Introduction to the essay section

SHIFTS IN MAPPING – TWO CONCEPTS WHICH HAVE CHANGED THE WORLD VIEW

by Christine Schranz

“Cartography is Dead (Thank God!)” (Wood 2003)

The provocative statement, provided above, by American geographer and artist Denis Wood refers to traditional mapmaking as well as to an increasing academization of cartography. Wood squared off against the discipline: “Cartographers played a significant role in making the world safe for colonizers, mining conglomerates, and the military” (Wood 2003: 7). However, alternative maps and mapping strategies became possible alongside the replacement of the map as a spatial representation by elites (such as state institutions), as well as maps falling into favor among new technologies like GIS, satellite images, and open data politics. Along with critical cartography, this publication highlights alternative forms of mapmaking and is dedicated to new forms of geographical knowledge producers.

The following introduction first reviews the far-reaching upheavals, from different perspectives, and cites the cartographic merits of non-cartographers, such as designers, artists, activists, or visionaries. The peer-reviewed papers, found in the essay section, point to numerous shifts throughout the discipline of cartography, as well as within the medium of the map itself.

TECHNOLOGICAL SHIFTS

One initial groundbreaking shift concerns the increased access to online map resources and the empowerment to generate one’s own digital maps. On the one hand, digital maps have brought surveillance and coercion (Google has knowledge not only about who we are, but also where we are); on the other hand, these maps have also enabled greater democracy, plurality, and empowerment.

Digital maps have replaced centuries-old neutral spatial order with a subjective perspective. Instead of a static printed map, which we need to keep track of while navigat-

ing in space, digital maps put us in the central position and follow us wherever we move. This has led to an egocentric view of the world, displacing the dominance of an allocentric or Eurocentric perspective.

Maps are increasingly being controlled by private internet companies in digital cultures, such as Alphabet (Google Maps) or Microsoft (Bing), thereby diminishing state institutions, such as the National Geographic Society, which were previously responsible for map services. Google's cartography empire now includes everything from a planetary view with Google Sky View to an eye-level view of Google Street Map. The most widely used map worldwide is Google Maps.

This shift in geographical practice entails far-reaching changes and consequences. The main concern here is the question of authorship of maps in the broadest sense (internet companies as well as computer scientists, prosumers, and, in the long term, increasingly algorithms or machines); conversely, this has been accompanied by greater concerns over map design and maps' contents in connection with those same aforementioned internet companies and technologies behind them.

Today, progress in these fields is primarily generated by IT companies who dramatically change our vision of the world, the way we communicate, navigate, and consume globally. This progress also affects our own positioning within the integrated, economic, and political systems of communication. Digital maps are increasingly being used for political and economic manipulation; this occurs alongside the democratization of map production.

CONCEPTUAL SHIFTS

A second groundbreaking shift can be found in maps as objects of discourses and a radical change that took place within geography as a discipline.

Several movements have leveled critiques against existing, prevailing cartographies and practices since the release of John Brian Harley's work in the late 1980s (1989, 2001), namely critical geography (also known by the term Human Geography in English-speaking areas, e.g. Harvey 1990 among others); other terms from these sub-disciplines include critical cartography, radical cartography, or counter-mapping. There has been an increase in the degree to which maps are questioned as an expression of hegemony, control, and power (for Power see also Brotton 2012; Marshall 2017 among others). A map design that serves elites and that defines universally valid rules and norms has also been increasingly questioned and criticized. Several other things have been criticized, including the marginalization and generalization of the map's contents or the standard Mercator projection, which is based on a Eurocentric view of the world.

Geographers, cartographers, and historians – as exemplified by the aforementioned David Harvey, J. B. Harley, Jerry Brotton, or others like Mark Monmonier, Gillian Rose, and Nancy Peluso, for example – have acknowledged that any representation of reality is mostly distorted through the process of geometric projection, becomes marginalized, and can even become a construction guided by hidden interests. As such, the only truth about the maps that we can draw from these statements is that they represent a perspective that has long been dominated by a male, white, European view.

Thus, maps are not an objective tool, but are instead an expression of power, self-interest, and political ideologies of

their knowledge producers. Donna Haraway also calls this dictum "master subject" (1991, see Rose 1993: 6). Neutrality results from the diversity of viewpoints. The majority of the rules of mapping were set by men.

The development of Web 2.0, (i.e., participative websites with a greater share of user-generated content) has led to the democratization of geodata. Through mashups (a combination of text, image, and audio with map data), it has become theoretically possible for anyone to design, share, or distribute their own maps.

