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**Title of Paper:** Geohacking, Memory Maps, Spacialized Wikis, and Landscape Archaeology

**Abstract:**

As archaeologists we know that people have long shown interest in inscribing the landscape in highly visible ways. What happens when the inscription is explicitly invisible? Geohacking, by definition, is the public reclamation of place by alternate inscription, made possible with the increased availability of GPS-enabled devices. This creates a highly personalized, invisible geographical overlay to which archaeologists can add temporal depth. In my paper I discuss the new developments in geospatial technology that allow archaeologists to co-create the modern and historical landscape with an active, engaged public.

**Body:**

New technology in archaeology is currently manifested primarily on the computer screen within the confines of a lab or an office. Archaeology blogs, wikis, and interactive websites bring archaeology to a wider audience, but generally within a circumscribed experience of sitting down, tapping at the keyboard and clicking the mouse. However, as archaeologists we know that archaeology is everywhere, not just at the sites fortunate enough to have an active online presence. In this paper I explore innovations in technology that allow the exploration of archaeological presence onsite and the implications of these interactive, ubiquitous, participatory media for archaeological research.

While archaeologists have been quick to take advantage of technological innovation and computing infrastructure (Lock 2003), the “relentless newness” (Chun 2006:3) that characterizes recent developments in New Media has led to a certain reluctance to engage with a medium where the end product is likely to be outmoded by the time it is finished. In the short space between the submission of my session abstract and writing this paper, several major developments in the world of interactive geospatial technology were announced, including cell phone zonetagging for Flickr, and the Holocaust Museum’s project using Google Earth to document genocide in Darfur. The problems are only compounded from that point, with issues regarding proprietary software, archival format and platform compatibility being only a few of the obstacles of a New Media project. Even so, archaeologists have been exploring the potential of New Media to present archaeological data to a wider public for over ten years (Joyce and Tringham In press). Hypertext presentations, interactive CD Roms, webpages, and blogs have emerged over this time to become commonplace in presentations of archaeological data. What remains is to anchor these data in their place of origin, at the archaeological site itself.

Geohacking, the act of collecting, repurposing, and remixing geospatial data has enjoyed growing popularity as tools such as Google Earth and inexpensive GPS devices have become widely available. These “geohackers” or “neographers” interact on an international scale with like-minded programmers as well as large corporate partners on mailing lists and at yearly conferences. Both geohackers and more casual hobbyists participate in geocaching, a treasure-hunting game performed with GPS units. Participants follow set GPS coordinates to locate

packages cached by fellow enthusiasts, usually replacing the cache with one of their own upon discovery. Geocaching has grown large enough to provoke official responses from the National Park Service and state-wide park systems who have specified parameters for the location of caches and prohibited the placement of caches on archaeological sites. Sensitive to these regulations, geocachers have promoted the collection of virtual caches in waymarking. Waymarking enthusiasts follow GPS coordinates to the site then add the site to their shared list of locations. Groundspeak, a private company in Seattle, created a social network based around the sharing of geospatial experiences that are exchanged on their site. However, waymarking has not become as popular as geocaching on Groundspeak, perhaps for lack of a “prize” at the end of an expedition. The most successful waymarking expeditions offer monumental architecture or a photo opportunity at the end.

Accordingly, this waymarking, or inscription of place is also enacted in photo-sharing social networking sites, most markedly at flickr.com. Users can upload photographs then embed their picture on a map, so that other users can browse for photos geographically. Photos taken with camera cell phones use “zone tags” to tag the location of the photograph with respect to nearby cell towers. These zonetag photos are instantly uploaded to flickr, offering immediate disclosure of the photographer’s location and view. Users can also tag photos for content and location, and add notes that describe specific aspects of the picture. The photographs are also searchable by their tags, which provides an easily searchable database of illustrative material on archaeological topics such as “Chaco Canyon” and “public outreach”. Moreover, the use of creative commons licensing makes the photographs available for reuse by nonprofit enterprises, adding valuable, easily accessible content for educators.

