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Sommario

The Art of Mapping
Between Land and Mind

edited by Francesco Ragazzi

Mapmaking and Cartography as Philosophical Matters: An Introduction

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This issue of the *Journal for the Philosophy of Language, Mind and the Arts* perhaps stems from what might be an excess of presentism. It originates, that is, from the consideration of several unrelated events or processes, all of which occurred after the beginning of this century, that have to do with a renewed relevance of cartography and its expressive forms.

By the end of the twentieth century, we seemed to have grown accustomed to a world whose mappable surface was, on the whole, stable and perhaps even exhausted, but at this moment the horizon we are moving towards appears more uncertain. The active war fronts in Ukraine and Russia, and between Israel and Palestine, as well as the potential for conflict on European soil, or between the USA and China, and the significant Chinese influence on the African continent, all foreshadow a disruption of global borders unprecedented since the end of the Cold War.

If we indulge in increasingly less science-fiction fantasies, we can imagine that the new race for interplanetary missions, also promoted by private companies like SpaceX, Virgin Galactic, or Blue Origin, will not only expand the realm of mappability but also its styles and techniques.[1] The same can be said about metaverses and virtual worlds, which promise to become new realms for human life and interactions.

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[1] See for instance Nass et al. 2011, Dunnett et al. 2017; about the placemaking process regarding planets other than Earth, Messeri 2016; for a stellar maps history, see Kanas 2012.

Leaving aside futuristic predictions to focus solely on the present, consider how reading a map has become a daily, easily accessible experience since applications like Google Maps entered everyone's smartphones in 2008. Despite Franco Farinelli (2009) linking the crisis of cartographic reason with globalization and the advent of the internet, it seems that the popularization of GPS technologies has actually sparked the modern, Borgesian fantasy of a geographic map perfectly coinciding with the territory it represents. This holds particularly true now that Google Earth's panoramic photography and Street View have been integrated into digital mapping.

Although the events mentioned above have inspired the proposal for this issue, the perspective embraced in the following pages is detached from the contingency of any specific historical moment. The broader premise underlying this collection of essays concerns certain general characteristics of cartographic knowledge, which appear not only peculiar but also relevant to philosophical thought. Firstly, it pertains to the fact that producing a map always requires the application of a rather unique set of techniques and skills: on one hand, mastery of scientific knowledge related to mathematics, physics, and programming is essential; on the other hand, abilities related to art or graphic design such as colour theory or data visualization are also necessary. Furthermore, while pure sciences typically establish general laws that have explanatory value, cartographic disciplines find their purpose in the visual description of spatio-temporal relationships. Lastly, although every map aims for some form of operational objectivity, this objectivity is always achieved through a subtractive process of selecting relevant elements. Such selection renders the cartographic tool inherently biased.

Since all maps are artefacts whose aesthetic qualities convey information that simultaneously engages the fields of ontology, epistemology, and politics, they are objects of undeniable interest for philosophical inquiry. While the debate has unfolded within a specialized field of research, the literature produced on the topic, even in recent years alone, has grown immensely, making it impossible to provide a comprehensive overview. Therefore, what I will attempt to do here, before introducing the content of the essays presented in this issue, is to review some topics that are in some way preliminary to reading.

A good way to navigate the complexity of the questions raised by cartographic practices in philosophical reflection is to consider the broader relationship between geography and ontology. In this perspective, Timothy Tambassi (2018) has observed that the terms in this relationship possess a twofold meaning. If the words Geography and Ontology – capitalized – refer to the academic disciplines we all know, geography and ontology – lowercase – signify something entirely different. In this latter pair, the first term denotes a set of empirical and informal concepts regarding spatiality found in non-scientific

works such as travel books, paintings, magazines, and so forth; the second term, within the realm of IT/computer sciences, concerns "the basic terms and relations comprising the vocabulary of a topic area as well as the rules for combining terms and relations to define extensions to the vocabulary" (Neches et al. 1991, 40).[2]

The distinction drawn between big-Ontology and small-ontology serves Tambassi to differentiate philosophical language from that of geographic information sciences. While big-O deals with establishing 'what there is', small-o consists of a metadiscourse concerning the grammar of a specific language. However, this distinction can be adapted and extended to emphasize that, from an ontological perspective, all maps are interesting in a double sense. Each cartographic object should be considered both as a closed system of signs and as an operational tool that orients us in the world. In the first case, the ontologist will be tasked with listing the kinds of entities included in the map, providing a taxonomy and describing a range of internal relationships between elements. In the second case, the ontologist will be prompted to elucidate the kinds of relationships that the object establishes with the external reality to which it refers. The first type of analysis, which we might call onto-semiotic, will be guided by questions about the nature of the represented space—for example, whether it is homogeneous or discontinuous—or about how certain signs or aesthetic properties convey certain meanings and hierarchies. The other type of analysis, which we might be tempted to define as onto-epistemological, will instead be driven by questions concerning worldview, the practical uses of maps, and the knowledge produced by them both as a whole and as separate cases.

The question of the relationship between maps and reality has been extensively debated by both geographers and philosophers of geography. Drawing on this premise, some scholars have sought to outline a systematic taxonomy of cartographic theories (Kitchin, Perkins, and Dodge 2009; Fernandez and Buchroithner 2014). Daniel Sui and James Holt (2008) identified three distinct trends in the evolution of the discipline in contemporary times. According to their classification, the cognitive-communicative paradigm is the most traditional: maps are seen as images whose ability to convey information is enabled by the isomorphic relationship they maintain with a specific territory. In contrast, the analytical paradigm differs from the former in both construction and purpose: rather than depicting a geographic area, maps are conceived as models for spatializing data sets. This spatialization relies on mathematical-statistical

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2 Neches and his colleagues' definition of ontology is just one of the earliest formulated within the field of computer sciences. For an extensive review of alternative definitions, see Tambassi (2018, 23).

theories and technologies associated with algorithmic computation. Finally, the critical paradigm sets itself apart from the others by rejecting a fundamental assumption shared by both: the claim to objectivity in cartographic representation. Inspired by Marxist and post-structuralist theories, this approach interprets maps as social constructs that inevitably reflect the power dynamics under which they are produced.

Similarly to Sui and Holt (2008), Michael Peterson (2002) also distinguishes three phases in the development of modern cartographic discipline. They coincide with those mentioned earlier: 'cartographic communication,' 'analytical cartography,' and 'power of maps'. However, Peterson's taxonomy identifies two additional paradigms. The first is what he calls the paradigm of geo-visualization, which pertains to a theoretical and methodological revolution. Maps cease to be conceived as spatial representations and are instead studied in relation to the users who interact with them. Central to the debate are the perceptual, cognitive, and semiotic processes that maps activate as tools for orientation. The second paradigm pertains instead to a technological revolution: the advent of the Internet. Cyber-cartography represents, in Thomas Kuhn's (1962) terms, a paradigm shift both because, for the first time, the storage and display functions in maps can be separated (Ormeling 2007), and because users also become creators through the sharing of real-time data (Taylor 2005).

Among the distinctions made to categorize cartographic theories, the framework formulated by Kitchin, Perkins, and Dodge (2009) stands out as crucial for understanding the current orientation of the discipline. The three geographers divide map studies into two main groups: one focuses on representational cartographic thinking, and the other on post-representational thinking. Theories in the first group conceive maps as images that depict a certain territory in varying degrees of distortion. This ensemble encompasses both empirical cartographies and those critical cartographies that consider the distortions caused by the context of map production to be potentially reducible or surmountable (for instance, those with Marxist orientations). Theories in the second group, on the other hand, view cartography as a localized network of inherently interconnected practices, including production, reproduction, distribution, and use. In this framework, the notion of objectivity is fundamentally rejected, placing a strong emphasis on the relationship of co-determination among the user, the tool, and the territory within specific social systems.[3]

Taking up Heideggerian-inspired categories, Jeremy Crampton (2003) observed that the shift from representational to

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[3] On the topic of non-representational theories, also refer to the now classic work by Thrift (2007).

post-representational cartography implies an elevation of the discipline from the ontic to the ontological plane. In the former case, the notion of a stable reality which is knowable in itself stands as a foundation of cartographic design; in this framework, moreover, maps are conceived as tools that, detached from the territory, aim to depict it from above. In the latter case instead, maps are seen as agents thrown into the world, technologies that contribute to creating reality along with the system of cultural practices within which they are embedded. Freed from metaphysical foundation, post-representational theories always imply a critical rethinking of their conditions of possibility and those of their objects of inquiry.

The transition from a science of cartographic image to a pragmatics of cartography has demanded a redefinition of the concept of map. However, more than just this is at stake here. If Baudrillard's infamous sentence (1980, 166) that the map generates the territory holds true, then alongside each paradigm shift in cartography, the very nature of the environment in which the human species lives and interacts changes. A precursor to a new perspective on spatiality is certainly Yi-Fu Tuan (1977), who opposed the classical geographic identification between the concept of space and that of geometric surface. As one of the founders of humanistic geography, Tuan interpreted the notion of space phenomenologically, defining it in terms of a lived experience generated by movement. Following in a similar vein, Jacques Lévy (2008, 80) argued more recently that geographic space cannot be reduced to Euclidean space because it is always shaped by culturally non-spatializable phenomena. In even more recent times, Frédérique Aït-Touati, Alexandra Arènes, and Axelle Grégoire (2022) have declared it necessary, in the era of the Anthropocene, to move beyond the grid of Cartesian information. Space should no longer be conceived merely as a receptacle for living beings but rather as the outcome of their actions (2022, 21). Aït-Touati suggests that maps should be designed accordingly.

Defining the space of the map not in terms of an isomorphic surface but as a device that produces reality effects necessitates a shift from from an ontological to a political perspective. I have already stated that critical theory of cartography has served to interpret each map as an expression of the power systems within which it is embedded. Many scholars have also analyzed the relationship between the development of cartographic technologies and the imperialistic drive of European powers in the modern era (Farinelli 2009; Kitchin, Dodge, and Perkins 2011). The fact that mapping is an activity of control and domination is therefore well-established. What can be added here is a reflection on how this same issue has unfolded after the digital revolution, at a time when being connected has become a normal condition of life for the majority of humans.

The thinking of Shoshana Zubhoff (2019) certainly comes to help. Since digital cartography relies on satellite technologies, GPS, and GIS, it represents the perfect example of what she has defined as 'surveillance capitalism.' Applications like Google Maps collect and analyze a vast amount of personal data regarding users' movements and preferences. This data is subsequently employed to predict and influence future behaviours, thus fuelling markets for behavioural futures (Laidler 2019; Gentzel, Wimmer and Schlagowski 2022). Adopting this interpretative framework it can be observed, on the one hand, that the digitalization of cartography is in continuity with the biopolitical project described by Michel Foucault (2004a; 2004b) in his lectures at the Collège de France. On the other hand, however, a significant change in the subjects overseeing control must be acknowledged. While the micropowers studied by Foucault still passed through public institutions that managed the health and safety of the population, today access to data extracted from digital maps is controlled by private companies whose main purpose is to retain their community's loyalty.

