complex conditions that characterize late industrial societies. This instance of the PECE has the potential to be a place to archive a vast number of ethnographic interviews already collected for other projects, which are now held in the private collections of researchers; this will depend on the development of robust protocols for obtaining consent to archive and share this interview material on a digital platform. This project also has particularly rich potential to connect researchers internationally, some in settings where universities and research are contracting; others in settings where there is rapid expansion and energetic effort to construct innovation-producing organizations and pedagogical programs. The comparisons and dialogue generated through these connections would blur the line between basic and applied research, laying ground for the practical work needed to take scholarship and the university into its next historical phase through the development of a body of ethnographic material that draws out different visions and possibilities. Craig Calhoun, former director of the Social Science Research Council, among others, have called for this kind of work: encouraging research *on* contemporary research institutions, dynamics and perspectives to inform efforts to preserve and refresh education and research. As austerity measures lead to draconian cuts in budgets for research and education in many contexts, Calhoun notes that "Complaining won't help this much. Using the tools of social science analysis to understand changes, choices, and possible futures may be more promising" (http://www.ssrc.org/calhoun/2011/11/04/who-needs-knowledge/).

Our third project, *Interpreting Disaster*, will support the work of an emerging and already very dynamic network of qualitative researchers who study disasters, again highlighting the thought styles and social-cultural formations through which people in very diverse settings anticipate, define and respond to complex conditions – in this case, disasters. This body of work goes back at least to the 1990s, when ethnographers studied high profile disasters in Bhopal and Chernobyl, as well as less visible disasters in remote areas of Papua New Guinea, Ecuador, etc. It was Hurricane Katrina, however, in a post 9-11 frame that really prompted and accelerated engagement with disaster by interpretive scholars. Hurricane Katrina also prompted early digital innovations, resulted in numerous sites where narratives and material about Katrina could be archived, shared and reflected on. The challenge at this point is to develop interpretive disaster scholarship so that it is theoretically informed, more comparative, and more easily translatable into policy recommendations and public dialogue. Interpretive studies of disaster are not only about past failures of technology and governance; is a way to address a range of phenomena that characterize late industrialism: a need to govern ageing infrastructure, new high risk industrial activities and the varied impacts of climate change, including adverse weather and sea level rise; a need for new forms of science, engineering and other forms of expertise, amidst fiscal austerity programs; a need to respond to increasing frequency of coupled disasters, involving tangled technological, ecological, and social systems, demanding unprecedented coordination of intellectual and operational activities. The *Interpreting Disaster* project, like the other projects to be supported by the PECE, thus involves emerging issues of urgent public concern, which call for new modes of scholarly engagement. Like the other PECE projects, the success of the *Interpreting Disaster* project will depend on involvement of scholars from around the globe; in this case, many of the scholars work in the diverse disaster-research networks that have emerged in recent years in particular national settings and in internationally, in response to

particular forms of risk (from tsunamis and earthquakes, for example). The *Interpreting Disasters* PECE will need to provide a way to map these networks so that they are understandable to outsiders, to build on their accomplishments and to contribute to their further development. The *Interpreting Disaster* PECE will also need to develop ways to support and archive materials from workshops such as those that will occur in coming months, one focused on the Fukushima disaster (in May 2013, in Berkeley, CA), and one focused on Disaster-Science and Technology Studies writ large (in September 2013, in Washington, DC). Kim Fortun is a lead organizer of both these NSF-funded workshops; her collaborators include other ethnographers, historians and sociologists.

