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Media Geography – 6

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Media's Mapping Impulse

Edited by Chris Lukinbeal, Laura Sharp,
Elisabeth Sommerlad and Anton Escher

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Checking In: Maps and Social Media

ACKNOWLEDGMENTS

Most of the essays in this volume derive from the international symposium "Media's Mapping Impulse," which took place in June 2016 at the Institute of Geography at Johannes Gutenberg-University in Mainz, Germany. Twenty-four scholars from all over the world accepted the invitation of the editors to discuss on an interdisciplinary level the manifold relations between different media (e.g., film, social media, apps, video games), cartography, geospatial technologies and locative media (Tab. 1). From the different professional perspectives of geography, cartography, film and media studies, the question was posed as to how media and maps influence perception and interaction with our everyday world. A central assumption was that mass media in their everyday work permanently create spaces of communication through which meanings, ideologies and power relations are spread. They have an obvious yet subtle mapping impulse: the constant reinvention and mapping of the world in Hollywood films, the localization via media based on *geofencing*, *geo-tagging* or *geocoding*, or the location of a virtual world via social media are just three examples. Essential philosophical questions of the symposium were: How central are media mapping processes for the geographies of our everyday world? When, where, how and why do we arrange things and ourselves in certain orders? To what extent are myths created and transported through media mapping? All in all, the presentations and controversial discussions revealed the complexity of the concept of Media's Mapping Impulses.

The symposium has produced fruitful results and new opportunities for interdisciplinary, international academic cooperation. All the more reason for us to be pleased that in this volume we are able to bring together some of the conference contributions, as well as some additional essays, which were kindly contributed by distinguished authors. We would like to express our sincere thanks and appreciation to all the speakers, guests and discussants of the symposium for the inspiring dialogs and the success of the event as well as all the contributing authors for the implementation of this anthology.

A large number of people and institutions, without whom the entire project could not have been implemented, were involved in both the book and the previous symposium. We would like to take this opportunity to express our sincere thanks to all of them. We would like to thank the Center for Intercultural Studies and the Internal University Research Funding of Johannes Gutenberg-University for their generous financial support of the symposium. We would like to thank the students of the Master's program "Human Geography: Globalization, Media, and Culture" (class 2015/16) for their organizational cooperation before and during the symposium, as well as all scientific assistants and employees of the Geographical Institute of JGU for their support. *Media's Mapping Impulse* represents the sixth volume of the series Media Geography at Mainz. Many thanks, therefore go to Susanne Henkel

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Table 1: Program of Media's Mapping Impulse

INTRODUCING MEDIA'S MAPPING IMPULSE

Chris Lukinbeal and Laura Sharp

Media's Mapping Impulse is an international and interdisciplinary collection of essays that explores the fundamental relationships between cartography, geospatial technologies, and new and traditional forms of media. The foremost of these relationships is that cartography is one of the oldest forms of media and that media is a type of cartography. Media scholars and cartographers alike have shed light on the tendency for representations to objectify both social *and* spatial relations of power. It therefore makes sense that, to understand the mediation of our socio-spatial world, we find ourselves turning to the seemingly rational and objective scopic regime of cartography to lend a calm and ordered schema to an otherwise chaotic phantasmagoria of images and events. When we consider media – "new" or "old" – through the lens of cartography, we begin to uncover how meaning, ideology, and power are negotiated across space and time in a way that may otherwise be difficult to ascertain. Media, in this sense, is underpinned by what Teresa CASTRO (2009) has called a mapping impulse – a drive to be rendered comprehensible through spatial and cartographic metaphors of topologies, networks, and flows. To pry this idea apart further, it helps to consider what is meant by impulse.

A mapping impulse is the ability of a medium to "shape our understanding of the world and to inform our relationship with the world" (AVEZZÙ 2016, 1), it is a mediation between subject, media, and the world. Media's mapping impulse is "a drive to explore through visual and audiovisual means the diversity of the physical world, the space but also [the diversity] of people and everything else that lives in the world" (CASTRO 2016, 1). An impulse is a sudden, overwhelming feeling that compels the person or object experiencing it to act without hesitation or thought. What might cause such an immediate and unwavering drive to render in explicit, cartographic terms the otherwise implicit spatiality of media and the way we communicate about the world? In this introduction, we suggest that media's mapping impulse is compelled by an anxiety that arises from the need to fill in the uncharted void on the map, a "horror vacui or discomfort at leaving empty spaces" (VAN DUZER 2012, 393).

Horror vacui is a visual arts term developed by Mario Praz to refer to the desire to fill in every blank space of a piece of art. For Chet VAN DUZER (2012), horror vacui helps us understand the positioning of monsters, text, and images on the blank spaces of maps. In this sense, horror vacui is the visual and figurative demarcation of cartographic anxiety on the map, bringing into representational form the subconscious and perhaps unconscious demons underlying the Cartesian drive to document the known world (Figure 1). This anxiety is offset by a mapping impulse of discovery, an impulse to reveal the unknown, map the terrae incognitae, and

communicate this discovery to others. This cartographic anxiety not only underlies media's mapping impulse but acts as its driving force. To unpack this claim, in this introduction we examine how Cartesian logic of representation came to the fore with the European Renaissance and the conceptualization of the "world as picture," a mathematical and representational modality of looking at and colonizing the world by rendering it as a series of artifacts and commodities. The Cartesian logic of representation is formulated through Euclidean geometry, gridded space, and scalar techniques that provide a foundation to transform three-dimensional objects into two-dimensional form while maintaining mathematical principles of equivalence and aesthetic principles of realism. Essential to Cartesian representation is the cartographic paradox, which provided the techniques to produce scaled representations of the world through a vertical cartographic view from above (projectionism) and the more subjective, horizontal view of the world from below (perspectivalism).