Despite cartography being a fundamental model and tool of surveillance capitalism, it would be wrong to speak of the discipline solely in hegemonic terms. On the contrary, it cannot be emphasized enough that in this century, the operability of data has reached unprecedented levels of democratization and decentralization. Indeed, the extensive opportunity for users to participate in map creation has led to the emergence of diverse forms of digital counter-mapping alongside official cartography (Specht, Feigenbaum 2018; Fourmentraux 2022; Pignatti 2023).

If critical cartography regroups the research orientations aimed at uncovering the cognitive and cultural biases intrinsic to the discipline, counter-mapping is an activist practice whose *raison d'être* lies in overturning the power dynamics that construct the dominant cartographic gaze (kollektiv orangotango 2018; Zwer, Rekacewicz 2022). From this viewpoint, visual art has served and continues to serve as a laboratory for developing both new forms and technologies of counter-cartography (Reddleman 2018; Moro 2021). Without delving into the wide range of works produced in recent decades, allow me to mention just two examples.

In the eight-channel video installation titled *The Mapping Journey Project* (2008-11), Moroccan artist Bouchra Khalili illustrates the migratory routes across the Mediterranean through the firsthand accounts of refugees from North Africa, the Middle East, and South Asia. Using a traditional Mercator projection map, the interviewed subjects trace with a marker the convoluted paths of their exodus. The presumed objectivity of scientific representation and the clarity of national borders are disrupted by personal markings that reveal otherwise silent geopolitical relationships.

Between 2016 and 2018, Jordanian artist Lawrence Abu Hamdan collaborated with Amnesty International and Forensic Architecture, a research group at Goldsmiths, University of London. The purpose of this collaboration was an investigation into the torture carried out in the Saydnaya prison after the Syrian revolution of 2011.[4] Through recording the auditory memories of some survivors, who were forced to remain blindfolded during detention, the artist contributes to remapping the architectural structure of an otherwise unknown and inaccessible place. In works such as *Saydnaya (the Missing 19dB)* (2017) and *Walled Unwalled* (2018), Abu Hamdan reworks the collected data by integrating them with other sound clues recorded during the investigation. The cartographic practice is employed outside institutional uses, in ways that are nonetheless methodologically as rigorous as an investigative study (Gronlund 2018).

The freedom with which visual art has used the techniques, concepts, and metaphors of cartography demonstrates the flexibility of the discipline and its ability to transcend its own boundaries. If up to now I have attempted to review some of the issues that contemporary cartography has posed to philosophical thought, I would like to conclude this brief overview by showing how the cartographic gaze has infiltrated other fields of knowledge.

A first field of contamination is the theory of mind. Already in his *Traumdeutung*, Sigmund Freud (1900) proposed a description of the psyche in terms of a map. On one side, the Viennese physician renewed the topological theories of his time to spatialise immaterial psychic functions; on the other, he traced the modes of connections between the conscious and unconscious activities of the mind, drawing inspiration from stratigraphic maps of archaeological sites (O'donoghue 2011). Freud's cartographic perspective was then further radicalised towards physicalism in contemporary neuroscience. In fact, the projects on which they are based, at least ideally, foresee a complete localization of mental functions through brain and DNA mapping.

A second area of convergence is that of semiotics and media theories. We have already seen how every map can be also regarded as an image. Conversely, images can be studied in the perspective of cartographic logic. Among all the examples that could be given to illustrate this point, the most relevant still today is Aby Warburg's *Atlas* (1929). Through this formidable visual device, the German historian sought to demonstrate the persistence of classical iconography in Western culture. In his tables however, the reasoning is not entrusted to language but to the spatial relationships that connect and compare pictorial representations from disparate epochs. Over time, there have

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4 https://forensic-architecture.org/investigation/saydnaya.

been countless comments and projects inspired by the Warburgian atlas. Among the recent ones, two are dedicated to a cartographic reading of cinema: *Atlas of Emotion* by Giuliana Bruno (2007) and *La pensée cartographique des images* by Teresa Castro (2011).

The third and final ground for dialogue is what Marcello Tanca (2017) called 'geography in philosophy,' that is, the part of philosophical thinking inspired by notions and theories borrowed from geospatial disciplines. Even limiting ourselves to cases of particular interest in the context of this volume, we cannot avoid starting with Immanuel Kant. Since the philosopher held forty-seven courses on physical geography at the University of Königsberg between 1756 and 1796, he is rightfully described by Franco Farinelli (2004) as a geographer who applied his knowledge to human understanding. Moving swiftly to the contemporary era, consider then the prominence of geographical dimensions in the so-called 'spatial turn' of critical social theories (Soja 1989). It marked the entire postmodern culture and a true break from nineteenth-century historicism: it is perhaps with the birth of a new geographical passion that the century we are living in truly began. Finally, Gilbert Ryle (1962) deserves a prominent place in this *excursus*. He did not simply drew inspiration from geography to develop his own metaphysical system but argued that philosophy itself should be rectified into conceptual cartography. However, given the complexity of cartographic thought, it is fair to conclude with a question: what kind of cartography for philosophy?

Following what Jacques Levy (2016) has termed the cartographic turn in social sciences, *The Art of Mapping Between Land and Mind* delves into the intertwining issues I have sought to outline in the previous pages. Although the papers published in this volume come from diverse perspectives and backgrounds, two main issues emerge. The first concerns how the aesthetic properties of maps convey a wide range of cognitive, cultural, and political meanings. The second issue pertains to how the visual arts contribute to the reflection on cartographic thought, influencing both its methods and motivations. Both issues are addressed sometimes descriptively, sometimes prescriptively. On one hand, there is a focus on how maps are made; on the other, there are suggestions on how they should be made.

Essays dedicated to the discussion of general topics are interspersed with others focused on individual case studies. Ideally, the volume is divided into four sections. Embracing the point of view of both the philosopher and the geographer, the first one sheds light on some issues concerning the relationship between epistemology and cartography (Kukla; Costantini; Tanney). The second addresses mapmaking as an art form or, conversely, considers maps from the perspective of their aesthetic properties (Tanca; Haugdal; Török; Ogundiwin; Elhaik). The third focuses on the digital condition of today's cartography, often from a genealogical perspective (Tschochohei;

Quaranta; Keller). Finally, the last section includes two contributions which, despite their more experimental status, represent attempts to guide cartography toward its future (Bosca; Ianniello).

To open this issue, there is a special essay that in some way acts as a bridge to the previous issue of JoLMA dedicated to non-human cognition (Batisti 2023). Since the paper does not explicitly address the topic of cartography, it might be helpful to explain the reasons for its inclusion in this context.

In "Semiotics After Geontopower," Elizabeth Povinelli offers a generous précis of her upcoming book. Continuing her exploration of what she calls geontologies (Povinelli 2016), the anthropologist critically examines the alliance between protest movements for the rights of nature and scientific theories that attribute cognitive/communicative abilities to non-human forms of existence. Povinelli views this alliance as based on an effort to universalize a certain notion of the mind: a project that, despite its premises, is in continuity with the colonial and Eurocentric perspective typical of modern philosophy. As an antidote to this universalist tendency, which affects even openly anti-humanist theories, Povinelli advocates for the construction of thought systems that acknowledge their own regionality. This emphasis on the need to localize any speculative position strikes as a foundational principle for the cartographic thinking of the future.

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Semiotics After Geontopower
Some Preliminary Thoughts

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Abstract   This essay is part of a book project, tentatively titled, *Do We Need a Semiotics After Geontopower?* The essay begins with an overview of the atmospheric conditions of an old debate about how to liberate theories of mind, communication and language from their humanist enclosure. It does so by highlighting a few scientific and public debates about what constitutes evidence of prehuman, and nonhuman animal and plant forms of mind and communication. The purpose of this brief foray into complicated debates is to conjure the sense-intuitions circulating around these arguments about the political and ethical stakes of describing a kind of existence as having this or that quality of language and mind. The essay then puts pressure on how these sense-intuitions about communication and mind are scaled – how a sense of the stakes of mind to the treatment of existence becomes a quest to model a general theory of a post-humanist mind. This takes me to the commonalities between a certain way of producing a posthumanist mind and the strategies of environmental protect within the movement for the rights of nature. Why do these approaches feel to some like they are the best way of verifying that prehuman, nonhuman animal and plant forms, and nonlife have semiotic capacities as one supports First Nation and Indigenous earthkin? The essay ends by summarizing the broader content and stakes of *Do We Need a Semiotics After Geontopower?*

Keywords   Semiotics. Mind. Geontopower. Settler Colonialism. Race.

Summary   1 Introduction. – 2 Animals Are Talking. – 3 Affects of Mental Attribution. – 4 Aspirations of Biosemiotics. – 5 Semiotics Against Geontopower.

1   Introduction

This essay is part of a book project, tentatively titled, *Do We Need a Semiotics After Geontopower?* It reflects on what such a semiotics might consist of, and why the fate of such a project might be relevant to people interested in language, mind and the arts of decolonizing human and other-than-human existence. The book is set primarily in the capacious international field of pragmatism – including the works of Charles Sanders Peirce, William James, Alain Locke, W.E.B. Du Bois, Gilles Deleuze, Teresa de Lauretis, Cornell West, Felix Guattari, Sergio Franzese, and others. It examines the potentiality of this field to produce a semiotics after geontopower from the perspective of ongoing decolonial and antiracist struggles. The book attends to the sense-intuition among some scholars that such a semiotic model is urgently needed, to the relationship between this sense-intuition and a current liberal public fascination with the language and mental capacities of the other-than-human world, and to the minute and technical details of various semiotic models. But it is primarily interested in tracking how western ways of knowing the world, which in a pragmatic sense would be no different than ways of treating the world, are inadvertently smuggled into the very semiotic models intended to upset Eurocentric approaches to being and existence. I am particularly interested in two specific approaches, the hierarchies of complexity and scope. The book has, in other words, a zig-zagging structure that starts off in one direction but then turns and doubles back on itself. It sets out by attending to a certain atmospheric pressure surrounding the interests of liberal and academic publics in the ethical, theoretical, political and, legal stakes of other-than-human mind, language, and forms of communication, and to the precipitates of this pressure, including the technical aspects of modelling other-than-human minds and communication. But it also continually doubles back on itself, asking what worlds are, or are not, being supported by this or that semiotic model and by the idea that a semiotic model is needed to support, through theoretical verification, Indigenous claims about their relationships with other-than-human existence?