Faultlines in Fracking will be the fourth project to be supported by PECE in our next phase of work. This project is the most nascent and thus will provide opportunities to re-visit the PECE functions needed to support a project at a very early phase. This project will also create special needs for archiving found media in diverse formats; many households that have experienced the impact of near-by fracking operations have been able to produce incredible records with digital cameras; media activists with varying level of skill, also using diverse formats, have also helped document the impacts of fracking; these records need to be tagged, narratively framed and integrated with other records to build "the big picture." Ethnographic interviews will also be important in this project. These interviews will explore how people became aware of possibilities for natural gas development, and how their perspectives on this opportunity has evolved over time. A key goal is to map the information flows as well as experiences that have shaped perceptions of fracking. PECE's timeline function (described below) will enable this mapping; use of the PECE timeline to document household level change will be a new use, and can inform the way we refine the timeline and develop supporting functions.

PECE: Structure, Work Flow and Functions

PECE provides both a workspace for ethnographers and a publication venue. Further, in opening up possibilities for collaboration and peer review throughout the process of ethnographic work, PECE reconfigures the relationship between research and writing, and provides ways to traffic between for scholarly and broader audiences. This is a key dimension of its digital innovation.

PECE is designed to draw in many kinds of users, including diverse humanities scholars, and the wide array of stakeholders implicated in the issues explored ethnographically in the project housed on PECE.

Structure

PECE has a simple structure, designed to support complex projects. Content is organized into file cabinets, holding file drawers, holding files linked to supporting material in the repository. Each file cabinet models the information in a different way, through different sets of shared questions. PECE "files" are conceived as a new genre form for ethnographic writing that allows readers/ users to toggle between surface and depth, analysis and supporting material. All files draw from a shared set of analytic questions to enable comparative and cumulative perspective.

PECE's file drawer structure is expandable, and it can stand, structurally, even without content. In other words: there is space for research materials, analysis and collaborators a research group doesn't yet have. The file drawer structure also lets a project evolve and transform, without falling apart. Research groups can add new themes – new drawers – and can let drawers sit unattended, as their attention is directed to new issues. But the material remains archived, in a format that is easy to return to, to add new layers of analysis, to add links to new asthma files, to disrupt with new interpretive explorations. This archival sensibility – that admits the way analytic techniques change, and the value of re-analysis of old data – contributes to the digital innovation of PECE.

PECS's file drawer structure also contributes to its potential as a shell humanities platform. One can imagine many other, diversely focused projects that could be segmented and sustained in this way. Other

projects could also make use of the structures we've established to continually update our sense of the societal rationale for a project, and our sense of how theoretical insight from the humanities should be built in.

S*ubstantive logics* are a continually expanding and evolving set of files that draw out reasons a project is important. Substantive logics for *The Asthma Files* include dramatically increasing incidence of asthma worldwide, and the overwhelming tendency to locate care and cure in the biomedicalized inhaler-compliant individual – rather than in regulation that would improve air quality, for example. Another substantive logic is drawn from an early finding of the project: that there is little connection between people working on different factors in the matrix that produces asthma. *The Asthma Files* are motivated by, and respond to, this disassemblage.

Substantive logics thus motivate a project, and allow ethnography to "loop:" what we learn in the project about discursive tendencies, gaps and risks are fed back into the project, making a project both documentary and engaged.[2]

Our *design logics* do a different kind of work. These logics are drawn from social, literary and aesthetic theory. Curating files of design logics allows theoretical ideas to animate without overdetermining *The Asthma Files*. One of our design logics is drawn from Derridean historian of biology Hans-Joerg Rheinberger's conception of how experimental systems work in the sciences, as a play between limits and openness; another is drawn from James Clifford's' writing about how juxtaposition works in surrealist art, and in ethnography. Yet another is drawn from Gregory Bateson's description of what happens when different scales or orders of communication collide, sometimes producing pathology, sometimes creativity.[3]

The structure of PECE is clear and easy to visualize. It is meant to create a space for researchers to work, individually and collectively, in a format that quickly moves them to a point – the staccato articulation of research in a "file" – at which they can share their analysis and findings with other researchers, as well as other kinds of users.

