

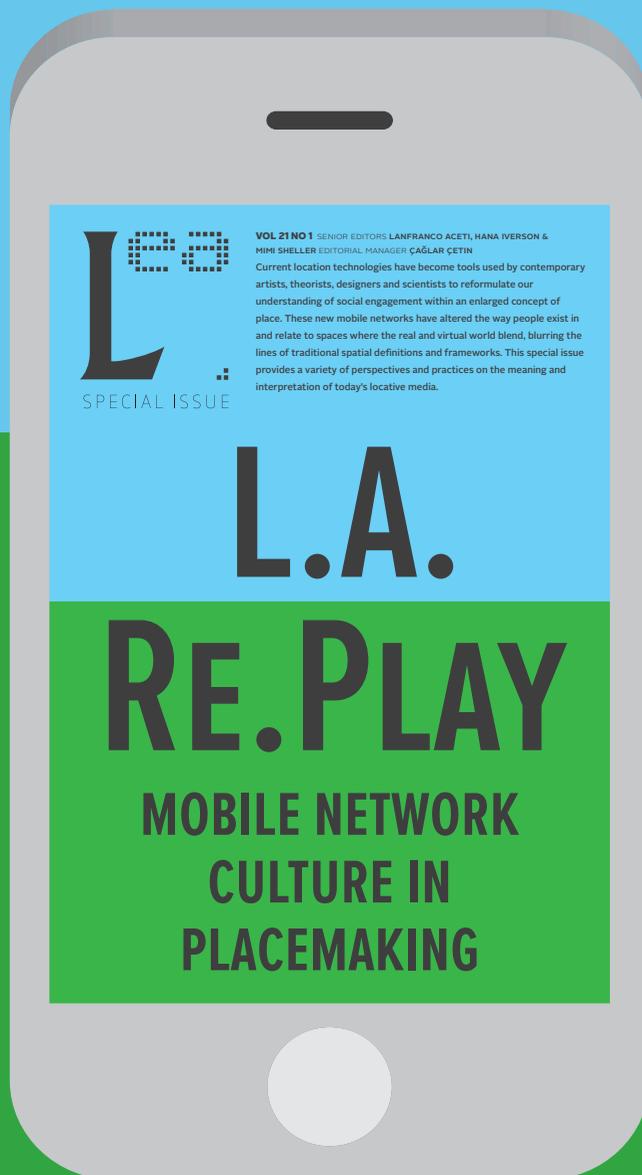
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Current location technologies have become tools used by contemporary artists, theorists, designers and scientists to reformulate our understanding of social engagement within an enlarged concept of place. These new mobile networks have altered the way people exist in and relate to spaces where the real and virtual world blend, blurring the lines of traditional spatial definitions and frameworks. This special issue provides a variety of perspectives and practices on the meaning and interpretation of today's locative media.



Emergent Technology as Art Practice and Public Art as Intervention

by

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INTRODUCTION

Whereas the public square was once the quintessential place to air grievances, display solidarity, express difference, celebrate similarity, remember, mourn, and reinforce shared values of right and wrong, it is no longer the only anchor for interactions in the public realm. Public discourse has been relocated to a novel space; a virtual space that encourages exploration of mobile location based public art. Moreover, public space is now truly open, as artworks can be placed anywhere in the world, without prior permission from government or private authorities – with

Figure 1. *Orators, Rostrums, and Propaganda Stands*, John Craig Freeman, 2013. Augmented reality public art, Speaker's Corner, Singapore. Screenshot by John Craig Freeman. © John Craig Freeman, 2013. Used with permission.



ABSTRACT

In this paper I will present examples of my work in place-based augmented reality public art and describe the work in the context of the transition from literacy to electracy.

profound implications for art in the public sphere and the discourse that surrounds it.