I have discussed what I mean by geontopower in two previous books, *Geontologies* and *Between Gaia and Ground*. Before a quick summary of what I mean by this concept, it might help to outline the aspirations of these books. First, neither *Geontologies* nor *Between Gaia and Ground* sought to establish a new ontological ground from which social entanglements, political maneuvers, and ethical actions could be measured or adjudicated. Nor were they interested in reestablishing the discipline of history or historical anthropology as the

top-breed in the current academic dog show.[1] Nor finally did they seek to draw a direct line from the ways that geontopower is expressed at any given time or given space to the multiple ways that colonial powers justified and disavowed the violent invasions, extractions, and deformations of non-European peoples and their land-kin. Thus, the concept of geontopower developed in these books was never intended to amplify the secret name of the world in-and-of-itself or the transcendental name of power. As I noted in *Geontologies*, the concept of geontopower emerged from my now forty-year relationship with Belyuen/Karrabing Indigenous families, their relationship with the shifting faces and dynamics of ongoing colonialism, our coming-to-understand the sources of these multiple dispossessing countenances, and our collective film and art practices (cf. Chaisson 2023). I do not presume to know how useful the concept might be to other regions. All concepts emerge from the specific ways that power is sedimented in a region. And all concepts are oriented to transforming or embanking power as it is expressed in a region. It is simply not clear how far a region extends. Nor is it clear how a concept works as it moves across regions, especially since there are always multiple social regions within any region. Chad Infante, Sandra Harvey, Kelly Limes Taylor and Tiffany King have explored, for instance, the ways that anti-Blackness, Indigenous genocide, and settler colonialism shape and inform one another in the Americas (cf. Infante et al. 2020). These authors argue that original and ongoing colonialism differentiated kinds of dominated people in order to 'fit' them into its various extractive needs. The legacies of these difference, they argue, necessitate keeping an intimate but open dialogue between Indigenous and Black Studies. Thus, geontopower does not mean to conjure power as a singular form. It is a way of referring to the remarkably malleable content of late liberal governance – or whatever formation of liberalism we are now amidst.

Numerous scholars in critical Indigenous and Black Studies have discussed the governmental function of Eurocentric divisions of existence (cf. Deloria Jr. 1973).[2] Take for instance, Kim Tallbear's "Caretaking Relations, Not American Dreaming", written for an issue of *Kalfou* dedicated to thinking with Aileen Moreton-Robison's notion of the "white possessive" (2015). Tallbear borrows from Mel Chen's animacy hierarchy to point not merely to the symbolic nature of dominant settler thinking about the human and other-than-human world, but also to Indigenous relational understandings of and attitudes

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[1]   I am referring to an understandable misunderstanding about what I mean by axiom four in Povinelli 2021.

[2]   See also Moreton-Robinson 2015.

towards their lands (cf. Tallbear 2019).[3] She notes the ways that "the binaries of *life versus not life* and *humans versus nature*, as well as other more graduated Eurocentric hierarchies of life" are crucial to ongoing racial and colonial maneuvers of power (Tallbear 2019, 25). Tallbear contrasts these binaries to "an everyday Dakota understanding of existence that focuses on 'being in good relation'" with their lands and specific kin (25). Likewise, across numerous essays and interviews, Sylvia Wynter has pointed to Eurocentric attitudes about humans and nature as the underlying cause of the deadly climatic conditions that all living things now face; namely, a western belief that humans were given the divine right of dominion over the earth. Wynter insists that this attitude of earthly lordship fractured the relationship between humans and their other-than-human kin. If we are to mend this fractured relation a new "hybrid being, both bios and logos (or, as I have recently come to redefine it, bios and *mythoi*)" must be developed.[4]

I intend the concept of geontopower to align with these scholars' attempts to demonstrate and interrupt the domination of existence – the multiplicity of ways of knowing existence and being in relation to it – by Eurocentric divisions and hierarchies between Life and Nonlife another cognate oppositions. The ultimate goal is not to tabulate the consistencies and inconsistencies of elements within the divisions between life and nonlife. Nor is it to show how these divisions are named as they move across philosophical, theological, and secular humanist formations and reformations. Even if not the ultimate goal, tabulating these consistencies and inconsistencies can, nonetheless, help illuminate why scholars are trying to develop a semiotics after geontopower. For instance, we could begin by noting certain western consistencies in the figurations of 'life' at the most general level – that life is that which can be said to be materially birthed into existence, that which can be seen to unfold its inner potential over the course of its existence, and that which can be heard bewailing its irreducible, unavoidable limit, namely, death, or reconciling itself to the same. 'Nonlife' could be figured as that which stares life in its face – the idea of a form of existence that is dynamic in relation to the push and pull of natural forces but without an inner metabolic or mental dynamic that should unfold itself one way or another. Thus original inertness is not without dynamics. It is without what life seems to have, to have negated in its emergence, and to which it is fated to return. From the foundational difference we could track how the divisions of Life and Nonlife inform the way biological

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3   See also Chen 2012.

4   Wynter points to Fanon's argument that "phylogeny, ontogeny, and sociogeny" must be thought of together. See Wynter, Mckittrick 2015, 16.

life has geological processes as its grounds, its negation and its ultimate destiny. Or we can listen to how Peirce described natural laws within the framework of birth and death and how this framework has been absorbed in certain regions of astrophysics (cf. Peirce 1892).[5] Or we could begin with how Carl Schmitt grounded the transformations of *Respublica Christiana* to *Jus Publicum Europaeum* in the conditions of European colonization and imperialism. We would then track how this legal transformation did or did not affect the uses of theories of life, mind, and cognition to govern colonized worlds, such as in the infamous Valladolid Debates between Bartolomè de las Casas and Juan Giné de Sepúlveda. We would then compare these debates to current discussions about the rights of nature in the wake of the Anthropocene. In each case, whether we are looking at role the division plays in the foundation of the natural sciences, in the philosophy of sciences, in critical theory or anthropology, we must continually listen to the consistencies and inconsistencies in any given region, say the between secular humanist approaches to the afterbirth of death and Christian denominations that look forward to the resurrection of an uncorrupted and incorruptible body in the Last Judgment.

Tracing such maneuvers and transfigurations are important, I believe, but only insofar as they allow us to make visible how they allowed, and allow, patterns of dispossession and accumulation that began as European boats crisscrossed oceans in search of loot. What is inconsistent at the level of discursive content reappears as consistent at the level of power, namely, a general Eurocentric aim of appropriating and dominating colonized peoples and their lands, and disrupting their relations to each other and their more than human kin (Schmitt 2006). In short, I am not interested in Life and Nonlife in and of themselves. I am interested in the ways the division, and hierarchies within each side of the division – human over nonhuman, mammals over plants, fossils over rocks –[6] are mobilized to support the domination of some humans over existence and to justify this domination ethical and political domination. Rather than some secret consistency of governmental content, the concept of geontopower focuses on the variety of registers become weaponized against various colonized and enslaved peoples and against the relations that they have with each other and their more than human kin. Even as the concept of geontopower seeks to illuminate the multiplicity of forms of domination, it also means to foreground the material sedimentations and distributions of this power, including in the shape and interests of this or that academic disciplinarity. Kathryn Yusoff's unpacks, for instance, the

5 See also Smolin 2013.
6 For Foucault's discussion of fossils and monsters, see Huffer 2015 and Foucault 1970.

ways colonial and imperial thought generated the division between the biological and geological sciences (cf. Yusoff 2024; 2018). Thus, before I set out, I think it wise to distinguish between a *post-geontological semiotics* and a *semiotics against geontopower*. The first project focuses on developing a semiotic model of Mind that is agnostic to the division of Life and Nonlife. The latter is focused on interrupting the sedimentations of colonial and racist hierarchies within these divisions and thus liberal subjects and their institutional sense.

While *Do We Need a Semiotics After Geontopower?* has these perhaps overly ambitious aims, the goals of this essay are more modest. The essay begins with an overview of the atmospheric conditions of an old debate about how to liberate theories of mind, communication and language from their Eurocentric enclosure. The broad question it sets up is whether a postgeontological semiotics is equivalent to, is a necessary step to, or in tension with a semiotics *against* geontopower. It tries to begin to answer this question by highlighting a few scientific and public debates about what constitutes evidence of prehuman and nonhuman animal and plant forms of mind and communication. The purpose of this brief foray into a set of technical debates is to conjure the sense-intuitions circulating around these arguments, namely the political, ethical, and economic stakes of describing a kind of existence as having this or that quality of language, semiotic capacity, and mind. The essay then puts pressure on how these sense-intuitions about communication and mind are scaled. I then segue to some commonalities between a certain way of producing a posthumanist mind and the movement to establish the rights of nature, before ending with a brief summary the imagined content of the book project (de la Cadena 2015). Throughout I travel how an western intuition about the treatment of things without humanist minds is transfigured into the search for a posthumanist mind whose scope and complexity aligns are for all and everywhere.

2 Animals Are Talking

A recent *New York Times Magazine* article, "The Animals Are Talking, What Does it Mean?", observed that many researchers no long consider the capacity of language to belong solely to humans (Shah 2023). This news might appear as old to many theorists of mind. In his 1972 text, *Steps to an Ecology of Mind*, Gregory Bateson insisted that, if life in general was to have any chance of surviving the effects of Eurocentric humanist approaches to language, mind, and communication, then a theory of mind would have to be developed that situated the human mind on the same level as and within the web of life in general (Bateson 2000). I think we would need to put pressure on several aspects of a Bateson's project before we could decide what

is old and what new about contemporary interests in other-than-human mind. In *Between Gaia and Ground*, I discussed how, even as Bateson was critiquing humanist approaches to mind, he conserved the distinction between *creatura* (the living) and *pleroma* (the non-living) on the one hand; and, on the other hand, he turbocharged colonial imaginaries of the primitive and civilized as differentiated by ascending orders of complexity. His own life narrative creates an ascending order of mental complexity that begins with local Papuan and Balinese cultural forms of ritual and spirals out and upwards through the cybernetic sciences and the new ecologies. This scalar approach to complexity – from local cultural patterns to a biospheric forms – never pauses to consider how the patterns based on colonial spheres might provide an aesthetic pattern to *Sacred Unity* (Bateson 1991). In aspiring to create a theory of mind whose scope and scale would absorb everyone and everywhere, Bateson exemplified what Vine Deloria Jr. saw as the difference between Western and Indigenous approaches to revelation, the one that mistakes the apprehension of "a difference that makes a difference" as something true for all times and places and one that show the "continuous process of adjustment" necessary to maintain good relations with earthkin in specific but always open territories and territorial relations.[7]

Is the research that the *New York Times* heralds suggesting more is afoot in contemporary posthuman sciences than what gave Deloria Jr. pause about the nature of western forms of revelation? It does seem like we are witnessing a substantial wave of scientific and public interest in how mind and language might be liberated from its humanist bias and, in being liberated, provide more robust grounds for understanding how to create a sustainable relationship between humans and other-than-human worlds. While it might seem absurd to imagine anything new could be written about the semiotic nature of mind in general, or any species of mind in particular, let alone to image creatively contributing to contemporary theories of intention and interpretation, we are surrounded by calls to try and attempts to do so. Take for instance, a recent essay in this journal, "Cognition and Intelligences after the Post-Human Turn". In it, Roberta Raffaetà reflects on a discursive movement within the science of microbes, from one focused on "how microbes influence human brain, cognitive and emotional functions" to one focused on "exploring whether and how microbes themselves 'think'" (Raffaetà 2023, 182).