Work flow and functions

In the process of developing PECE (and *The Asthma Files*, in particular), we have worked out a workflow that sufficiently structures the work of individual researchers to allow for collaboration and visualization of complex material as the work progresses. Not all users will activate each step.

The first step in the work process utilizes Zotero, the open source/access bibliography tool developed by the Center for History and New Media at George Mason University. PECE collaborators are encouraged to explore already published digital resources (including gray matter) associated with a project, familiarizing themselves with the projects evolving list of tags. PECE collaborators are also encouraged to add any new resources they find to the group Zotero library, providing links to journal articles, and links back to the PECE repository for gray matter (including digital material now online but not sure to be

[2] Kim Fortun, "Ethnography of Late Industrialism," address delivered at Duke University Symposium on the 25th Anniversary of James Clifford's and George Marcus's *Writing Culture*, October 2011.
[3] Hans-Joerg Rheinberger, "Experimental Systems, Graphematic Spaces," in *Inscribing Science: Scientific Texts and the Materiality of Communication,* ed. Timothy Lenoir (Stanford, 1998); James Clifford, "On Ethnographic Surrealism," *Comparative Studies in Society and History* 23:4(1981):539-564; Gregory Bateson, "Toward a Theory of Schizophrenia" (1956), in *Steps to an Ecology of Mind* (University of Chicago Press, 2000).

preserved) and original material produced for the project (such as video recordings of interviews). PECE users can access a zotero group library for a given project from within the PECE for that project.

A second step is to create or locate primary material for use in a given project, uploading it to the project's PECE repository once indexed in the group zotero library. The repository includes sections for images, gray matter, website and video. Each item should be tagged (drawing from the project's evolving list of tags) so that it can be easily located by users with likely diverse while overlapping interests.

A third step is to create captioned images and image collections. These brief descriptive analyses enable the circulation and re-combination of different images – editorial cartoons, graphs and other visualizations from scientific articles, photos, etc. – in multiple files while preserving all metadata.

A fourth step is to create annotations of specific project materials in a format that is easy to share with others. Many annotations, especially early in the work of a project, are of relevant published material, but any object can be annotated: an image, an interview or interview excerpt, a *Nature* article. The annotations are structured to ease sharing and comparing of "notes," and to pull analysis back to a project's "shared questions." As a researcher writes an annotation, the entry window presents her with a series of these questions, to which all other project collaborators are also responding. A researcher may ignore some questions and write extensively on others, but each response becomes an object in the Plone CMS, and thus available in a structured way for recombination with other annotations on other materials. http://theasthmafiles.org/tools

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A fifth step is to experiment with PECE's timeline functionality, laying out key developments in a life history, the work of an organization, etc. The platform accepts and encourage multiple timelines, of any density, drawing on and leading back to images, captions, and annotations that might be drawn from multiple objects.

A sixth step is to create integrative memos. These are created with and refer back to multiple annotations, which might have been written by a single researcher or by many collaborators. The memo leads a reader further into the archive of related objects, encouraging the development of more memos on both anticipated and unanticipated subjects.

A seventh step is to create a PECE file.

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An eighth step is to participate in an ethnographic web forum.

Future functions

We have already identified the need to develop the follower functions to support PECE users. In the next phase, through development of four ethnographic projects on separate PECE platforms, we will identify additional functions that need to be developed, keeping this work plan a living document.

Space customization function

PECE is designed to support multi-sited, comparative ethnography. It thus makes space for similarly focused research in different geographic locations within the overall project structure. The site is designed to nest and relate project; this is part of its digital innovation. To support this, we need to extend the capacity to customize file drawers within PECE focused on particular geographic locations. In The Asthma Files project, we have learned that we need to be able to link to particular folders within the group Zotero for the larger project (so that users interested in a particular location aren't overwhelmed by the whole Zotero library), to link to region-specific news and newsfeeds, etc.