However, there persists a schism between proprietary and open data. Even if Google Maps remains the dominant web mapping service, several alternatives do exist in the form of Volunteered Geographic Information (VGI). The content of these VGI maps is based on open tools and Open Data Commons and places a strong emphasis on crowd content and user-generated data.

SPATIAL CARTOGRAPHIC THINKING

Georeferenced content has not only changed the way in which we deal with space, but it has also paradigmatically elevated the map to the interface between humans and computers (or systems) and space. With the launch of Google Maps (2004, developers Lars and Jens Rasmussen), it became possible to link a database to a cartographic interface (or system), as former Google Maps product manager Lior Ron concisely puts it: "From Google Maps to Google on maps."

The invention of Earth Viewer, by the company Keyhole (2001, founder Michael T. Jones), marked a radical change in spatial cartographic thinking and in the world's representation. Google bought the company in 2004, and the software was renamed Google Earth. With this software, satellite images were combined with

cartographic data for the very first time and, at the same time, this information was linked with GIS data (various data formats to process geographical information).

The concept of continuous zooming in Google Earth is based on the central design element of the short film "Powers of Ten" (USA 1977), directed by Charles Eames & Ray Eames. The video's narrative starts with the human scale of a couple relaxing in a park and goes through different scales, between the planetary and the microscopic. In the process, the film passes through a total of ten powers, six into space as well as into the atmosphere and four into the inside of the body.[1] The film shows the journey through galaxies within seven minutes in an amazingly technical way, for the time at which it was made, the phenomenon of stepless, continuously zooming into a micro- and macrocosm respectively.

To achieve a similar effect, Keyhole combined satellite imagery and computer graphics to zoom back and forth between Earth and space very quickly and seamlessly. The principle of infinite zooming calls the idea of distance into question and users literally feel as though they are flying as they zoom.

Satellite imagery has not only revolutionized cartography, by making it easily accessible, but it has also made it more accessible (and in this sense more democratic). Furthermore, this shift has brought novel spatial practices into focus. Satellite imagery gained notoriety during the Gulf War, for example, when the invasion of American troops could be tracked worldwide via satellite data. Nowadays, satellite images are used as a source for reconnaissance, especially where geopolitical crises or wars have made on-site inspection impossible, such as in Syria.

This form of data collection and analysis has become known through the research group Forensic Architecture, but also in an art

01 https://www.youtube.com/watch?v=0fKBhvDjuy0 k.

context, through “Zone*Interdite” (since 2000) by Christoph Wachter and Mathias Jud or “Terminal Air” (2007) by Trevor Paglen for example.

A MEDIA-INFLUENCED, CONSTRUCTED WORLD

The changes in the production of map material and the authorship of geodata also created (new) inequalities and hegemonies. For the first time, an Internet company was responsible for the medialized image or for the cartographic representation of the world with Google Maps – again, the most frequently used map in the world.

Behind these new cartographers lay the monopolization and centralization of data through Google.

This shift in power forces has been critically described by British historian Jerry Brotton, who points out: “For the first time in recorded history, a world view is being constructed according to information which is not publicly and freely available. All prior methods of mapmaking ultimately disclosed their techniques and sources, even if, as in the case of sixteenth- and seventeenth-century mapmaking, they tried but failed to withhold its detail from their competitors.” (Brotton 2012: 431f)

To put it bluntly, today's maps are media-influenced constructed worlds and this means that, ultimately, Google decides how public space is perceived. The criteria on which the selection on Google Maps is based are unclear: this includes whether or not one is visible on a map, and what the financial conditions for such visibility are.

This generates both problems of inclusion and exclusion and it is unclear if the platform allows certain information to appear on maps (for example, whether a restaurant is displayed or not).

The internet geographers Graham & Zook have also spoken about “selective visibility” in this context: they found that a restaurant search

in Tel Aviv on Google Maps yields different results depending on the language setting (English, Hebrew, or Arabic). The results might be affected by the number of hits whereas the selection of restaurants shown (and the order in which they appear) is significantly different (Graham & Zook 2013).