Figure 1. Robert Walton, Map of America (1660) is used by Van Duzer to show the phenomenon of Horror Vacui with its decorative flairs, sea monsters, smoking canoes and boast made of Hydas

CARTOGRAPHIC ANXIETY

Cartographic anxiety is a term coined simultaneously by Derek GREGORY (1994) and Sankaran KRISHNA (1994) in reference to BERNSTEIN's (1983) idea of Cartesian anxiety. Richard BERNSTEIN (1983) derived the phrase in a critique of DESCARTES's (1993 [1641]) second meditation in *Meditations on First Philosophy*, which is often referenced as one of the great rationalist treatises of modern times and in which DESCARTES argues that the purpose of human reason is a search for truth. For BERNSTEIN (1983, 27), DESCARTES's quest for a "foundation or Archimedean point" is the "quest for some fixed point, some stable rock upon which we can secure our lives against the vicissitudes that constantly threaten us." Cartesian anxiety is thus the "dread of madness and chaos where nothing is fixed, where we can neither touch bottom nor support ourselves on the surface" (BERNSTEIN 1983, 27). Cartesian anxiety is not just about the fear of being unable to objectively document the known and knowable. Rather, with

> chilling clarity, Descartes leads us with an apparent and ineluctable necessity to a grand and seductive Either/Or. *Either* there is some support for our being, a fixed foundation for our knowledge, or we cannot escape the forces of darkness that envelop us with madness, with intellectual and moral chaos. (BERNSTEIN 1983, 27)

In short, Cartesian anxiety is the fear that there is no fixity or basis to distinguish between reason and unreason, a necessity for the existence of Cartesian thought (PAINTER 2008). GREGORY (1994, 72) argues that this anxiety of the strange and alien is not something that is outside amassing at the gates of Reason, but rather is already here, already "constitutively inside" Reason.

GREGORY (1994) argues that cartographic anxiety underlies modern human geography. Cartographic anxiety is the drive to make geographical space legible, knowable, and by proxy, conquerable: to rid the world map of the terra incognita and remove the horror vacui that plagues the discipline. Cartographic anxiety was part of the European scopic regime of the "world as exhibition" wherein, at the closing of the 19th century, the world was increasingly rendered as objects to be viewed (GREGORY 1994; PICKLES 2004). This rendering of a world as exhibition or picture references a very specific type of representation, one that not only relied on mathematics but also positioned the viewed objects as resources for use and capitalization. According to John PICKLES, (2004, 84) the "world as picture" was

> projected as *ta mathemata*, as a mathematical manifold. The projection of the world as mathematical was, for Heidegger one of the fundamental ways in which modern metaphysics understands itself and the foundation for the modern sciences and for technology as we know them.

AVEZZÙ, CASTRO, and FIDOTTA (2018, 1) point out that the Heideggerian claim of grasping the world as picture is a "fundamental cartographic problem" that also hides the "picture's performativity or agency as a specific media artifact."

Articulation of the world as picture requires language and as Marcus Doel points out in his chapter, language, and the articulation of meaning through it, is adrift in a "notoriously treacherous terrain" because we cannot separate it, nor remove our self to an Archimedean point to contemplate or represent it. Doel's

examination of semiotics exposes how the sign enunciates meaning and resists articulation of meaning. The relation between signifier and signified is troubled by what Saussure calls a double articulation, or what Lacan calls a resistance or barrier. This resistance, Doel suggests, leaves floating or sliding signifiers struggling in "vain to pin/pen down" their slippage.

KRISHNA's (1994) interest in cartographic anxiety was for its association with postcolonialism. Here, cartography refers to representational practices that inscribe meaning onto an entity and names it, in KRISHNA's case, India. He argues that "under such a definition, cartography becomes nothing less than the social and political production of nationality itself" (KRISHNA 1994, 508). Cartographic anxiety, then, is also a symptom of the postcolonial condition wherein identity as a nation is defined by colonization, which is writ large through cartography as the principal means by which to define territory and ownership. Joe PAINTER (2008) argues that what GREGORY (1994) and KRISHNA (1994) evoke through cartographic anxiety are two interrelated logistics of boundary: the epistemic boundary between reason and unreason, and the spatial boundaries produced through cartographic reason and representation. HARLEY puts it more succinctly, saying that "the map is not the territory yet it often precedes and becomes the territory" (HARLEY in WOOD and FELS 2008, 190). As Denis WOOD and Jon FELS (2008, 190) note, "the map is nothing more than a vehicle for the creation and conveying of authority about, and ultimately over, territory. Cartographic anxiety is bound up in issues of "the political unconscious in maps" (HARLEY in WOOD and FELS 2008, 190), issues that underlie how we conceive of, deal with, and stress over territory, (national) identity, and even the survival of the nation. WOOD argues in this volume that maps,

> constructed the state, that literally helped to bring the state into being, maps were endowed with their strongest media impulse: they were literally pulsed out into the world to enable citizens and aliens alike to participate in their graphic performance of statehood.

Cartographic anxiety is about clearly defining and delimiting nations on maps and bodies, of producing markers of us and them. This demarcation is central to Paul ADAMS's essay (current volume) on migration maps and the routes, paths, and lines that bound, shape, include, and exclude refugees seeking asylum in Europe. ADAMS shows how cartographic media are "performances of control," a matter of regulating the anxiety brought about through the breach of cartographic boundaries. Migration maps in these cases are acting as a medium to communicate international and domestic geopolitical information and imaginaries and serve as a vehicle for practices of inclusion, caring, and belonging, as well as exclusion and xenophobia.

