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EXPLORATIONS ON THE GROUND"**

Location-specific art practices that challenge the traditional conception of mapping

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Abstract

Locative media is an emerging field of creative practice and a platform for experimenting with new experiences in the urban environment that has become increasingly interesting to artists. The use of locative media for artistic purposes has linked geography and maps to urban life and experience in new and sometimes unusual ways. This connection offers the possibility of various transformations in the traditional relationship between the mapping process and the physical space that it depicts. The map no longer merely depicts in a top-down manner the physical territory that it represents; rather, the territory inspires the artistic creation of various kinds of maps that may express, criticize or motivate different aspects of urban life. In this article we focus our interest on location-specific projects that make use of various media and location-sensing technologies such as GPS, in order to create subversive maps that amplify urban life and enrich the urban landscape with information, meaning and/or emotion. What we consider important in these attempts is the fact that apart from the aesthetic value of their work, artists are, in most cases, motivated by the prospect of raising public awareness on various issues such as the process of map-making, location and precise positioning, the ability to form social networks in the urban grid, surveillance, the tracking of human bodies or objects or how all these issues affect peoples' choices and everyday life.

Keywords

mapping, cartography, urban environment, location-specific, locative media

Resumen

Los medios locativos constituyen un campo emergente de prácticas creativas y una plataforma para probar nuevas experiencias en el entorno urbano que cada vez interesa más a los artistas. El uso de medios locativos con intención artística ha vinculado la geografía y los mapas a la vida y la experiencia urbana de maneras novedosas y en ocasiones inusuales. Esta conexión permite que se produzcan diversas transformaciones en la relación tradicional entre el proceso de creación de mapas y el espacio físico que representa. El mapa ya no se limita a describir según un modelo jerárquico descendente el territorio físico que representa, sino que más bien el territorio inspira la creación artística de diversos tipos de mapas que pueden expresar, criticar o resaltar aspectos distintos de la vida urbana. En este artículo centramos nuestro interés en proyectos locativos que emplean diversos medios y tecnologías basadas en la detección de la localización como el GPS, con el objetivo de crear mapas subversivos que amplían la vida urbana y enriquecen el paisaje urbano con información, sentido y/o emociones. Lo que consideramos importante de estas iniciativas es el hecho de que, además del valor estético de su obra, en la mayoría de los casos los artistas se ven motivados por la perspectiva de incrementar la conciencia pública en relación con diversos temas, como el proceso de creación de mapas, la localización y posicionamiento precisos, la capacidad de formar redes sociales en la red urbana, la vigilancia, el seguimiento de cuerpos humanos u objetos o cómo afectan todos estos temas a las elecciones y la vida cotidiana de la gente.

Palabras clave

creación de mapas, cartografía, entorno urbano, basado en la localización, medios locativos, locative media

Introduction

The use of portable media and wireless networks for the purpose of associating meaning and information with geographic locations has led to the concept of locative media. Locative media art emerged as a response to previous digital art forms, such as net art, which used virtual space as a representational context. Location-specific art practices usually adopt a critical approach towards the “decorporealized”, screen-based experience, claiming the physical world as their territory. Artists use location-aware and ubiquitous technologies to create artistic interventions which aim to reconfigure our understanding of the use of these technologies and to raise questions about the way they affect the representation of psychical space and everyday life. The digital representation of the urban environment and the augmentation of physical space with elements of the lived experience – creating layers of information, emotional connotations and human trails – may cause a change in our perception of the world and our involvement in it. Artist Coco Fusco (2004) criticized the practices of mapping for eliminating time, focusing disproportionately on space, and dehumanizing life. While this criticism may still apply to conventional mapping, new media artists usually aim to redefine

the structure of maps by approaching the representation of the world from the bottom up.

In this article we will first attempt to review the existing literature on alternative approaches to creating subversive representations of the urban environment by means of locative media. This literature is inspired by the critiques of conventional mapping tools and by alternative mapping practices. To support this review, we will also examine the history of cartography, the postmodern discourse on the concepts of map and territory and the rhetoric of the Situationists. This theoretical investigation will be related to particular examples of location-specific art projects. As a conclusion to this article, we will present a categorization of location-specific art projects according to two types of mapping techniques, namely spatial annotation and tracing.