Indeed, worried references to nonhuman mind, or qualities that constitute indications that a nonhuman mind might be present, are so ubiquitous in the sciences that on any given day I can move my

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7   By a "difference that makes a difference" I am referring to the phrasing Bateson deploys in *Mind and Nature* (Bateson 1979, 228).

open palm through the discursive air and be sure to catch a few instances. For example, in May 2023, while driving from Darwin to Belyuen, a small Indigenous community located just across the Darwin Harbour, I tuned into an ABC radio interview about the perils and promises of AI. One interviewee said that he was relieved his robots did not have a mind because, if they did, he would have to consider their intentions, desires, and beliefs before turning them on and off, taking them apart, and experimenting on them willy-nilly. If robotic AI achieves mindfulness and is inserted into his robots, then his robots would not only feel more lifelike, they would become a new form of life among us because they could be said to have the most important element of humanity, mind, self-awareness, and critical reflexivity. As I drove, I wondered how this way of thinking about robotic AI articulated to certain Christian desires for the resurrection of the sanctified body. Be this as it may, in the context of an increasingly wrecked climate, I was not surprised to hear a radio show on AI veer into discussions of the ethical and political implications of attributing different qualities of mind to not merely non-human animals and more-than-human existence but inanimate existence.

Solicitations to reconsider the nature of nonhuman minds are emerging not merely from the microbial and AI sciences, but from within a multitude of academic and public spaces. Take, for instance, what may appear as a provincial archaeological debate about mind, intention, and interpretation among extinct hominian species. The University of Wisconsin reported that some of its archaeologists had "uncovered evidence of intentional burial" practices among *Homo naledi* and geometrical, perhaps symbolic cross-hatchings, they created on nearby walls. The significance of the find was described in this way:

> Until now, scholars believed that the mental capacity behind complex cultural behaviours like burial and mark-making required a larger brain, like those of Neanderthals and *Homo sapiens*. And yet, *Homo naledi's* brain was only about one-third the size of humans. (Mahon 2023)

If the findings held up, they would upset existing theories about the evolution of the brain and meaning-making (Mahon 2023). Not surprisingly, multiple experts skeptically weighed in. Was this a burial, rather than merely a collection of bones? Did these symbols relate to the bones? Where they symbols, or mere scratches? How do we know *Homo naledi* made the cross-hatchings rather than a group of *Homo sapiens* who came later? And most importantly, what kind of forensic evidence would prove or disprove a claim of semiotic intentionality? (Crossland 2018).

Debates about the meaning of the skeletal collection and the cross-hatchings point to fundamental philosophical and semiotic

disagreements about the relationship between mind, symbol-making and intentionality. If it was a burial site, did this burial signify some second order meaning – the sanctity of *Homo naledi* bodies and by implication the idea of corporal desecration and a belief in deities. Or were these bodies buried so that their purification would not attract dangerous scavenger animals? Did the *Homo Naledi* intend their actions to mean these or other things? Did they intend them to be understood by other *Homo naledi* or perhaps some non-*Homo naledi* kin? For many theorists of mind additional qualities of communicative intention critically separate mental action from behavioural actions. For instance, plant scientists have known for some time that plants produce chemicals to ward off specific predators. But a new study demonstrates that Arabidopsis mustard plants can differentiate between hazardous and nonhazardous encounters. "What is surprising and cool is that these plants only create defence responses to feeding vibrations and not to wind or other vibrations in the same frequency as the chewing caterpillar", according to Heidi Appel (Meissen 2014). We could say that the Arabidopsis mustard plant *interprets* the difference between the abrasions of wind and the munching of pests. Interpretation here is used in sense of an ability to discriminate between types of vibrations and the relation of vibration to the activation of the chemical variability of their leaves. Many philosophies of mind, however, see a chasm between the ability to discriminate and respond to elements in the environment and an intention to discriminate. Something might interpret a difference within its environment and, on the basis of this interpretation, alter itself.

But the claim that *a plant* can discriminate between motions that threaten its life and motions that do not is quite different from the statement that *it intends* to discriminate and it *intends* the chemical change to be interpreted as 'yuck' by the predator bug. In sum, three elements are in play: an interpretive capacity, the capacity to shape signs to be interpreted by others, and an intention to do so (Zimmer 2023). Philosophies of mind have long debated this relationship between intentionality, consciousness and mind[8] as well as language-based approaches to linguistic subjectivity.[9] In the latter, intentional sign-production – signs produced to be interpreted by another – is tightly correlated to the emergence the form of self-consciousness associated with the human acquisition of subjectivity, that is, linguistic subjectivity. Here language provides the necessary grounds for the 'I' who intends to convey meaning to 'you'. And it links this dialogical personhood to linguistically established organizations of tense and space. When referring to nonlinguistic 'subjects', studies deploy

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[8] For example, see Ascombe 1957; Seale 1983; Dennett 1972; Strawson 2008; Short 1981.

[9] Perhaps most influential was the work of Emile Benveniste (cf. Benveniste 1971).

nominal forms that conjure the agency that understands *itself* to be doing the communication and interpreting communication of others. Whether this agency is individualized (a plant) or mass collective (a forest), some nominalized object is projected as the *locus mens* where intentional action is seated. Are these nonlinguistic subjects, self-aware subjects, i.e., the forest is interpreting even if it does not understand itself to be doing so? Does this matter, to whom, and in order to produce what?

Daniel Povinelli's work with numerous collaborators on the evolution of self-recognition has raised another issue for those attempting to extend theories of mind from human to nonhuman animals. He and Jennifer Vonk have argued that, in the study of nonhuman primates, qualities that prove *the presence of mind* and those that prove the presence of *a theory of mind* must be differentiated. Do nonhuman apes have a theory of mind, of their own minds or the minds of others? Povinelli and Vonk's point is that nonhuman primates can see, feel, interpret, and communicate without *having to have* a 'theory' about seeing, feeling, and communicating which they project onto others and which mediates the way the engage in sign-making. In my understanding, Povinelli and his various collaborators are not arguing that nonhuman primates do not have a theory of mind but merely that no test has proven that they do. Moreover, they continually emphasize that they absence of a theory of mind does not demote the value and worth of nonhuman primates. But critics have argued that denying nonhuman primates *a theory of mind* does indeed, in very practical ways, shift nonhuman primates from mental creatures to behavioural creatures and from more to less mentally complex forms of existence (cf. Povinelli, Vonk 2003; 2004; Tomasello, Call, Hare 2003). To be sure, we can ask whether it is possible to neutralize hierarchies of value while retaining hierarchies of semiotic complexity and whether the evolution of mind from sense discrimination to self-awareness necessitates a hierarchy of complexity.[10]

3   Affects of Mental Attribution

Interesting questions, no doubt. But I point to these academic debates and their circulation in nonacademic publics to get at something other than where nonhuman phenomena sit in the ascending, or merely different, orders of intentionality, reflexivity, and interpretive ability. I want to ask why some *feel* the need to prove this or that nonhuman animal or this or that plant does or does not have mind and the various qualities of mind associated with the western human mind?

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[10]   Cf. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4427860/.

Why do some *feel* we must add these western-derived qualities of mind to nonhuman animals, plants and inanimate matter if they are to have an equal place in the governing order of ethical, public, and economic life? Why do some *feel* like, in arguing that we don't know whether chimpanzees have a theory of mind, we are lessening their worth? Why do some feel as if we have reduced the ethical nature of the plant if we *deny* that the plant intends to produce chemicals to ward off predators? Why are we always creating individuals and collectives to provide the seat of mind and its multifarious qualities? A plant intends to do this? A forest thinks?

Surely part of the answer to this unwieldy block of questions is that the sense-intuitions that I am tracking are correctly registering the greater stakes in play. By sense-intuitions I mean interpretations felt affectively, derived from the social constitution of corporeal sense. It is a bit of 'snake swallows its own tail'. Nevertheless, sense-intuition of the sort I am tracking here is derived from how bodily dispositions are constituted from within a social world and thus always interpreting themselves in relation to it. As the assumptions and values of one aspect of the social world changes, the sense-intuitions of how to act in the world are disturbed. These sense-intuitions are part of what Alaine Locke called the "struggle over the means and instrumentalization of value" lodged not only in "institutionally vested interests" but the "feeling-attitudes" and "dispositional imperatives" that emerge to constitute persons as such (Locke 1989, 49). What surprise that as western subjects are bombarded with dire messages about climate collapse and environmental degradation, their sense-intuitions about the relationship between their taken for granted hierarchy of life and the use of things is being disturbed?[11] The ancestral catastrophe of liberal settler capitalism has been radically destabilizing environments for centuries on centuries. But it is only now that a large majority of western subjects are being affected by this derangement, which they feel as a coming or arriving catastrophe. Whether anyone knows anything about the slur of behaviourism, the sense-intuition that assigning plants and nonhuman animals to this form of action reduces their ethical claim on us, casting them out of political logos and dooming them to cruel and thoughtless usury. They correctly diagnose that granting plants and nonhuman animals the attributes associated with Eurocentric mind raises them in a value hierarchy built into the ordinary transactional logics of liberal capitalism. They correctly feel that, if something does not share western

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[11]   See, for instance, the incommensurability between the settler liberal critical public and moral (deontological) reason that I discussed in *The Cunning of Recognition* (2002), or say the contradictions within the ideological state apparatuses that Louis Althusser discussed in *Lenin and Philosophy* (1971). For Canadian context of transfigural settler colonial recognition, see Coulthard 2014.

values, in this case, the form and qualities of mind that Europeans have created to understand themselves, then they can fall into the rapacious jaws of capitalism. In short, the sense-intuitions surrounding the above debates link academic and public interest in other-than-human languages and minds to the ordinary ways in which liberal or authoritarian capitalism habituates people to treat parts of existence that fall outside certain theories and territories of the human mind. Thus, the sense-intuitions I am discussing are correct if they are seen as diagnosing not qualities of mind, but the deployment of Eurocentric ideas about mind in the ongoing rampages of colonialism and capitalism.