The relationship between the map and the territory is central to cartographic anxiety, deriving primarily from the question of whether there is an ontological relationship between territory and cartographic/Cartesian reason or whether cartographic reasoning is an imposition onto the territory. David Clarke's chapter on the film *Memento* questions the relationship between map and territory by probing memory, obsessional neurosis, the unconsciousness, the Oedipal complex, and mental maps. In contrast to Fredric Jameson's aestheticization of cognitive mapping, which illustrates its own cartographic anxiety, Clarke draws from BAUDRILLARD's invocation of Borge's fabled tale of the Empire's decline. In so doing, Clarke shows

that the issue at stake is not a question of precedence between the map and territory, but rather, that something has disappeared: an allegorical residue where the distinction of map and territory can no longer hold "a firm division between 'things that mean' and 'things that are meant.'" In their chapter, Alex Gekker and Sam Hind contend that rather than something lost, or divided, the map and territory occupy the same ontological plane, especially when it comes to self-driving cars. Gekker and Hind suggest that with the advent of driverless cars, the map and territory are no longer distinguishable in the digital age and that through flat ontology everything exists in the same plane with no object being undermined or "overmined."

Following the logic of Farinelli and Olsson, Avezzù argues in his chapter that cartographic reason was a foundational concept for Western thought. This was reinforced through the cartographic paradox wherein perspectivalism and projectionism normalized the circular logic and self-referentiality between map/territory and presentation/representation. This self-referentiality underlies the practice of turning the map into territory and naturalizes claims of territory through representational techniques. However, Farinelli, similar to Jameson, argues that because globalization undermines cartographic reasoning, it is no longer useful to delimit, domesticate, and territorialize the world. Further, the perpetuation of cartographic reasoning produces and maintains a cartographic anxiety that is reflected in logic, cartography, and cinema where the desire to map the known and knowable spaces of the world run up against the terrae incognitae of reason, space, and consciousness. The recent interest in cinema studies in cartography, mental maps, and GIS is embedded in the cartographic logic of mapping out the known world to domesticate knowledge. This is what Avezzù calls the crisis of "cinematographicity," or the waning ability to grasp the known and knowable world through cinema's mapping impulse. SHARP (2018), in her analysis of Kurosawa's *Dersu Uzala,* shows how cartographic anxiety is encoded in the language of cinematic form, necessitating its release through the aesthetic practice of geographic realism (LUKINBEAL 2005, 2006) invoked by establishing shots (LUKINBEAL 2012). SHARP (2018, 90) argues that establishing shots are a fulcrum that orient and reorient the film voyager on their narrative journey. By grounding the audience in a geographically "real" or believable locale, establishing shots assuage the discomfort caused by cinema's innate cartographic anxiety and place the audience back "in the realm of the knowable."

THE CARTOGRAPHIC PARADOX

HEIDEGGER's mathematical view of the "world as picture" is based on two scopic regimes that arose from the European renaissance and traced their roots to the rediscovery of Ptolemy's *Geography*, which represented a "sudden birth and growth in mapping" (CONLEY 1996, 1) or the "emergence of a new map consciousness" (PICKLES 2004, 96). PICKLES refers to the coevolution of perspectivalism and cartographic projectionism as the cartographic paradox: two related but distinct scopic regimes reliant on mathematics. The paradox that PICKLES refers to is that, although these two scopic regimes arose from the same period and region and informed one

another's development, they each produce very different representational outcomes. To understand these scopic regimes, we should turn back to Ptolemy's *Geography*.

Ptolemy proposed three projection methods to map the world. One of those methods, which was similar to Leon Battista ALBERTI's (1991 [1435]) linear perspective, was distant-point perspective. Samuel EDGERTON (1975, 104) argues that Ptolemy's distant-point perspective was "the first recorded instance of anybody – scientist or artist – giving instructions on how to make a picture based on a projection from a single vantage point representing the eye of an individual human beholder" (EDGERTON 1975, 104). Because Ptolemy's distant-point perspective and ALBERTI's linear perspective both use a single vantage point, they are often considered to be equivalent. Svetlana ALPERS (1983, 138) has suggested, however, that while the two scopic regimes are similar, they also have significant compositional differences: Whereas the "Albertian perspective posits a viewer at a certain distance looking through a framed window to a putative substitute world," the Ptolemaic perspectives "conceived of the picture as a flat working surface, unframed, on which the world is inscribed." Further, while Ptolemy offers the tools for a human-centered perspective, his approach is really about geometric extrapolation:

> What is called a projection in this cartographic [Ptolemaic] context is never visualized by placing a plane between the geographer and the earth, but rather by transforming, mathematically, from sphere to plane. Although the grid that Ptolemy proposed, and those that Mercator later imposed, share the mathematical uniformity of the Renaissance [Albertian] perspective grid, they do not share the positioned viewer, the frame, and the definition of the picture as a window through which an external viewer looks. On these accounts, the Ptolemaic grid, indeed cartographic grids in general, must be distinguished from, not confused with, the perspectival grid. The projection is, one might say, viewed from nowhere. Nor is it to be looked through. It assumes a flat working surface. Before the intervention of mathematics its closest approximation had been the panoramic views of artists – Patenir's so-called world landscapes – which also lack a positioned viewer. (ALPERS 1983, 138) (Figure 2)

ALBERTI's theory of linear perspective relied on the logic of a grid but a grid wholly different from the graticule that underlies projectionism. The perspectival view seeks to mimic the optical view of an individual's perspective from one fixed point. Projectionism as a mode of description follows the lineage of panoramic paintings, planimetric landscape profiles, and topographical city views. In these cases, the viewer is presented with a people-less landscape, "where distance is preserved and access is gained" (LUKINBEAL 2010, 9). By removing the viewing subject, projectionism objectivizes the world, turning subject-object relations to object-object relations. In contrast, perspectivalism disassociates the subject by naturalizing the scene as an objective view of reality. In both cases, the dissociation of the subject configures these scopic regimes in dialectic relation with the "real and the unreal … the body and disembodiment; possession and alienation" (DOANE 2009, 64). The disassociation of the subject from the "world as picture" has been termed the mirror of phallocentrism (ROSE 1995), revealing an embedded gendered logic within the representational process. Further, the window metaphor used in linear perspective allows for a drawing plane on which to produce representations, which Luce IRIGARAY (1985) interprets as the mirror of hegemonic masculinity and Gillian

Rose (1995, 764) refers to as the inherent interrelationship between "phallocentric subjectivity and its visualized space" (Figure 3).