A visualization-sharing function

PECE is designed to support ethnographic projects engaged with complex conditions – conditions that call for and stimulate the design of new means to create data about and visualize the condition. PECE needs to support easy sharing of these visualization tools so that they can be re-used in different locations. In The Asthma Files project, for example, we have both found and helped create design applications that help people visualize patterns of asthma and air pollution. Collaborators at the University of Houston (philosopher and informatics theorists/designer Dan Price, working with atmospheric chemist Barry Lefer), for example, developed a tool for real time visualization of ozone in Houston [4] This kind of visualization can be developed for any location where real-time ozone monitoring data is available. Most urban areas around the world have some kind of ozone monitoring capacity; the work of accessing and getting permission to re-use the data is a likely challenge – but one of ethnographic interest given the aim to understand how societies create and make use of data to deal with complex conditions. Development and sharing of visualization thus has research value, and practical value – and should be a robust PECE function.

A feedback and development function.
We need to develop a place on PECE where users can report problems, suggest new functions, and become involved in the building of new functionality. The "get involved" page at Zotero provides a starting example.

Staff, Work Plan and Final Product

Staff
Kim Fortun is a cultural anthropologist and professor in Rensselaer's Department of Science and Technology Studies. She is recognized as a theorist of experimental ethnographic method, and as a leading advocate of open access scholarship in anthropology. The latter emerged through her five-year role as co-editor (with Mike Fortun) of the *Journal of Cultural Anthropology;* Kim Fortun and Mike Fortun developed the journal's first digital presence through use of Open Journal Systems (OJS) to manage manuscript flow and reviews, and through development of the http://www.culanth.org/, now one of the most content-rich sites in cultural anthropology. Kim Fortun's book *Advocacy After Bhopal: Environmentalism, Disaster, New Global Orders* (UChicago, 2001) *was awarded the Sharon Stephens Prize by the American Ethnological Society.* Kim Fortun and Mike Fortun co-edited *Major Works in Cultural Anthropology, Vol 1-4: Moorings, Modernities, Emergence, Engagements* (Sage, 2009).

Mike Fortun is a historian and anthropologist of science, and associate professor in Rensselaer's Department of Science and Technology Studies. He studies how scientific communities develop and cohere, particularly within biology and genomics. Mike Fortun is a leading advocate of collaboration between scientists and humanities scholars, and of open access humanities scholarship. He co-authored *Muddling Through: Pursuing Science and Truths in the 21st Century* (Counterpoint,1998) with physicist

[4] For more detail on the Houston visualization project, see http://app1.kuhf.org/articles/1345123393-New-Online-Ozone-Map-Will-Help-Houston-Residents-Reduce-Lung-Exposure.html . Another example: one of our interlocturs in Singapore, a asthma phycians, is interested (and able) to develop a spirometer app for the Iphone that would play trumpet music while allowing people to test lung function on the move. The data could then be fed into both indiviuals and collective maps showing how, when and where people breathe best, and worst. PECE should make it easy to share and implement this app and associated maps in different locations.

Herbert Bernstein. His second book *Promising Genomics: Iceland and deCODE Genetics in a World of Speculation* (UCalifornia, 2008) interweaves ethnographic, literary and poststructural analyses.

Systems architect with expertise in Plone/Zope/Python to be hired with NEH funds.

PhD students in the Department of Science and Technology Studies at Rensselaer who can contribute to parallel development of the four test projects proposed here.

Eight external ethnographic researchers – two for each of the PECE platforms we will be built out the next phase of our work – will be paid a travel honorarium to work on PECE, and attend feedback meetings at Rensselaer.

Two platform analysts will be paid stipend to analyze PECE and attend feedback meetings.

Work Plan

Fall 2013/Spring 2014

Kim Fortun will direct development of the PECE projects focused on disaster and fracking, actively experimenting with PECE functions, contributing to a cumulative list of new functions that would be of use to ethnographic researchers. Mike Fortun will do the same for the projects focused on asthma and the global research community.