What we may be seeing in recent interests in nonhuman language and mind is a violent shuttling within the sense apparatus of liberal capitalist subjects as the ancestral catastrophe of settler colonialism begins to affect them in the form of climate collapse. But if these sense-intuitions are correct, they still face the question of diagnosis. How do they interpret the cause of the problem their intuitions are intuiting? We could say that these subjects are intuiting that geontopower has created a careless attitude to other-than-human existence and this attitude is related to the environmental and climate crisis they face. What then? What forms of solution do they create or gravitate to?

4 Aspirations of Biosemiotics

For many scholars and activists, the developments in *biosemiotics* would aide in the derangement of Eurocentric approaches to mind by altering the way we think about sign-based communication (Guernsey 2017). For instance, scholars like Jespers Hoffmeyer have made great strides in provincializing the human mind by recasting it as merely "a particular instantiation of a nature that is in a deep sense itself minded" (Hoffmeyer 2008, 28). He and other scholars in biosemiotics often point to the dynamic, emergent, and relational nature of mind in which humans participate but in no way transcend. In their hands, mind is a system of *communicative relationality* composed of co-interpretative relays that can ramify in an alteration of bodily composition and disposition. The emphasis is typically on the ways that communication instantiates relations, the ways relations are irreducibly mediated by forms of communication, and how both are irreducibly material and materializing. Relational communication is thus at once creatively playful and carefully conserving, at once and the same time, inside, outside, and between specific organisms. Relational communicative systems can thus spiral up into an ever-increasing order of complexity and coproduction. They can be remarkably robust once anchored down. But they are also fragile

and unstable at their tipping points (Kohn 2013; Thompson 2010). The complex interpenetrating systems of interpretation are also subject to collapse if the relational networks of communication are severed – say a road is cut across an amazon forest. This is what we are seeing in climate collapse.

This play of communication as relationally-producing materiality attempts to free the other-than-human world from the denigrating prison of mechanistic behaviourism – the idea that certain kinds of existence do things because of some hardwired code, reducing them to little more than organic windup toys. But for all of its attentiveness to the immanent webs of life's communicative relationality, most of biosemiotics remains, well, unrelentingly biontological. Thus it is hard to see biosemiotics as providing the basis for semiotics after geontopower. Still signs proliferate suggesting an intuition of a *postgenontological* existence whether or not we currently have a theoretical modelling of such – say, intuitions about robotic AI. And many scholars are attempting to neutralize the geontological division within semiotic theories of mind. Jonathan Beever and Vernon Cisney suggest a way of exiting a strict *bio*semiotics through a form of panpsychism, "the ancient and seemingly mystical position that minds are in and through everything that exists... *from* human beings and nonhuman animals *down to* things like rocks and thermostats" (2013, 352; italics added). Beever and Cisney focus on Deleuze's post Spinozian approach to 'contraction'. They write,

> All of being is reconceived by Deleuze as a multiplicity of more and less complex constitutions, relations, and interpretations of *signs*, themselves conceived as contractions of time constituting the relative *life* of each *thing* that *is*, for as long as it *is*. (356)

Like Peirce, so Deleuze "mind is this ongoing and universal semiotic process of contraction, interpretation, and reaction that occurs at all levels of the natural world" (363). Not only is the differentiation between *the* wasp and *the* orchid a semiotic contraction, but so also is the difference between the *wasp orchid* and air pressure. All of these approaches can be said to model a semiotic theory neutral to the divisions of Life and Nonlife, the animate and inanimate, the biological and geological, the ecological and atmospheric. But are these models of a semiotics against geontopower, or are they a postgeontological semiotics? Does modelling an irreducible and original semiotic multiplicity agnostic to all categorical reason, let alone the division between Life and Nonlife, confront the colonial order to geontopower? Or, by proclaiming the Good News of semiotic panpsychism, true for all and everywhere, do we smuggle a Eurocentric universalism in the back door.

This risks of not taking seriously the aspirational scope of biosemiotics and post-geontological semiotics can be concretized in recent

attempts to establish the *rights of nature*.[12] Two questions become obvious when shifting the focus from a semiotic model to a political project. First, is whose system of human and other-than-human relationality grounds the project to establish the rights of nature? And, second, what is the scope of the framework imagined? What the rights of nature make explicit that debates about plants, nonhuman hominian species, nonhuman apes, and semiotic panpsychism can skirt, is that, at the centre of any discussion of the rights of nature, is, as Jeremie Gilbert and his colleagues put it, the question of "guardianship, stewardship, trusteeship and/or custodianship of nature"; namely, who should be empowered to speak on behalf of this or that realm of "nature", more, to define the *nature* of "nature" (Gilbert et al. 2023, 373). If "natural entities cannot defend their own rights and require representation" how are they to be represented and by whom are the proper representatives? (Gilbert et al. 2023). "We" can model nonhuman mind any way we wish, but some human, or group of humans, is doing the modelling and interpreting. As Christine J. Winter and David Schlosberg have argued, debates about relational communication always are about "what matter matters as a matter of justice?" (Winter, Schlosberg 2023).[13] I would add the question, what must matter become in order to circulate within and across what social relational territories?

Being of a certain age and educational profile, I cannot help but think of Gayatri Spivak's distinction between *vertretung* and *darstellung* in "Can the Subaltern Speak?" (Spivak 1988). A multitude of questions unfurl from the seemingly simply question of *vertretung.* Who will be *locos parentis* of this or that region of human and other-than-human relationality and kinship? Who will decide what is there? Where is there? And whether scaling from the local to Gaia is a perversion of earthkin relations or not? In short, we are not only faced with the ability of the other-than-human world to signal to others, or to parts of itself, its communicative intention, but with the filtering of these qualities through specific social worlds, themselves always within specific if multiple relations to the "struggle over the means and instrumentalization of value". This struggle has been at the forefront of the work of activists such as Vandana Shiva and her Research Foundation for Science, Technology and Ecology. And because of this struggle, many legal scholars and activists working with the framework of in the rights of nature foreground their alliance with specific Indigenous cosmologies such as Pachamama.

Whatever intentions specific persons have in each of these complex legal struggles, the question is remains of how the multiplicity

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12 See, for example, Gilbert et al. 2023.

13 See also Winter 2020.

of Indigenous relational cosmologies transformed to fit specific, what Dilip Parameshwar Gaonkar and I called an ethnography of transfiguration, in the case of the rights of nature, the necessity for Indigenous relations with their other-than-human kin to con-form to western legal concept of corporate personhood. We asked:

> What limits are imposed on cultural forms as the condition of their circulation across various kinds of social space? What materialities of form emerge from, and brace, these movements, and that make 'things' recognizable inside the contexts in which they are inserted? (Parameshuwar, Gaonkar, Povinelli 2003, 387)

To be sure, Greek and European law has a long history of animals and inanimate objects in its systems of justice.[14] But leaving aside the question of standing – who can stand as the representative of a region of more-than-human existence – we still must consider the forces of *darstellung*, of what forms something must take as the condition of entering liberal forms of addressivity and adjudication. Sure, one way of asking the question is, if corporations can be legal persons, why can't other abstract collectives be considered persons within the framework if liberal law? (Gordon 2018). If we ask the question this way, the question is how developments in postgeontological semiotics can support this idea of the personhood of nature by anchoring it in an other-than-human mind *in general*. Put another way, a postgeontological semiotics fits neatly into the new juridical imaginary of the *rights of nature* (cf. Gilbert et al. 2023). It seems to solve an ethical-political problem with an ethical imperative that conserves Eurocentric imperative, "Give unto others what you find most valuable in yourself", which in a decolonizing perspective can be translated into "Give unto others a modified version of what you refuse to give away, your own sense of yourself as the model of all existence" (Winter 2003). Afterall, we do not hear a call for stripping away the values that compose subjectivity as a sedimentation of ongoing capitalist processes. "Give back to others the materials composing your good life and the value-forms that make the continued dispossession of others reappear as natural goods". For those whose lives are lived from the sedimented compositions of this hierarchy of mental values disrupting it can *feel* like a derangement of their body and its senses, because it is. This is why laws are passed to keep the capitalist mind and economy of usury in place (cf. Eddy 2005). Or, the use a capitalist form, corporate personhood, to solve a capitalist problem, the destruction of existence as it currently exists.

This should give those of us wondering what a semiotics against

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14   See, for instance, Hyde 1916; 1917; Dinzelbacher 2002.

geontopower might consist of if upsetting a humanist approach to personhood, mind, and rights can conserve the apparatus of liberal humanist law. What happens when we absorb rivers and others forms of existence into the concept of personhood emerging out of the catastrophes of Second World War and the Nuremberg trials? Put differently, what are we begin doing in a pragmatic sense, when we interpret regions of other-than-human as persons – what are we insisting they become in order for them to have standing before a court of law? How is the legal inclusion of nature through a category meant to protest capitalists from financial responsibility for the harms they do to the human and more-than-human worlds an exit from the same overdetermination of a specific form of the Man – one that at once and the same time aspires to include all in its dominion and exempt it from the harms of applying its ruler? How would Deleuzian notions of semiotic contraction allow us to understand the transfigurations of existence necessary for natural things to be heard?

5 Semiotics Against Geontopower

The book from which this essay is derived will examine in more depth how a post-geontological semiotics certainly could push biosemiotics beyond a strict correlation between biology and mind. But it will compare such an approach to a semiotics against geontopower. As opposed to a post-geontological semiotics, a semiotics against geontopower does not aspire to model a *new nature* or the *true nature* applicable to the All and Everywhere. It does rest on the bizarre notion that if theory does not begin with what things share in common then vicious war and usury are inevitable outcomes. A semiotics after geontopower would need to begin within a set of relations and the forces and powers that produce differential sedimentations of thought and matter, including thought as habituated matter with its tendencies of interest and its aspirations of scope. It must carefully track the difference between deranging a humanist approach to mind and a decolonial approach to semiotics. It must examine how unhinging a humanist mind need not touch the derangement of the colonial order. When thinking about thought in this way, I often return to Edouard Glissant's opening words in *Poetics of Relation*.

