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**SURVEILLANCE ART  
AND THE POLITICS  
OF DIGITAL MAPPING  
TECHNOLOGIES**

## ABSTRACT

In a moment in which the technological agency is creating ways to undermine our capacities to discern vigilant systems, exercises of contestation over strategies and techniques of surveillance become a welcome domain of art. The focus on how artists are responding to issues involving the technology-based privilege of some to watch us and the power that such systems exert is put on Google and its digital mapping platform: the Google Earth.

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***The territory no longer precedes the map, nor does it survive it.***

– Jean Baudrillard (1994: 1)

## INTRODUCTION

Since Edward Snowden leaked classified information from the National Security Agency (NSA) in 2013, the conversation around surveillance has been incessant. It not only affected American citizens but, as a result, people throughout all continents started to reconsider what is safe and what is not in the online environment. According to Joshua Kopstein, a journalist and writer, a study carried out at Oxford University attested that internet users were less likely to search for alleged suspicious terms after the event, suggesting a chilling effect or even a regression in online expression since then. On the other hand, this study also showed that despite loads of content written about the topic, people are not taking the action necessary to secure their personal information (Kopstein, 2016). This indicates that, while surveillance is often regarded as a source of anxiety in the background, it does not yet affect the orientation towards consumption that ultimately rules our Internet practices. But, if information cannot encourage users to question the systems designed to watch us, what can?

Some believe that art is an answer. While many commentators address surveillance as a mere juridic issue, artists have been increasingly focusing their production on the matter, what, in part, made the debate about privacy move to a broader social and political context. The term 'surveillance art', therefore, is being employed to refer to every artwork that in some way approaches this field of study — from the politically charged, through the cynical, to the playful (Brighenti, 2010: 1). Yet, the degree of involvement of artists with the topic has been widely varied, with some displaying a solid consistency and others evoking it occasionally or during a certain period of their production.

In general, the strategies used by these artists involve an active effort to familiarize with the protocols and standards of a particular surveillance system, which is used to defeat, deceive, or subvert it. In other words, a majority of artists are employing, for instance, machine learning algorithms or face recognition codes to make art instead of more traditional

means like design or photography. One could argue that, as we interact with the world through the omnipresent lens of technology, it only make sense that this point of view starts to find its way into our creative endeavors. Consequently, artworks are often meditations on Internet practices or interrogations about the architecture of communication networks.

But to what extent are networks involved in the production of surveillance? For Ippolita, a collective of writers from Italy, now that an ever increasing mass of personal information transits across every Internet platform and service, also permeating the companies behind them, the possibility that one's data is being collected for numerous alternative motives is no longer part of a dystopian nightmare. In fact, according to this group, players like Google, and the means organized by them, are 'hybridizing' the public and the private sphere, meaning that we are progressively opening our personal lives to others (Ippolita, 2013: 96). It is only amidst such a voyeuristic and exhibitionist logic that these companies can thrive, sustained by gigantic databases that tell quite a lot about what we do and who we are. In plain English, the thin cover of anonymity on the web is not enough to protect us from revealing our identities.

On top of that, the technologies we use to have access are increasingly becoming location-aware. So, as 'check-in' features and games that play with augmented reality grow in popularity, they locate us in relation to everything else in the network, transforming physical context in an essential input for our online interactions. In agreement with Eric Gordon and Adriana de Souza e Silva, the value of information that we disclose is, therefore, no more only associated with *who* and *when* but also *where* (2011: 2). This relationship creates several assumptions concerning the role of location-based services (LBS) as participative ways to collect data: a normalization of surveillance promoted by the usual suspects — first and foremost Google, followed by Facebook, Apple, and Amazon. Although privacy and maps are two words that rarely share the same sentence, it turned out that spatial annotations can certainly be revealing when linked to possessions, habits, and other types of behaviors (Gordon & Souza e Silva, 2011: 134).

But more than neutral pieces of technology that are being used for not-so-noble purposes, geographers, sociologists, and historians started to take online maps as cultural-based artifacts in line with the ideological bias that inherently accompany their conceptualization. Thus, from another perspective, they have been reinterpreted as structures of power, a way that things are designed to distribute authority between different groups of people. According to J. Brian Harley, “political power is most effectively reproduced, communicated, and experienced through maps” (2009: 130). In general, this power can be related to the production of cartographic imagery and the systems that enable it, to stages of map literacy, to conditions of authorship, to aspects of secrecy and censorship, and to the very nature of the political statements that are made by these new technologies.

Authors like Harley believe that maps are indeed a kind of language used to mediate a particular view of our world. So, when seen in this way, they can be associated with certain ‘cartographic discourses’, or to persuasive and rhetorical applications as opposed to simply objective ones such as to name and locate. Thus, for Harley, to analyze these discursive mechanisms is to better appreciate the processes by which maps — and their modern representatives, the geographic information systems (GIS) — became a political force in society (2009: 130). Yet, more important than these languages *per se* is what they have to tell us, or what is actually being mapped behind their most external layer. It could be argued that, in the contemporary times, the distribution of power is not limited to any displayed geographical border but extends throughout the various relationships established between communities and technologies.

In this context, resistances to the formal delineation of power are no longer marginal but active in the center of a society that opens up in networks. As an example, the *Critical Atlas of the Internet*, Louise Drulhe’s latest project, attempts to visually represent how power is allocated in an ‘unseen’ domain: the cyberspace. In accordance with her, the atlas aims to develop fifteen exercises, taking in account social, political, and economic issues in order to have a glimpse of the potential shapes of non-physical territories (Drulhe, 2016). In

effect, this is an alternative way to think about spatial representations of power, or even, a 'new cartography' that is being written, in which boundaries are flexible and identities are hybrid and fluid.

In this thesis, the focus on how power can be portrayed and therefore challenged will be put on a single platform: Google Earth. Besides the surveillance processes used to comply with its database, I will question whether Google is gaining influence with its mapping services, what kind of influence is that, and how artists are responding to issues involving the technology-based privilege to look at the others. From another perspective, it becomes clear that surveillance art is treating mapping tools as mechanisms that systematically defy our right to remain opaque to corporations. So, by overcoming the primary superficiality that this art form is being addressed, all the concern about its aesthetic qualities, we can reach a comprehension of the relevant points that it touches when examined in relation to specific contexts.

In order to do so, the first chapter functions as introductory lines to the 'society of surveillance', a notion brought by Kevin D. Hafferty and Richard V. Ericson in which the use of data as fundamental pieces to manage political and economic endeavors is not only a privilege of the State, but a common practice among private initiatives. At this point, I will describe the societal conditions that make the rise of surveillance art possible, arguing that attempts against individual privacy and the anxiety of being watched is what is ultimately attracting different artists to the center of this trend, a sort of materialization of our moods in relation to surveillance.

The second chapter deals with the abstraction of apparatuses of technology that end up black-boxing both products and manufacturers, leaving a strange void in terms of materiality, and therefore accessibility, for average consumers to manipulate or engage with. I will state that, by promoting such abstractions, companies like Google end up operating at the level of the Symbolic, what in turn helps to foster surveillance practices sustained by

their services and platforms. This chapter also uses a media-archaeological approach to understand what methods are being employed by artists in practical terms, or how they are trying to counter the state of invisibility of technologies by going further in what concerns computer infrastructure and the physicality of hardware. In addition, I present four examples of artists that critique how power is being exerted by mapping technologies, making reference to them along the entire thesis.

The next and third chapter uses, in fact, the media-archaeological methodology to conduct a cultural analysis on the Universal Texture, a patent used by Google to generate a 3D representation of our world. This method was first proposed by Jussi Parikka in his book *What is Media Archaeology?* (2012), and uses a critical point of view to evoke alternatives to once established media histories, paving the way for major controversies about the assumed-natural state of things. Here is where the critique of maps as neutral models become more prominent and where a hypothesis relating Google Earth to a surveillance apparatus is clearly fixed.

At last, the fourth chapter exposes the results of this research, concluding that the appearance of surveillance systems like Google Earth can be related to a broader paradigm shift in social, economic, and political terms. At this moment, I examine the circumstances for the emergence of a supranational structure named by Michael Hardt and Antonio Negri as the Empire. This new structure, according to them, defies the prerogatives of sovereignty seen in the traditionally called nation-states to form a renewed source of power based on the production, exchange, and consumption of knowledge and its enclosing technologies. In the case of Google, an alleged part of the Empire, I will argue that this power is expressed in two different forms, that is technocratic and biopolitical, extending throughout administrative processes and bodies of both institutions and people.

If we closely analyze the content of each block, it becomes clear that the attention moves from surveillance practices to surveillance technologies and from art to politics. In part, that is the pathway that people involved with this art form are tracing: once artists establish a

system to reveal and critique certain structures of power, they are more likely to engage with the rules that determine them instead of focusing on their visible surface. This is also reflected by a growing textual production and an increased presence of these artists in debates about the topic. In effect, this political take reinforces the idea that an academic production is similarly welcome in order to add plurality to a matter that is becoming each day more necessary, if not urgent, to be discussed.

Thus, to fulfill the objectives proposed by each chapter, a central research question was considered, followed by two secondary ones:

*In which ways mapping services provided by Google are fostering surveillance practices?*

*- What are the technological conditions for the development of surveillance art?*

*- How artists are countering the power exerted by Google Earth?*

So, it is amidst the intersection between privacy, technology, and power that this thesis will be unfolded. In this fertile and somewhat unexplored terrain, digital mapping technologies ensure that we can be monitored every time and everywhere. When entangled with other media, it has become one of the principal tools for experiencing something, or for giving an impression of participation. The one who holds a device equipped with a map is transformed into an active entity, a dot to be mastered in the space. Thus, in this context of virtual/physical dichotomy, the simple assumption that such technologies are neutral and outside of cultural or ideological interpretation depict a serious danger to our understanding of its applications and usage. So, from now on, I invite the reader to dismiss this premise.

## SURVEILLANCE ART AND THE CRISIS OF PRIVACY

During ten months, until September 2015, the Open Society Foundations in New York City displayed how ten artists used aerial photography, mapping applications, found imagery and street interventions in order to challenge the ways we see and understand surveillance. According to the curator Yukiko Yamagata, the exhibition *Watching You, Watching Me* intended to show how different artworks can be both an instrument of surveillance and a tool to expose the negative impact of information technologies in our society. For Yamagata, the main contribution of these artists is their dynamic approach to the difficulty of visualizing something that is meant to be covert, yet omnipresent in the contemporary urban scenario: the apparatus of systems of control like Closed Circuit Television cameras (CCTV), drones, and satellites.

In this chapter, I explore how artists are providing an answer, a form of resistance to the new advancements of technology that exposes our society to a compulsory lack of privacy. In order to do so, I start analyzing in which ways artistic expressions related to surveillance practices materialize, linking their conditions of existence to administrative mechanisms in governmental and organizational contexts. This first analysis leads to the discussion of how the state of visibility and invisibility of surveillance apparatuses is crucial to this specific art form, also determining its processes and aesthetics. To conclude, I introduce the work of James Bridle, Clement Valla, Mishka Henner, and Jenny Odell as examples of how digital mapping technologies available today are being used to inquiry specific agents, or sometimes our whole media culture, about the contemporary logics of social control.

### THE SOCIETY OF SURVEILLANCE

Peter Maass, a journalist and author, argues that this is a thriving cultural moment in which artists of all kinds are responding to the rise of surveillance and the means used to achieve it (Maass, 2014). Indeed, the exhibition mentioned before is only one among

several others concerned with the application of technology and its relationship to privacy in the past few years. Other collections were featured by the Tate Modern (2013), the Contemporary Art Museum in Raleigh (2014), and the Pratt Institute Gallery (2015), just to cite a few examples. ‘Surveillance art’ is the name given to this emerging movement and, in practical terms, it is a commentary on the processes intended to record human behavior or the technologies used for such. In a closer analysis, these exhibitions gathered artists that are drawing attention to the ethical issues of the ubiquitous technological watch and our complacency to it.

In the book *The State of the Real: Aesthetics in the Digital Age* (2007), Jane Tormey writes that all art manifestations help us to preserve what historical documents cannot, which is, how it feels to exist in a particular place at a particular time (2007: 31). It means that transitions from a social moment to another often produce new landscapes of moods that end up being translated into physical formations. Raymond Williams defines these affective formations as ‘structures of feeling’, an accumulation of common social experiences to the point that specific semantic figures are discovered in material practices, becoming thus a recognizable mark of an upcoming period (1977: 134). The notion of structures of feeling was first introduced by Williams to discuss the relation between dramatic conventions and written texts. He was questioning the social acceptability of particular narratives that were often repeated in history, as, for instance, the theme of mistaken identity in Shakespeare’s plays. Williams argued that a dominant way of thinking in a specific timeframe and place can never be total, but influenced by a greater dynamic in which new formations of thought emerge. In our case, it could be said that the rise of surveillance art reflects the importance to create meaning around one of the most prominent social and political issues of our age — the experience that is to live in a ‘society of surveillance’ (Hafferty & Ericson, 2006: 3).

According to Kevin D. Hafferty and Richard V. Ericson, the term reflects the expansion of administrative surveillance as a key factor to govern resources, activities, and populations. This broad definition, therefore, advances the discussion about surveillance beyond the

usual fixation on cameras and undercover operatives. For Hafferty and Ericson, they are only manifestations of a larger phenomenon that cohere with a vast number of institutional agendas, including risk management, scientific progress, and military conquest (2006: 5). Thus, the development of surveillance as a permanent social condition not only renders the State attributions more effective but, in Hafferty and Ericson words, has been designed to accomplish a number of new governmental goals.