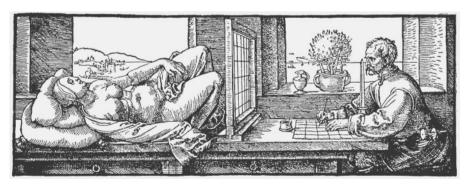*Figure 2. Joachim Patinir, Landscape of Saint Jerome (1516-1517)*

Figure 3. Albrecht Dürer, Der Zeichner des liegenden Weibes (1512-1525)

Together, these scopic regimes became powerful tools to mediate the known and knowable world and, concomitantly, a means to articulate mimetic or absolute realism, thus imbuing these regimes with the power of autonomous realism. The belief in perspectivalism's mimetic power is notable in ALBERTI's statement wherein he claimed that perspectivalism was not an aesthetic technique but rather a means to construct a "*real* space in the sense that it functioned according to the immutable laws of God" (ALBERTI 1435 in EDGERTON 1975, 30). EDGERTON (1975, 24) explains,

> Linear perspective … with its dependence on optical principles, seemed to symbolize a harmonious relationship between mathematical *tidiness* and nothing less than God's will. The picture, as constructed according to the laws of perspective, was to set an example for moral order and human perfection.

The power of mimetic realism also seemed to be granted to projectionism because it emphasized spatial equivalence, thereby codifying "our view of particular social processes" (EDWARDS 2006, 8). In this sense, maps not only represent space but actively "negotiate the identity, the legitimacy, and the agency of individuals, groups, and ventures" (EDWARDS 2006, 2). Thus, according to David HARVEY (1989, 246), the geometric aesthetic of projectionism made the world "conquerable and containable for the purposes of human occupancy and action."

Projectionism and perspectivalism can be situated within Ptolemy's distinction between geography and chorography where the former studied the world as a whole, the latter described the world in parts. This distinction positions geography as a spatial science associated with projectionism, objectivity, and cartographic reason while associating chorography with perspectivalism, the humanities, subjectivity, and place. Through geography, we get the projectionist view from above, situated at an Archimedean (but not a fixed) point from which to survey the world and produce models of the earth's size, shape, and surface. However, projectionism is more accurately defined as a view from nowhere by no one. Perspectivalism, by contrast, is the subjectively situated view from below as it looks out on the world through a metaphorically framed (window) view. Perspectivalism, based on the geometrical construction of the vanishing point (as demonstrated by Filippo Brunelleschi), relies on the viewer's gaze and the frame to create its realistic, representational effect. The projectionist representational method is not reliant on a frame or a vanishing point to produce its realism. While both scopic regimes can provide a view from above, only projectionism provides an orthographic view, one that both displaces the view to directly above all points on the map at once and preserves either conformality or equivalence in the transformation from 3d to 2d.

The views from above and below, which we've described here, are what drives media's mapping impulse. Most forms of media provide a situated, perspectival view of the world that maps cannot attain on their own, and vice versa. The current, possibly subconscious, trend toward mapping in new media and thinking cartographically about old media is about trying to combine these two views to gain a more holistic picture. SHARP (2018), for example, has combined these scopic regimes through the forms of mapping (projectionism) and video (perspectivalism) to understand and communicate the everyday experiences of film location scouts in

Los Angeles, California. She argues that by taking a "cyborg" positionality that inhabits both the view above and below we are better equipped to "think critically not merely about the map's underlying epistemologies but more importantly the implications this epistemology has for how we understand the geographies of cinema." These scopic regimes provided European's with the tools to make the "world as picture" and accurately and realistically represent, document, classify, catalog, inventory, assess, and record the world.

Although we may point to these scopic regimes as a newly emerging mapping impulse, the power embedded in maps has also required the opposite impulse: the "pall of secrecy" (Wood, current volume). Maps document military intelligence, as well as show locations and pathways to great wealth, which required concealment for much of history. This points to a paradox that underlies cartographic anxiety and media's mapping impulse: that there is a desire to reveal, to chart out, to turn the darkness into light and expose the unknown world, but at the same time, the underlying power that maps hold is valuable and creates a desire for possession, control, concealment, and suppression. As Denis Wood notes in this volume, maps can "rise to the level of notoriety" or "be as reticent as … the grave."

THE CORPOREAL IMPULSE TO MEDIATE AND MAP THE WORLD

The mapping impulse of media is not simply a cartographic one but is also constituted by the mediation of body and space. The body produces space and the techniques of communication ground the process of mediation and provide an ongoing epistemological assessment of the spatial situatedness of the self. The mapping impulse of media begins from this situatedness, the spatial primitive or primal urge of self-mediation: the desire to understand the relationship between the self and world, body, and space. J. B. HARLEY (1987, 1) expressed the underlying desire to communicate and express our sentient spatiality thusly:

> There has probably always been a mapping impulse in human consciousness, and the mapping experience – involving the cognitive mapping of space – undoubtedly existed long before the physical artifacts we now call maps. For many centuries maps have been employed as literary metaphors and tools in analogical thinking. There is thus also a wider history of how concepts and facts about space have been communicated, and the history of the map itself – the physical artifact – is but one small part of this general history of communication about space. (HARLEY, 1987: 1)

This is not a static mediation but one that always involves movement – of the eyes, body, mind, and emotion. According to Tom CONLEY (2016, 1),

> Mediation is about the relations one establishes with respect to one's difference in relation to the world. The world is not who or what one is and that difference that is felt in life is a mapping impulse. Where am I with respect to this alien condition in which I find myself, and with which I deal as an alien form in mediating and so my mediation becomes manifest through psychogeography, or the mapping I make of where I am or where I think I am in time and space.