A. Mapping spatial representation

The term “alternative mapping” refers to the creation of a map that can be, among other things, digital, augmented with layers of information, subjective and participatory. The growth of locative technologies has been used to further extend current approaches

towards mapping, depicted on paper, to more dynamic and multidimensional representations accessed via a series of interfaces. In addition, critiques on cartography¹ have encouraged practitioners to make certain aspects of life and its structure visible.

The works of locative media art practitioners usually revolve around the concept of reconfiguring our everyday life, or renewing our understanding of the world. Russell (1999) described this new context in the 1999 *Headmap Manifesto*:

"location aware, networked mobile devices make possible invisible notes attached to spaces, places, people and things [...] Real space can be marked and demarcated invisibly. What was once the sole preserve of builders, architects and engineers falls into the hands of everyone: the ability to shape and organize the real world and the real space [...] Geography gets interesting. Cell phones become internet enabled and location aware, everything in the real world gets tagged, bar-coded and mapped. Overlaying everything in a whole new invisible layer of annotation" (Tuters & Varnelis, 2004).

These new techno-social systems have led to a reconsideration of the nature of spatial representation. They provide the opportunity to re-associate ourselves to the urban geography, to augment space with digital layers of information and meaning² and to embed movement and time in the representation of the city. Thus, they enable the interpretation of the urban environment through alternate forms of mapping. Therefore, it is crucial to examine these contemporary mapping strategies not only from the point of view of what is mapped but also of how it is mapped.

Conventional mapping tools

Looking back into the history of map-making and traditional mapping tools, we can see different attempts and approaches aimed at mapping the physical world. In order to answer a key geographical question like: where am I?, practitioners have been creating map projections of the Earth's surface on a flat surface. The ancient Greek geographer Ptolemy created a grid system and listed the coordinates for places throughout the known world in his book

Geography. But it wasn't until the Middle Ages that the concepts of latitude and longitude were devised. The history of mapmaking has been closely connected with the struggle to discover more accurate and more useful methods of representing the world. Although it is impossible to accurately depict the spherical surface of the Earth on a plane, Gerardus Mercator (in the 16th century) was the first to devise a method for representing the earth in two dimensions. However, Europe and the rest of the northern hemisphere were well out of proportion to the rest of the world in this depiction. Mercator never intended his map to be used for purposes other than navigation although it became one of the most popular world map projections.

Maps defined by the Cartesian coordinate system³ are the basic tools of geography, since they allow us to depict spatial phenomena on paper. However, it should be emphasized that all maps distort distance, scale, shape, area, or direction to present an image that meets the manufacturers' or the users' needs. The history of mapping and the tools used to produce maps is by no means neutral or objective,⁴ as they embody certain conceptions and conventions regarding the manufacturers' perception of the environment.

Certain achievements of modern technology have enhanced the tools that are being used for mapping and consequently the mapping process. The Global Positioning System (GPS) is a satellite system funded and controlled by the US Department of Defense since 1978. GPS uses an array of 24 to 32 Medium Earth Orbit satellites that emit a precise microwave signal. It is used as a tool for precise positioning in earth projections as well as a tool for determining the location, time and velocity (including direction) of GPS receivers in real time. Nevertheless, its use has been strongly criticized.⁵

Artists have, unsurprisingly, expressed their concern regarding these new cartographic and positioning systems. An example of criticism of the inaccuracy of GPS and Cartesian mapping systems can be found in Laura Kurgan's *You are Here: Museu* (1995). Kurgan addressed the uncertainties that arise when relying on satellite tracking systems to know "where we are". Additionally, Jeremy Wood is experimenting with the possibilities of these new technologies in his GPS Drawing projects. One of his projects, *GPS Data Cloud*, is a sculpture composed of many public benches at different heights and positions, overlapping and intersecting each other. In accordance with

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1. These critiques are made on the one hand on cartography per se (critical cartography) and, on the other, on the social relations that it depicts (tactical cartography).
 2. These media-annotations/geo-markers are the virtual equivalent of leaving a physical marker at a particular location that can be picked up by GPS units or PDA devices.
 3. According to this system, features on the Earth's surface are referenced to map locations using an XY coordinate system.
 4. An example in modern history is when the British army occupied Ireland, one of the first military initiatives was a re-mapping of the entire country. Britain wanted to be the author of the Irish map, as "the hand that draws the map rules the world" (Gallery TPW, 2006, a).
 5. This criticism usually relates to its dependence on the USA military forces and the ethics of its use or its inaccuracy and errors which could lead to devastating mistakes.