These goals are usually unclear. However, questions of national security have inevitably been used to shape any discussion involving surveillance for the past fifteen years. The attack of September 11, 2001 can be considered a mark that intensified anti-terrorism policies and its consequences for privacy inside and outside the United States, increasing the power and budgets of intelligence agencies. David Lyon, an author of several books on surveillance, argues that American citizens accepted a certain loss of privacy for security without wonder what exactly was happening to their personal data, in part because the media have reiterated the trade-off (Lyon, 2006: 38). Since then, data are thus being processed for various purposes, whether to secure airports from guerilla fighters or to intercept messages from possible conspirators. More recently, the already mentioned wake of the leaks from NSA whistleblower Edward Snowden also served to intensify these monitoring regimes rather than decelerate them.

In addition, to fulfill the concept of a 'society of surveillance', we have to consider the employment of these techniques by other social actors beyond the State. For Mary Coyne, private initiatives that work with data collection can embody practices that are even more pervasive due to their close relation to our consumption habits (Coyne, 2015: 2). Regardless the constant disclosure of our personal choices, Coyne draws attention to the fact that private institutions have economic interests that are not compatible with anyone else outside the relation marketer-consumer. These companies, therefore, are not able to argue in favor of a greater, collective benefit in exchange of privacy violations as the State usually does.

Martin Innes is another author who tackles the role of surveillance within private organizations. For him, this is an important time to discuss the performance of social filtering led by shopping experiences, especially because the nature of the contemporary political economy is increasingly changing its focus from processes of production to processes of consumption (Innes, 2003: 124). So, in a system oriented by consumption, all the information about social media reactions, clicks, *likes*, and interests of potential customers have economic value because it ties them to socio-demographic data (or big data). When combined with other variants like financial income or educational status, these data form the basis for detailed predictive profiles, supporting sales campaigns and content strategies (Innes, 2003: 124). Although the term 'big data' ordinarily refers to broad sets of information, often discarding individual identities, it is virtually impossible to know whether particular records are being accessed by interested parts.

Critics have noted that the intense use of market surveillance intersects with two dimensions of trust. On one hand, it is a response to the advertiser's declining trust in traditional marketing practices. According to Hafferty and Ericson, as digital technologies exhausted the long-established way of making commercials, marketers were led to explore other forms to ensure that consumers will attend to their solicitations. On the other hand, there are efforts to enhance the public's trust in the corporate activities. Advertisers are then experimenting with methods that aim to insert themselves unfiltered into the domestic life, encouraging customers to accept new services tailored to their personal characteristics and desires (Hafferty & Ericson, 2006: 286).

For Hafferty and Ericson, this proximity can induce a high level of anxiety in consumers. While media-based loyalty programs gain traction, the marketer-consumer relation is transferred to a closer sphere of social consideration, and any slight mistake can quickly lead to feelings of discrimination, anger, and suspicion. To cite a practical example, social media, mobile services, and user interfaces such as the ones owned by Google can embody algorithmic systems of data-harvesting that defy our state of unwanted exposure. Thus, a con-

sumer can find him/herself being identified by companies as an undesirable target group or publicly associated with an inconvenient geographical location or event, generating levels of anxiety that were unimagined in other times (Hafferty and Ericson, 2006: 302).

## SURVEILLANCE REGIMES AND AESTHETICS

The field of surveillance studies has grown rapidly between the tensions involving both public and private technologies of communication. Since the work of Michel Foucault, *Discipline and Punish* (1977), it became clear that technology would be a decisive issue in surveillance processes. Although, they took quite specific forms in the past two decades, becoming systematic and embodied in modern life organization rather than just institutionalized as Foucault suggested in the seventies. Loyalty programs, website cookies, digital identity schemes, and branded health monitoring can all qualify as forms of surveillance. In a recent publication, the Surveillance Studies Network, an international research hub on privacy, attributed to this field of study the responsibility of thinking about surveillance not as an Orwellian all-knowing oppressive force but as something which is slowly permeating into our complex, multi-layered life (SSN, 2014). Their main concern is that surveillance power becomes ubiquitous, its application taken for granted, and its consequences unnoticed.

In the book *Theorizing Surveillance: The Panopticon and Beyond* (2006), David Lyon stresses that “the more stringent and rigorous the monitoring regime, the more it generates active resistance, whereas the more subtle the strategies, the more it produces the desired docile bodies” (2006: 4). This is a hypothesis first elaborated by Foucault which is still relevant nowadays. It introduces the idea that *soft* methods and technologies of surveillance can exert a disciplinary power on individuals or communities, seducing participants into a stunning conformity of which some seen barely conscious. Following Lyon’s words, the other end of the spectrum may generate moments of refusal and resistance. Those who engage in opposition, therefore, normally work on ways to create awareness around the

experience of being surveilled. In general terms, this is what defines the aesthetics of surveillance art.

Surveillance art can manifest in many forms, from sculpture to computer programming, but every different manifestation offers a critical response to the rise of surveillance and the role of secrecy in this process. For Andrea Mubi Brighenti, one of the first scholars to mention this expression in 2005, by questioning secrecy, this kind of art also suggests that we started to regard surveillance not as a merely set of techniques focused on data flows but as a whole system involving a handful of actors hidden on the other side of the inspection apparatus (2010: 3). Thus, a recurring resource throughout the movement of surveillance art is that of a dialectic interplay between revealing the watchman and countering its power, often to preserve or take back privacy. In other words, as soon as an artist becomes familiar with such unilateral force, s/he is compelled to both cancel its influence and/or interrogates its ulterior identity.

This interplay has aesthetic unfoldings. It frequently shows that who has the capacity to produce or access sensitive information has also the power of controlling it from others. This power normally relies on an immense deployment of capital and expertise accumulated in the form of technology, which ends up being revealed in the artistic process. According to James Bridle, an artist and technologist,

*“each image [outputted by technology] is a link, hardcoded or imaginative, to other aspects of a far greater system [that comprises] storage and distribution; the actions of filters, codecs, algorithms, processes, databases, and transfer protocols; the weight of datacenters, servers, satellites, cables, routers, switches, modems — entire infrastructures, physical and virtual; and the biases and articulations of disposition and intent encoded in all of these things, and our comprehension of them”* (Bridle, 2013).

The art of James Bridle is a prime example of how governments and corporations are being questioned about their deliberate engagement with illegal, or at least immoral, surveillance programs such as drone operations promoted by Washington in the Middle East and beyond. For him, technology, by its very nature, makes these engagements more accessible and potentially more visible because it has to be materialized, to some extent, in lines of codes that any process requires in order to function (Bridle, 2015). These traces can, therefore, be analyzed and explored if one has the tools to do so. Thus, it could be said that Bridle's working methodology consists in unpacking the designs of power structures and systems in order to make the operation of its politics visible in a number of manners.

In addition, Bridle firmly believes that an essential point of producing this kind of art is learning how surveillance systems work. Hence his interest in Internet infrastructure and the way in which networks behave. According to him, if we understand these processes, we can also grasp other complex expressions of politics embedded in their surface (Bridle, 2015). A vivid example is the historical development of the Web and its inherent link with military agendas, one being a way to index the other. In other words, such approach to art, even if not always explicitly related to surveillance, suggests that we need to explore the particularities of each specific media and the uniqueness of their mode of operation in order to find out what technology is really doing to us.

Seen from this perspective, art practices can start suddenly to look like software and hardware criticism. But if we consider that artists are finding creative applications to a variety of common things that was first unimagined as being surveillance apparatuses, from Excel sheets to plastic bags that can now be *read* as passive 'visual microphones' (see MIT's CSAIL), it becomes also urgent that we start to reimagine or expand the boundaries of art to include in it all the possibilities that scientific advancements unlock. Undoubtedly, a major concern in surveillance art is the societal failure to engage critically with technology, just consuming it as any other product without an elucidative judgment of its possible outcomes. But, at the same time, this seems to be a motor for artist's creations and what is giving shape to their work.

So, in a sense, the way in which these artworks are being formed can also relate to a signaling mechanism that warns us about potential consequences of misuse of consumer technologies, or to issues regarding the political nature of the production and distribution of media by superstructures that we cannot understand or access. This line of thought is complementary to Marshall McLuhan's later description of artists, which he wisely described as an early warning system that can always be relied on to tell the culture what is happening to it (1964: 77). Thus, ultimately, it could be said that surveillance art is analogous to a fight to retain control over our comprehension about the essence of software and hardware operations and about the privileges that they sustain or reinforce, an effort to keep our interaction with technology in a clear, objective level.

## MEDIA THEORY AND NEW MATERIALISM

Considering that surveillance art often deals with disguised apparatuses of control and their status of visibility and invisibility, a question starts to gain substantial importance: how to react artistically in a situation in which a lot of things are losing tangibility? Besides the power of information holders to keep it out of reach, the fact that media itself is becoming immaterial — from cloud computing to remote servers to apps — is a critical issue that must be taken into account in order to properly analyze the boundaries of this movement. In general lines, the capacity to produce increasingly simple and seamless technologies, facilitating in one hand the inclusion of average consumers in this market but managing digital rights by restricting access to proprietary works in the other, is rendering the functioning of devices, services, and platforms technically incomprehensible for us.

In this chapter, I want to tackle how these systematic simplifications are fostering surveillance practices and the way in which artists are digging deeper in the technical aspects of consumer technologies in order to comment or counter their abstractions. Hence, to illustrate this process, I will need a methodological set of tools. That is when Jussi Parikka's media archaeology presents itself as a useful way to assess surveillance artworks and their reasons for being, emphasizing moments when hardware or digital formations that obstruct, disrupt, or interfere with the computing norms become willful actors. For media-archaeological research, aspects of knowledge generation are no longer conceived as being exclusively man-made, but as influenced by the employment of technology and its embedded processes that often manifest themselves in a material form.

According to Jussi Parikka, media archaeology consists in the fascination with objects, apparatuses, and structures — either remnants of a past culture or parts of the present moment. Media archaeology takes these forms as main components to evoke alternatives to the established media history, making way for important insights into the assumed-natu-

ral state of technology and its narratives of use (Parikka, 2012: 64). These practices trace back to Foucault's discourse analysis, but primarily incorporate Friedrich Kittler's notion of *discourse networks*.

In the book *Discourse Networks 1800/1900* (1990), Kittler presents his influential approach to media theory arguing for an autonomy in technology that counterpoints Marshall McLuhan's reading of it as merely 'extensions of man'. For Kittler, underlying channel conditions, or the rules set by institutions behind them, are central to any society's production, selection, and storage of knowledge. He cites as an example the role of schools and universities as pieces inherently connected to the printing industry, which, in turn, determined the unfoldings of literature and its criticism as a whole (Kittler, 1990: 369). In order to describe such mechanisms, Kittler proposes a step back from the position of a mere interpreter, taking Foucauldian discourse analysis as a starting point to review the guidelines by which these processes have been organized. However, he gives a refreshing perspective on Foucault's ideas by including metadata, the architectural information that defines or describes the ones that are designed to be accessible, as an extra layer to question structures of power. In other words, Kittler wants to explore the technical conditions that permit any discourse to exist in the first place. For him, Foucault's historical research did not progress much beyond 1850, excluding, for instance, the operations and protocols of the second industrial revolution, the period which not only electrical machinery but modern methods for managing large scale businesses came into use (1990: 369).

Following the thoughts of David E. Wellbery, the new perspective proposed by Kittler escapes the level of the text, situating within the writing system, that in its various arrangements organize information processing (Wellbery, 1990: xii-xiii). In other words, it goes beyond the classical theory and methodology of interpretation, also known as 'hermeneutics', proposing a closer look at the language of the medium itself: the discourse of technical performances and standards that mechanically reproduce and reiterate power relations.

## POST-HERMENEUTIC CRITICISM AND THE OPERATION OF THE SYMBOLIC

In his work, Kittler mentions that the indexical nature of technology changed in the second half of the nineteenth century when the invention of the typewriter, the gramophone, and film allowed for a transcription of the communication without the direct intervention of the human body. Strictly speaking, these new advancements increased the gap between the transmitter and the message by adding an automated characteristic to the channel situated between both edges of the system, concealing, for example, what the formal aspects of handwriting could tell about the writer beyond the content of the message itself. According to John D. Peters, this was a moment in which the work of machines and devices started to take tasks (drawing, seeing, hearing) that once were thought to be unique to humans (Peters, 2010: 11). For the first time in history, therefore, analog media freed the act of textual representation from our hands and the act of visual perception from our eyes, but not without shaking its standards. Kittler addresses this paradigm shift calling our attention to the sudden decrease of media's capacity to carry sensitive information, or its ability to disclose vestiges about the transmitter. As a result, these new technologies ended up enabling that "the technical recording of the real entered into competition with the symbolic registration of the Symbolic" (Kittler, 1990: 229-230).

This process is better illustrated by Jean Baudrillard, who first drew in Barthes' semiotic structure to state that, in the post-industrial age, signifier-signified links are not clear anymore but subverted in favor of a play of signs and their meanings (1993: 29). He cites the craft of filmmaking as an example that creates a message that does not refer to its production on the set, inviting instead the audience to *read* it in a different, external manner: a perpetual re-examination of the code. Thus, just as Jean Baudrillard, Kittler interrogates these new forms of communication and the consequent immateriality and lack of referentiality brought by them as processes divorced from the objects that they represent.