> Thinking thought usually amounts to withdrawing into a dimensionless place in which the idea of thought alone persists. But thought in reality spaces itself out into the world. It informs the imaginary of peoples, their varied poetics, which it then transforms, meaning, in them its risk becomes realized. (1997, xxi)

Do We Need a Semiotics After Geontopower tries to create a space between a post-geontological semiotics and a semiotics against geontopower. The first seeks to break the deforming borders and boundaries of life and nonlife as it creates an all-encompassing approach to mind. The other examines the presuppositions within semiotics in order to unhinge the deployments of mind in the ongoing relational sedimentations of settler colonialism. The format of this still speculative book cites Roman Jakobson's *Six Lectures on Sound and Meaning*. The first lecture will consist of a revised version of this essay. The next three lectures take an elementary kernel of pragmatic approaches to semiotics and mind and pivot it against seemingly cognate concepts developed in critical Indigenous and Black studies. The second lecture will focus on theories of relatives. I begin with Peirce's self-understanding that his semiotics rested on a new logic of relatives. I pivot what this means technically against various critical Indigenous discussions about the ethics and obligations of peoples to other-than-human kin, such as Kim Tallbear's call cited above. The third lecture pressures pragmatics understandings, and conflations, of the interpretant (or the agency of interpretation) and mind. Again, it asks not merely how critical race and Indigenous studies have shown the function of discourses of mind in the colonial and racial systems of governance, but whether mind is a necessary feature of any part of existence to be treated with ethical care. The fourth lecture examines pragmatic approaches to truth in which the highest order of thought must be understood as the habituated way that mind treats objects through the mediation of signs. The fifth lecture continues this discussion, asking how pragmatic approaches to radical empiricism relates to the way Deloria Jr. and others have discussed revelation as a form of adjustment and power rather than fact or post-fact assertion. The final lecture returns to the sense-intuition that a post-geontological semiotics is needed, asking whether a semiotics against geontopower could work alongside decolonizing and antiracist projects without becoming yet another colonizing ontology, another evangelical form of mind announcing the arrival of a redeemed theoretical world.

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Maps and the Epistemic Risks of Visual Representation

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Abstract   Bad maps misrepresent and mislead. They hide important truths and misdirect our attention. Often, they are self-serving, promoting the values of their makers. But it is not easy to delineate what counts as a good map. Even 'good' maps that are useful, illuminating, and accurate according to their representational conventions can still mislead us, hide important patterns, and distort our understanding. In constructing a map, we necessarily balance at least three sorts of epistemic risks, which I name aesthetic risks, categorization risks, and simplification risks. Balancing these risks is always a value-laden process. Maps that employ an 'aesthetics of neutrality' can be distinctively misleading by hiding their own value-laden perspective under an aesthetic veneer of scientific objectivity.

Keywords   Maps. Geographic Information Systems. Aesthetics in Science. Epistemic Risk. Representational Risk.

Summary   1 Introduction: Value-Laden Maps. – 2 Maps and Epistemic Risk. – 3 Three Types of Representational Risk. – 4 There Are No Safe Maps.

1 Introduction: Value-Laden Maps

We all enjoy laughing at bad maps; there are entire Facebook groups and Twitter accounts devoted to them, with hundreds of thousands of followers. Bad maps misrepresent and mislead. They skew and hide important truths and misdirect our attention. Often, they are self-serving, promoting the values of their makers. But it is by no means easy to delineate standards for what counts as a good map, or to explain how good maps contrast with bad maps.

A seemingly simple answer is that bad maps are constructed by biased mapmakers who encode their values into their maps, whereas good maps are objective and value-neutral. But I will argue that map-making is necessarily value-driven all the way down; there is no such thing as a value-neutral map. Another seemingly simple answer is that a bad map is one that misrepresents, while a good map represents accurately. But what counts as misrepresentation? Roads are not literally black lines; the earth is not literally marked by political borders; all maps use nonliteral representational conventions. Maps are never exact copies of what they map. It is a substantial epistemological problem to demarcate the difference between nonliteral maps that serve legitimate epistemic ends and those that irresponsibly mislead. Nor does it solve this problem to say that a map must represent accurately according to established representational conventions. For one thing, as we will see, some of the best, most illuminating maps break with these representational conventions. And for another, it will turn out that some common representational conventions are especially effective at hiding the values and choices that went into the production of a map, thereby distorting our inferences from it. A *good* map, we might say, is one that generates correct and helpful inferences when it is used. But it is difficult to specify the properties that make maps good in this sense, and as we will see, even good maps also risk misleading, distorting, and obfuscating spatial knowledge.

Consider two maps that will be familiar to many in Figure 1 and Figure 2.

Figure 1   Standard Mercator map of the world

Figure 2   Washington Metropolitan Area Transit Authority subway map. 2023

Any projection map – that is, any two-dimensional map of a curved surface – cannot simultaneously preserve relative size, shape, relative distance, and direction, with respect to the shapes that it represents. Different projection systems compromise different combinations of these four parameters, but as a matter of mathematical necessity, each must compromise some of these parameters to preserve others. The Mercator map of the world [fig. 1], familiar to most of us from the walls of our middle school geography classroom, preserves direction at the cost of shape and relative size. The map is accurate, according to its representational conventions. The reason this map preserves direction is because it was designed for navigational purposes. Those of us seeing the map, however, are overwhelmingly not using it to navigate, and it has well-known distorting effects upon our understanding of the world that are far from politically neutral. It centers Europe and magnifies the white-dominated global north while shrinking the global south, infamously making Greenland and Africa look comparable in size. It was also used to visually magnify the threat of communism during the Cold War (Monmonier 2018, 109). Not only do these effects scaffold racist and xenophobic narratives and understandings of space, but the original map was racist in its inception, because it was literally designed for colonizers, to help them start at the 'center' and make their way efficiently to colonizable spaces. Hence this is a *bad map* because it in effect misinforms and skews our understanding, and it does so because of poor value-laden choices in its construction. But its badness does not lie in its inaccuracy or its straying from established representational conventions.

Meanwhile, the map of the Washington, D.C. metro system [fig. 2], is often heralded as an example of a good, useful map, because it serves the purposes of its intended users very well, clearly marking points of exchange, the order of stops, and city boundaries. Its bold colors and thick, elegant lines make it easy to read and use for the purpose of navigating the city. But it is in many senses a wildly inaccurate map, most noticeably in being dramatically not to scale. It is also very minimal in the information it contains. If someone were to try to use the map to find their way around D.C. by foot, or to try to extrapolate how suburbanized different areas will be, or for any number of other purposes, the map would prove misleading or useless. So, this map's value does not depend on its accuracy, or on its immunity from misleading, and this value is relative to our interest in its use.

Value-laden choices must be made throughout the course of map production. Making a map requires choosing everything from the colors and thickness of the lines, the symbology, the scale, the projection system, the data sources, the categories into which data will be divided, and the parameters the map will represent. Each choice represents and communicates some information while omitting,

distorting, or hiding other information, as cartographers themselves routinely acknowledge. Maps in their essence simplify, schematize using representational conventions, and ignore detail. This is how they communicate. A map that simply reproduced reality would not be a map at all, and given that it has to simplify and select what it shows, choices as to how to do so are inevitable. As James Scott puts the point,

> A city map that aspired to represent every traffic light, every pothole, every building, and every bush and tree in every park would threaten to become as large and as complex as the city that it depicted. And it certainly would defeat the purpose of mapping, which is to abstract and summarize. A map is an instrument designed for a purpose. We may judge that purpose noble or morally offensive, but the map itself either serves or fails to serve its intended use. (2020, 87)

In his classic book, *How to Lie with Maps*, geographer Mark Monmonier reveals the many ways in which map-making requires value-laden choices, and warns that maps that are not made with 'knowledge' and 'honesty' will be distorted and misleading. However, he does not take on the problem of what counts as a *good* map, given the ineliminability of these choice points; it is not clear what standards an honest and knowledgeable cartographer could use to achieve undistorted objectivity, or what exactly a cartographer is supposed to be honest *about*. Monmonier says that we should "be wary of cartographic manipulators" who make representational choices "that best prove their point" (2018, 159). But this is complicated by the fact that maps are communicative devices; so of course we use them to communicate our point; there is no neutral representation.

Up until World War II, geography as a discipline was focused on observing and documenting practices in local regions. It had little claim to producing generalizable knowledge and was looked down upon by the 'real' sciences. After the war, there was a revolution in academic geography, as people invented techniques for encoding elaborate statistical spatial information into maps. With the rise of GIS in the 1980s and 1990s, the capacity to do this grew enormously. Geography reinvented itself as a 'spatial science', whose central purpose was to translate quantifiable, purportedly perspective-independent and value-neutral spatial patterns and relationships in Newtonian space into objective visual representations. Some vocal geographers such as Stan Openshaw (1991) influentially argued that the only hope for geography to establish scientific bona fides was for it to become an objective and quantitative science, by focusing almost entirely on the production of such representations. The visual representation of statistical spatial information was to be the primary epistemological

method for both collecting and communicating knowledge in geography (Cresswell 2012; Pavlovskaya 2018).

The advent of 'spatial science' and GIS in particular saved dying academic geography departments, which now often earn their institutional keep by training GIS technicians, who are sought after by city planning, transportation, public health, police departments, and other such practical fields that use spatial information. The image of proper spatial science as objective and aperspectival is central to the discipline's claims to practical usefulness and scientific credibility. The institutional survival of geography departments depends on sustaining this image of objective, scientific map-making. This image sits in uneasy, unresolved, and mostly unexamined tension with the straightforward ways in which map making involves ineliminable value-laden choices.

2 Maps and Epistemic Risk

The most well-developed literature around the role of values in science concerns 'inductive risk'. The clearest definition of inductive risk for my purposes is the risk of a false negative or false positive that we accept in making a non-deductive inference from evidence to the acceptance or rejection of a general empirical conclusion from that evidence. Most paradigmatically, we assume inductive risk when we accept or reject a hypothesis on the basis of statistical evidence. This is because any time that we make an uncertain inference from empirical evidence, we assume the risk of accepting something false or rejecting something true. And, as many philosophers have shown in creative ways, we cannot decide what the correct epistemic threshold is for making such an inference – for balancing the risk of a rejecting a true hypothesis against the risk of accepting a false hypothesis – without bringing values to bear. We decide where to set this threshold in light of how bad of an outcome we think a false negative would be compared to how bad of an outcome we think a false positive could be. There is no value-independent 'right' threshold, since we are always necessarily trading one epistemic risk for another, regardless of where we set the threshold for hypothesis acceptance.[1]

But maps, like models and like other visual representations of data, are representations, not collections of inferences. They serve simultaneously as knowledge products, as evidence to be used in future inferences, and as communicative devices. The epistemic product, in

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[1] See the essays in Elliot, Richards 2017 for multiple explorations of this inductive risk argument; the original argument goes back to Rudner 1953 and has been much discussed in twenty-first century philosophy of science.

the case of a map, is not hypothesis rejection or acceptance, as it is in the traditional type of scientific knowledge that has been the focus in philosophy of science. It is instead a representation of information. Maps raise what Stephanie Harvard and Eric Winsberg (2021) call 'representational risks', which are epistemic risks that are distinct from inductive risks. As Harvard and Winsberg point out, the value-laden balancing of epistemic risks in representation looks different than the value-laden balancing of epistemic risks in scientific inference. When we make decisions about how to represent a state of affairs – whether through a map, a model, a taxonomy, or a visual diagram, for example – we must choose which aspects of the world to include in our representation, how to categorize those aspects, and with what symbology we will represent them. All these choices must be made in light of values and interests. Even representations that are accurate given their own conventions may mislead by encouraging incorrect inferences; by discouraging or distracting us away from important correct inferences; or by skewing our sense of salience so that we focus our inferences on the wrong things and leave important inferences unexplored. In other words, accurate representations may lead people to adopt false beliefs or to fail to adopt important true beliefs.