With the emergence of augmented reality technology on widely used mobile devices, the distributed placelessness of Internet public discourse and identity formation comes crashing back down to place. Location is once again relevant to cultural production and digital art practices. Adriana de Souza e Silva and Jordan Frith state that,

*A new wave of theorists of locative media are today taking note of the ways in which virtual space and material space enhance, interact, and disrupt each other as mobile media present us with new kinds of embodied interaction. The digital has not replaced the physical location, but has in fact intensified it.*¹

The evolution of augmented reality as a public art practice can be traced to the work of Guy Debord and the Situationist International, and their concept of psychogeography.² Not long after it's founding in Paris in the 1950s, the Situationists developed the idea of the *dérive*, a kind of open passage walk or drift. Participants were encouraged to ignore the normal traffic flows and circulations of planned urban developments and instead moved through a city in a way that followed its moods. The goal was to track the city's emotions – the feeling and atmosphere of a place, to find what they called the *plateau tourné*. A *plateau tourné* is a turntable or hub – a vortex or center of power,

where forces come together to create strong atmosphere. This essay will give a brief overview.

FROM LITERACY TO ELECTRACY

My work in augmented reality grows out of an ongoing collaboration with Greg Ulmer and his investigation of what he has referred to as electracy. Electracy describes the kind of literacy or skill and facility necessary to exploit the full communicative potential of new electronic media such as multimedia, hypermedia, social software, and virtual worlds. In his book *Internet Invention: From Literacy to Electracy*, Ulmer writes, "electracy is to digital media what literacy is to print."³ It encompasses the broader cultural, institutional, pedagogical, and ideological implications inherent in the transition our society is undergoing.

In *Applied Grammatology*, Ulmer extends the work of Jacques Derrida and his study of grammatology: the theory and history of reading and writing.⁴ Derrida's work focuses on the transition from oral culture to literate culture.⁵ It turns out that we know quite a bit about this transition, which occurred or continues to occur all over the world. Ulmer uses what we know about the transition from orality to literacy in order to make predictions as to what we might expect from the transition from literacy to electracy.

Although some people speak about digital literacy and others refer to the emergent digital paradigm

as a reemergence of orality, neither adequately describes the phenomenon. Just as literacy was built on the shoulders of orality, electracy will be built on the shoulders of literacy. Reading and writing are still necessary, but not adequate in and of themselves. Electracy will require, not only new technologies, but also new institutions and a new sense of identity for individuals.

Ulmer's theoretical work on electracy and my attempts to give it form, are informed, in part, by apparatus theory of the 1970s. Although cultural theory has largely moved beyond the deterministic tenants of apparatus theory, in preference of a far more nuanced and flexible theory of cultural agency, apparatus theory still provides a useful lens through which to view and understand the social and cultural changes we are experiencing. It suggests that three elements interact in a matrix to construct culture. The first element is the technology that emerges within a society. The second is the practices and institutions that are developed to make use of the technology. The third is subject or identity formation on the part of the individuals who are living in this new apparatus and begin experiencing their lives in a different way.

Although we tend to think of technology as nuts, bolts and circuit boards, in oral culture, the technology was spoken language. At its most basic level, language was the technology developed to augment and extend human thought and memory. The institutions, which grew out of spoken language, were based on mnemonic ritual. The epic poem rhymed because it made it easier to remember. Vast collective knowledge could be passed down from generation to generation by maintaining ritual. According to Ulmer, oral people experienced identity in relation to the clan or tribe. There was no sense of 'self,' as we understand it today. The experience of selfhood was a construct of that literate invention, the novel. If you wanted to pun-

ish an oral person, you would simply ostracize him or her from the community, making him or her, in effect, nonexistent.

At the dawn of literacy in ancient Greece, the technology which emerged was, of course, alphabetic writing. Once collective knowledge could be passed along in books, it was no longer essential for individuals to memorize the entire story. It is even the case that generations could forget important knowledge, such as the fact that the earth revolved around the sun, and that knowledge could still be retrieved years later, as long as someone remembered how to read. The result was that the quantity of human knowledge was expanded exponentially.

So, if alphabetic writing was the technology of literacy in ancient Greece, Aristotle's lyceum was the institution of early western literacy, which becomes today's universities.

It took a very long time for alphabetic systems to be practiced by large portions of the world's population. Literacy was initially an elite practice. At the beginning of the twentieth century, there were certainly plenty of things to know. It was, however, still possible to organize that collective knowledge, line it up in neat rows on shelves, and index it alphabetically. By the end of the twentieth century, industrialized forms of knowledge production led to an exponential increase in the amount of things to know – a glut, of sorts. The industrialization of literacy has led to a crisis of memory.

