Informational Geography: Re-writing and Re-reading Maps

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Abstract. The text is concerned with how mapping information visualization differs from traditional cartography once the content flows, superposed on physical space, change the way human perceptions deal with space and time. From this point onwards, the text discusses the articulation between spatiality and modes of moving within the city through data representations. Using the Watch_Dogs WeareData Project as an example of how this is done, users can follow distinct syntactic and semantic narratives arranged over individual and public data information made available in Paris, London and Berlin. Each of the three towns is recreated on a 3D map, allowing the users to discover in real time not only the way data organizes and runs cities, but also constructs spatialities.

Keywords: Informational and physical cartography · Data representations and narratives · Hybrid spatialities

1 Introduction

In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province. In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations, who were not so fond of the Study of Cartography as their Forebears had been, saw that that vast map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars; in all the Land there is no other Relic of the Disciplines of Geography. (Jorge Luis Borges)

The text is concerned with different superposed digital data representations and possible maps to configure the everyday activities and to transform the local geography in a poem-palimpsest, as points out O'Rourke (2013) [1] to the ever-changing plots of land. Using the Watch_Dogs WeareData Project as the study object, the text concerns about how the flow of information superposes on physical space changes the way

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human being perception deals with space and time nowadays, as much as they can redefine the ideological issues about maps. It makes possible in its own way, different possibilities to think and discover the way data organizes and runs cities, and also reveals a possible sense of spatiality.

2 What Is a Map About? from Territory to Ideology

Basically, territorial maps are (or intend to be) ways of tracing paths or determining territorial positions and limits and constituting a model of spatial representation. In this sense, Harley (apud WOOD and FELS, 2008) [2], calls attention to the fact that maps have been regarded as an epitome of modernity. Nonetheless, once these modes of displacement to a particular piece of land establish the limits of a territory, it is not hard to recognize the ideological element that may be present in these representations, despite the fact that the topographical records and the measurements have been technically and rigorously carried out. Hence, while maps can be man's expression of knowledge about nature, they are also refined manifestations of power and control over a piece of land – a form of supporting the construction and maintenance of the *status quo*, or even, as reported by Passos (2009: 19) [3], "very often anticipating the appropriation of this same space." For such, simply look back to the Treaty of Tordesillas, which, even in 1495, before Europeans occupied portions of land of the so-called New World, already divided and established ownership between the kingdoms of Spain and Portugal.

The point here is not to reflect upon scientific procedures, or about the relations of strength and power (Harley 1988) [4], but to investigate the *WeareData* project and discuss the possible configurations of mapped space as contemporary perceptive modes of operating territories. In this way, we seek to stimulate a reflection about cartography as modes of construction and map reading, seeking to employ Harley's warning (1988: 277) [4]: that "although maps have long been central to the discourse of geography they are seldom read as 'thick' texts or as socially constructed form of knowledge". In this sense, we are interested in researching the social dimension of this process in relation to personal associations and cultural conditionings, within a series of spatial stimuli present in a particular environment, and cognitive and sensory operations. We adopt perception and the relations with the space as learned behavior in different contexts, be them historical, cultural or technological, based on collected and systematically arranged data (Rodaway 2011) [5], by the individuals in their daily activities.

Considering the human experiences of life in cities that grew during the industrial era called for a representation which could provide an understanding of inhabited space in constant change. As noted by Meneses, for this inhabitant

> *[…] the daily experience of urban space – once it also starts to get broader and more complex – becomes increasingly insufficient, and he is only able to assimilate disperse fragments. Incidentally, one of the reasons which accounts for the fascination exerted by urban maps as from the 18th century is, precisely, the capacity for synthesis, for instantaneous crystallization of diversity, for an immediate intelligibility of the multiple. (2009: 15) [6]*

But to what extent such synthesis and immediate intelligibility of the multiple do not constitute an illusion that tranquilizes the inhabitant of great and complex spaces, as

it engenders power structures? The author points out that "spatial perception" and "locational logic", as well as "the understanding of the city as the transformation of nature" are salutary perspectives "[…] for current times, when the said global cities increasingly suffer the loss of their territorial substance or where paradoxically the city's extreme artificiality eventually becomes naturalized" (Meneses 2009: 16) [7]. Such loss of territorial substance that the author refers to implies in a change in the time-space relation, and in the strategies for the maintenance of power. More than the changes in the spaces accelerated by development in great urban centres, the data and information flow that passes over the territory, and the diversity of possible representations of topographical records form rather than a loss of substance, a transformation of the territory's condition and the power instituted over it. Therefore, its transformation does not only unfold due to topographical change, but from what happens on a particular location, orientation, and variation of places, no longer measured only by physical distances, but also by the information operated in digital social networks, financial databases, webcams, synchronous and asynchronous message exchanges.