As Harvard and Winsberg point out, representations are not themselves true or false. Representations do not make claims, but instead they lead us well or poorly in our inferences and belief formation. The risk is not that a representation will turn out to be false, but rather than it may distort the reasoning of those who use it. Because *all* representations are partial and involve choices about how and what to represent, all representations come with this representational risk of misleading. Moreover, because representations are inherently *communicative*, the risk that they mislead is a risk that should be considered internal to the process of representing, and not just a separate piece of moral luck. Methodological choices in representation are inextricable from communicative choices.

3   Three Types of Representational Risk

Maps raise representational risks of at least three kinds, corresponding to three necessary stages in the map-making process. I name these aesthetic risk, categorization risk, and simplification risk. Maps are inherently aesthetic, categorizing, and simplifying. In no case can any of these three types of risk be avoided; they can only be managed in light of our values and interests, which govern how we want the map to be used and what sort of knowledge we want it to convey. In each of the three cases, there is no 'safe' or neutral answer to the question of how to manage the epistemic risks involved.

a. *Aesthetic risk*: Maps are perceivable objects, and they are inseparable from their own aesthetic features. Aesthetic risk is the epistemic risk introduced by making necessary *aesthetic choices* about representational conventions, which will necessarily make some information salient at the cost of other information, and shape users' attention to and interpretation of the map. There is no 'true' or 'neutral' set of aesthetic conventions; all aesthetic choices must be made on the basis of values and purposes.

b. *Categorization risk*: Of necessity, maps introduce representational conventions where symbols stand for categories of objects or data. For instance, solid black lines may stand for all roads with open intersections, while double lines may stand for all controlled access freeways; this convention groups roads together by how they are accessed. A map that represents median income by neighbourhood may divide income by quartiles, quintiles, standard deviations, or infinite other ways, but since it cannot represent each of the infinitely many possible incomes a different way, it must pick some categorization system or other. Reality does not hand itself to us pre-categorized, and so these categorization choices must be made in light of values and interests. In turn, these choices shape what patterns the map reveals and what patterns it hides, which in turn directs how people make inferences from the map.

c. *Simplification risk:* Maps do not represent spatial reality in all its complexity, but rather selected parts of this complexity. Mapmakers must choose which features, parameters, and relationships to include on their map. Maps that include more details and parameters have more nuance and contain more information, but they risk communicating less as they become visually incomprehensible. Communicative trade-offs of this sort are inevitable; leaving off a parameter or feature risks making it invisible and unsalient to readers of the map, while including extra features clutters the map and reduces its communicative power. Either way, the map can mislead.

d. Aesthetic choices and choices about categorization and simplification are essential, unavoidable parts of map-making. In none of the three cases is there a value-neutral answer written into nature as to how these choices should be made. In the following three sections, I explore how complex the role of values in making all three sorts of choices can be. Maps that are accurate, follow established representational conventions, and communicate important truths still have the real potential to mislead because of these choices.
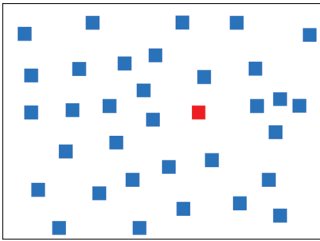
Figure 3   Find the red square
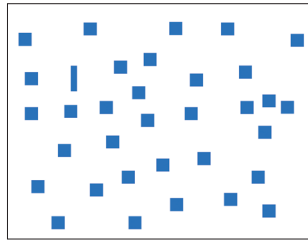
Figure 4   Find the blue line
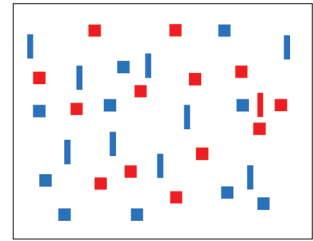
Figure 5   Find the red line

A. Aesthetic Risk

Producing a visual representation of spatial information is never a matter of mechanically processing data. Rather, it requires making aesthetic choices. Unlike when we represent knowledge or evidence in propositions, maps necessarily have a visual, aesthetic form. In producing a map, aesthetic choices are not external to the content, like picking the font for a book; they are part of what individuates the map. There is no abstract map independent of its symbology: the colors it uses, the thickness of its lines, the contrast between figure and ground, the shape of its nodes. These choices directly affect what information the map makes salient and how the viewer will interpret and use it. For example, contrasting colors, up to a point, make information stand out and allow for quicker cognitive processing. Thus, color contrast can be used to shape what the map makes salient and what it hides (Fu et al. 2013). But too many colors become difficult to process, and have the opposite effect, lessening how much information the map effectively communicates. A map literally *tells* us different things depending on these kinds of aesthetic choices, even holding the information strictly contained in the map constant.

It is easy to confirm phenomenologically that aesthetic choices directly impact how we process and extract information from visual representations. Below is a small experiment that you can perform for yourself while reading this paper. First, look at **[fig. 3]** and find the red square as fast as you can. Next, look at **[fig. 4]**, and find the blue line. Finally, look at **[fig. 5]**, and find the red line. All three tasks are easy, but I trust it is subjectively obvious how the processing time increases across the three tasks.

This experiment directly demonstrates how aesthetic features like color and shape can impact our perceptions of salience and how we process the information in a visual representation. For this reason, two maps can encode exactly the same spatial information and be technically exactly equally accurate in doing so, and yet they may communicate very differently because of different aesthetic choices
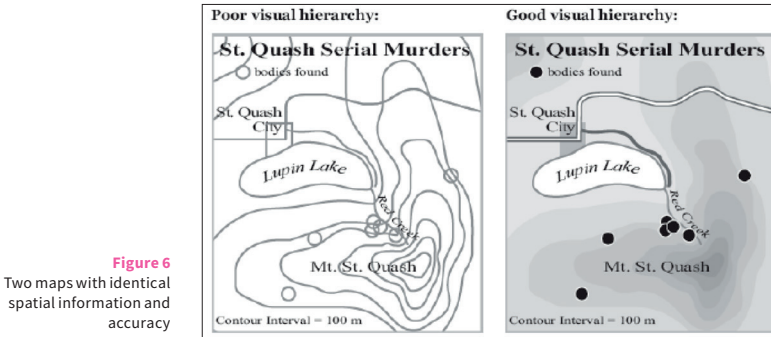
in their construction. See for example **[fig. 6]**, which shows two informationally identical maps of murder sites.

There is no objectively correct aesthetic look that a map should have; which aesthetic choices we should make depends upon which patterns we are trying to make salient. The map on the right in **[fig. 6]** is 'better' because it better serves the purpose of making the murder sites and their topographic context salient and easy to process, and this is likely what the map is used for. But there are infinite other patterns consistent with the information encoded that it does not make salient. Any set of aesthetic choices comes with *aesthetic risk* – the risk that aesthetic choices that make some patterns salient and enable some inferences will hide other patterns, in ways that can mislead. And this risk cannot be managed in a value-free way.

An exhibit at the Pratt Institute in October 2017, entitled *You Are Here NYC: Art, Information, and Mapping*, featured artworks that used geospatial data to produce representations designed to give aesthetic insight into New York City as a human place. It included Doug McCune's piece, *Data Sketch: Routes*, which used GIS data to create a map of New York City with a three-dimensional double wall around its boundaries. The height of the taller wall indicates the number of immigrants to the city who arrived from that compass direction, while the height of the second, surrounding wall indicates how many of these immigrants were children **[fig. 7]**.

It also included Xingying Du, Michelle Htar, and Jessica Silverman's *Journeys Disconnected – Reconnected*, which used colored yarn to track the migration patterns of 66 people who were buried at Hart Island in the Bronx, which served as a prison, a psychiatric institution, a sanatorium, and a boys' reformatory. The piece makes vivid how the island served as a terminus for complex global stories **[fig. 8]**.

Such artworks are quantitatively representations of spatial data, according to their representational conventions. The main thing that

distinguishes them from traditional GIS maps is that their makers are self-reflective about their aesthetic choices in producing such representations, and about how the representations are designed to make certain spatial patterns with human significance salient. Their aesthetic choices are specifically designed to encourage specific interpretations of and responses to the spatial information they portray. The aesthetic features of these works are not overlain on top of regular maps, nor are these artworks instead of regular maps. Instead, both reveal the extent to which every map is a product of necessary value-driven aesthetic choice points.

A more standard immigration map has the look of objectivity rather than art. However, its makers also had to choose its color scheme and symbology. The choice to make a map with the look of stark neutrality – one that seems to depend on no investments in a specific interpretation, and no interest in capturing any particular lived perspective – is itself a value-laden aesthetic choice. The aesthetics of withholding any interpretive perspective is a look that we choose because of specific interests. It is no more or less epistemically fecund or representationally accurate in virtue of this aesthetics of neutrality. In no obvious sense can it be said to have any special 'epistemological priority' over maps that make more explicitly communicative aesthetic choices. Whether or not the makers of a 'neutral looking' immigration map **[fig. 9]** were deliberate and thoughtful about the downstream effects of their aesthetic choices, they had to choose all the same, and their choices affect what the map communicates, and which inferences it stimulates and which it discourages.

   All three maps are good maps for some purposes. All of them are, as far as we can tell, accurate given their own representational conventions and goals, and they make salient important truths about migration, borders, and the kind of place that New York City is. McCune's map is based on quantitative data, but it conveys a qualitative
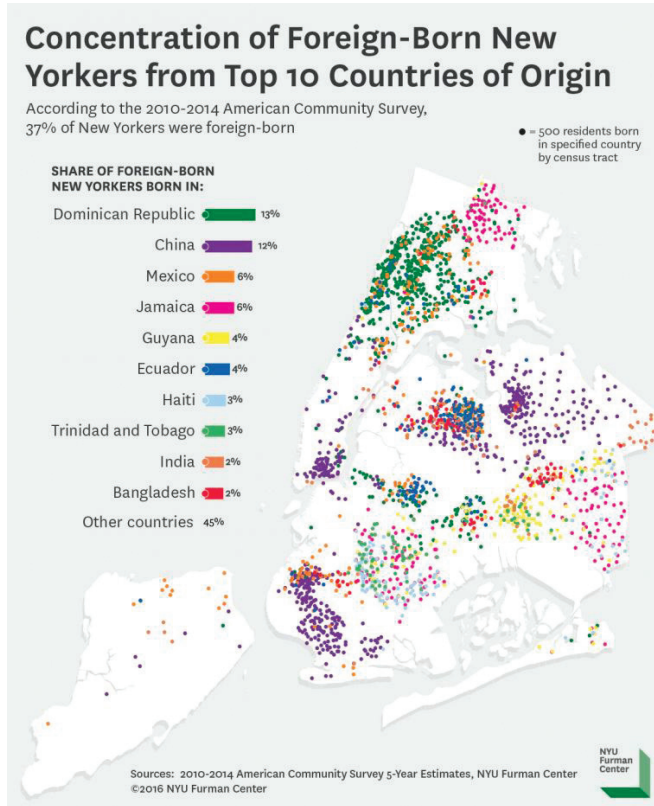
sense of place and migration that are absent in the more 'objective'-looking map. Du, Htar, and Silverman's map brings spatial paths traversed to life as lived journeys. The Furman Center map is good at conveying where there are ethnic neighborhoods in the city, while it evokes no sense of place or journey. We might think that because it is an 'objective' map, it is not its job to convey anything so humanistic as a sense of place or journey. But the other two maps prove that representationally accurate maps can do this. Whether they do or not depends not on the objective correctness of the map, but on the aesthetic choices made during its construction.