Kurgan, Wood commented on the inaccuracy of the current satellite positioning technology in this sculpture.

These location aware systems not only influence the way we represent the world by overlaying, for example, satellite images on conventional maps; they can also track human bodies or objects around the world. As they orbit the Earth, they can affect people worldwide. Holmes's (2003) criticism of the worldwide communication technologies, which he perceives as an "imperial infrastructure", underlines, on the one hand, this uncritical embrace of the conventional Cartesian mapping approach and, on the other hand, the use of location-aware technologies, which originated from the military.⁶ More specifically, Holmes opposes the uncritical use of technologies that aim to integrate civil society in the basic architecture and their adoption in the context of art projects, which result in aesthetics becoming politics as décor.

In addition, a series of artistic projects have been created which aim to question this adoption and raise public concern. For example, the *LOCA* project (Hement *et al.*, 2003) questioned this uncritical adoption of an architecture of surveillance and control. *LOCA* is an artist-led interdisciplinary project on mobile media and surveillance that started in 2003. It was intended to raise public awareness of how certain everyday technologies (in this case Bluetooth) enabled the tracking of bodies in space in a subtle way. Artists also created a map that depicted the flow of people through the space. The purpose of this map was to demonstrate that the data gathered by *LOCA* could be used to generate a real representation of people's movements.

Map and territory

In postmodern discourse, the map is a metageographic symbol that represents the imposition of an external geometry onto physical geography. For Baudrillard (1994), the map is a *simulacrum*. The simulation of the territory is more important than the territory itself. In this sense, the territory no longer precedes the map, nor survives it. In contrast, Jameson (1991) suggested that the threat is not that the map precedes the territory, but that the territory has become unmappable. For Jameson, "we may again begin to grasp our positioning as individual and collective subjects and regain a capacity to act and struggle which is at present neutralized by our spatial as well as our social confusion". Mapping is, therefore, the outcome of an individual acting upon the world and altering it to their expectations. While these theories offer different views, they both agree that the logic of the territory is opposed to the logic of the map. Whether one aims to criticize or appropriate it, a map still preserves its dominance over the territory it depicts (Gordon, 2007).

Nowadays, as location-specific art projects seek new ways to interpret the urban environment, physical geography regains significance. In these alternative cartographic techniques the territory becomes visible, suggesting that the map is not overlapping the territory anymore, but rather that the territory is overlapping the map. This bottom-up approach to mapping the lived experience is closer to Jameson's suggestions and has led to subjective and participatory mapping and grass-roots cartography.

For example, Google's mapping service, launched in February 2005, reclaimed the map as a tool for locating subjectivity in space. One interesting feature of the software is that it allows for the overlay of satellite images over maps. The incorporation of this feature into Google Maps provided users with a clearer sense of the flow of information over the immutable territory. Another interesting consequence was the early appropriation of the Google API (Application Programming Interface) by hackers who used it to create mash-ups from existing databases and represented specific information referring to a specific geographical space. This led, for example, to the creation of maps overlaid with crime statistics or real estate listings.⁷

Subversive cartography

Maps are pictures

Maps are self-portraits

Maps are manifestations of perceptions

Maps are portraits of the world in the manner

in which those preparing them would

like the world to be understood

Maps are subjective

Mapping... is an act of power

(Sen, 2007)

The term *subversive cartography* usually relates to critical and tactical approaches to cartography. Both approaches tend to criticize the traditional mapping process, considering it inherently problematic. The usual arguments supporting this position are, firstly, the fact that conventional mapping assumes an external and "objective" reality: a version of the world that can be imprinted or shaped and is safe to rely upon. Secondly, maps have been used as an expression of dominance and power throughout political history. Maps are created by those with authority and power, and this is what makes them powerful. The need for a critical approach towards this power has led to the recent artistic movement to reclaim cartography (Gallery TPW, 2006, *b*).