In his book, *Everything is Miscellaneous*, David Weinberger describes the breakdown of the Dewey Decimal System of Classification in the face of this glut, and the failure of taxonomies of knowledge in favor of the miscellaneous.⁶ In the twenty-first century, there simply has to be a different way of organizing

knowledge. We cannot build libraries big enough in an electracy paradigm.

We have witnessed the beginnings of electracy knowledge organization in the emergence of Google, Wikipedia and such. Rather than using indexical order to organize knowledge, electracy uses the hyperlink. Unlike its indexical counterpart, the hyperlink seems to function much like the human brain, moving from one idea to another, across related material by association. Since the brain exists in three dimensions, it adopts spatiality in its functions, so moving from one idea to another is also like crossing an implied space – moving from here to there.

CHORA

Like spoken language in orality and alphabetic writing in literacy, the Internet holds the promise of augmenting and extending human thought and memory. People no longer use precious neurons remembering the banal. Can you remember your best friend's phone number? Our cell phones have become cybernetic, prosthetic devices designed to extend memory. We now carry the World Wide Web in our pockets. How soon will we line up to have it implanted in our brains?

Chora is a philosophical term described by Plato meaning a space, or place in space.⁷ In his dialogue *Timaeus*, Plato differentiates between being and becoming. Being is intelligible but not perceptible. It describes abstract concepts, such as the essence of Justice. Becoming, on the other hand, is perceptible but not intelligible, seasons come and go, people live and die. Plato asked, how do being and becoming come together? He used the term chora to describe the space, or receptacle, where being and becoming interact. Chora is neither intelligible, nor perceptible.

It is a third kind, where order emerges from chaos, coherence from disassociation, sense from nonsense.

Ulmer writes,

Many commentators have declared the need for a new logic native to new media, but few have indicated how to invent it. Heuristics (the logic of invention) provides one proven (literate) procedure for bootstrapping from one apparatus to the other. This method involves working analogically. The key analogy is with the Greek invention of metaphysics, meaning specifically (in Aristotle's terms) the invention of a category system. Electracy needs a mode of classification that does for the digital image what the concept did for the written word (definition as a practice organizing things according to essences and accidents).

Chora is to electracy what topic is to literacy, the organizing space and practice through which rhetoric relates living memory to artificial memory. In our work, chora gathers multiple topics associated with a geographical region, or zone, into a scene whose coherence is provided by an atmosphere. This atmosphere or mood has an emergent quality, resulting in an unforeseeable way from the combination of topics interfering and interacting with one another. Choramancy is the practice of identifying, documenting or creating chora.

Many of the society's problems are intractable because they have causes that are so complex. One solution, no matter how well reasoned, could unravel the situation and proliferate into many, infinitely more complex problems. The result is a kind of reason fatigue, powerlessness in the face of aporia.

Plato described chora as a kind of winnowing basket where the chaos of the world could be sorted into the

essences of things or topoi. Like separating the wheat from the chaff, moving through a space – being there, can produce a holistic sense of understanding. The question is, can emergent electrate forms of virtual or augmented reality, convey or transpose this experience? Can augmented reality make movement through a space become an act of electrate reasoning?

One way to understand electracy is to examine the differences in the types of skills required in negotiating and communicating through the apparatus, and how those skills differ from literate skills. Perhaps text messaging is creating condensed language forms and by doing so is creating a subordinate version of written language forms. I prefer to withhold value judgment. There will be both positive and negative aspects to electracy, gains and losses. Regardless, it takes a certain acquired skill to communicate effectively via texting, and the skills required to handwrite a letter and send it as traditional mail are of little help.

Another thing to consider is where people are acquiring these skills. It may be some time before electracy is taught in school, if ever. Instead young people are acquiring electrate skills in their entertainment experience. This supports the idea that although electracy draws from textual literacy, it is in fact, a new form of cognition based on multiple information codes – image, text, speed, movement, sound, shapes, colors and navigational elements.