This dialog between the real and the symbolic reached more critical standards when electronic signals started to integrate consumer goods such as the television. Peters argues that in contrast to film, television was no longer optics. Unlike the possibility to look at a film reel and see whatever it is captured in the frame, in electronic transmission one can eventually intercept signals but not verify them because they only exist as an immaterial energy (2010: 3). This immaterialization of mediation continues until the establishment of the computer era, when, according to Kittler, digital image processing represented the liquidation of the last remainder of reality (Kittler, 2010: 226). So, in general, by appropriating the up and coming means of communication, we started to experience what is to live in the age of data-processing, characterized mainly by the simulations and replications of the natural world by technology, which, in Baudrillard's terms, negated the solidity of everything we knew or used to take for granted.

In order to understand the impact of the digital in the constitution of our media culture, Kittler looks for an answer in connection to Vilém Flusser's notion of the virtual abolition of all dimensions:

*"In Flusser's model, the first symbolic act, which began at some point in the prehistory of human civilization, was to abstract a three-dimensional sign out of the four-dimensional continuum of space and time. This sign stood for the continuum, but because of this dimensional reduction, it could also be manipulated. Some examples are obelisks, gravestones, and pyramids. The second step consisted in signifying this three-dimensional sign through a two-dimensional sign. A gravestone could be signified by a painting [...], which again increased the possibilities of manipulation. The third step was the replacement or denotation of the two-dimensional through the alleged one-dimensionality of the text or print. [...] What all of these reductions had in common was that the  $n-1$  dimensional signifier at the same time concealed, disguised, and distorted the signified, that is,  $n$  dimensional" (Kittler, 2010: 227).*

For Kittler, this model helps to clarify his effort to overcome an hermeneutic concept of reality in the post-industrial era. During this period, Kittler argues, computers replaced one-dimensional texts by bits, bytes, and algorithms, representing the successful reduction of all dimensions to zero. Hence, in order to grasp the ontological aspects of our media today as a symbolic manifestation, we cannot only track its historical elements using Foucault's interpretation but go further in what concerns computer infrastructure and how the supposedly ephemeral notion of software is strictly connected to the very physical reality of hardware.

This dimensional decrease brought by the digital made engineers come up with different attempts to metaphorically represent the logic of machines. This happened not to search for visual realism, Kittler says, but rather to open up the programmability of computers, at least partially, to users (2010: 227). Therefore, systems like UNIX, which introduced the one-dimensional command lines in the 1960s, and the two-dimensional user interface created by XEROX and popularized by Apple in the 1970s, can be understood mainly as endeavors to expand operations and working possibilities. However, Kittler states that one cannot address a computer interface (and its historical development to look and feel like physical entities) without considering its strong ties with the Symbolic and the management that these systems impose on our senses, and ultimately, on our bodies. In other words, one could say that the rehearsal of scientists to increase the number of dimensions and generate a greater control upon machines also collaborated to our own exposure to several machinic regimes.

David E. Wellbery argues that the assumption of the body in the discourse networks approach is what motivates Kittler's critical enterprise. For Wellbery, this is important because technical media often forces new types of languages or inscriptions on users, subjugating them by merely leaving a secondary position in which they have to accommodate in order to assimilate new system's standards. Thus, the inclusion of the body in this analysis defines, above all, the point of reference for the post-hermeneutic criticism model, estab-

lishing, therefore, “the site upon which the various technologies of our culture inscribe themselves” (Wellbery, 1990: xiv). Technologies here can be understood, in accordance with Parikka, as sets of media that involve techniques for regulating the body and teaching it certain patterns and institutional relations, engaging with effects and affects rather than producing meaning (2012: 71).

We could say, therefore, that the concept of discourse networks follows the Foucauldian lead to delineate from where power emanates but also contextualize it in position to recent technology, offering insights on how these forces work in the contemporary times. Moreover, it functions beyond the analysis of the rules governing discourse, accounting also the agency of material factors found in every system that stores, records, and processes data. In sum, this model does not seek to disclose meaning behind information and representations but in the coding of the communication itself and the internal mechanisms that regulate it.

## THE MEDIA-ARCHAEOLOGICAL METHOD

Jussi Parikka starts his own methodological endeavor celebrating Kittler’s technical contribution to the field of humanities. For Parikka, this author was crucial for relating both archaeological (conditions of knowledge) and genealogical (history inscribed in various bodies or materials) theories to media studies (2012: 68). However, Parikka expands even more this line of thought proposing alternative ways, some of them practical, for writers, technologists, and artists to engage with and criticize media from its material perspective. According to him, not only the design and engineering of circuits can offer hints on how power became hardwired to technology, but also what he calls ‘informational materialities’, namely, noises, disturbances, and anomalies that under certain conditions can point to new forms of control and governmentality in the software age.

In addressing formations that are mainly metaphorical and treating them like matter, Parikka is borrowing a working concept from materialist thinkers like Bill Brown and Tim Ingold. In the book *Thing Theory* (2001), Brown argues that objects are related with codes that we use to make them meaningful, making one contest these same objects if, for instance, they are perceived outside a particular in-use context. Therefore, once apart from a 'discourse of objectivity', objects lose their subject-object relation and become *things* (2001: 4). In Brown's words, to grasp a thing is to join the underlying circumstances that rule it, revealing the material qualities of its identity. Thus, Parikka proposes that we see the edge conditions, the non-standards of our digital tools as a way to take them from the referred in-use context and start thinking about their inner, hardcore features. We could also say that Parikka applies Brown's ideas on digital noise and software anomalies in order to analyze it in Kittler's terms, which was before problematic because of the very immaterial nature of them. So, ultimately, and in accordance to Parikka, we need to rethink fundamental metaphysical notions as form and matter to contextualize it to the age of mathematical machines, i.e. computers (2012: 81).

Seen from a media-archaeological perspective, anomalies become central. They evolved from being just an unwanted element in the communication process, or even the non-communication, to a more defining feature that collaborates to how media can be understood. To take this point of view is also to think peripheral objects that became visible or audible (to the extent that they compete with the system's own protocol) outside the box, problematizing them as formal or aesthetic manifestations occasioned by underlying motives.

For Parikka, this motives can often connect us to wider economic, political, and cultural contexts in which technology takes part, including the way it builds platforms for social relations and identity (2012: 144). These are, above all, issues of everyday life. So, in these contexts, media-archaeological research is interested in the deconstruction of myths of progress, the linearity of time, or assumptions that underpin the most mainstream ways of understanding media. For example, consumer software such as games being treated as

mere entertainment tools without previously considering their entanglement in histories of science and war, or their relation to the government of bodies.

In order to find such uncanny communication objects and try to contextualize them, Parikka proposes two main forms of 'excavations'. The first consists in engaging with the past to learn from the obsolete, the repressed, and the forgotten. For Parikka, this method has the potential to question the present media culture by investigating historical factors of marginalized or out-of-date technologies. The second is more oriented towards the interior of computers and addresses the present. Such attempts focus on opening up machines, getting involved with processes, controlling codecs and algorithms, hacking hardware and software, and other practices that are closely related to the political economy of information technology (Parikka, 2012: 140). Despite being different in what concerns timeframe, both approaches take for granted that media, in its various layers and specificities, embodies and reflects not only human elemental characteristics, but the characteristics of things themselves, of protocols and circuits that can be assimilated and then disrupted by artists, technologists, and researchers.

## REASSEMBLING MEDIA NARRATIVES IN SURVEILLANCE ART

According to Garnet Hertz, exploring consumer products outside of their standard purposes is a key tactic in media-archaeological excavations, and, in more general terms, in contemporary art practices (Hertz, 2012: 3). It might date back to 1910s' early avant-garde artworks such as the *readymades* by Duchamp but, as a great portion of consumer commodities became electronic since then, artists have now considered computers and household gadgets as their raw materials. In addition, it could be said that in the last decade we have seen new media presenting itself in online, ephemeral formats instead of downloadable files, and artists are also taking these blurring limits of technology in account in order to comment on issues like the black-boxing of devices and platforms, and the interior inaccessibility of everyday products.

In part, the lack of access to consumer gadgets is being established by an industrial practice called digital rights management (DRM), which consists in imposing restrictions to what users can do with digital media. Practically speaking, it can vary from simple design choices, such as using proprietary formats for screws and cables, to digitally preventing people from accessing or sharing content without an online account. To Richard Stallman, president of the Free Software Foundation, the motives behind DRM schemes comprise the increase of profits for manufacturers and more control over production and distribution of media, avoiding intellectual property from being copied freely. But, according to him, “profit is a side issue when millions of people’s freedom is at stake; desire for profit, though not wrong in itself, cannot justify denying the public control over its technology” (Stallman, 2016). In relation to this, DRM techniques can also give companies the power to carry out large-scale surveillance over people’s habits due to the inherent network connectivity that now accompany almost every piece of technology.

The Italian collective of writers Ippolita states that today, web applications are about to replace almost every software that has ever been created, alongside to our necessity to own personal computers. Even the very idea of managing archive systems is fading as the offer of personal online spaces are increasing and thus leaving hardware devices with the mere task of providing access points to the *cloud*. “Instead of speaking of files and folders, devices now speak of services and features” (Ippolita, 2013: 9). This development was first noted in the music industry after the release of iTunes but now has been extended even to our most sensitive documents by the use of office suites such as Google Drive. The lack of stored files, therefore, contributes to issues concerning the management and maintenance of valuable data by corporations and raise questions about how privacy, surveillance, control, and access are being shaped in digital environments.

In what regards surveillance art and its representatives that I chose to compose this thesis, namely, James Bridle, Clement Valla, Mishka Henner, and Jenny Odell, their methods and forms of operating are being used to mainly reappropriate the space organized by

‘techniques of sociocultural production’, adopted in this case by private initiatives such as Google and its mapping services (Hertz, 2012: 4). Domenico Quaranta, another author who reflects upon contemporary art practices such as data collecting, suggests that these artists are countering a networked ‘database’, understood also as a structure of power, by selecting whatever they feel that can or should be included in a meaning system created to preserve human memory. So, by choosing relevant digital structures on Google’s representation of the world and exposing them, “they describe, critique, and finally challenge the dynamics of the database, forcing it to evolve” (Quaranta, 2011: 18).

As previously stated, the most evident concern of these artists has to do with the unclear way that Google manages its services and the means that this company uses in its attempt to create a new type of industrial production built on all the information that it collects. Once developed and widely deployed, Google applications such as Google Earth are understood by users only as convenient instruments that serve to particular functions: find an address, guide a trip, or check the surroundings of a given district or neighborhood. However, the inner workings of this platform follow unknown, as a ‘black box’ that processes input into output without our full awareness of its technical conditions. According to Garnet Hertz, technologies like these are intentionally created to render their mechanisms invisible and usable just as *punctualized* objects (2012: 7). ‘Punctualization’, a recurrent jargon in Bruno Latour’s work, describes a design paradigm that places components together into a system perceived as a single structure, hiding, therefore, the real, much complex state of the materials in its interior (1999: 184).

It is further important to mention that the black-boxing of Google’s mapping services can be considered part of the operation of the Symbolic mentioned before, where consumer goods start to lose their physical tangibility and the consequent possibility of technical comprehension and intervention by average users. So, when analyzing Bridle’s, Valla’s, Henner’s, and Odell’s artworks under Parikka’s methodological perspective, we could argue that they are using uncanny satellite images as meditations on the very political nature of mapping,

where not only the apparatuses but the rules, the biases, and the decisions that are an inherent part of this enterprise are gently hidden from the eyes of the public in order to avoid further inconveniences. Moreover, these artworks highlight issues of perspective and power relationships — the privilege of the overhead view, the monopoly on the technological agency which produces it, and the state of privacy it violates.

## SURVEILLANCE ART: INTRODUCING BRIDLE, VALLA, HENNER, AND ODELL

At this point, a closer reading is required in order to recognize and understand the specific points that surveillance art criticizes, but also the technical choices that some artists are making to create their works. So, starting with James Bridle and passing by Clement Valla, Mishka Henner, and Jenny Odell, all key figures that use Google Earth as their medium or as part of their processes, we will investigate how technologies used in digital mapping can determine art practices and aesthetics. The intention is to go beyond the formal elements and include the institutional relations and social contexts in which the selected artworks were produced.

### JAMES BRIDLE

Bridle's series of installations *Drone Shadows* can be considered a contemporary landmark in terms of revealing political intentions and their underlying structures that are normally hidden from our eyes. Obsessed with the issue of public inaccessibility to warfare information, Bridle wanted to stand in front of a drone to grasp the real size of it. So, using a schematic downloaded from the Internet, he outlined the shadow of a Predator aircraft in a public space with white ink, a 1:1 scale on the ground. Following Bridle's own description, as soon as he first did that, he realized that he hit upon something quite serious and powerful because it immediately communicated the scale of these things, or, from another

angle, the political, social, and technological conditions that permit the existence of such huge pieces of machinery. But, by just drawing the outline of the drone, Bridle also emphasized the invisibility of their presence and the fact that there is a void at the center of this discussion (Bridle, 2015).