6. Another example of this "imperial infrastructure" is the World Geodetic System which defines a reference frame for the earth.

7. By July 2005, Google released its API for free to anybody that was interested (Gordon, 2007, p. 894).

Such experimental projects aim to render visible through mapping features that are traditionally invisible and to present alternate interpretations to reveal implicit associations between spatial practices, power, and control.

Projects in contemporary cartography that aim to map different aspects of the urban environment use alternative mapping techniques to redefine the structure of the map. For example, they map the environment in an ephemeral and mobile way. In this case, a certain representation is generated by the shifting patterns of use rather than the immutable references depicted in institutional maps. In contrast to the Euclidean space, these maps describe objects in the space and not the actual space. An early example of this practice is Louis Kahn's diagram of existing traffic movement in Philadelphia. In this diagram, the physical infrastructure is dematerialized in favor of the city's pulse, density, motion, and flow (Sant, 2004).

Another important objective of subversive cartography is to unhinge our beliefs about the world, and to provoke new perceptions of the networks, lineages, associations and representations of places, people and power. In October 2001, the Institute for Applied Autonomy produced *iSee*, a website that utilized cartographic representation to contest the rise of surveillance networks. As the IAA remarks, *iSee* offered viewers an interactive map that enabled citizens to identify and avoid New York City's surveillance cameras. With this map, one could produce "routes of least surveillance" that avoided as many cameras as possible between two points. The often meaninglessly circuitous routes changed the perception of the urban landscape. Their project was an explicit acknowledgment of maps as rhetorical devices: maps are not simply spatial representations, they shape arguments. When individuals are involved in the creation of a map, they state what they regard as important, what they regard as interesting, and for what they are motivated to act.

B. The Situationist International-Urban Psychogeography

In his 1952 study, Chombart de Lauwe, a Parisian sociologist, noted that "an urban neighborhood is determined not only by geographical and economic factors, but also by the image that its inhabitants and those of other neighborhoods have of it". In the same work, he mapped the movements made in the space of one year by a student living in the 16th Arrondissement, to illustrate "the narrowness of the real Paris in which each individual lives". Guy Debord expresses outrage at the fact that the student's itinerary "forms a small triangle with

no significant deviations, the three apexes of which are the School of Political Sciences, her residence and that of her piano teacher". The theory of the *Dérive* (literally: "drifting") inspires people to drop their relations, their work and leisure activities, and all their other usual motives for movement and action, and let themselves be drawn by the attractions of the terrain and the encounters they find there (Debord, 1958).

The Situationist International (SI) was a small group of international political and artistic activists formed in 1957, who remained active in Europe through the 1960s and aimed to incite major social and political transformations. One field of their research was psychogeography, which guided the Situationists in their appraisal of the city and its architecture. Psychogeography – the science of the *dérive* – was first introduced into the Situationist discourse by Guy Debord, in his essay *Introduction to a Critique of Urban Cartography* (1955), who wrote:

"Psychogeography could set for itself the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals. The adjective psychogeographical, retaining a rather pleasing vagueness, can thus be applied to the findings arrived at by this type of investigation, to their influence on human feelings, and even more generally to any situation or conduct that seems to reflect the same spirit of discovery."

The *dérive* is a method of subversion, of remapping the world and of identifying the implicit flows of capital and power below the surface of the city. One strategy Debord cites is the production of psychogeographic maps. In reaction to the rational city models, he and his colleagues constructed alternative geography that privileged the marginalized and often threatened spaces of Paris. These psychogeographic maps proposed a fragmented, subjective, and ephemeral experience of the city. Although the Situationists most likely created these maps to document the drift, they propose a networked model in which spatial events are abstracted from the grid and linked according to their typology as stored in databases.

According to the SI's strategies, several locative media artworks have adapted the production of psychogeographic maps or even the introduction of alterations, such as more or less arbitrarily transposing maps of two different places. Modern psychogeographers can now manifest the mapping of *détournement*⁸ in many ways other than in texts, bringing psychogeography to a much wider audience.