Within the field of neuroscience, studies in neuroplasticity suggest that the synaptic connections in the brain are formed based on the activity a person engages in and can change over time. Alvaro Pascual-Leone, Director of the Berenson–Allen Center for Noninvasive Brain Stimulation writes,

Plasticity is an intrinsic property of the human brain and represents evolution's invention to enable the

nervous system to escape the restrictions of its own genome and thus adapt to environmental pressures, physiologic changes, and experiences. Dynamic shifts in the strength of preexisting connections across distributed neural networks, changes in task-related cortico-cortical and cortico-subcortical coherence and modifications of the mapping between behavior and neural activity take place in response to changes in afferent input or efferent demand. Such rapid, ongoing changes may be followed by the establishment of new connections through dendritic growth and arborization. ⁸

It is not a stretch to assume that children that grow up playing hours upon hours of video games during those critical years when the brain is forming, develop physically different brains than those who grow up being read to. Although it is a brain that can sometimes be burdened by attention issues, it is a brain that is capable of assimilating and associating vast amounts of layered information in an instant.

Marc Prensky coined the term digital native in his article “Digital Natives, Digital Immigrants” to describe the generational difference between people who have grown up with the Internet and those who were born before it existed or never had access.⁹ The analogy he uses is that of language. People can learn to speak a second language, even become fluent, but electracy will always be a foreign language for the digital immigrant.

Perhaps this generation will one day become bored of the ‘toy’ part of video games. When that day comes, they will still expect to be able to be immersed in, explore, and have adventure and social interaction in, their collective knowledge base. Now is the time to begin to develop electrate forms that will be capable of accommodating this.

THE TOWN SQUARE

For the past eight years, I have worked on the corner of Tremont and Boylston Streets overlooking the historic Boston Common, the first public park in the United States. I walk across the park every morning. As I do, I often contemplate the role that the town square plays in shaping of political discourse and national identity formation. As the location of the public discourse the town square is where we air grievances, display solidarity, express our difference, celebrate our similarities, remember and mourn.

Public hangings took place at the Old Elm Tree on the Common until 1817, an example of the public reinforcement of the shared values of right and wrong. The Common still maintains a tradition of soapbox oratory and we even have a town crier, who exchanges weather forecast and sport scores for spare change. This is why monuments and memorials are located in town squares. As Greg Ulmer points out in his book *Electronic Monuments*, monuments are an expression and acknowledgment of sacrifice on behalf of shared values.¹⁰

Since the dawn of literacy, the public square has been the geographical anchor for the public political discourse. As Benedict Anderson argued in *Imagined Communities*, the nation state was made possible, in part, by the printing press, including the invention of associated forms and practices such as the novel, contributing to the creation of national identity.¹¹ Newspapers and the rise of a mass reading public within industrialization are part of this history.

In the early 1990s, we witnessed the migration of the public sphere from the physical realm, the town square and its print augmentation, to the virtual realm, the Internet. In effect, the location of public discourse and the site of national identity formation have been extended into the virtual world. As Bernard Stiegler, among others, has argued, this virtual dimension, with

its industrialization of collective memory, is again transforming the “We,” away from the nation state to a new collectivity that he fears will be an ersatz global “America.”¹²

This threat/promise is a context for experiments in virtual and augmented reality, which allows us to overlay this virtual public sphere onto our experience of the physical, cultural world. It is important to keep in mind that electrate practices need to be invented, just as the technology is invented. What is the future of “We” in electracy? It is open to invention.

COGNITIVE MAPS

Since my work in augmented reality anticipates the possible role that virtuality and network technology might play in memory enhancement and augmentation, I turned to Fredric Jameson's idea of the cognitive map.¹³ A cognitive map is a mental image that we create in order to navigate and negotiate the world and our everyday lives. It allows us to reduce cognitive load, enhance recall, learn and remember. It is practical, in that it includes directions home or to work, for instance – go two blocks and turn right... but it is also abstract and metaphorical. All of our formative experiences have a place in our cognitive maps. In this respect, a cognitive map is like a spatial representation of our identities.