According to Alice K. Ross, a member of Bureau of Investigative Journalism based in London, drones are used in three main ways. These applications include surveillance in the military and civilian contexts, military armed strikes alongside conventional weapons, and covert drones. The last type is used away from the battlefield to kill specific individuals or to target selected groups, consisting therefore in the most problematic area of the use of UAVs (Unmanned



DRONE SHADOWS BY JAMES BRIDLE

Aerial Vehicles) considering its legal and moral issues (Ross, 2015). Thus, with *Drone Shadows*, Bridle highlights the fact that there are very unequal relationships between governments, private institutions, and communities, in which some parts have far more agency than others. In this case, he draws attention to the ‘inverted materiality’ of these tensions or its lack of visibility. Bridle also affirms that, in the artistic and technological plan, we can all have the ability to develop vastly increased agency — “and if we’re not, there is probably a political or power-based reason that justifies this incapacity” (Bridle, 2015).

From another point of view, we could say that *Drone Shadows*, or surveillance art in general, also question the interest of the technology’s beholder in keeping the link between the watcher and the watched dubious, encoded, or inaccessible. This interest is often reflected

in our incapacity of questioning the *status quo* of how surveillance imagery is displayed in the vernacular realm of society, as, for instance, the contrasting position of the viewer and the viewed in any aerial photograph such as the ones used by drones or satellites. So, in making these connections invisible and silent, these inequalities are bypassed and not properly inquired. In sum, every surveillance artwork can be also interpreted as a direct critic to the social culture that allows the emergence of secret or somehow covert objects, platforms, and services produced by both public and private initiatives.

There is a general agreement that drones are one of the most mysterious artifacts produced by our contemporary society. It could be argued that it is partly because they are designed to be invisible and partly because they became a materialization of the violence that they represent: a distant one, impersonal, and unannounced. But despite the fact that drones are built to fly in a great distance overhead, making almost impossible to notice them without technological assistance, they still can be spotted in this age of pervasive, constant surveillance. It is clear that an early inspiration for *Drone Shadows* was an image from Google Earth made public by Bridle in another project, which illustrates an actual shadow of a UAV that was shooting photos in a noonday sun. This image is important because it disclosed an accidental residue of a non-human performance, a data-harvesting process that somehow reminded us about a surveillance system. As discussed before, such accumulations of technology, when revealed, can warn us about social or political structures that, being hidden, seem nonexistent.

James Bridle's *Dronestagram* is another ongoing project that relates both with UAVs and Google Earth. It is actually an Instagram account where Bridle posts images from Google Earth of locations where drone strikes have occurred following the reports of the Bureau of Investigative Journalism. In this work, Bridle tries to highlight the fact that the places described in a problematically vague way by the news naturally exist and can also be pinpointed and accessed by anyone with a laptop and an Internet connection. According to Mary Coyne, art historian and critic, by simply re-posting readily available information



DRONESTAGRAM BY JAMES BRIDLE

of geographical locations, Bridle transforms this platform in a central component for a new form of photojournalism, creating social awareness about violent drone activities “by actually revealing nothing at all” (Coyne, 2015: 2). Following this line of thinking, it could be said that Bridle is building upon average journalism investigation and demanding a more technological effort of its practices, also claiming that the existence of institutional discourses is not only related to media networks and computational developments but to clear political positions that influence the publication of such images.

## CLEMENT VALLA

Clement Valla is an artist notorious by his collection of found uncanny structures in Google Earth. Challenging the accurate visualization of the planet’s superficies proposed by Google, Valla gathers three-dimensional models with competing data inputs, resulting in a range of distorted bridges, roads, and buildings. Using his own words to describe *Postcards From Google Earth*, the artist defines them as “strange moments where the illusion of a seamless representation of the Earth’s surface seems to break down” (Valla, 2012). At first, they look like glitches or errors in the algorithm that makes these representations. But a closer analysis suggests that Valla is drawing a line around phenomena emerging from the networked systems that rule this mapping service, in which the performance of digital processes erupts into our domestic life. In other words, these structures can be rather considered as visible seams that, again, can alert us about the agency of veiled or unknown arrangements behind them.



POSTCARDS FROM GOOGLE BY CLEMENT VALLA

Valla argues that, in denying a possible algorithmic error, he realized that these images are the absolute logical result of the system's working processes: an edge condition that exposes how Google operates, focusing our attention on the software (Valla, 2012). Limited as these systems are, they sometimes can work as slits that reveal another point of view, or even a new model, of seeing our world. So, not only Google Earth provided a wealth of tools for navigating maps but also made visible data that was only metaphorical before, allowing artists to question the oddity of certain structures that eventually appear on the map. Artworks as *Postcards From Google Earth*, therefore, invite us to examine the different forms of thinking that involve the creation of these particular tools, enabling us to understand the biases and intentions beyond their identities.

## MISHKA HENNER

Focusing more on questions of privacy, Mishka Henner is an artist that also works compiling strange forms that emerge on the digital texture of Google Earth. Henner's iconic *Dutch Landscapes* are representations of censorship located on the territory of The Neth-

erlands, highlighting the concern of this government about the sudden visibility of political, economic, and military locations enabled by new mapping technologies. According to Alex Garkavenko, a writer on art and technology, security agencies exerted considerable pressure on the suppliers of these images to censor vital sites to national security. Since then, the techniques used can vary from country to country, including the use of cloning, blurring,

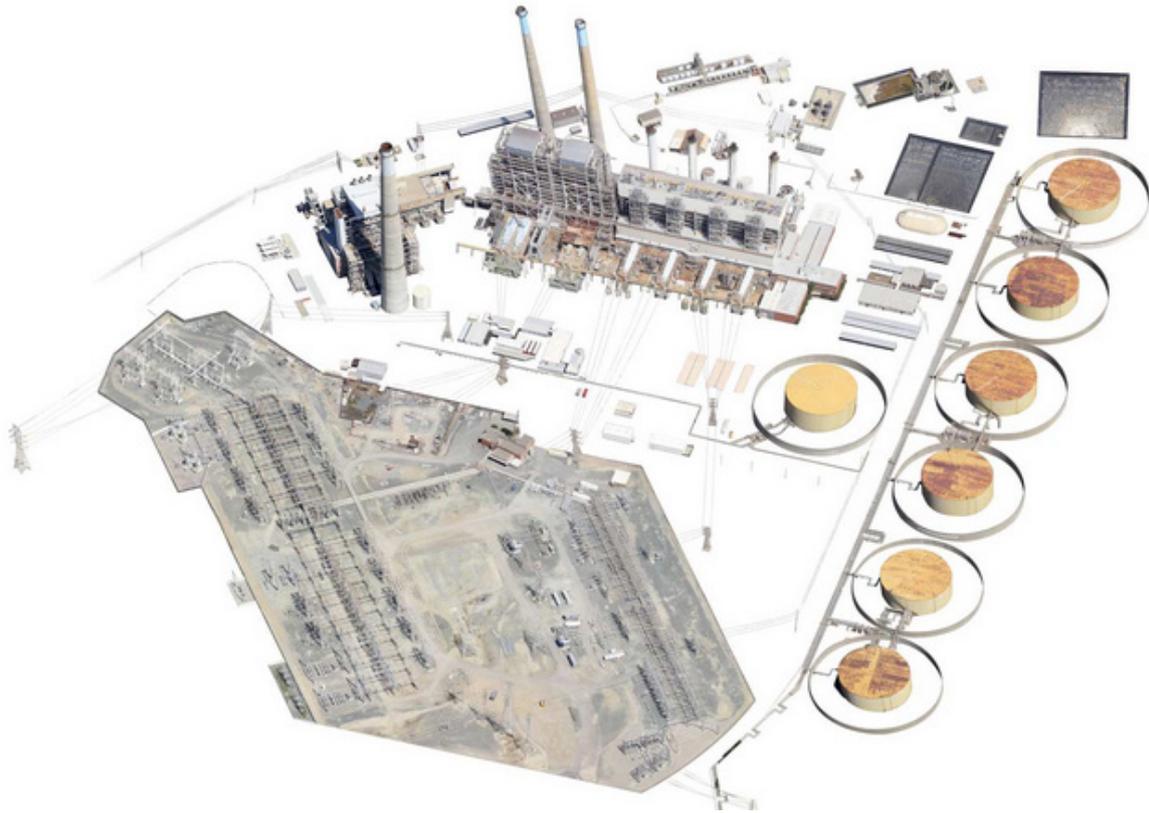


DUTCH LANDSCAPES BY MISHKA HENNER

and whitening out places of interest (Garkavenko, 2013). But for Mishka Henner, one of the most vociferous of all governments to enforce this form of censorship were the Dutch, hiding hundreds of fuel depots and army barracks throughout their relatively small country (Henner, 2011).

The Dutch were also chosen due to their notable style of interventions compared to other countries: they imposed harsh, multi-colored polygons that resemble a dazzle camou-

flage over the sensitive places rather than more subtle and common techniques used elsewhere. As a result, *Dutch Landscapes* is aesthetically defined by the contrast between the computer-assembled blockages and the rural environments surrounding them. Besides these novel forms of visual disruptions proposed by governments, executed by Google, and captured by Henner, he says on his website that he didn't intend to make any grand political statement. However, as indicated before, to unpack the designs of power, calling attention to surveillance technologies, is also to reveal the operations of its politics in various ways.



SATELLITE LANDSCAPES BY JENNY ODELL

JENNY ODELL

Jenny Odell's *Satellite Landscapes* is another example of how Google, or at least the new ways of looking at the world that Google engenders, is fostering some interesting creative projects. In this collection, created for her MFA in design technology at San Francisco Art Institute, Jenny Odell chooses from a vast array of rusting cylinders, oil rigs, landfills, waste ponds, entire industrial plants — the strangest infrastructural architecture — and digitally cut them out from Google Earth. Then, she reassembles these structures in a white canvas, removing their surroundings to therefore reproduce it in a type of photographic print. In sum, Odell uses Google Earth, a tool originally developed to locate an address on the map or to find directions from one place to another, to question edifications that are somehow strange to us but usually goes unnoticed. She argues that, by using an inhuman point of view, one that we were never really meant to see, the artistic process ends up interrogating these constructions, disclosing valuable information about our own nature as social beings able to produce such arrangements (Odell, 2013).

Another well-known series by Jenny Odell that uses aerial imagery is *All the People on Google Earth*. Here, the artist seeks Google Earth's surface after crowds and does the same process described before, cutting the landscape out from under the people in order to isolate them in a 'non-space'. This time, Odell calls for the strangeness of "a world in which we take for granted the ubiquity of cameras and the proliferation of our own images", adapting the expectations about privacy in public spaces to the reality of top-down surveillance practices (Odell, 2011). Despite the most curious situations that people are caught, another interesting particularity of this project is that when crowds were in the proximities of sensitive places such as a military site, the representation of their bodies are much blurrier compared with those who are in regular areas. This pattern, among others, reveals the politically-oriented decisions that arbitrarily limit the true potentiality of this software to a non-technical audience.

We could account, therefore, that the work of Odell doesn't simply inform the otherness of found objects.

Instead, there is a double bind, a two-fold deployment where changes in perspective can unlock new possibilities. First, the point of view of the bird's eye, which allows us to see the previously hidden face of a building or the strange ways that crowds are organized. Then, the perception of the audience, which is impacted by the singularity that Odell proposes in the isolation of her objects. Thus, positioned in a new context, captured in the artist's frame, these disrupted entities lose their usual sense of function or identity, foregrounding their latent qualities to evoke new associations of meaning.



ALL THE PEOPLE ON GOOGLE EARTH BY JENNY ODELL

In order to elaborate the previous analysis, that briefly summed up the intersection between surveillance and art — its politics and aesthetics, the influence of Jussi Parikka have stood out. His contribution with a methodology for artists to dig into the background reasons of why certain accidents, deviations, and reversals have come to exist is imperative. These artists also have built upon Parikka's thoughts and developed different ways of conducting such archaeological investigations. For them, to rethink surveillance in relation to our current media culture is to go beyond the Symbolic and encounter on the level of the hardware the political conditions that make this mapping system's very existence possible. In addition, it could be said that the endeavor of these artists to reach Google Earth's *modus operandi* ended up revealing its hidden mechanisms deeply embedded in a Silicon Valley's mindset, in which myths of authenticity, meritocracy, and entrepreneurialism are central parameters.

Yet, there is a final issue that deserves attention in what concerns Parikka's method: what does an archaeology of Google Earth looks like when we do not go inside the platform itself but question its media history? The answer seems to refer not only to the aesthetic revelations behind Google's graphics but how the point of view of this company is used to write codes and algorithms vital to the properly function of the whole mapping system in question. That is when the Universal Texture, the Google patent that merges visual inputs onto a model of the entire globe, appears as an object of study of researchers, especially Clement Valla, who criticized it not just throughout art practices but via academic texts. So, from now on, the technical aspects of this patent need to be reviewed by a media-archaeological perspective that draws back a few steps in time in order to set an understanding of their impact on society. These excavations will take place in the next chapter.

## GOOGLE EARTH AND THE PROCESS OF DIGITAL CARTOGRAPHY

According to Jason Farman, the process of cartography and the ideological problems that accompany it has taken on new significance in the digital age (Farman, 2010: 870). For him, it has to do not only with the proliferation of maps by Internet browsers but also with our understanding of authorship concerning the production of these artifacts by new technologies. In short, Farman argues that supposedly neutral geographic information systems (GIS) such as Google Earth are always loaded with cultural implications but this issue is bypassed by a broad set of users due its strong connection with non-human processes.