Teri Rueb's *Drift*, for example, as the artist describes, embraces the flow of wandering, the pleasure of disorientation, and the playful unpredictability of drifting as it relates to movement and translation. *Drift* poses the old question: where am I and where am I going?, at a

8. "Détournement is a game made possible by the capacity of devaluation," writes Jorn in his study *Detourned Painting* (May 1959), and he goes on to say that all the elements of the cultural past must be "reinvested" or disappear. *Détournement* is thus first of all a negation of the value of the previous organization of expression (*Internationale Situationniste*, 1959).

time in which spatial positioning and tracking technologies provide ever more precise, yet limited, answers to this question. The *One Block Radius* project provides a framework for urban diversity and history in an area of New York City that, due to its sordid past and disheveled present state, could easily disappear without documentation of its unique physical and social character. Glowlab's claim is that civic architecture tends to ignore these peripheral urban spaces so these spaces must be "subjectively" mapped through art, literature or personal endeavors.

Paula Levine's *Shadows From Another Place* project illustrates this arbitrary transposition of maps of different places. She creates a hypothetical map in which she uses GPS to illustrate the impact of cultural and political changes that take place in one location upon another. More specifically, she superimposes a mapping of the first US attack on Baghdad over the map of San Francisco. Mushon Zer-Aviv is also interested in challenging the perception of territory and borders and the way they are shaped through politics, culture, globalization and the World Wide Web. In his project *You Are Not Here* he experiments with dislocation and invites participants to become meta-tourists on simultaneous excursions through multiple cities. Current walking tours include Baghdad through the streets of New York City and Gaza City through the streets of Tel Aviv.

As we can see, artists have appropriated the Situationist conception of the environmental experience to develop projects that reveal meaning and affect the geographic environment. These projects attempt to produce new understandings of the urban environment and encourage a new conception of our relation with it by making use of mobile technologies to create hybrid spatial experiences comprising a combination of the internet and the physical world. However, many location-based art projects have also been criticized for being involved in a trivial affiliation with communication technology and conventional cartographic strategies, thus sticking to a conceptualist formalism which has nothing to do with subversive *détournement*.

C. Mapping techniques

Apart from aesthetic concerns, artists who engage in the creation of location-specific art projects often aim to alter our perception of the world. So far, a series of projects have been mentioned which question and criticize location detection technologies and traditional mapping techniques and intend to raise public concern about these technologies' application, accuracy and ethics. Additionally, we have mentioned artists' endeavors to find new ways to interpret the urban environment and their attempts to map the lived-experience in a bottom-up manner by making use of these media. Finally, we referred to projects inspired by the Situationists' rhetoric that aimed to re-map the world and suggested new mapping techniques that change our perception of space and location.

This final section presents a categorization of location-specific art projects with respect to two mapping techniques. Following Tutters's (2004) distinction, and in accordance with what has been discussed so far, it can be suggested that location-specific artworks could be characterized, according to the mapping technique involved, into either spatial annotation or tracing mapping projects. We will provide some examples in order to aid better understanding of this distinction and the different aims that these projects intend to achieve.

In the case of projects utilizing the spatial annotation mapping technique, maps are being produced digitally and collaboratively. They are dynamically shaped by the ways in which the city is experienced and exploited by the people that navigate it. These maps intend not merely to depict the urban environment, but also to reinforce urban life and to facilitate social networks. They represent the duration, the pulse and the volatility of the city, redefining the way that we perceive the process of map-making and its uses. Often these projects augment space with geo-tags that associate space with additional information aiming to change our conception of the environment. An early example is the creation of several layers of peer-to-peer information exchange that Google incorporated in Google Maps. These layers are created by users who attach specific information to specific locations. We could say that some of these projects are related to the Situationists' practice of *détournement*, as they negate the value of the traditional understanding for organization and structure in the city.

Urban Tapestries (2002) is a research project and experimental software platform for mapping and sharing knowledge, information, memories and stories, developed by Proboscis. *Urban Tapestries* experimented with how people could "author" parts of the urban environment around them. For example, people could leave a trail of their engagement with the environment, threads about their sensory experiences and how they could share their urban perceptions. The *PDPAI* (2002) project is another example of collaborative map making. The *PDPAI* motto, "write your own city", reveals the project's intention to transform everyday activities and urban experiences into a dynamic urban landscape that can be written in a bottom-up manner. The *PDPAI*-generated map is anti-geographic and anti-Cartesian, aiming to experiment with constructing subjective and emotionally meaningful representations thus examining what makes space social or personal.