If for Woods and Fels (2008: 190) [2] "[…] map is nothing more than a vehicle for the creation and conveying of authority about, and ultimately over, territory […]" the questions that remain concern the way in which power is deployed over a changing territory, and how to counterpoint this established power. As we have seen, for Harley (1988), maps are rarely read as a social construction. They are generally seen as mirrors of nature, but organize themselves as operations of culture. So that they are read critically, "Dialectical relationships between image and power cannot be excavated with the procedures used to recover the 'hard' topographical knowledge in maps and there is no litmus test of their ideological tendencies" (Harley 1988: 280) [8]. In other words, instead of excavating the ideological content and the control mechanisms behind a map, we should observe the dialectical aspects that can be raised from its reading, moving away, as suggests Harley,

> *[…] from the canons of traditional cartographical criticism with its string of binary oppositions between maps that are 'true and false', 'accurate and inaccurate', 'objective and subjective', 'literal and symbolic', or that are based on 'scientific integrity' as opposed to 'ideological distortion'. (Harley 1988: 278) [8]*

3 The Watch_Dogs WeareData Project: From Physical to Informational Territories

The Watch_Dogs WeareData Project[1] is the first website to gather publicly available data about Paris, London and Berlin, in one location. The interface presents the user with reading modes of three different cities: Paris, Berlin and London, visually organizing data on physical networks of public transport, both of the underground and of

[1] http://wearedata.watchdogs.com/

cycling, urban infrastructure such as ATM, traffic lights, public toilets and CCTV cameras. Content that is shared in social networks such as Tweeter, Instagram, Foursquare and Flickr contribute to this intricate network of possible narratives [Fig. 1], allowing the user to discover this data.

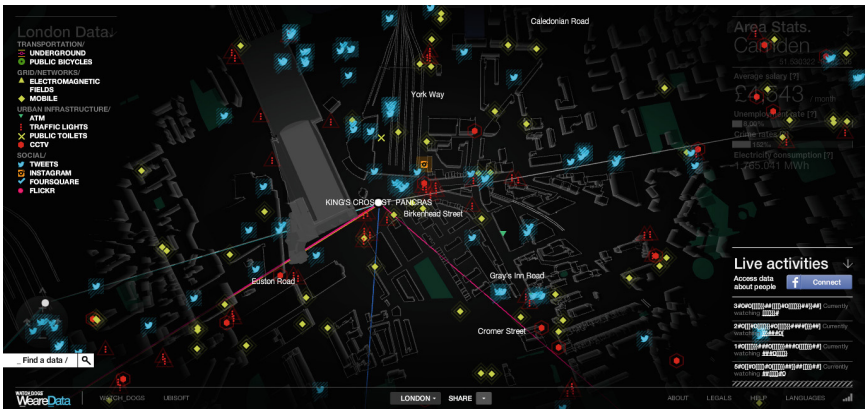

Fig. 1. The watch_dogs wearedata interface with all the icons situated in the city of London, 2014. (http://wearedata.watchdogs.com).

This information is arranged on a 3D map of these cities, where the streets, public buildings and underground stations, for example, are identifiable. As we explore the map as a *flâneur* who roams the city's lanes, alleys and avenues, the user can read the tweets sent from that place, see the images posted on Instagram, as well as official statistics on the region's average salaries, the criminality rate, while monitoring urban displacements and updating the location of urban facilities.

In the first instance the website user is faced with issues related to surveillance, (cf. Foucault 2003) which are based on a system that is constantly fed by data recording; this, according to the author, can be understood by "The practice of placing individuals 'under' observation is a natural extension of a justice imbued with disciplinary methods and examination procedures" (Foucault 2003: 601-602) [9]. However, a closer look at the project reveals to the visitor not only the degree of exposure we are all subject to, but also the synchronous and asynchronous interrelations between physical and informational space. The transmitter, geographically situated by the information he distributed through the network, doesn't always produce content that is directly related to the physical location, but expands the meanings composed contemporaneously with the shared data [Fig. 2]. The time-space articulations become evident in this project – horizontal communication networks that connect the local and the global at chosen times (Castells 2009) [10]. And while the individuals experience these juxtaposed and superposed agency patterns, they seek to organize the dominant logic of each network and ultimately configure other modes of existence.