Starting from this premise, and by using a media-archaeological research on the process of cartography mediated by Google Earth, this chapter intends to show that, at the same time that Google establishes a participatory way to gather data in order to set a relevant, geolocated mesh of information that sustains its database, this company normalizes surveillance, making it a necessary component for our daily online interactions with the services provided by them. Furthermore, the analysis that follows aims to cooperate with a theoretical complement for the work of artists who have pursued to criticize Google Earth and the consequences of its use.

### GIS AND GOOGLE EARTH: AN OVERVIEW

Caitlin Dempsey, the editor of GIS Lounge website, writes that GIS is a modern extension of traditional cartography with one fundamental similarity and one essential difference. The similarity lies in the fact that both a cartographic document and a GIS contains a base map to which information can be added, yet the difference is that there is no limit to the amount of data that can be linked to the second, effectively transforming static objects into dynamic, malleable ones (Dempsey, 2012). In fact, analog maps are made extremely simplified in order to accommodate a volume of data that can be easily read and understood

by a certain audience. On the other hand, GISs are often replete of layers that can be visualized or hidden according to one's desire without compromising the overall legibility of the document.

In a straightforward definition, GIS refers to a number of technologies used to visualize, analyze, and interpret spatial data, or even any other type of information that is geographically contextualized. Typically, the representations contained in GIS are divided in two: basic geodata (roads, edifications, waterways) and thematic geodata (rainfall amount, land use, population zones), with the balance between them determined by their specific applications (Grinderud, Rasmussen & Nilsen, 2009: 70). Also, geolocated data can be represented by raster images from satellites, aircraft, and UAVs, or vector images generated by computer aided design (CAD) software.

Thomas A. Wikle notes that, when computer-aided mapping techniques came into existence in the early 1950s, 'traditional pen-and-ink cartographers' were not very enthusiastic about them: these new features were considered rigid and could not match print media in terms of flexibility (1991: 37). The limitations back in that period, just to cite two examples, varied from harsh edges to the use of typography sets to represent complex data such as population densities. However, from mid 1970s to early 1980s, with the adoption of emerging graphical technologies by American, Canadian, and British agencies (at that time the Harvard Laboratory for Computer Graphics, the Canada Geographic Information System, and the Environmental Systems Research Institute), these systems saw a rise of popularity among specialists, politicians, and the military. Their acceptance also grew due to the increased data they could hold, allowing cartographers, in Wikle's words, 'to experiment with ephemeral arrangements' (1991: 37).

With the democratization of Internet in the 1990s, geographic information systems also experienced a huge development and consequent exploitation of its commercial possibilities. According to Farman, the inclusion of browsers as a feasible way to mediate GIS improved their usability, making the capacity to compare a wide variety of data a distinct quality in

modern cartography (2010: 871). Hence, at the consumer level, GIS has turned into a compelling Internet application that has prompted people to take advantages of it, such as browsing GPS coordinates, satellite imagery, and third party services, without considering its possible political, economic, and cultural outcomes.

In the midst of a modest rush to settle market standards, Google Earth ended up being one of the most popular and widely used Web-based GIS, alongside Yahoo Maps and Microsoft Bing. Originally called Earth Viewer and owned by Keyhole Inc., the system was a part of the many acquisitions Google became known for pursuing. According to its own website, Google Maps went live in February 2005, and just two months later, satellite photographs were added to better represent its visualization potentialities. On April of the same year, Google Maps came into mobile phones in the US, offering driving directions and local-based information to users. Finally, on June, Google Earth became operational, allowing people to take virtual journeys to any location in the world. Google Earth has since been downloaded more than one billion times (Google.com, 2016).

Essentially, Google Earth is a tool that provides one the chance to view our planet through a virtual globe, a three-dimensional representation, with the possibility to examine more zoomed, and therefore detailed, information whenever it is convenient to the user. By navigating it, it is possible to explore a mix of aerial images and 3D models that comprise not only landmasses but pathways, buildings, architectural complexes — entire cities; not mentioning other locations like oceans, the moon, Mars, and outer space. For Michael Harrington and Michael Cross, since Google enabled people to directly upload geographic information through its own social network, the Google Earth Community, this system gained substantial practical applications in important areas such as education, permitting students to access, for instance, migration flows or how cultures have evolved and interacted in different locations (Harrington & Cross, 2015: 1).

However, still in accordance with Harrington and Cross, other social uses of Google Earth can be related to less noble applications. As an example, police throughout the world have

used it in a variety of ways, from investigating crimes to sharing information with other parts, inaugurating therefore the usage of this system in the field of ‘digital forensics’ (2015: 2). Traditionally, forensics comprises the use of scientific techniques to investigate and establish facts in a criminal case through the analysis of fingerprints, fibers, and photographs in a hope to understand what occurred. In this new category, pieces of evidence are gathered from computers and other devices capable of storing information. This also includes geo-located data generated by mobile phones, tablets, GPS units, and a range of other software, but also satellite and aerial imagery extracted from Web services.



BIN LADEN'S HIDEOUT IN GOOGLE EARTH

A remarkable case involving such techniques happened in 2011. On May 1, social media platforms like Twitter buzzed with rumors of Osama bin Laden's death. Even before the US president Barack Obama takes the podium for the announcement, people headed to Google Earth to *pin* the location of the strike based on geographical information previously leaked on the Internet.

By using the timeline function available in the software, which displays older imagery of the terrain, users started to compare aerial photos between 2001 and 2005, finding significant construction vestiges on the spot — later described by the American security agency as a bunker composed by 12 to 18-foot walls and two heavy security gates (Kolakowski, 2011). This particular event sparked the possibility of a prior agreement between Google and the US government to supply the second with more detailed information about the surroundings of bin Laden's hideout.

Although GIS technologies have enabled the possibility to fight crime or terrorism more accurately, it also raised questions concerning the overall autonomy of the justice. Harring-

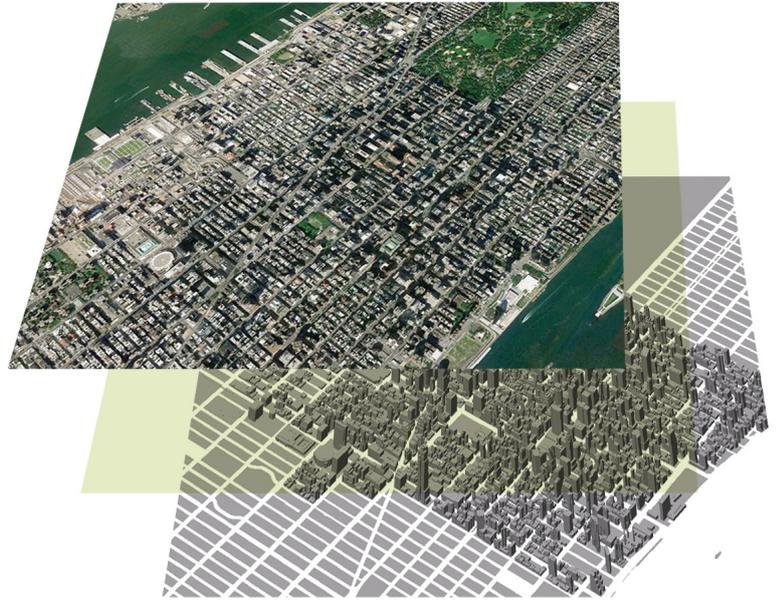
ton and Cross mention that, while a criminal investigation would customarily be conducted by members of law enforcements, digital forensics opens the field to private organizations that own these technologies and technicians such as members of IT departments (2015: 2). So, in this scenario, GIS experts and not lawmen may be the first to identify a breach in security or analyze crucial evidence hidden in aerial records, transferring, therefore, the power to generate proofs, or even incriminate individuals, to the private realm of society. Despite the urgency of this issue, it will be further developed when we approach Google's technocratic power in the next chapter.

One could say that the new advancements that merged geolocated technologies with social interactivity, what Harrington and Cross may see with excitement concerning the rise of the agency that is now allowed to users, turned out to be also a valuable source of information for numerous interested actors. The network that emanates from this symbiosis permits, if not forces, participants to leave traces related to particular movements in space for other parts to access. For Martin Innes, any remote possibility to track these residual data, from checkpoint mechanisms available for public review (as in Foursquare and Facebook) to more subtle forms of leakage, are tied with several issues that regard to surveillance methods (Innes, 2003: 127). A critique of these methods will be presented later in this text.

## THE UNIVERSAL TEXTURE

There is one main difference between Google Maps and Google Earth that informs how these systems were conceived: while the first works with fixed, top-down 2D perspectives — mostly useful for everyday logistics, the second embodies a 3D rendering function intended to accurately represent our world, permitting, therefore, a closer scrutiny on how it looks like when entirely mediated. However, according to Avi Bar-Zeev, a technologist who helped to develop Google Earth in its early stages, this distinction, or basically how they display data, is fading away as the products improve and converge (Bar-Zeev, 2011).

3D images used in Google Earth are generated through a process called *texture mapping*. Texture mapping has been improved since the 1970s and consists on applying a flat image in a modeled surface, just as a plain label gets applied in a round bottle. This technique is used to mimic surface properties of any given object, generating a skin that is stretched across a virtual volume. Hence, a texture is more like a scan than a photograph, presenting us a way to look at two space inputs simultaneously since it matches where each point from an image should be located in a three-dimensional model. For Clement Valla, Google's capacity to handle an enormous quantity of data combined with the high-end solution



TEXTURE MAPPING SCHEME

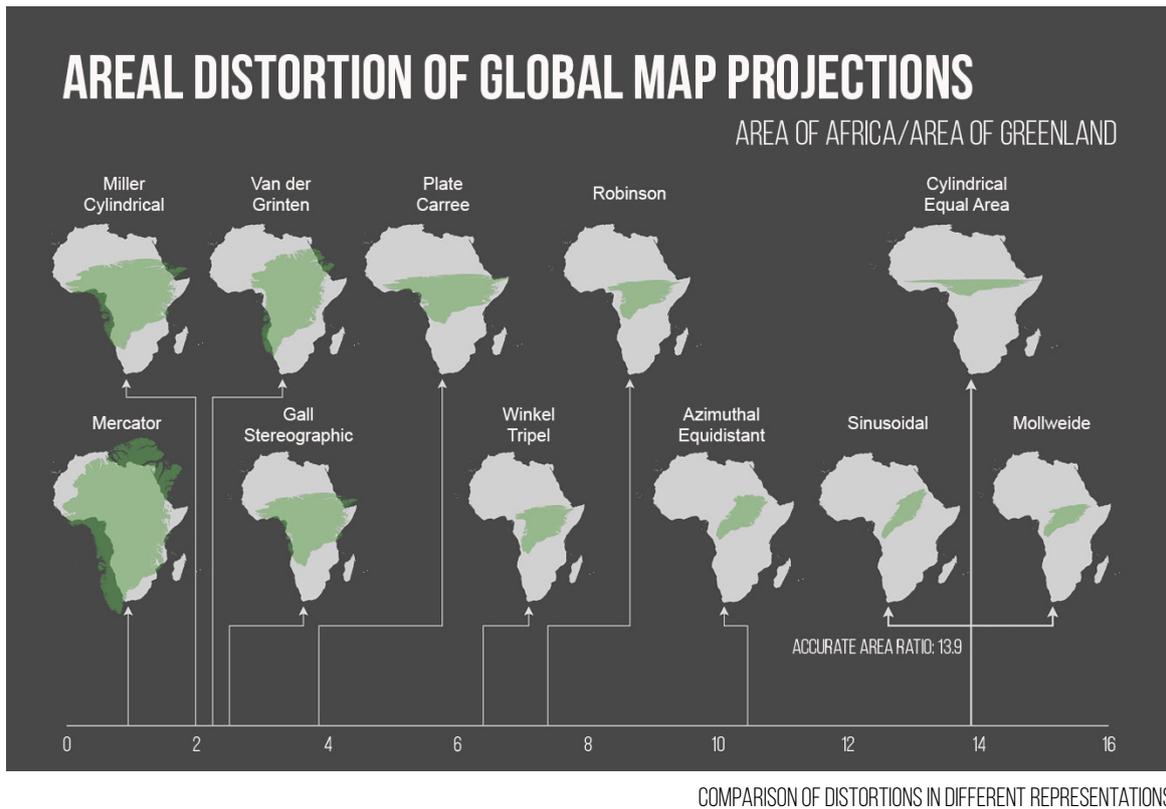
that it provides on texture-mapping its digital collection of aerial images is what makes this company so successful in creating the illusion of a seamless portrayal of our planet's surface (Valla, 2012). In this case, Google's patent used to map the entire globe is called The Universal Texture.

Valla notes that The Universal Texture, as its name implies, promises a god-like (or drone-like), uninterrupted navigation of our planet as opposed to other mapping technologies that can deliver only limited interactions with tiles or series of aerial photographs. For him, this quality makes the experience of browsing Google Earth so fluid in relation to previous attempts that he compared it to the way in which escalators revolutionized shopping experiences, accommodating and combining any flow or transition between storey levels and even blurring the distinction between separated spaces (Jovanovic Weiss & Leong as cited in Valla, 2012). Doubtlessly, Google Earth's engine does the same with a multitude of image layers and vectors available in its database. So, in practical terms, the novelty of this patent consists in its capacity to combine multi-resolution pictures of the Earth,

from different sources (private companies, government agencies, mapping institutes), in an assemblage that seems trustworthy or reliable for users to consume. This reliability is also reinforced by the so-called indexical aspects of the aerial photographic image, or its capacity to indicate that a real territory is displayed on the screen.