National identity is formed upon a collective cognitive map. Not unlike monuments scattered across the public square, our collective cognitive map is filled with memory triggers, which construct our common values, for better or for worse. It reminds us of our history and reinforces our metanarrative.

Understanding memory systems, particularly spatial memory systems like cognitive maps, can be very use-

ful in the invention of new electrate forms of memory enhancement. The oldest known formal method of using spatial locations to remember is the “method of loci” or “memory palace,” a mnemonic device used by students of rhetoric in ancient Rome to enhance memory. If you imagine a very familiar place, your living room perhaps, and visualize placing what ever it is you need to remember on the coffee table, as if it were an object, when it comes time to recall, it is simply a matter of walking through the living room, in your minds eye, and picking the object up off the table. The memory palace provides a model for using the spatial properties of virtual and augmented reality as a form of memory enhancement. Each point of interest can act as a memory trigger, and place can be encoded with the vast resources of the Internet.

Cognitive maps are both individual and collective, just as we experience both individual identity formation and collective, national and even global identity.

Today, the process of cognitive mapping is challenged by new technologies and systems. Some would say that within the postindustrial, networked world, the collective cognitive map is in crisis, that the world is no longer representable. The image has displaced the real in what Guy Debord referred to as the Society of the Spectacle.¹⁴ There is no longer anything real to compare the spectacle to. The real has been obliterated

ated by simulacrum, an image without the substance or qualities of the original. As Jean Baudrillard writes in *Simulacra and Simulation*,

*The simulacrum is never what hides the truth – it is the truth that hides the fact that there is none. The simulacrum is true.*¹⁵

Accordingly, it is impossible to visualize the causes of any particular problem. The cognitive map needs to be made whole again. Augmented reality amplifies this uncomfortable condition. It is an experiment to test if electracy in combination with handheld devices can at least move us in the direction of a new, holistic cognitive map.

WORK SAMPLES

What follows are a few examples of place-based augmented reality public art completed since 2010.

Border Memorial: Frontera de los Muertos

The *Border Memorial: Frontera de los Muertos*, is an augmented reality public art project and memorial, dedicated to the thousands of migrant workers who have died along the U.S./Mexico border in recent years, trying to cross the desert southwest in search of work and a better life. This project allows people to



Figure 2. *Border Memorial: Frontera de los Muertos*, John Craig Freeman, 2012. Augmented reality public art, Organ Pipe Cactus National Monument, Arizona. Photograph by John Craig Freeman. © John Craig Freeman, 2012. Used with permission.



Figure 3. *Tiananmen SquARed: Goddess of Democracy and Tank Man*, 4Gentlemen, 2011. Augmented reality public art. Screenshot by 4Gentlemen. © 4Gentlemen, 2011. Used with permission.

visualize the scope of the loss of life by marking each location where human remains have been recovered along the border and in the surrounding desert.

Based on a traditional form of woodcarving from Oaxaca, the virtual object used to mark each of over 3,000 individual locations in Arizona alone, consists of life sized, three-dimensional geometric model of a skeleton effigy or calaca. Calacas are used in commemoration of lost loved ones during the Mexican Día de los Muertos, or Day of the Dead festivals.

The *Border Memorial* derives inspiration from public monuments and memorials such as Maya Lin's *Vietnam Veterans Memorial*. In the Identity episode of the PBS program “Art 21,” Lin's memorial work was described as “tactile experiences of sight, sound, and touch. They activate a full-bodied response on the part of the viewer, connecting us with the material aspects of their construction as well as with the private memories and thoughts that transform past events into awakenings in the present.” The Vietnam Veterans Memorial helped to shape national identity on an individual level with the intimate, one-on-one encounter embodied in the touch of a single name. People experience a similar intimate one-on-one encounter as the calaca appears on the screen of their mobile device. In a sense, they hold a memory of that individual in the palm of their hand.

Additionally, the project draws on a rich tradition of large-scale public art in the form of the earthwork and land art of the twentieth century and the experience of this work through a contemporary form of secular pilgrimage. Land art uses place as a medium. Like the *Border Memorial*, it requires that people travel to specific locations, often very remote locations.