Here, Conley pulls from Guy Debord's (1955, 1) idea of psychogeography, or the "study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals."

In this sense, the mapping impulse is a spatial primitive, one haptically grounded by the "reciprocal contact between us and the environment" that requires "the abilities of our bodies to sense their own movement in space" (Bruno 2002, 6). However, the mapping impulse is not just about externality, but rather follows Jean-François Lyotard's (2004, 2) formulation of "emotion as a motion," where the body mediates between the external movement through space and internal movement of emotions. Just as the body mediates between itself and the environment, it also mediates interiority and exteriority, or what Jacques Lacan referred to as operational montage, a process of projection and introjection (Lukinbeal and Sharp 2014).

Media's mapping impulse, therefore, is an innate desire to reflect upon, communicate, and (emotionally) express how and where we are in relation to the spaces we occupy. Mediation of one's mapping impulse produces relationalities between things like subject/object and self/other. In this sense, media is not just the production and communication of information and images. It is also about mediation, or the basis of living in the world where we find that "we are constantly positioning ourselves – we are mediating ourselves in relation to the shifting, changing environment through which we are moving. It's extraordinarily simple but comes forward in all media we encounter and especially in cartography and cinema" (Conley 2016).

Mass media changes the pattern of interaction between self and world; it forces us to mediate on information, meaning, ideology, representation, and being. Media not only reflects reality but produces reality. It is a fundamental component of mediation – a constant remapping of an ever-changing world. Media is an assemblage of culture, technology, representation, and practices that mediates transactions between us and the world, between human and non-human, in such a way that it translates as it modifies the assemblage of us, world, human, non-human, culture, technology, and representation. Media, as one part of our mapping impulse mediations, is not a socially constructed set of binaries or dialectical relationships. Rather, it is an act(ion), a "shift from media as an empirical collection of artifacts and technologies to media as a perspective for understanding" that "allows us to reassert the crucial and highly dynamic role of mediation – social, aesthetic, technical and (not least) critical" back into the definition of media (Mitchell and Hansen 2010, xxi-xxii). This shift from media as artifact to media as mediation moves media geography away from studies focused on objects or content that communicates. As W.J.T. Mitchell and Mark Hansen (2010, -xxii) posit, "rather than determining our situation, we might better say that media are our situation." Similarly, rather than media's mapping impulse as a drive to chart the unknown, or define location and boundaries, the mapping impulse is an ontogenetic practice of positioning oneself in the world, a corporeal expression of placing and place-making.

Cinema is uniquely equipped to express the ongoing mediation between self and environment. Cinema developed during the industrial revolution, a period that

saw the development of a number of new technologies that produced new ways to mobilize modes of viewing and inhabiting space and place. Cinema is the ultimate realization of the application of perspectivalism and provides a subjective mapping of the world through pictures in motion, montage, and editing.

THE CINEMATIC IMPULSE TO MEDIATE AND MAP THE WORLD

Teresa Castro (2009, 10) used the phrase "mapping impulse" to reference cinema's "particular way of seeing and looking at the world, a visual regime." Castro argues that early cinematography was enveloped in a mapping impulse, one that was a visual and moving *art of describing* and which is seen through various cartographic shapes like panoramas, atlases, and aerial views. In so suggesting, Castro associates cinema with Alpers's (1983) reference to the mapping impulse of Dutch painters who sought to paint "aspectively" by rendering that which is *seen* into the artists' *scene*. Stephen Heath (1981) references a similar perspectival conversion in cinema where the act of narration transforms framed space into narrative space. This is the conversion of that which is seen (from a perspectival window) into the narrative scene in which the frame "is the point of conversion" (Heath 1981, 32).

The mapping impulse of early cinema must be situated within a larger series of technological and cultural changes of Western society's industrial revolution. Not since the Renaissance had such a massive reorganization of knowledge and social practice taken place. Where the Renaissance brought about visual practices of perspectivalism and projectionism, the industrial revolution took those practices and produced new communication technologies, modes of transportation, and architectural wonders that reshaped how we understood and experienced space and time. According to Giuliana Bruno (2002, 17),

> on the eve of cinema's invention, a network of architectural forms produced a new spatio-visuality. Such venues as arcades, railways, department stores, the pavilions of exhibition halls, glasshouses, and winter gardens incarnated the new geography of modernity. They were all sites of transit. Mobility – a form of cinematics – was the essence of these new architectures.

Technologies provided tools to better map and mediate our representations of space but also propelled us through space and created new spaces and places for occupation. Cinema was one such technology that presented itself as a modern form of cartography, opening up new spaces and allowing for flanerie and a "'modern gaze that wanders through space, fully open to women" (Bruno 1997, 10). The "modern" city and cinematics were grasped through movement and montage, which were essential elements to Benjamin's *Arcades Project*. Cinema extended flânerie and opened the "world as picture" for exploration.

In this volume, two chapters, one by Eva Kingsepp and another by Victor Aertsen, Agustin Gamir, Carlos Manuel, and Liliana Melgar, show how cinema opened the "world as picture" for exploration in very different ways. Kingsepp explores the documentary films from the WWII North African Campaign. She focuses in particular on the famous "Duel in the Desert," the battles of El Alamein, and how these are situated within a mythical space that reflected European identity and Oriental-

ism. For Europeans, North Africa was seen through these films as an empty space with little or no culture, a non-place in effect that acted as a location of transit or warfare. These documentaries, Kingsepp argues, show how documentary films act as a modern cartography through which we see how mediated places become saturated with meaning, myths, and cultural values. In contrast, Aertsen, Gamir, Manuel, and Melgar's chapter highlights the spatial humanities' increased interest in applying geographic information systems (GIS) to cinema. In their chapter, they explore the establishment and use of the *Madrid Movie Map*, an online GIS-based web application. The *Madrid Movie Map* includes two hundred and fifty movies, thousands of georeferenced movie scenes, and a vast digital humanities database that places movies of Madrid in a spatial context, allowing for online flânerie.