In the meanwhile, issues of credibility in relation to maps have been widely addressed by academics in the field of cultural geography. Mark Monmonier states that a good map tells a multitude of little 'lies', surpassing 'the truth' to help users see what needs to be seen (1996: 25). Indeed, if one considers representing every information available about a particular area, it is easy to imagine how confusing it can get, graphically speaking. So Monmonier continues arguing that the value of a map is based on its capacity to generalize form and content in order to well reflect a chosen aspect of reality. On the other hand, he also mentions that reality still would not be well expressed since it is three-dimensional, rich in detail, and far too factual to allow a complete graphic simulation. But, considering that his statement was made in the mid-1990s, it could be said that such qualities were already suppressed, at least visually, by software like Google Earth during the past decade. In relation to that, Farman also describes that the limitations of maps are not really an issue of the technological support that conceives them, but rather a choice on the part of authors (2010: 872).

Terry Harpold is another writer that observes that maps are not objective, neutral artifacts but products of a process that involves shaping as much as it involves describing (1999: 11). For him, details are commonly eliminated, falsified, or distorted in order to serve to specific ends, which are often politically and ideologically motivated. He exemplifies his assumption stating that the distortion of the land masses in the Mercator Projection served not to facilitate navigation but to reiterate colonial supremacy by displaying the centrality and global importance of Europe (Harpold, 1999: 13). So, in many ways, critiques of cartography are relativising the objectiveness of maps, arguing that they should be rather interpreted as samples of the culture that produce them.



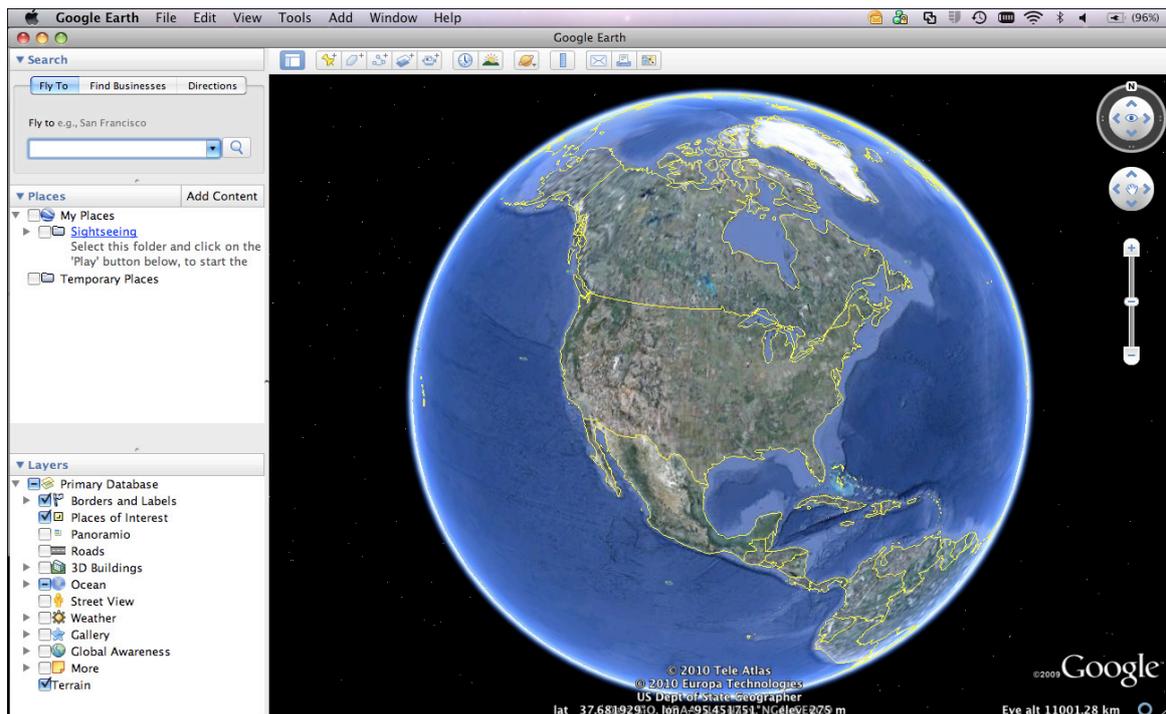
But how to claim the same in relation to an automated, statistical representation of our globe that uses photography and scanned textures as factual statements? Could one say that the mechanical processes used to create such representations are absent from cultural criticism due to their non-human nature? Although photography still holds a strong connection to material space that seems unmatched by other reproduction techniques such as drawing and painting, it also has undergone intense scrutiny in the digital age in regards to its status as an index of reality (Farman, 2010: 874). So hopefully, by combining Kittler's notion of discourse networks and Parikka's proposal to defy master narratives of use, we can come up with a reasonable hypothesis of how an initially considered neutral model can be loaded with ulterior motives. Alan M. MacEachren rightly asserts that the fact that people cannot eliminate the cultural baggage inherent in any human artifact does not give them a license to ignore the practical consequences of their decisions in designing it (1995: 11).

## A CRITIQUE ON GOOGLE'S SYSTEM

The connection of maps and GIS to 'reality' can be considered a typical and inherent expectancy of users since they are frequently implemented in everyday tasks of modern life. These tasks can vary from simply browsing a tourist route to something as complex as the Palestinian militants' use of Google Earth to map out targets for missile attacks in Israel (Chassay, 2007). However, Henri Lefebvre argues that this point of view is conceived out of a larger misunderstanding of the concept of space. He denies, for example, the idea that territory can be seen as a mere container, rather than something culturally conceived. Citing his words, "space is not a pre-existing void, endowed with formal properties alone. To criticize and reject absolute space is simply to refuse a particular representation of it" (Lefebvre, 1991: 170). Therefore, in Lefebvre's view, geographical information systems like Google Earth, supposedly an evolution of traditional maps, could be rather interpreted as producers of unstable signifiers, heavily subjected to cultural influence, instead of an objective spatial visualization platform.

Jean Baudrillard's choice to use maps as a starting point to examine the relationships among reality, symbols, and society in *Simulacra and Simulation* (1994) can thus be considered extremely appropriated: no other artifact has historically enjoyed such status of neutrality and objectivity. Known for his allegation that meanings are now divorced from the objects they represent, Baudrillard offers us an interesting cue to access the issue of GIS's indexicality to reality when he claims that the most oppressive of all cultural artifacts may be the ones so presumably commonsensical that naturally avoid critique (as cited in Farman, 2010: 874). In fact, since the technological aspects of cartography have dimmed the craft of mapmaking, the practical consequences of any cultural background encrusted on these processes slowly began to be veiled.

According to John B. Harley, this has to do with the non-human quality of the actors involved in these new mapping systems. He observes that the division of labor caused by



GOOGLE EARTH LAUNCH SCREEN

the move from the handcrafted age to the age of printing turned maps more reproducible and already disrupted the notion of a single creator behind them (Harley, 2001: 38). So interests and motivations embedded in these artifacts became less obvious or harder to be traced as the overall sense of authorship has been replaced by a more artificial, mass-assembled one. In general lines, we were led to believe that the application of technology has freed cartography of its first inherent subjectiveness.

Henceforth, this phenomenon was accelerated by the cartographic use of photography. By its straightforward resemblance to factual settlements, photographs have been historically classified as indexes (as opposed to symbol's conventionality or arbitrariness). Susan Sontag argues that photographed images do not seem to be statements about the world but pieces of it, "miniatures of reality that anyone can make or acquire" (1977: 2). She continues remarking that, by the means of its material qualities, for instance, the vestige of light waves reflected by objects, photographs seems to prove things when there is no other indication of them, a record of a perceived reality. Thus, from its use by the Paris police in the nineteenth century to an effective tool of modern states for surveillance and control, photography became an undeniable way to furnish circumstantial evidence (Sontag, 1977: 4).

In addition, while regular photographs are usually linked to an author, a photographer that witnessed a certain moment in time, satellite imagery is more generally associated with the apparatuses that 'generate' it. Jason Farman adds to this argument suggesting that in contrast to authorial productions that point to an indexical imaginary, even in the realm of digital photography, satellite and aerial images point toward an artificial, disembodied performance (2010: 876). Therefore, the correlation between machinery and its final product, the digital map, distanced modern GIS from a sense of subjectivity already noticed and



RAW SATELLITE IMAGE

criticized by Lefebvre and Baudrillard. Instead, it emphasizes a disinterested, unbiased nature associated to the photographic representation led by an institutionalized set of techniques. Moreover, it could be said that this distance became even greater after the release of Google Earth's previously mentioned historical timeline function, which served as an index to the ontological materiality captured by this system, a sort of legitimization of its impartiality.

However, to set an antithesis to what has been established until this point, one could appeal to the manipulation that these images are subjected in order to convey a consistent representation, a natural-like view of our world. Since it is impossible to employ them directly from the hard drive of satellites or drones, these images are instead heavily pre-processed, selected, data-mined, post-processed, blended and merged — an infinitude of steps operated by codes, algorithms, filters, human and non-human labor. So, to produce a seamless mosaic as the one that Google delivers to its users, an immense but unnoted structure needs to promote, just to give an example, advanced analytic processes to extract the

spectral and spatial information of this imagery. According to Grindrud, Rasmussen, and Nilsen, satellite sensors perceive a far wider range of the electromagnetic spectrum while the human eye can only see a small fraction of it. Technically speaking, these images are not even photos in a normal sense; they are a combination of digital data that has been processed to form figures (2009: 45).

Therefore, just a minor procedure in the totality of the cartographic process, which consists of the collection of information outside of our normal range of perception, is already a hint that the entire system seems to operate at the level of the Symbolic, that is, a position in which 'textuality' or connections to external social and historical forces are enabled (Roberts, 2009: 284). So, once transformed, pushed, or twisted, the 'singular event' that indexes any photograph to an exact time and space (which could be also read as Cartier Bresson's 'decisive moment') is then stretched to systematic additions of meaning, a step that allows companies like Google, among other things, to make visible the previously invisible.

According to Clement Valla, the interval between the mechanical record and the time at which the globe appears on our screens is indeed used to edit a very specific and useful model that selectively chooses its inputs of data. Thus, for one, there are only clear skies in Google's version of the Earth, but also plenty of contrast, saturation, and light; in fact, it's always daylight (Valla, 2012). Another issue that worths mentioning is the underlying criteria involved in the rendering process that displays high-resolution images or just pixelated, blurry ones, not allowing users to equally access their sites of interest. Grindrud, Rasmussen, and Nilsen explain that satellite's most accurate commercial output have the pixel size of approximately 50x50 cm, while military exercises can provide images with a resolution of less than 10 cm (2009: 46). So, in general lines, these assemblages end up being an entry point to a consideration for parallels between the vernacular and the political usage of this software, implying that some actors have far more agency compared to others when it comes to access these tools. Moreover, by imposing these algorithmic rules on us, Google Earth systematize our notions of what is worth looking at and what we have a right to observe — it's a grammar and, even more importantly, a set of political protocols about seeing.

In parallel, we could say that the artists mentioned in the previous chapters, namely, Valla, Henner, Bridle, and Odell, are also adding meaning to a representation that, at first sight, appeared to be free from a demand for conceptualization, interpretation, and judgment. They are scouting the algorithmic mesh of information, that consists of the digital surface of the earth, searching for ruptures or oddities in the Universal Texture's archive in order to expose its incongruous seams. These seams, claim the artists, are the points where perception confronts reality, a tangible aspect of the unseen network that connects information, people, and corporations across the Internet.

Finally, the most ambitious outcome of Google's effort is its accompanying notion that we can hold the entire world in our hands. It certainly puts the audience in a comfortable position where the acquisition of knowledge — and therefore power — is provided by the possibility to browse freely throughout the space. But, as discussed earlier, to enter coordinates in its search box is also to allow Google Earth to store valuable information about desired places, routes, schedules, means of transportation and so on. According to Greg Conti, by simply entering the platform, we disclose our IP address, type of browser, the size of the monitor, the speed of Internet and processor capacity. Zooming and panning can reveal locations and businesses of interest while getting directions points to specific venues and street addresses. Viewing traffic shows our probable routes to and from workplaces and using Street View can expose who our friends, family, and coworkers are. Emailing or sharing a link, as a final example, identify other people and a possible gathering of these individuals in an event (Greg Conti, 2009: 199). But there is more.

In short, it could be said that Google Earth threat the right of every user to remain opaque to third parties inspections, raising a big question mark about security and freedom in the network. By setting a useful tool to browse geolocated data, this platform also ends up establishing an embodied practice of surveillance that brings unilateral advantages to this company if we compare the enormous agency that it exerts and the limited agency given to average users. For Clement Valla, the power that is provided to the audience is just

about the right amount to overshadow a much larger truth: that Google Earth is essentially a database disguised as a photographic representation (Valla, 2012). In this database, our homes, our cars, our habits, perhaps even ourselves; we all exist in its terabytes of data.