All of this functionality has provided a powerful (albeit corporate) venue for public outreach in archaeology. Excavations at the University of California at Berkeley on the Cheney House have provided a particularly interesting test case for flickr’s functionality with regard to outreach. The Cheney House is part of an ongoing historic project that is part of UC Berkeley student Kim Christensen’s dissertation on the archaeology of early feminist political households. As excavations progress, we have uploaded site photographs to the project’s flickr group and marked the date and location of each photograph. Further, we have added notes to explain various aspects of excavation to the photographs, providing instant interpretation and annotation to images that may at first seem opaque to the non-archaeologically trained eye. Even after the planned law school extension annihilates all traces of the site, the photos will still be available, providing a temporal depth to the geospatial anchor.

In addition to archaeologists uploading information about past and present excavations, many flickr users have inscribed places with their own personal information, adding virtual annotations to “memory maps”, then sharing them in a group devoted to such maps. Memory maps are usually satellite images obtained from Google Earth, then annotated, often as a free-associative narrative gained in pieces from scrolling your pointer over various areas on the map. This active interaction with place is instructive – place as defined on the memory map can be as small as a house or as large as a country, and is generally defined by the resolution of the satellite image in respect to the places that need inscribing. This recollection of personal history, inspired by place photographs, recalls Schneider’s work among the coastal Miwok (2007), but the intersection of

map, annotation, interactivity, and electronic availability makes the use of flickr compelling for the co-creation of history.

Wayfaring and memory maps rely on physical evidence of past sites to demarcate place. Visible remains are relatively rare, especially in North American archaeology, and the problem of how to represent “invisible” sites is an ongoing struggle. Efforts to preserve sites online have met with some success, but most remain undocumented and unrecognized. As mobile computing technology becomes more inexpensive and pervasive, it is possible for ideas long posited by ubiquitous computing to be realized. Often set in opposition to virtual reality, ubiquitous computing is the idea that computers will become embedded in our everyday life, invisibly augmenting reality. Explicitly placing computing “off the desktop”, ubiquitous computing assumes that the interaction between humans and computers will be less like tapping at a keyboard and clicking on a mouse and more like humans’ interaction with the wider physical world (Abowd and Mynatt 2000:32).

An idea almost thirty years in development, the field of ubiquitous computing encompasses human-computing interaction, mobile computing, artificial intelligence, distributed computing, pervasive computing, and self-aware, object-based media. While many of the possibilities of ubiquitous computing undoubtedly evoke fantastic dystopian landscapes, aspects of this research already manifest themselves in RFID tags, automobile GPS systems, and automatic sprinkler systems. As Greenfield (2006) states, this technology “is coming because there are too many too powerful institutions vested in its coming, knowing what enormous market possibilities are implied by the conquest of the everyday” and “as yet, the people who will be most affected by it, the overwhelming majority of whom are nontechnical, nonspecialist, ordinary citizens of the developed world barely know it even exists.” Archaeologists, deeply invested in our own context-aware endeavors, should not only be aware of ubiquitous computing, but should consider the implications of this technology for our work. As computing becomes more context-aware, the opportunities for public outreach in archaeology expand tremendously.

In an ideal world, we would have inexpensive, portable, large-screen, lightweight devices connected to a pervasive wireless network, providing access to large databases of located archaeological data, with multiple perspectives and interpretations, and people would be able to add their own perspectives with insights gleaned from their own experience of place. This technological capability is coming, but has not arrived in 2007. While idealizations such as the one outlined above seem far removed from our experience and our capabilities as educators and professionals, more affordable alternatives are within our reach. I argue that becoming well versed in new media and exercising an archaeological perspective in the early imaginings of pervasive computing provides an unparalleled opportunity for public outreach.