The authors of the study also speak about digital imperialism in this context: "Internet content, sorting algorithms and platforms, and common online practices all serve to reinforce the visibility of the already highly visible, and make peripheral voices more marginal." (Graham & Zook 2007, quoted in Graham & Zook 2013: 79)

If today's maps are a result of indexed geoweb content from Google Maps, then this means that as a consequence the amount of indexed material shapes the way places are visible, perceived, and even experienced. Maps have always been selective, but the selection did not depend on a single private company, but instead the result of the process of negotiation and production of several institutions and multiple cartographers worldwide.

When information, in the form of maps, becomes increasingly accessible and widespread, the question of its truthfulness also quickly comes to the fore. This entails not only a democratization of its access and use, but also a civic responsibility for active participation and a disclosure of map-making processes. What is the ethical status of the map itself? Should maps be a central and general infrastructure or a network-like constellation, so as to empower communities and individuals?

The ceding of geographic responsibility to private companies can have tangible politico-military consequences, such as in the case of unclear borderlines, which are displayed differently depending on

the country from which the Google map is accessed (e.g., India, Pakistan, Bhutan, China, Russia, Ukraine). In 2018, one such unclear border depiction almost triggered armed conflict between Nicaragua and Costa Rica when soldiers of the Nicaraguan army occupied a natural reserve on an island belonging to Costa Rica, but which had been marked on Google Maps as belonging to Nicaragua. The conflict was only averted by the issuing of an apology from Google.

There are multiple examples of Google Maps being associated with a border dispute. However, what is remarkable about the above example is that the internet company, as the author of the map, was required to publicly apologize for its mistake and to accept responsibility for it.

CRITICAL CARTOGRAPHY

Initial pre-critical cartographic approaches were visible as early as in 1943, with two remarkable maps: the “Dymaxion Map” by the American designer and architect Richard Buckminster Fuller (1895-1983) and the “América Invertida” by the Uruguayan-Spanish artist Joaquín Torres García (1874-1949). Both of these maps radically challenged the common view of the world by questioning and changing projection, orientation, and representation methods. Fuller, for example was convinced that it was possible to design a universally valid map, one that was not based on cultural and/or elitist constructs; after all, the history of cartography reflects centuries of European supremacy with Europe acting as the central continent. The “Dymaxion Map” (Dynamic Maximum Tension or Ion) shows the world as a continuous surface, inasmuch as is possible, without distorting the size and shape of the land masses

and with the separation of the continents, surrounded by the oceans. Fuller used 20 triangles that could be assembled along the edges to form a three-dimensional polygon (tetrahedron) in order to obtain a projection of the globe that was as free of distortion as possible.

The rise of critical cartography in the late 1980s, coupled with postcolonial studies, led to new approaches in map-making which were the result of the questioning of the established norms of maps perceived as an expression of hegemony, control, and power oriented towards elites and the Eurocentric world view. Critical cartography has become a means by which to resist authorities. It led to the production of counter-maps, alternatively called critical maps, radical maps, or deep maps (Pearson/Shanks 2001; Bodenhamer/Corrigan/Harris 2015 among others) which allowed for the development of a new awareness of geographic, social, and political realities through participation, appropriation, and counter-knowledge.

The term counter-mapping was first introduced in 1995 by American Sociologist Nancy Peluso in her article “Whose Woods are These? Counter-Mapping Forest Territories in Kalimantan, Indonesia” (2011). Peluso argues that every map has a political dimension and justifies this through the fact that, for example, cadastral maps provide information about ownership (e.g., forest boundaries).

Counter-maps bring alternative forms of mapping when compared to traditional maps. Common to these approaches is the attempt/desire to reveal deeper power structures, to address the social dimension of a map, and to enable democratic access—these maps are an essential tool for asserting socially disadvantaged people’s rights. Map production began to shift from what, at first glance, appeared to be an activity of objectification to a subjective task. In this context, questions of democratization, the author of geographical knowledge,

and an individualized map come into focus, thereby questioning centuries-old models of standardization.

Suddenly, there was no longer anything such as a normalized world, but instead there were many possible worlds. This fragmentation into multiple perspectives became one of modernity's defining principles. The one world–our world is shaped for one's subjective needs and criteria, and one's own subject is located within it.

This ontologically shaped worldview can be found in the numerous maps that were produced after the 1980s. The questions/demands on the map/cartography shift towards existence, materiality, and collectivity. What possible world do we want to live in? What worlds draw their raison d'être from what? What is the nature of a world in which many worlds are supposed to fit?

KNOWLEDGE ACCESS AND PRODUCTION

The exponential increase in georeferenced content (since Web 2.0) has enabled new possibilities of access to knowledge and has led to new methods of knowledge production (visual epistemologies).