This idea is especially important in an age when networks permit the rupture of sensitive information by institutional conscious actions. According to James Bridle, it speaks to our internalization of surveillance culture, but more than that, to technological, legal, and political systems which permit, shape, and produce such mechanisms, and their framing by corporations (Bridle, 2013). Therefore, artists like him and others are indeed mirroring not simply the malfunction of Google's system but what is inseparable from it: the processes of capture, storage, and redistribution of information and its illegibility to a non-technical audience.

Ultimately, to look at these artworks, a reflection about the whole process of digital cartography, is also to start thinking about how they came to be and what will be our alarming system in a near future when this illusion of seamless representation reach its peak, offering increasingly fewer chances for artists to work with apparent errors. As momentary illustrations of ongoing processes, these artworks are also a call for the wider implications of seeing and not seeing the political operations that enable them. In agreement to Bridle's quotes, "technology is political. Everything is political. If you cannot perceive the politics, the politics are being done to you" (2013). In the coming chapter, we are going to discuss such political operations and their relation to computer networks.

## GOOGLE, SOVEREIGNTY, AND POWER

This chapter is dedicated to exploring Google's increased power over networked knowledge and the dynamics behind it. In contrast to what one may think, a claim of informational hegemony is not as nonsensical as it sounds. Thus, in order to have a glimpse of how power emanates from private conglomerates like Google, we need to understand that system networks are not merely a managerial practice to process information but a mechanism of politics by itself. So first, by making a historical analysis of the emergence of contemporary sovereignty, I intend to trace how information became the motor of our 'knowledge society', a term first employed by Daniel Bell to designate our current social and economic condition. After that, I will explore how knowledge relates to networked cultures, but also to one of its main products, which is power.

According to Hardt and Negri, as colonial regimes and the Soviet barriers were overthrown, new technologies of production, distribution, and mediation allowed the capitalist mindset to penetrate in most of the globe (2000: xi). Alongside with this process, a new structure of rules that characterizes the so-called 'world order' also started to take shape. It could be said that political power and sovereignty as we know it, usually attached to a nation-state, has progressively declined. But Saskia Sassen remind us in her book *Losing Control? Sovereignty in An Age of Globalization* that "the decline in the sovereignty of nation-states does not mean that sovereignty as such has declined" (1996: 3).

In other words, globalization increased the ease of flow of primary assets of production — goods, capital, and people — across national borders, which provided less and less power for nations to regulate them, and, in a broad sense, impose their authority over the economy. This consequently empowered private initiatives that learned how to take advantages of this scenario. Some authors celebrate these new settings as a liberation of the market from previous restrictions that governments have imposed on it, while others are more pes-

simists concerning the close of institutional channels through which citizens can influence or contest the 'cold logic' of capitalist profit (Hardt & Negri, 2000: xi).

It has never been easy to define major political and economic transformations and it is not wrong to state that we might be witnessing the unfoldings of these very same changes until the present days. According to Frank Fischer, the first industrial revolution, for instance, was under way for a considerable time before it was accepted as a critical societal shift (1990: 13). Similarly, theorists struggled for a long time searching for a satisfactory terminology to describe the market deregularization that started in the 1980s. Although some disagreement about the precise significance of this emerging system, a commonplace was established around the term 'neoliberalism'. But while neoliberalism presented itself as the new contour for capitalism from a political point of view, other transformations accompanied it in what concerns the nature of its subject, or the matter produced by it. For Fischer, the production of 'information value', resulted from the creation and manipulation of knowledge by communication technologies, rather than the traditional 'material value' is seen to be the driving force of this new neoliberal order (1990:15). So one could say that, while the decentralization of political forces configured the formal aspect of capitalism after globalization, the production of knowledge characterized its content.

In 1976, Daniel Bell already predicted the rise of a 'knowledge society' based on similar lines to what was just described. For him, this society would not depend anymore on the traditional way that labor and accumulation of capital were understood. Instead, it would be based on the production of signs and texts, and dependent of an emerging generation of technical experts. In order to define them, Bell came up with the concept of 'symbolic analysts', a new class that would focus on the development of abilities like networking, cleverness, creativity, and empathy; all qualities that would lead us to rapid rates of technological change capable to overcome the upcoming difficulties in that time, namely, economic collapse and financial ruin, climate challenges, and the emergence of alternative social structures (1976: 76).

But Bell was not alone in his reasoning. Most commentators include the central importance of science and technology, in special, the creation of wealth by symbolic mechanisms, when addressing pivotal changes in the contemporaneity. For Hardt and Negri, as knowledge becomes the main currency of our economic system, the immaterial features of it *deteritorialize* power, rendering fixed geographical or political barriers irrelevant. According to the authors, the boundaries defined by the once modern organization of nation-states were crucial to Western economic expansion: they delimited the center of power from which rules were exerted over external groups, using borders as “channels that alternately facilitated and obstructed the flows of production or circulation of capital” (Hardt & Negri, 2000: xii). In contrast, what we are experiencing today seems to be a more decentralized apparatus of power that progressively incorporates the entire globe within its open, expanding frontiers.

The heart of Hardt’s and Negri’s work is in the delimitation of what they call the *Empire* — something altogether different from the concept of imperialism. For them, the redefinition of the term implies that imperialism no longer exists in a traditional way but has been transformed. Empire is described then as an ongoing force, a set of supranational organizations united under a single logic that, at one point, will exert a power similar to the one that was sustained by modern nation-states. But instead of being organized under a defined border, this force doesn’t embody any spatial totality, being free to act upon the entire ‘civilized world’ (Hardt & Negri, 2000: xiv). The delineation of this force is, therefore, made by the identification of a series of managerial practices and techniques used by private organizations to administer its agency on economies and cultures worldwide.

According to the authors, acknowledged authoritarian states such as the United States cannot, and indeed no other country can, form the core of an imperialist project nowadays (Hardt & Negri, 2000: xiv). Despite the fact that the US undoubtedly occupy a privileged position in the Empire, given that a lot of powerful institutions are located in its territory, no nation is prepared anymore to exert much influence in the way modern Western nations used to a few decades ago. Thus, by approaching Hardt’s and Negri’s

new dynamics of sovereignty, I will start to delineate Google as a possible main actor in the constitution of the Empire and the role of its mapping services in the management of the power emanated from it.

## GOOGLE: A DIGITAL EMPIRE

If one considers the resources that Google has at its disposal and, generally speaking, the power it possesses, this company could be easily placed on the same level of a nation-state. According to Greg Conti, a professor of computer science at the US Military Academy, Google's intellectual talent pool and financial means in billions of dollars could be even comparable to a small developed country. For example, in 2015, Google's income was \$74.5 billion, which places it in the 67th position in the list of world's countries if we assume that the Gross Domestic Product (GDP) is roughly equivalent to revenue. Moreover, as the dotcom bubble erupted in the early 2000s, Google was able to choose 10.000 employees among the brightest, including more than 600 Ph.D.s (Conti, 2009: 4). This number, again, gives the organization an intellectual capital comparable to a small nation-state.

Taking into account a structure of more than one million servers that offers a ubiquitous and tailored front end to essentially every Internet-capable person on Earth, Google has also become the gold standard in international accessibility and presence. Of all the online companies, it is arguably the most influential because of its wide range of popular free tools, nearly infinite data storage, and information-processing capabilities; features that are already becoming a societal demand rather than just a set of desired services (Conti, 2009: 23). Most important, however, is the data that Google captures with its surveillance practices: with more than ten years of valuable user interactions, Google can be regarded as a forerunner in the alleged knowledge society.

Frank Fischer argues that information value has given rise to activities that are capable of transforming the very fabric of human relations, or even the production of the 'social' itself,

in which the economic, the political, and the cultural increasingly overlap and invest in one another (1990: 15). Thus, since the reorganization of Google into Alphabet, a much wider conglomerate that includes telecommunication, life sciences, robotics, investment capital, and research in its portfolio — all previously managed by companies that already had a solid base in their respective fields, it became at least prudent to question not only Google's stated intent and visible actions, but also its potentialities. In other words, what would Google do if it were so inclined? Or even, what it is already doing that we are not really aware?

If Fischer is right that information and its subsequent industries have the power to operate on all levels of the social fabric, extending down to the depths of our lives, then it could be said that Google (or Alphabet) is the company with more attributes and resources that likely approximates it to the concept of Empire established by Hardt and Negri. Not that Google represents the Empire in its totality, but is certainly one of its pacemakers (alongside with Facebook, Yahoo, and Amazon). Considering the sum of every online searching, mapping, communicating, blogging, news reading, shopping, entertaining, and browsing in the world, the picture seems to become even clearer. As Peter Givler, the former executive director of the Association of American University Presses, stated: "I'm worried that Google is fast becoming our sole access point for information seeking [...] and I think that's a dangerous and unhealthy situation" (quoted in Farman, 2010: 877). His concern is related to the inherent, unilateral bias involving all the data processed by this company and then assimilated by us, which can end up driving society to a distorted, if not manipulated, sense of reality. Apparently, the object of Google's rule is not limited to human interactions on the Web but, in Hardt and Negri's words, the life in its entirety (2000: xiv).

Jason Farman is another author that relates Google's activities with its participation in the Empire. Drawing in Hardt and Negri's proposal, he relates the launching of Google Earth services to the inherent desire to map out a new territory: the digital empire (Farman, 2010: 877). For Farman, this territory would not only represent Google's global reach, but also its underlying scope of interest. In addition, he remembers us that GIS are in a certain way a

legacy of colonial cartography and very much linked with militaristic usage. Such speculations are useful to rethink Google's sustained enthusiasm in digital maps. While the end of the previous chapter was floating around the argument that Google Earth is, in fact, a rich database disguised as an online map, Farman examines this software as a visualization tool that displays Google's 'network of command', what reiterates the idea that this company can be well represented by the notion of Empire (2010: 877).

## PRODUCTION AND MANAGEMENT OF NETWORKED POWER

More important than define Google as part of the Empire is to explore how this superstructure creates power through its networks. Manuel Castells is a theorist that certainly can help in this task. He developed the Network Theory of Power that draws how these forces operate under certain social and technological conditions. For Castells, power relationships are an inherent characteristic of societies as protocols and norms were always implemented to fulfill the interests and values of those in power (2011: 773). Moreover, he believes that the sources of social power in our world have not changed fundamentally from our historical experience, but just the context in which it works. Thus, still according to him, it should not surprise us that, in a knowledge society, power is primarily exercised by and through networks (Castells, 2011: 773-774).

In his theory, Castells attributes the production of power to the agency of network standards over its components, proposing that the imposition of an actor's will over another is related to the structural logic of domination embedded in the cogs of the system (2011: 775). In other words, institutions and organizations that have the means to shape specific interactions also determine the rules to be accepted by others inside the network. This can be clearly verified at the moment we join online groups or communities in which we don't have other alternative but to agree with their 'terms of services' or 'terms of use'.

Equally essential to the production of power is the network holder's ability to fabricate a balanced cooperation between the involved parts, in which shared goals and combined re-

sources appear to connect in a convenient, yet strategic way. Google meets these requirements by offering high-quality life administration tools for free to its users around the globe. However, by using them, one is actually making 'micropayments' of personal information, a procedure with a short time lag between investment and payback that justifies the maintenance of Google's network and its power. Moreover, it could be said that the development of this dialogic system creates a continuous call for authority since the data provided to Google's network is also key to serving its thriving business model.

Despite Google has found effective ways to make money by processing content that people disclose and by carefully targeting advertisements, it is not money that gives this company such an overwhelming influence. As argued before, power comes from the network itself and from the possibility to create comprehensive dossiers on its users, but also, according to Conti, by determining personal and professional connections between them (2009: 2). Thus, from another point of view, dataveillance becomes the source of power. It means that, from a system designed at certain point to measure and explain the world to others, Google became a totality of techniques that makes information available in a vast form and process it for commercial, social, and political purposes.

In relation to that last sentence, Manuel Castells argues that power is often polymorphic and built around different domains of human activities in accordance with the interests and values of the empowered actors (2011: 774). So, starting from the hypothesis that the power that Google possesses is, in its essence, multidimensional, we will approach two distinct levels of its influence: on the institutional level as a technocratic power, and on the personal level as a biopolitical power.

## INSTITUTIONAL LEVEL

With the decline of nation-states' sovereignty after globalization and the progress of neoliberal agendas, traditional authorities represented by political institutions have lost part

of their credibility. Frank Fischer argues that this is related to the new attributions of governments as mere intermediates of economic and technological flows instead of players that fully determine the appropriate direction for societies. In Fischer's words, politics is being increasingly reduced to the technically oriented task of 'keeping the machine running' (1990: 16). Therefore, political and economic guidance has become more an issue of management than a subject for public deliberation, giving margin for the development of processes that have to be validated by technically trained authorities rather than ideological representants of people. In classical political terms, governments that adopt these practices are known as *technocracies*.

Traditionally, technocracy refers to the use of technical means that are based on a systematized knowledge in the pursuit of an equilibrated society. Fischer says that this form of governance often uses bureaucratic settlements that are typically illegible for public scrutiny, and, unlike regular political exercise, it doesn't display any visible activity (1990: 19). It has to do with the fact that, with exceptions in authoritarian regimes, elected politicians still have to choose some strategies over others, but are the technicians who set the options and landscapes from which they must judge. So, it could be said that, behind the curtains, technocracy outline, or even shape, the ways we experience and understand political processes.