The *Madrid Movie Map* highlights one example of the new developments in online mapping. With web 2.0, mapping has become a collaborative venture that early advocates hailed as the democratization of cartography, detractors decried as the loss of spatial thinking and that others, following critical reflection, deemed to be cartography's (hierarchical) business as usual. Just as Walter BENJAMIN (1968, 236) expressed enthusiasm for cinema's ability to "burst this prison-world asunder" and allow us to "calmly and adventurously go traveling," the enthusiasm for user-oriented cartography is undeniable and challenges us to rethink cartographic practices and how bodies interact with Cartesian representations produced by the cartographic paradox.

THE IMPULSE OF MEDIATING THE MAP

Developments in mobile and web computing have not only increased the pace, flow, and interaction of media across space, but also the ubiquity, and thus the taken-for-grantedness of mapping. In their chapter, Gertrud Schaab and Christian Stern take us on a tour of the vibrant and diverse range of mobile mapping apps, their use, language, and economy. They note that mobile map apps are primarily used to provide navigation and orientation or to assist with spatially-aware media for searching and depicting location-based information. They further note that mobile map apps involve participatory sensing, heat mapping, and volunteered geographic information. The growth and usage of mapping applications have risen to dizzying proportions and because of this, Schaab and Stern also provide a cartographic critique of why user-centered designs matter. Since the mid-2000s, there has been a steady rise in spatial media on the Internet and mobile devices. This escalation follows closely upon the transition of the Internet to web 2.0, or when static content was increasingly replaced with dynamic media, user-generated content, and social media. While dependent on cartography, new spatial media has been driven by everyday users.

At its best, new spatial media is a public enterprise that allows people to produce geographic information, engage with the map-making process, and produce counter hegemonies to authoritarian cartographies. The first decade of the new century found many exuberant supporters of this line of thought. CRAMPTON and KRYGIER

(2005) referred to these new possibilities as the un-disciplining of cartography, while DEL CASINO and HANNA (2006) called it the democratization of mapping. Barney WARF and Daniel SUI (2010, 200) declared that "neogeography has helped to foster an unprecedented democratization of geographic knowledge." In the years following these declarations, however, writers questioned whether this development ought truly to be labeled "democratic." HAKLAY (2013), highlighting the uneven access to spatial media and the Internet as well as variances in the skills and knowledge of their use, has described the democratization of mapping as a delusion. HAKLAY draws on Feenberg's critical theory of technology to posit that the supposed democratization by neogeographers is based on an underlying assumption that technology is value free. This work highlights how media's mapping impulse is caught up in hierarchies and hegemonies that position advanced technology users in a privileged class and uninformed users in a disempowered, laboring class.

More and more, owing to the practices of the neogeographers of the Geoweb, media requires a geographical situatedness in which and for which media can take place. Here, spatial media relies on programming languages and APIs (application program interfaces) to construct geo-fencing, geo-tagging, and geo-coding and to produce applications and services that localize and individualize information to one's liminal, transitory, and fleeting lived space. Consider, for example, the ways in which (geo)web 2.0 unites one's virtual and physical presence (if such a distinction can be made) via services such as FourSquare and Snapchat, geotagged photos on Instagram, or Facebook check-ins that announce one's whereabouts to friends and acquaintances.

Web 2.0 fills the mapping impulse for the building of communities through the process of coming-to-the-world, demonstrated by Tobias Boos in this volume as he examines Siena, Italy's online eco-museum. In this chapter, Tobias Boos shows how communities inhabit the geoweb, weaving together the material, technological, and social through a bricolage of histories and the practices of placing and remembrance. Web 2.0 can also fill a different mapping need, one that allows counter cultures to fight the spatial inequalities and the right to the city's vacant properties in Germany. To this end, Gregor Arnold's chapter examines how the crowdsourcing platform *Leerstandsmelder.de* serves as a collective tool for a social movement focused on the use of empty building spaces for public use. By mapping vacant buildings in German cities, *Leerstandsmelder.de* acts as a subversive form of urban development, enabling the public to question the hegemony behind the process of city land use and development. Neogeography and web 2.0 emphasize the democratization and mediation of maps, as well as the process (rather than finished product) of representational cartography.

Using Twitter, Flickr, and TripAdvisor, Mengqian Yang and Sébastien Caquard (current volume) examine film-induced tourism that arose in response to the film *Shawshank Redemption* at the Ohio State Reformatory in Mansfield, Ohio. Their analysis shows how the different social media platforms may be more appropriate to examine phenomenon at different scales: While Flickr proves the most useful to understand the phenomenon locally, Trip Advisor is most telling at the regional scale and Twitter at the global scale. Zook and Poorthuis also look to social media

but do so from a different perspective by examining the smartphone/social media phenomenon of the selfie, asking: What is the geography of the selfie? In their analysis of eight-million geotagged tweets, Zook and Poorthuis situate their results within the two different views provided by the cartographic paradox. Whereas the view from above (projectionism), or spatial analysis, helps us understand where selfies come from in the world, the view from below (perspectivalism) situates the selfie within specific socio-spatial contexts. These two papers highlight how the epistemological outcome of research on social media data is framed by the scale at which that data is analyzed.