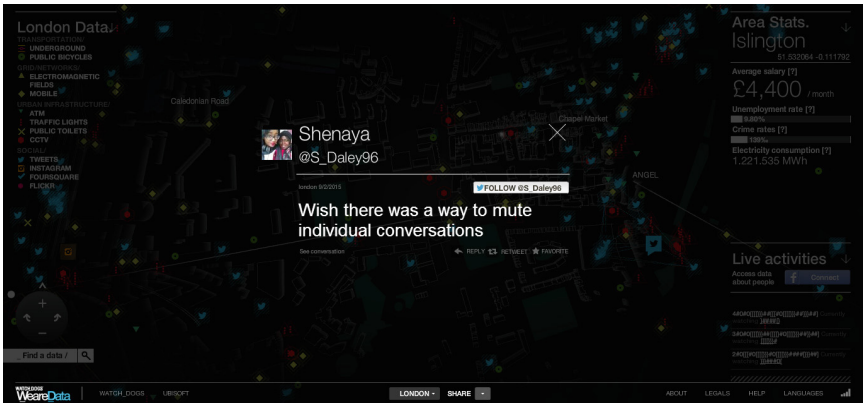

Fig. 2. City of London. Tweet sent from a mobile from Islington area. (http://wearedata.watchdogs.com/start.php?locale=en-EN&city=london).

This information flow emphasizes another outline in the territory, one that is time-based. To strictly carry-out the topographical mapping of a territory, and to try to exert a degree of power over it, seems like a somewhat ineffective activity when the spatial relations are subject to a temporal element. In this way, the transformation of the substance of a territory takes place due to time, an element distinct from space, but more than ever linked to it. The embodiment of the temporal dimension within the same map identifies the relation between the two elements (time and space), but also exposes their separate existence, with distinct forces. Giddens (1991: 27-28) [11] notes that "The separation between time and space should not be seen as a unilinear development, devoid of reversions or which is all-encompassing. On the contrary, as all development trends, it has dialectical aspects which incite opposing characteristics", which allows for separate discussions, even though they occupy the same plane. The place, as defined by the action of the occupant, delimits the space (de Certeau 2013) [12]. But it gives in once again to the powers of space which, in its relation to time reveals the changes which are perceptible to the passer-by who operates new records in the sensory map, establishing a place.

To consider daily life as a field of sensory production is to reference de Certeau (2013: 200) [12] when he proposes narrative structures as spatial syntax, or, in other words, "every story is a travel story – a spatial practice". The author prioritizes the practices that structure space, while the individuals distinctly articulate maps as they pass along given routes. If the place arranges a certain stability of positions, the space presents itself as variable in relation to direction, velocity and time, given by their own operations (de Certeau 2013: 201-203) [12]. In this project, visual interfaces can be understood as transformative powers of space as they give name to structuring orders to narrate spacializing actions, as descriptions of the modes of use, perception and determination of other boundaries.

The Watch_Dogs WeareData Project presents spatial structures defined by the urban experience and conformed by computational language in possible time-space relations, interconnecting databases and distinct physical networks, as in mobile phone

calls, online camera video streaming, GPS satellite navigation systems [Global Positioning System] and online social network interactions. In this text we presume that the informational dimension of the digital networks configure themselves with the physical space in non-hierarchical layers, constituting other grids and modes of displacement for each situation – relational systems of spatial notation. The users in this context choose reading paths while organizing the data in narratives, contrary to the discursive processes present in the visualization of the information.

This project explores the relations between modes of perception and construction of space, articulating translation processes of languages where the software acts as a contextualizing element and as a promoter of the project-orientated action. For McWilliams (2012) [13] the computational language acts as "a continuous connection between man and machine", systematizing working methods and techniques, practices and processes of representation and expression, as presentations of the sensible. Reas et al. (2010: 11) [14] recognize the code with three main proposals, "communication, explanation or obfuscation", to the degree that the rules demand previous knowledge from the users and can therefore evoke distinct signification contexts. It is understood that in this project the computational code validates "contemporary techniques of control, communication, representation, writing and interaction" (Manovich 2008: 8) [15], as it assorts data and open profiles derived from databases and social networks, respectively.

The computational language encodes the construction and agency of the visuality, and therefore becomes responsible for the formatting and the expression of the information. Hence, another relevant point raised by the project is the comprehension of these computational objects as cultural practice, as they mediate and elaborate other immaterial dimensions such as the codes of behaviour, habits, rituals, values and significations. These codes are perceived as superposed texts that mediate the human/machine relationship, while they inscribe society. Also, according to Barbero (apud Santaella 2007: 89) [16] "to hybridize the symbolic intensity of numeric abstraction with the perceptive sensoriality" implies accessing and modulating this diverse data and generating complex structures of the networked hypermediatic contexts in the field of the visible.

4 Final Considerations

We understand the emergence of a dynamic cartography, collectively constructed, in which the artists aim to propose forms that articulate the forces of the urban domain, composing complex structures, contingent patterns of society – fragments of time and space translated into actions.

By articulating networks and information flows – physical objects and bodies, times and spaces – the Watch_Dogs WeareData Project considers other perceptions and configurations of the displacement of individuals who perform daily contemporary life, and thus, elaborate an understanding of the world. The audio-visual discourse negotiates spatial orientations, constructs other situations, and as a poetic artefact operates with moments that will be repeated while it composes itself/they are composed, as notes Lefebvre (1960) [17].

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