The systems architect will work on the following:
- Create forms for standardized while flexible Plone pages;
- Writing add-ons for Plone to enable it to utilize the DOI system;
- Integrating the citation management tool Zotero into Plone.
- Enable an easier migration of information from one Plone site to another;
- Make the website's shell easily shareable

(see http://databrary.org/jobs.html)

Summer 2014
- Host meeting with external content contributors.
- Host meeting with system evaluators

Fall 2014/ Spring 2015/ Summer 2015
Kim Fortun will continue directing development of the PECE projects focused on disaster and fracking, actively experimenting with PECE functions, contributing to a cumulative list of new functions that would be of use to ethnographic researchers. Mike Fortun will do the same for the projects focused on asthma and the global research community.

Host integrated meeting with platform analysts and content contributors from all 4 projects

Begin promoting and sharing PECE.

Final Product, Dissemination and Evaluation
The funding requested here will support development of a open source and access digital humanities platform that can be shared with other humanities research groups once customized and stabilized. The platform provides a place to archive and share primary data generated by humanities scholars, particularly ethnographers, and provides a suite of tools for collaborative engagement among humanities scholars.

The platform experiments with new forms of peer review for humanities research, and provides opportunities to involve students in humanities research as it progresses. And quickens the public availability of humanities research, in an open access form.

Environmental Scan
Our goal is to develop a platform that can be used by a wide array of humanities research groups, particularly those with an ethnographic dimension to their projects.

In many ways, the Zotero bibliographic resource tool developed by the Center for History and New Media at George Mason is a model for PECE. We want to build a research tool sufficiently flexible to support a wide array of users, sustained by a group of developers working with open source processes and values. There is a critical diference, however. PECE is not theoretically neutral; it is designed to reflect key theoretical insights from poststructuralism, the work of Gregory Bateson and a wide body of ethnographic work.

PECE also follow the leads of established projects in the oral history of environmental science and politics. The Natural Histories Project delivers a set of interviews with working naturalists of many kinds, "focused on the future of natural history [in] four broad areas: society, education, environmental research and environmental management" (http://histories.naturalhistorynetwork.org/). There is a growing collection of oral histories focused on communities affected by environmental problems. The Invisible 5 Project, for example, archives oral histories of people living with pollution alongside Highway I-5 between Los Angeles and San Francisco (http://www.invisible5.org/). The Creek Speak Project archives oral histories of people who live in and work to deal with the environmental burdens of Newtown Creek, in Brooklyn, New York (http://www.newtowncreekalliance.org/community-health/creek-speak/creek-speak-all-audio/). There are three collections documenting people's experience of Hurricane Katrina, including one run by the U.S. Coast Guard Oral History Program http://www.uscg.mil/history/katrina/katrinaoralhistoryindex.asp, http://thekatrinaexperience.net/?cat=1, http://hurricanearchive.org/items?type=3)

Project History and Start-up Results

Vetting The Asthma Files and Enrolling New Researchers (2008 - ongoing)
The Fortuns began presenting their conceptualization of, plans for, and work from *The Asthma Files* in 2008, to audiences interested in the history and anthropology of science (the content of the project) and also to audiences interested in experimental ethnography (the design and methodologies of the project) and in the project's open source and access commitment. All three audiences have been remarkably receptive, and have continued to offer feedback and encouragement. A list of occasions when we presented the project is included as Appendix 4. Presentation of *The Asthma Files* has generated remarkable interest in participation – more than we have been able to keep up with.

to Plone or not to Plone? (2009 - ongoing)
Our move from a wiki to a (open source) Plone CMS was motivated by its potential for enhanced security, more nuanced workflow pathways, and more intentional relationality amongst files and primary material. In the last year, we have re-evaluated our CMS choice and after careful consideration and comparison, we have decided to remain with Plone. Appendix 1 summarizes how we compared Plone to Drupal.