With geovisual technologies increasingly moving into augmented/mixed/hyper reality, our understanding of spatial relations between subjects/objects and map/territory are more ethereal, challenging our cartographic anxiety in new and profound ways. Geospatial technologies are frequently credited with the rise of counter-mapping and maps 2.0, but they also underlie a specific kind of cartographic anxiety, one where the map precedes the territory. As Nora Newcombe, a Temple University psychologist who studies spatial cognition, observes, "GPS devices cause our navigational skills to atrophy, and there's increasing evidence for it … the problem is that you don't see an overview of the area, and where you are in relation to other things" (Stromberg 2015, 1). Greg Milner (2016, 113) posits that most deaths-by-GPS are due to uncritical acceptance of navigation instructions. He states, "something is happening to us…not only are we still getting lost, we may actually be losing a part of ourselves." More and more, many individuals are letting smartphones do their spatial thinking for them. Spatial thinking, according to the National Research Council (2006), entails knowledge of space, representation, and reasoning. When geospatial technologies take on the task of spatial thinking, individuals become delocalized and often enter multiple technological and social spaces at the same time. These representational spaces or enhancements of space are not lived spaces, "at least not in the sense of ordinary or everyday experience of space in its relations to the body, but abstracted, alienated" (Doane 2009, 69). Fundamental to the abstraction and alienation of this new mapping impulse is the epistemological underpinnings of scale, its role in producing realism, and its effects on subject / object relationships.

IN/DIFFERENCE OF SCALAR REPRESENTATIONS

Due to the representational techniques of projectionist and perspectival scopic regimes, we have become acclimatized to the mediated projection of objects that are indifferently scaled. A human may appear 100 feet tall when projected on the side of a building by a projector but appear inches tall on a person's cell phone. It is often noted that geographic information systems are scaleless because they no longer rely on the reference of a printed map (i.e., one inch on the printed map equals one mile on the ground). In a digital environment, we can zoom endlessly in and out with no scalar reference point except the legacy at which the data was captured and modeled. In a world of mediatization (Fast et al. 2018), the scaless-

ness of geographic information's mapping impulse pushes the boundaries of the optical unconscious (BENJAMIN 1968), bringing that which is on the edge of vision to the front, transforming the extraordinary into the ordinary and the ordinary into the obscene (BAUDRILLARD 1988). Further, as the shock of seeing the extraordinary become ordinary (BENJAMIN 1968) is normalized, the relationship between subjects and objects becomes more and more dependent on visual technologies and our corporeal optical register. The problem with this, according to Jennifer ROBERTS (2016, 11), is that "we can judge the real size of objects through learned calculations of perspective and other perceptual cues, but we can never have a primary, visual experience of size." Size, through the representational practice of scale embedded in perspectivalism and projectionism, is always an abstraction in which we can see and apprehend that there is something there. To understand size, however, we must stabilize the relationship between our subjective body and the scaled object through our haptical rather than optical register (SUMMERS 2003, 317) (Figure 4).

Figure 4. Without a human to offer a scalar referent, a Saguaro cacti's height it difficult to judge

Scalar representations as a system of coherence, of unity, relies on the logic of difference *as* separation. Difference *as* separation allows for the distinction between that which is present and that which is re-presented, between "existence (things) and writing (words)" (DOEL 1993, 379). According to DOEL (1993, 379),

> The presupposition of difference *as* separation ensures that everything takes place within REP-RESENTATION. Representation is the space in which modern human geography unfolds; it is the assumption that everything is present to itself and that this identity can be re-presented through this difference from what is other (I=I=Not you).

However, difference is not about separation, cutting, size, or scale and it is not responsible for shattering the unity of a scalar image produced through either projectionism and perspectivalism. Rather, difference grows; it is about movement, flow, and process – it is "a fractal of infinite dimension" (DOEL 1993, 379). According to Henri LEFEBVRE (1991, 373), "the formal theory of difference opens of itself onto the unknown and the ill-understood: onto rhythms, onto circulations of energy onto the life of the body." In contrast to difference *as* separation, difference *as* multiplicity deconstructs representation. Deconstruction is not about dismantling or destruction, rather, "deconstruction of representation produces an infinitely hollow and infinitely flat SIGNSPONGE: it functions, but there is nothing to interpret or explain" (DOEL 1993, 379). With difference *as* multiplicity "scale is an unstable ontogenetic representational practice in that it defines its existence by referencing itself in an endless system of deferral, a mise en abyme" (LUKINBEAL 2010, 13).

While scale provides clarity and unity to representations, it only works by ridding itself of its own alterity: that difference is separation and not multiplicity. According to HEATH (1981, 115),

> in its classical form in our 'advanced societies,' representation is the achievement and operation of systems of coherence, of unity, which make up for the process of their structuration with strategies of completion that mask the heterogeneity – movement, difference, contradiction, fading – that effectively serve to contain, to *figure out.*

Scale provides a practical referent to aid the transcription of three-dimensional forms into two-dimensional representations. This transcription from three dimensions to two is stabilized and given coherence by the frame. Two-dimensional representational space is a container (the frame) within which geometry (the skin of scale) covers over the image and keeps the "other," non-framed (terra incognitae) meanings at bay. The frame generates and signifies the representational field. It is through framing that we get the metaphor of perspectival representation as a "window on the world" (cf. ALBERTI *De pictura* 1.19, 1435). The frame acts to unify and naturalize scalar representational space within the mise en scène as well as exclude that which is outside the frame, the extra-diegetic. The framed space invites an indexical understanding as if there were something simply out there, something just outside our window to view. The process of framing acts to neutralize lived space within the framed view; it strips space of social meaning. In the words of HEATH (1981, 29) it is,

> a real utopianism at work, a construction of a code – in every sense of *vision* – projected onto a reality to be gained in all its hoped-for clarity much more than onto some naturally given reality … a practical representation of the world which in time appears so natural as to offer its real representation, the immediate translation of reality in itself.

Though projectionism does not require a frame to produce the transcription from three-dimensions to two, projectionism is still framed by either the study area under analysis or the spatial expanse selected for display. Cartography is a science of reduction, an ongoing iteration of the relationship between the need to neutralize the meaning of a space at a particular scale and the need to describe the space for the purpose of focusing the viewer's attention on a particular subject matter and/or

rhetoric. Generalization and abstraction of neutralized space are required to episte-mologically bind the cartographic thematic overlay to the reference layer. Spatial extent and the cartographic thematic overlay naturalize the representational space.