Nold's *Bio Mapping* (2004) is an ongoing project that constructs emotion maps. These maps depict areas and locations of high and low emotional arousal, leading to a different interpretation of the urban environment and raising awareness about the decisions that people make in their life and how these affect them. This concept was inspired by the imposed architecture of surveillance and control in the contemporary city. By wearing a device that detects the user's Galvanic Skin Response while walking, Nold attempts to make people re-explore their local area. Also, by enabling them to have control over the way in which the data generated by this process are shared, he

wants to change their perception from “being at the mercy of these nearly invisible technical systems to becoming their master” and to enable social interactions.

In the case of projects utilizing the tracing mapping technique, artists make use of the traces left behind by human bodies or, sometimes, objects when making use of these media. The movement and the action of the subject in the world are being captured and represented.⁹ These projects encourage us to re-embody ourselves in the world and motivate disappearing everyday practices like walking or occupying public space. They often adopt the practice of the *dérive* in order to re-map the world. As was previously discussed, several projects, like *Drift* and *You Are Not Here*, experimented with psychogeographic strategies and dislocation. However, this category mainly includes projects that produce alternative maps by tracing the movements of people or objects and aim to redefine the way we look at the city, its structure and relations.

Waag Society, together with Polak, created *Amsterdam Real Time* (2002). In their project they attempted to visualize the mental maps of every resident of the city by examining their behaviors while on the move. Individual maps were compiled into a collective map based on the trajectories of moving participants who walked around Amsterdam. They did not depict the urban grid like streets or blocks of houses, but only the movement of real people. The city could be read through the growth of lines, the density and frequency, indicating preference for some parts of the city and indifference to others. As they comment, the means of transport, the location of home, work or other activities together with the mental map of the particular person determine the traces one leaves. This way an ever-changing, ephemeral, and very subjective map of Amsterdam has been created.

Cabspotting (2006) is another project that took place in San Francisco Bay Area and tracked commercial cab traces to explore economic, social, political and cultural issues. They created ephemeral, time-lapse maps that revealed other ways of seeing our environment as the daily rhythms and pulse of the city. In the context of this project, Apodaca created *Fly Cab* visualizing traced cab patterns in a three-dimensional map that included the possibility of embedding time in his representations.

The last project discussed here is *MILK* (2003). The aim of this project was to develop a medium where Latvian farmers could

visualize and comment on their own relation to space. With the use of GPS they traced the path of milk from where it was produced (Latvia) to where it was finally circulated (Netherlands). By turning collected data into online maps they wanted to show this peculiar milk net, its explicitly local stories and complex euro-global dimensions.

D. Conclusions

In conclusion, we would like to review what is mapped, and how, with the use of location-aware technologies and how these mapping transformations affect the representation of the physical space and, consequently, perception of everyday life.

In some projects, locative media artists envision and create maps that represent the flow, the movement, the density and the ephemeral character of the urban landscape (critical cartography) without the need to depict the urban grids that are characteristic of conventional mapping. In other projects, artists treat social networks and relations in a revolutionary manner, against the architecture of surveillance and control (tactical cartography). Additionally, these projects may either develop a dynamic, collaboratively produced map or alter the image of the urban environment in people’s minds by encouraging them to be drawn by the attractions of the terrain and the encounters that they find there (psychogeographic maps). In both cases, they make the territory visible by mapping the real and everyday life and by depicting details that remain hidden on conventional maps. All these projects employ location-aware technologies in an attempt to re-attach aspects of the everyday life to urban space either by embedding information and/or emotion on this space or by using the trails of humans or objects for representing spatial events.

As far as the “dark side” of locative media applications is concerned, their affiliation with industry and government is often criticized. It is true that many locative media projects are more geared toward future profits than a subversive representation of the world. It is also true that these projects have not yet developed a structured mechanism for responsibility, professionalism and ethics (Galloway, 2004). While discussing all the above, we still acknowledge these negative aspects of locative media systems but wish to focus more on the creative aspirations of their use.

9. We can also relate these practices to the early example of Kahn’s diagram.

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