But further important, technocracy in contemporary times can represent more than a common sense around the use of technical expertise. It could, in reality, signify the excessive reliance on networked systems in an attempt to solve social and political problems, from violence to shortages of energy. The issues reside in the fact that, as already cited in the beginning of this section, networked systems are not merely a set of techniques to trial information in an automated way but a mechanism of power in itself. Ultimately, networked power comes from the standards of the systems and inevitably act over its components (Castells, 2011: 775).

In the book *The Dark Side of Google*, the Italian collective Ippolita explores the intersection between this company and the current entanglement of liberal governments with networks, opening possibilities for unprecedented assemblages of technocratic power. According to Ippolita, experts have found in technology “the ideal tool to maintain their power, impose their personal interests upon society, or acquire more privileges” (2013: 92). So, as Google becomes more and more a complex assortment of machines that are gathering all the basic information entered in the web by millions of users every day, it becomes plausible that it can offer ‘expert’ and ceaseless validation for political decisions in a near future. The mechanism is simple: those who rule would justify themselves grounded in abundant and objective forms of knowledge. Thus, in an updated context, technocracy refers to the employment of networked cultures to the tasks of governance.

Fischer argues that, for technocrats, the ‘way out through the technological fix’ comprises the replacement of democratic instruments — compromises, bargaining, group competition, public consultation — with empirical-analytical methodologies of rational decision making (1990: 22). In sum, they see politics out of place in an exciting world of scientific solutions. It is amidst such a tension that, in agreement with Ippolita, Google claims to be part of a yet unheard ‘global electronic democracy’, the direct expression of an algorithmic truth that yells objectivity (2013: 94). For Google, the mechanisms that create ‘consensus’ are embedded in its search engine, mapping capabilities, data mining and analysis, and all other features that make this company an expert in any given matter. But, still with Ippolita, the conditions that Google establishes for Internet usage, especially concerning its unique point of access, are transforming this conglomerate not only in an instrument of ubiquitous information management but also in a technology of domination driven through its algorithms (Ippolita, 2013: 92). It is a pallid statement of a technocracy, or even, an *algocracy*.

But how this fusion could be considered without transforming an alleged environment of total transparency in an authoritarian nightmare? Or, in other words, how do a technocratic government informed by a private database prescribes the public interest? The answer is,

according to Fischer, to be found in the pursuit of material progress, culminating in a neoliberal strata of politicians and experts who claim to have the most efficient and effective means to manage increasingly scarce resources (1990: 27). In practical terms, this involves a systematic surveillance and analysis of knowledge, which is, as discussed before, the leading fuel for economic and technological development nowadays. These 'managerial' processes are, at last, supported by a crescent depoliticized mass public, closing, hence, the cycle of a technocratic regime.

## PERSONAL LEVEL

It was already mentioned that, within the contours of the Empire, institutions not only regulate human interactions but also seek directly to rule over human nature (Hardt & Negri, 2000: xv). This strong statement creates room to explore the constitution of Google's power from the paradigm of *biopower*. At this point, it should be taken for granted that this company has created mechanisms of command that seem and feel like democratic, in part because it seeks for social and scientific validation. Although, in reality, these mechanisms are designed to generate, sustain, and organize various subjects under it, representing an exercise of authority that acts across the entire network.

In several aspects, Michel Foucault already prepared the terrain for this investigation since the term biopower was introduced by him in *The Will to Knowledge* (1976). Basically, it constitutes a set of instruments to administer people as large groups. But rather than being imposed from outside, through legal means, for instance, biopower becomes internalized in everyday life and pursues to maximize its forces while integrates the human body into effective and affective systems of control (1976: 139). In short, it is a power that can conduct whole populations by using basic biological features as a form of political strategy — i.e. birth, longevity, and mortality regulatory policies. Hence, biopower has been referred to practices of public health, imprisonment, risk control, among others that make an explicit link between the State and biological life in general.

But, according to Hardt and Negri, biopower is being exerted by distinctive manners in the present days. It is now part of the intensification and generalization of normalizing apparatuses of technology: machines that organize bodies and brains toward a condition of indifference from the real sense of life (Hardt & Negri, 2000: 23). In other words, biopower is changing. And it can only achieve an effective result if its vectors become an integral part of the routine of every individual. Therefore, in practice, when we start to consider the amount of time that we are directly or indirectly connected to Google and all the services that are tailored for being indispensable to our lives, doubts about their exclusively beneficial outcomes start to emerge. One might venture to say that, by monitoring our online activities and surveilling us throughout maps, aerial imagery, and our own phone cameras, Google is playing a huge role in regulating our bodies, while information and communication networks are used to regulate our minds. Ultimately, biopower is exercised by the very hegemonic attempt to 'organize the world's information', Google's alleged corporate mission.

Despite the boundaries remain overshadowed, it could be argued that, in a pre-Empire society, biopolitical technologies were not fully efficacious due to the impossibility to associate them with every individual, all the time. Although schools, hospitals, and the law have been inherently part of people's everyday activities, they were not pervasive enough to regulate life in its entirety. Therefore, for Hardt and Negri, biopower has not reached yet the peak of permeating consciousnesses and bodies to the point of organizing them in the sum of their actions, but, at the same time, machines are starting to recognize society as the realm of their authority (2000: 24). If we have a closer look, this reinterpretation of Foucault implicitly suggests that, in our times, power would finally become altogether biopolitical when the whole social body get its feet into the virtual world.

Taking the last statement into account, it seems that biopower is not too far from its full effectiveness. According to the International Telecommunication Union, around 40% of the world population has at least a Web access point at home, totalizing almost 3.5 billion individuals. Ten years ago, this number was less than 1% (ITU, 2016). But as smartphones and other

Internet-capable gadgets get cheaper, it is certain that the number of people that can go online will grow even more exponentially (not mentioning private projects that aim to cover the less provided regions with radio signals). The mobility paradigm has also changed in order to satisfy the overall necessity to stay connected for longer periods of time. If in the 1990s 'surfing' the Internet meant being sitting in front of a PC, being online now means to walk freely throughout urban spaces. Thus, going somewhere to have access has become a thing of the past: nowadays we are where our devices are. From another perspective, one could say that the dominant metaphor for the Web has rapidly changed from virtuality to mobility.

In regard to this, Eric Gordon and Adriana de Souza e Silva note that the global network of machines, and the companies supporting them, have made locating ourselves — and being located — a precondition to access online information (2011: 2). The authors remind us that, since January 2010, Google began integrating location data into its search engine. Moreover, many device applications query users about their locations before they launch, even if there is no obvious immediate use for it. In accordance to Gordon and Souza e Silva, these location-aware mechanisms helped to take the otherness of the Internet and "place it squarely into where we are", from the dot that puts each of us at the center of every digital map to the fact that physical locations now are also part of the virtual world (2011: 2-3). Furthermore, it could be claimed that, as mobile devices became a critical support for our daily life, driving us and giving us directions to everywhere, GIS and cartographic applications have turned into the fundamental matrix that enable and maintain this complex organization active. But also and most important, they ended up creating a comprehensive map of where we are in relation to the network.

The implication of these new settings for biopower is decisive and also evocative of a dystopian surveillance future. Gordon and Souza e Silva are right when they mention that location awareness runs parallel to the technologies that have enabled it, and yet, is both a cause and a consequence of the use of networked systems (2011: 4). Therefore, as people become more comfortable with letting their devices track their coordinates, knowledge is

being transformed from miscellaneous to ubiquitous and located, but likewise is being done to power. It is not necessary to mention that mapping services and platforms are gaining more influence as networks stimulate our desire to locate ourselves in relation to information. Ultimately, the biopower managed by Google Earth can only be fully effective when its database gets properly fulfilled, making geography become, at last, the organizational logic of the Web.

At this point, references to physical locations cease to be figurative or metaphorical and turn into the very circumstance to access any online information (Gordon & Souza e Silva, 2011: 9). Consequently, the whole of the Web is also transported to our perceived personal space. This new context can represent a radical change in the way biopower operates. If in the realm of *bits*, as essentially separated from the realm of *atoms*, power is rather pervasive, yet limited to the network itself, in this prospective condition the 'network of command', as previously mentioned by Jason Farman, becomes finally transcendent of its hardware and software.

In the book *Being Digital* (1995), Nicholas Negroponte already debated the implications of bits and atoms to the formation of media landscapes. For him, the potentiality to replace all material representations of information with digitalized, disembodied bits seemed to open novel and exciting possibilities concerning the production, catalogation, and distribution of knowledge. But the belief that the world of atoms was altogether different from the world of bits was, in part, a consequence of the technologies we used to connect to the Internet back in that period. On the contrary, what is being proposed by Gordon and Souza e Silva more recently is not just the organization of knowledge based on its intangible properties, but also the physical world that contains it (2011: 7). In other words, mobile devices and location-aware systems can have whole new connotations for power and the environment around us, proposing alternative ways of thinking about the virtual/physical dichotomy. In a near future, it is more likely that the Empire's database will be all around us — physically.

## CONCLUSION

The emergence of a new social, political, and economic superstructure composed by a set of private organizations is helping to leverage a considerable turn in the way we understand and experience cyberspace. From a digital environment that existed only inside the clear constrictions of the Web, it is now becoming a manifestation that directly pervade the most common activities of our everyday life, like visiting family members or driving to work. Along this thesis, we have seen how Google, which is an effective part of this set of actors, operates in order to create and maintain the conditions that are necessary to organize certain social practices, especially in what concerns people's relationship with perceived space. At the same time, we witnessed by what means physical locations became an essential information to the functioning of computer networks nowadays, and how this, in turn, is influencing our quotidian.

As addressed in the beginning of this work, changes on how networks are being conceived in relation to personal information walk side by side with claims pertaining losses of privacy and anxieties about a ubiquitous surveillance system imposed on us by the same companies that shape and control our Internet accesses. So, by considering Google a forerunner in the domain of dataveillance, we ended up touching upon several ways that it might be accumulating knowledge and, therefore, power. Also, Google's dubious expansion to nearly all the fields that are crucial to life management is for itself questionable, and by looking at Hardt and Negri's notion of Empire, we could had a glimpse of the mechanisms that helped in the formation of this alarming scenario.

Hence, a hypothesis concerning Google's sovereignty has emerged, and it states that the pursuit of power by this company is not merely economic, but unfolded in multiple facets. This statement was based in two different forms that Google's power is exerted, which is technocratic and biopolitical. While technocratic power seeks to validate itself as a neutral base for governance, biopower maximizes its forces through communication networks and

geolocation systems in order to regulate our minds and bodies. Finally, the role of Google Earth not only as a mapping tool but also as an invasive management mechanism was highlighted, concluding that it could be a technology able to change the forms of domination familiar to us in a near future.

While many commentators are motivated only by the legal implications of these new developments in technology, there are other ways in which communication networks and geolocation systems can be understood, including by exercises of contestation over particular strategies and techniques. In this context, surveillance art appeared as a warning system concerned with the power relations that underpin the praxis of data management by State administrations and private companies like Google. Thus, in a certain way, surveillance does not simply produce substantive social control but contributes to the formation of a landscape of moods and affects, a 'structure of feeling' that our society expresses collectively when confronted with such hegemonic practices.

So, is unquestionable that the attempts to reveal the underlying connections between computer operations and political agendas were perceived by the art world as a welcome form of activism. Thence so many exhibitions and debates about the topic. Regarding its formal aspects, we saw that surveillance art is always dealing with the visibility and invisibility of the apparatuses of surveillance, bringing to the public consciousness the subtle issues of who is looking at whom in a particular context. This can be verified by the variety of works that use vigilance instruments, from drone cameras to imaging software to algorithmic codes, as a medium to question the inequality in which some flows of information are established. In addition, these artists implicitly argue that, in order to understand domination, we have to turn away from an exclusive concern with human-human or human-institution relations and consider them into a mesh in which non-human actors are also an important part.

Drawing on a theoretical framework extracted from materialist thinkers, this thesis also aimed to clarify the close relation that surveillance art has to consumer technologies. It could be said that, when subjected to rights management techniques, an industrial prac-

tice that restricts our full access to mediatic devices' building blocks, such devices end up losing their physical qualities, even in digital terms, to become more and more abstract. This, in turn, helps to foster surveillance practices by the companies that produce them. Some artists then rely on these circumstances to create new applications for these technologies, questioning their natural-assumed employment in order to call our attention to the problems pervading their conceptualization and design. In other words, these artists end up creating fictional worlds that make ordinary elements strange to us, thereby opening their genealogies to alternative interpretations. Thus, in a close analysis, surveillance art is able to contest the collective understanding in relation to what security and control are ultimately about.

These efforts are more than necessary in a world where the technological agency is creating structures that undermine our capacities to discern surveillance mechanisms, but, most important, where the machinic watch is ceasing to be a couple of disconnected systems and becoming all-encompassing — the background of our current human condition. We could argue that the coming years consist of a period in which the risk of losing the grip can be elevated to a very real possibility. A time in which all the cracks, glitches, and noises that inform the nature of these systems, reachable today by a mere Internet search, can be reduced to an ever dimming memory of how faulty our networks were in the past. To promote these data-harvesting practices as art processes is, therefore, an especially powerful strategy because it gives the possibility for people to access it in a manner that was unimaginable in other fields. Explicitly, it states that surveillance as a topic has to leave the tech audience for a moment to compose a more plural and lively one, a setting in which these issues can be analyzed with a fresh look, a new critical perspective.

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