Scalar representations can be perceived as either presenting unified, coherent information, or as presenting fragmented, contradictory, and fabricated informa-tion. Fragmentation occurs when a scalar representation breaks the analogous rela-tionship between the real and the re-presentation, either when an image seems to be purely an ontological representation of something real and fails or when the cultural message placed within the image stands out as unreal. A representation can be "fixed" to amend the analogous contradiction – a break in mimesis – through edit-ing, bricolage, or montage. Editing, bricolage, and montage are means by which the unrealism of the representation is rectified through cuts and/or sutures. These processes can also be a form of resistance: a representational means to expose the alterity of the naturalization or hegemony embedded within the unseen structure of perspectival and projection-based representations. However, the ability to fix or correct a fractured representation is subsumed under the logic of difference as sepa-ration. With difference as multiplicity, there is nothing to correct, scale is infinitely hollow and filled with contradictory meanings (Lukinbeal 2016).

Scalar representational space is thus both full of social, historical, and geograph-ical meaning as well as removed from that meaning and context. Scale has the perfect alibi for its implication in social power relations: It was never there despite always underlying the meaning of *there*. Rendering scalar representations into a Cartesian plane requires an abstraction of space so that objects become points, lines, areas, surfaces, volumes, and attributions for these entities along with quanti-fied valuation of those entities. Scale permits the transcription of objects into a representational matrix where objects are transformed from substance to abstrac-tion, the manifestation of mimesis onto representation – scale is transmogrified from a cultural practice to an ontological being.

The problematic issue of abstracting geometric representations and embracing them as "true" practices of realism, or what is considered "real," was central to Charles Louis de Saulces DE FREYCINET's treatise *La Question d'Égypte* (1905). DE FREYCINET (1905, cited in GRIGSBY 2003, 3), a four-time Prime Minister of France's Third Republic and an elected member of the Academy of Science in 1890, argued that the,

> first abstraction by geometry consists therefore of retiring from the body its own material and leaving only the place it occupies in space… This abstraction seems to us simple because we have been habituated to it… But it is the boldest [abstraction] one can make, and it requires a very great effort of imagination. We need to withdraw from a body that which constitutes it, that by which it exists, and speculate on a sort of phantom.

DE FREYCINET (1905) goes on to explain that,

> the body being thus led to a state of simple volume or geometric form, we envision its exterior contour, the ideal envelope which contains the volume, and we give the name of surface to this infinitely thin skin, or better to this appearance of skin under which it seems to us that the body still subsists. This is not at all material, it is... a 'being of reason.' It is the separation between

the body and the space which everywhere surrounds it. It is like the imprint that the body leaves in space after it has been removed from it.

Here, DE FREYCINET points out how geometric representations work to produce an abstracted space in which bodies are turned into entities with skins enveloping hollowed volumetric shapes. In effect, DE FREYCINET inverts Euclid's procedure of explaining geometry by starting with the idea that the point is self-evident. Rather than starting from an Archimedean point, DE FREYCINET takes us straight into the horror vucui, the ghostly, massless, hollowed out world of Cartesian space, the world of cartographic anxiety. As Darcy GRIGSBY (2003, 5) notes, "once you have slipped into the massless, timeless space of geometry, mass and time are no longer an issue."

CONCLUSION

With this introduction, we have sought to begin the conversation about media's mapping impulse by highlighting a few central themes. Cartographic reasoning is central to Western thought and this axis mundi provides a foundational belief that there exists an Archimedean point from which we can survey the objective, known world and vanquish the horror vacui. This horror vacui, an underlying anxiety of cartographic reason, persists and has perhaps already flowered into a full-scale obsessional neurosis that works to unbind the relationship of map and territory and unhinge the consistency of the territory itself. A second theme discussed here is the cartographic paradox, which points to the two geometric means by which Cartesian reasoning has been able to produce horizontal and vertical realism through representations and endow them with autonomous, ontological status. Through projectionism and perspectivalism, technologies of the visual were culturally codified, imposing on the world a picture and enabling the subjects and objects therein to be capitalized upon for possession and control. Whereas projectionism codified the objective view from above, perspectivalism provided a ground-level, subjective view from below. Both were fraught with naturalization tendencies, however, and empowered a masculine gendered logic.

The industrial revolution brought about new technologies of the visual that allowed for media's mapping impulse to change our relations between space, time, and subjectivity. Of these new technologies, it was perhaps cinema – with its peripatetic gaze and subjective point of view – that brought forth claims of a new modern cartography, albeit one from a chorographic, perspectival view. With the rise of the digital revolution and web 2.0, we are witnessing a new mapping impulse, one that seeks to democratize cartography and bring about new socio-spatial relations but perhaps at the cost of our own spatial cognitive capacities.

The new mapping impulse of the geospatial and digital revolution further challenges our corporeal association of scale. Now more than ever, the slippery distinctions between subjects/object, real/representation, map/territory become blurred with virtual realities, the optical unconscious, and the obscenity of the visual. James CLIFFORD (1986, 22) has pointed out that "there is no longer any place of overview

(mountaintop) from which to map human ways of life, no Archimedean point from which to represent the world." However, media's mapping impulse grows stronger in the digital age with the desire to flesh out the blank spaces on our maps. Further, this desire seeks to merge the view from above with the view from below through the use of geospatial technologies.

Media's mapping impulse may also be extended to the vital process of bodies in space and the cognitive mapping of space by humans. Navigating the cultural, urban, and physical landscape has become more complex, and humans have developed and imposed new modes of communicating about space and place. The underlying cognitive process of finding our way or situating our self in the world remains similar, though, even if mediated differently by different people in time and space. Media can be conceived singularly as an artifact of mass communication, or in its plural as a medium, or mediational membrane through which interactions occur. Regardless of whether conceived in the singular or plural, if media are our situation, then mapping is our impulse.

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THE VIEW FROM HERE