Teaching in The Asthma Files (2010 – ongoing)
An important dimension of *The Asthma Files* has been the way it draws students at all levels into humanities research, alongside more senior researchers. Students can make use of and contribute to *The*

Asthma Files' repository, and can make asthma files, guided by our shared research questions. In spring 2010, we ran undergraduate research seminars associated with *The Asthma Files* at both Rensselaer (taught by Kim Fortun) and at in the University of Houston Honors College (taught by Dan Price). One of the Rensselaer undergraduates (Michelle Cullum) has sustained her research for *The Asthma Files* since then, supplemented by asthma-related summer internships, as a way to prepare for graduate school in public health. In spring 2011, Kim Fortun taught a PhD seminar that brought 12 students into the project for the semester. In spring 2011, two high school students also participated in the project. A new high school intern has joined us for spring 2012, with plans to develop files on Tokyo (her home) as an asthmatic space.

Work with Scalar and Vectors (2011)

During summer 2011, two researchers deeply involved in *The Asthma Files* – Ph.D. students Nick Shapiro and Brandon Costelloe Kuehn – participated in The Vectors-CTS Summer 2011 Institute on the Digital Approaches to American Studies, part of NEH's Institute for Advanced Topics in the Digital Humanities initiative. Their project was titled "Networking Asthmatic Spaces: Collaborative Cartographies of the American FEMA Trailer Diaspora." Their project, cast as part of the ongoing effort of *The Asthma Files*, was to create a multimedia, oral history enriched map of how asthma-inducing temporary housing units, originally built to accommodate Gulf Coast residents that were displaced by the hurricanes of 2005, have been resold across the United States, in tandem with a widening foreclosure crisis. The project aimed to enhance users' capacity to 1) visualize connections between environmental, public health and economic crises, 2) move across scales, engaging material that situates them inside the trailers and the lives of residents, then zooming out to see how hazards at the local level are distributed nationally, 3) understand how scientifically-engaged media can generate new perspectives on complex problems. Shapiro and Costelloe-Keuhn's experience with Scalar and Vectors has deeply influenced the way we think about *The Asthma Files*. Both are exemplary projects that we will continue to monitor for fresh ideas.

Rensselaer Seed Funding

In fall 2011, *The Asthma Files* project was awarded Rensselaer seed funding of $18,000 to support development of its digital platform. By the end of summer 2013, *The Asthma Files* digital platform will be built out such that:

- Material now distributed across various test platforms is consolidated and appropriately curated. (http://xen007.tlc2.uh.edu:8081/asthmafiles, http://hon.tlc2.uh.edu:8081/TestTAF/front-page)
- It is easier for users to contribute, visualize, search for and make use of both primary and secondary material archived in the platform's repository.
- Its file drawer structure functions better, and is easier to visualize and move through.
- The templates built to direct and animate comparative, collaborative analysis function better and more dynamically.
- It reflects best, most creative practice in the digital humanities, gleaned from an "environmental scan" of other digital humanities projects.

Conclusion: Toward Kaleidoscopic Reflexivity

We work on PECE aware of long-standing effort, often experimental in tenor, to integrate new technologies and media into the work and expression of cultural analysis. Gregory Bateson and Margaret Mead's stunning work with photography – as both a research tool and means of conveying their analysis – comes immediately to mind (Bateson and Mead 1942; Jacknis 1988). The history of filmmaking in the conduct and expression of cultural analysis has also laid important ground, generating impressive methodological debates and innovation, and a body of work that literally provides different angles on matters of interest and concern to cultural analysts.

Digital tools and modes of presentation add still other possibilities for getting at and sharing understanding of how "culture" works – in historical, geographic, political economic and media context, always in need of deeper or alternative ways of understanding. The goal of PECE could be described as kaleidoscopic, enriching cultural analysis through use of an ever-evolving array of techniques and technologies – which, together, multiply perspective, give texture to insight and animate reflexivity.