Perhaps this project might one day be regarded as the twenty-first century successor to Robert Smithson's *Spiral Jetty*, James Turrell's *Roden Crater*, Walter De Maria's *Lightning Field*, Michael Heizer's *Double Negative*, and other seminal artworks of the American desert southwest.

Imagine now, the entire mobile Internet, and its physical manifestations' of place, as a world wide public square.

Tiananmen SquARed

In 1989, students from the Central Academy of Fine Arts in Beijing erected a 10-meter tall plaster statue during the uprising in Tiananmen Square. Known as the “Goddess of Democracy” the gesture taunted government officials to tear it down, which of course, they did.

Tiananmen SquARed is a two part augmented reality public art project and memorial, by the anonymous ARt collective 4Gentlemen, dedicated to human rights

and democracy worldwide. The project includes a virtual replica of the “Goddess of Democracy,” placed back in Tiananmen Square, where she belongs.

The other indelible image from the Tiananmen Square uprising was, of course, “Tank Man” facing down a column of Type 62 tanks. Visible only through the viewfinder of a smart phone, both virtual objects have been placed in Beijing at the precise GPS coordinates where the original incidents took place.

Water wARs

Water wARs, is a pavilion for undocumented artists/squatters and water war refugees, which anticipates the flood of environmental refugees into the developed world caused by environmental degradation, global warming and the privatization of the world's drinking water supply by multinational corporations like Bechtel.

CONCLUSION

In Timaeus, Plato writes about Solon and his voyage to the Nile River delta, where he learned from Egyptian priests and the keepers of ancient records about Greece's defeat of the Atlantans, a story that had been forgotten by the Greeks themselves. Solon returned to Greece to tell the story of its own history. Solon was a practitioner of the Greek institution of the *theoria*. *Theoria*, or *θεωρία* in Greek, is the root of both the word *theory* and of *tourism*. Interestingly, the word translates to English as «to consider, speculate, or look at.» The *theoria* was a group of trustworthy people or an individual, *theoros* (*θεωρός*), literally “spectator,” who would be dispatched to distant lands by the community, in search of the truth. Solon lived in a time, not unlike ours, that was awash in rumor and myth, stories of gods and sea monsters. The *theoria*'s job was to go to these faraway places, investigate, and report back to the community in... you guessed it ...the public square.

Figure 4. *Water wARs*, John Craig Freeman, 2011.

Augmented reality public art. © John Craig Freeman, 2011.

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When considered in this context, my work can be regarded as a prototype of a new, theory-based virtual tourism, or secular virtual pilgrimage. In order to experience location-based augmented reality, a person must go to the location where the work has been placed. Travel to experience a work of art has always been an important aspect of the history of art and contributes to its transformative capabilities. The act of navigating a space by following virtual objects is reminiscent of the Situationist *dérive*. Travel and mobility are key to art that relies on this *dérive*, the experience of walking, of encountering place. The virtual objects and their placement at specific GPS coordinates are not unlike the *plateau tourné*.

Museums largely undermine this experience. It could be said that people have to travel to museums, but the works of art contained within museums have largely been removed from their places of origin, stripped of the context of their making. The “Border Memorial” requires a person to travel, often by foot, deep within the Southern Arizona desert to experience it first hand. Experiencing this work is much more akin to a visit to the shrine of Saint James at Santiago de Compostela – less the religious connotations, than a visit to the Museum of Modern Art.

These experiments in augmented reality public art define a *chora*, a place that contains the *aporia* of public policy. Within it resides all of the *topoi*, rubbing up against each other, colliding, often violently. In the case of the “Border Memorial” these *topoi* include, migrants trying to get to work safely; the border patrol, trying to do their job; humanitarian organizations trying to save lives by supplying water stations; minutemen shooting holes in the water tanks; the medical examiner trying to identify remains; gun smugglers running guns, drug smugglers running back, the media trying to generate spectacle; employers trying to save a buck, politicians trying to get elected or not

get thrown out of office; historians trying to write or rewrite the history.

It has to be the case that new forms of monuments and memorials will emerge within electracy. Undoubtedly these forms will make use of the distributed, anywhere and nowhere characteristics of the Internet. The electrated public square will be simultaneously local – site specific, and global – distributed. ■

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