A number of projects have emerged as a result of the greater availability of spatially-aware, locative technologies to archaeologists. In-place interpretive trails and physical reconstructions have been controversial because of financial constraints and concerns regarding preservation (Jameson 2004). Virtual reconstructions are familiar substitutions and have become increasingly appealing as they become more detailed and accessible on the internet, but most still require the user to sit behind a computer at home or to stay in the visitor center behind a screen. Efforts to merge these two experiences appear in the work of Chris Witmore (2005) and Ruth Tringham in

their experiments with peripatetic video walks. Visitors to archaeological sites can download these video podcast tours that allow the visitor to “see” the site through the eyes of a narrating archaeologist. Audio podcasts are more common, and sometimes include dramatic readings of historical materials related to the site. These audio and video podcast tours enhance the experience of a visitor at a site, but they can also prove isolating, and can discourage communication between visitors. Although more advanced “video walks” can give a broad array of choice of material, user input is still proscribed.

Still, the problem of “invisible sites” remains. How does a person ascertain, without prior knowledge, that there is archaeological information available for a given location? One possible answer is a notification system for when a person with a GPS-enabled device comes near to an area so documented. A technological antecedent for this is the ubiquitous social networking devices designed to alert the user when an interesting or compatible person carrying a similar device is nearby. Perhaps a more feasible solution would be to examine the way people already demarcate place with stencils, graffiti, or stickers. Artists such as Banksy and Swoon drawn upon historical narratives and social commentary to create a sense of place through their art. While Banksy manipulates perspective and pop culture imagery to produce social critique, Swoon reproduces people in “life size” in unlikely places. Upon first consideration, both may seem to be interesting art historical side-notes, but the way that these artists have inspired interaction with their works is instructive to archaeological place-making. These artists both have flickr groups dedicated to their work, and the process of discovering new works elicit delight from their audiences and chagrin from authorities. Fans of the artists note the location of the works and reinvision the pieces through the lens of their cameras in a dialogue. There are photographs of people interacting with the works, sometimes unaware that they are being documented. While the works of Banksy and Swoon are not permanent and are certainly not welcomed in many settings, they provide a means of alternately inscribing place, to interact with viewers in ways that traditional posters and signage cannot.

Pervasive gaming, particularly location-aware, augmented reality gaming has great potential for informing archaeological outreach. Last March, Jane McGonigal, a Berkeley PhD and researcher at the Institute for the Future hosted a game she created called “Cruel2BKind” in the neighborhood South of Market in San Francisco. During the game, teams of players would try to “capture” other players with acts of kindness, such as welcoming the player to “beautiful downtown San Francisco” or by pointing out “something amazing”. If the capture was successful, the defeated team would join the team of the victors, and then attempt to capture more players. The use of landscape became crucial to strategy, with teams vaulting small fences, gaining the high ground, and hiding around corners, taking advantage of architecture that many of the players had passed daily without noticing. This kind of gaming breaks the “fourth wall” of communication between players and encourages an awareness and use of place that is contemporary and interactive, rather than isolating and didactic.

Too long have archaeologists been building technological islands—webpages that are not updated and that do not connect to the greater social sphere. Hosting material on social networking sites can bring archaeology to a larger audience and can position archaeology not as a practice performed far away, removed from reality, but as a practice that is truly ubiquitous. By the same token, we should be wary of proprietary sites and proprietary software that locks

away access to archaeological data. I encourage an active engagement not only with new media, but also with the greater open knowledge and open access movements in order to make our work and information as widely available and accessible as possible.

In this paper, I have tried to cover a spectrum of ideas regarding the future of public archaeology played out in the world. Digital photography, video, cell phones, podcasts, blogs and social networking sites such as Flickr and Youtube can articulate with archaeological questions, research, and outreach to create an interactive, richly annotated, co-creative landscape. Pervasive gaming demonstrates projects that do not isolate their users with technology, but are interactive and expansive, and use technology as an augmentation to reality, rather than the main lens to filter experience of place. The true value provided is a greater sense of community, belonging, and awareness of landscape.

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