The map (as well as graphs, diagrams, and visual forms of representations) has become the basis for this shift and is characterized by the fact that it is used to visualize and negotiate important social issues (see also Drucker 2014, Tufte 2004, 2001 among others). Mapping in this case is used as a creative-artistic activity and research intention.

Accordingly, mapping plays a central role in both artists' and designers' work. Designers and artists use the data in two ways: 1) either to visualize them through infographics and diagrams or 2) they can actively create new approaches to accessing data and information.

Early forms of knowledge access and production can be found in the maps drawn by the American artist Mark Lombardi (1951-2000) or by the German artist Hans Haacke. Both of these artists created explosive cartographies that point to interconnections and scandals in the worlds of business and politics, all without the Internet's help and in meticulously analogical ways.

Haacke investigated the ownership of neglected real estate in New York by using cadastral plans and visual fragments. It is speculated that the owner–the Shapolsky et al. Manhattan Real Estate Holdings has connections to the Guggenheim Museum. Haacke's work was supposed to be exhibited at that same Museum, but it was cancelled at the last minute. There were speculations that this cancellation happened because his work contained uncomfortable information about real estate ownership. With "Shapolsky et al. Manhattan Real Estate Holdings, A Real-Time Social System, as of May 1" (1971) Haacke documented real estate ownership data and the control that was held over large areas of the city, Harlem and the Lower East Side in particular.

The entire work consisted of 142 photographs of buildings, all of which were labeled with different information: Address, type of building, date of acquisition, transactions, owner, as well as estimated value.

Lombardi pursued a similar approach with even more explosive content with the project "BCCI, ICIC & FAB" (1972-1991). The acronyms in the title refer to banks counted among the environment of international terrorism, such as the Bank of Credit and Commerce International. He showed the entanglements and the corruption between business, politics, and the military through meticulously researched information presented through the use of lines, circles, and arrows.

The narrative maps–or perhaps one should rather speak of diagrams–illustrate, through the politically and economically directed world order,

all through the use of the simplest technique (pens on paper). They show a network of money, power, and relationships (e.g., those of the Bush and Bin Laden families) and are an image of an elitist world. Lombardi himself speaks of narrative structures, including information that he has compiled from books and articles and which he then put into a visual form. The otherwise isolated information is placed in an overall different context by using diagrams and connections and can, thus, be read anew. Individually, the information would hardly make sense; only in this context could these relations be made.

Access to information plays a central role in digital cultures. This has been accompanied by a shift from local to global or universal knowledge. Mapping, as an artistic and design research and medial process, is currently one of the most used strategies to show, negotiate, and to document critical social processes and knowledge (see for example Bianchi/Folie 1997; Harmon 2004; Abrams & Hall 2008; Harmon 2009; Obrist 2014, Hawkins 2021 et. al. Maps are an expression of visual cultures and allow a methodological and epistemological access to space. Furthermore, they offer the possibility to bring data and information into spatial contexts and to establish new relations.

Interactive maps link their content with information, news, and images as lists, websites, and photographs, thereby becoming spatial organizations—a geo-web of visual epistemologies. The physical place can be inscribed with users' personal notes, stories, and images (inscribing and tagging) through services, networks, and applications.

These practices, which originated in artistic practices around locative media, are now also being applied to social networks. Maps become visual forms of knowledge production that produce, expand, and make experiences of the world more understandable.

THE ESSAYS

The collection of essays consists of seven groundbreaking positions, all of which contextualize the above topic/shift from a subversive, artistic, critical and/or political approach. The aim of this publication and the essay section is a differentiated examination of the medium of mapping (i.e., the cultural technique of mapping in the context of technology, data, power, and authorship respectively). The authors are activists and geographers, informational and graphic designers, media scientists, architects, as well as artists. This diversity has allowed for the provision of a holistic overview of a highly complex and timely topic.

The essays address the aforementioned shifts from a wide variety of perspectives and, there-fore, represent points of reference to the current design-artistic and technological discussions and digital processes surrounding maps or cartography. They are clustered into three subtopics:

1. New technological processes and democratization in map production;
2. Critical cartography and bottom-up movements;
3. Artistic practice and the social dimension of maps.

The collection of essays in this book will hopefully provide further opportunities for thinking and will also provide a critical approach to the view of this world. It aims to inspire thinking outside the box in order to imagine a new possible world, hierarchies, and technologies.

→VIDEO LINK

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