All three maps make different value-laden choices based on which patterns they care about conveying and what sorts of inferences they care about stimulating. All three maps have legitimate epistemic value. All three maps balance aesthetic risks, since their aesthetic choices make some meanings and patterns salient while thereby directing attention away from others.

B. Categorization Risk

A map will not be readable unless it categorizes its data. This might be as simple as two-lane roads being symbolized in one way and highways in another. Or it might be a matter of breaking data for income, temperature, or some other continuous variable into quartiles, quintiles, or deciles on a choropleth map. Or it might involve breaking up data using racial or gender categories. These categorizations are necessary, because not every data point can have a unique symbol, otherwise the map will not reveal spatial patterns any more vividly than a photograph. But these categorizations are choices, which are not written into nature. Categorization choices are not true or false or even accurate and inaccurate, but rather adequate or inadequate to purpose. How a map maker chooses to categorize their data will directly affect which patterns the map reveals and which it hides.

Mark Monmonier writes,

> A single set of numerical data can yield markedly dissimilar maps. By manipulating breaks between categories of data to be shaded on a choropleth map, for instance, a mapmaker can often create two distinctly different spatial patterns... Wary map users must watch out for statistical maps carefully contrived to prove the points of self-promoting scientists, manipulating politicians, misleading advertisers, and other propagandists. (2018, 153)

He warns about unscrupulous and irresponsible mapmakers bending maps to their own ends through categorization systems, but there is no correct categorization system built into nature. All of them come with representational risk, because all hide some patterns while revealing others. His warning about manipulative categorization systems suggests that there exist, in contrast, honest and disinterested categorization systems, but it is unclear what these would be or by what standards we would determine them.

For a simple example, consider the two maps of American mpox infections from 2022 **[figs 10a-b]**. These maps were based on the same data set and represent the same time. Such maps typically use more intense colors to indicate locations with higher infection rates. But of course, we can make mpox look like an especially pressing issue or a relatively mild concern depending where we set the cut-off for a 'very high' infection rate, which varies dramatically on different maps. Notice how much more pressing the issue looks on one of these maps than the other. Notice also that we can see different patterns in each map.

Consider now a map showing the residence locations of people of different races. Such a map requires that we decide how to categorize people by race. This means choosing a racial categorization system.
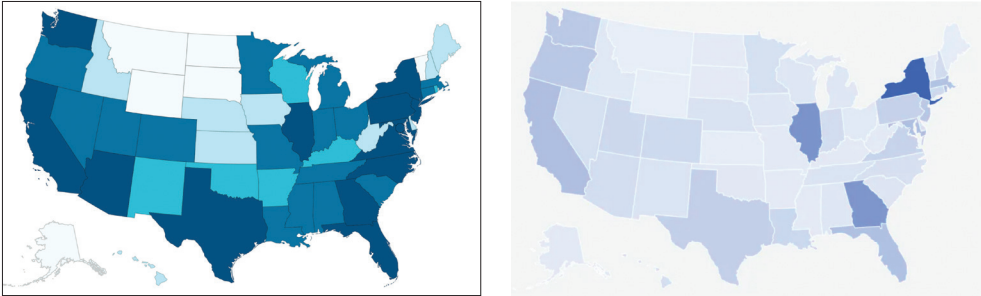
[Fig. 11] shows a dot map of Detroit, produced by Dustin Cabel at the University of Virginia. Cabel used 2010 census data to represent the racial demographics of each major American city, with one racially color-coded dot for every person deemed a resident.

In this map, one can vividly see the stark segregation of the city, with 8 Mile Road a sharp dividing line between White and Black. This map is an excellent map, in that it uses categorization and symbology to reveal an important truth about the city of Detroit accurately and vividly; it makes a pattern lucid for us in a way that a list of statistics never could. When you look at this map, the boundary created by 8 Mile Road takes on hard reality. We can *see* segregation at work! This map encourages correct and important inferences that would not otherwise be salient.

But the map is a product of a series of categorization choices that hide other patterns. For instance, following the census, the project folded all Middle Eastern and Arab people into the 'White' category. It thereby made it impossible to see one of the most vulnerable and vexed groups in the country. Indeed, the Detroit greater area has among the largest Muslim populations in the United States (or the largest, depending upon the source and the exact definition of the metro area). This is an important fact about the spatialized racial politics of the city, which is obscured by the map. The map also folds together all Asians, despite important differences between groups from different parts of the continent. For instance, this means that this map does not reveal the distinctive physical isolation of Detroit's Hmong community, which again is an important feature of the spatialized racial politics of the city (Yang 2003).

So, it is an objective flaw in the map that it used categorization systems that occluded these spatial patterns? No, because using a more fine-grained racial categorization system would have muddied the pattern that did emerge, which is a real and important pattern. The map as it stands is not wrong or flawed, but what it reveals and
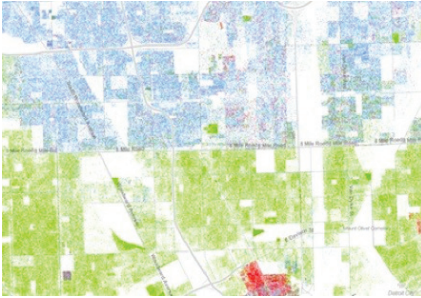
Figure 11
Central Washington, D.C.
commuting map, 2019

what it hides is based on value-laden choices that vanish under the veneer of stark objectivity that the visual representation suggests.

The racial categorizations used to produce this map were inherited pre-packaged from those used in the United States census. We do not know whether the cartographers thought explicitly about the impact that using the census categorizations would have on these dot maps. Making use of a secondary source of data like the census provides concrete benefits in map-making, giving cartographers access to vast data sets that would be impossible for individual researchers or small research teams to recreate. Hence some value-laden choices were already baked into the technological infrastructure available to the researchers who produced the maps. Thus, the researchers made a second kind of epistemic trade-off: they accessed a larger data set than any they could produce on their own, at the cost of offloading the burden of reflecting on racial categorizations and the epistemic risks they pose.

The visual representation that results from these choices affects what we see as real boundaries and divisions in the city. In turn, this affects not just what theoretical inferences we draw, but also our practical decisions. Maps like this one influence investors' and developers' choices about where to buy and build property, individuals' choices about where to live and visit; and policy decisions concerning transportation infrastructure and the like. Thus, categorization choices that determine which patterns our maps reveal and which they hide concretely impact the world we live in. The map in [fig. 11] is, by any reasonable measure, a good map that reveals useful and important truths, but it is not free of representational risk. We need to read it with a critical eye, aware of what sorts of patterns it may be occluding.

C. Simplification Risk

Maps necessarily simplify the spatial complexity of the area that they map; any map must select which spatial features, parameters, and relationships it will represent. In the last section, we saw that we need to choose how to sort individual data points into categories, which is also a form of simplification. But before we even get to categorization, we need to pick what will be represented in a map at all, abstracting away from the indefinitely rich particularity of any space and choosing parameters to represent. Including more parameters on a map increases nuance and detail, but lowers its communicative power and inferential ease.

There has been a strong and unsurprising bias, within GIS culture, in favor of representing simple quantitative relationships and features. GIS maps achieve their veneer of scientific legitimacy and objectivity partly by sticking to measurable, visually clean spatial relationships and data points. There is also a bias in favor of including parameters for which we have large data sets, as this increases the statistical power of the map. But here, representational risk comes in, because both biases mean that we are less likely to represent and communicate more complex relationships and non-quantitative spatial phenomena, which means that those patterns are occluded, and don't show up as part of our visual canon of objective spatial truths. In other words, what it is easiest to map effectively unsurprisingly impacts what we map, and in turn this shapes our understanding of spatial reality, with the easily mappable parts showing up as objective features of the world, while other patterns are left invisible.

Consider, for example, commuting maps. Geographers love to make maps that represent commuting patterns (that is, trips between home and work), perhaps divided by gender, or race, or by income bracket. It is worth exploring why there are so many commuting maps, and which patterns and relationships are revealed and hidden when we use GIS to represent commuting patterns. I want to highlight what commuting maps tell us about *what kinds of motion* and *whose motion* are essential to understanding the dynamics of a region.

Why do our maps of motion through cities so often focus on home-work trips? First, we tend to think of these as the 'main' trips that define someone's day. Second, we have the best data sets for this kind of motion. Commuting data is easily available, because we keep track of where people live and where they work, but we do not have any immediate access to the other ways in which people move through space. These are connected facts: this data is more easily available partially because we take home and work to be the two main places where people belong, the places it is worth collecting data about. In contrast, we cannot easily get data to map movement through space to visit family, care for a parent, go to church, pick children up through

school, go to the doctor, socialize, and so forth. In fact, only about 25% of vehicle trips in the United States are commuting trips, according to a 2019 study (Tsafos 2019). That figure predates the COVID pandemic, so it is likely that the current number is even smaller in many cities, because of the large rise in the number of people who work remotely from home. Thus, a commuting map will give a highly distorted picture if we see it as a representation of city movement.

Whose lives are centered and privileged by these maps, and what aspects of those lives are taken as essential? First, it centers people who have one single work location, as opposed to those who have other kinds of jobs or who are not traditionally employed. This leaves out artists, contract workers, adjuncts teaching at multiple universities, many sorts of tradespeople such as plumbers and painters. It privileges white-collar in-person office workers and blue-collar manufacturing workers. It leaves out very young and very old people and many disabled people. It is more likely to leave out women than men. Meanwhile, policy and transportation decisions, such as where to place bus routes and bike lanes, are made on the basis of these maps, which in turn makes commuting trips easier, but often makes other sorts of motion through a city more difficult. Thus, such maps encode whose lives and what dimensions of those lives are privileged, while in turn contributing to the development of infrastructure that further privileges those lives and life dimensions.

Consider the map of (pre-COVID) commuting patterns in central Washington, D.C. [fig. 12].
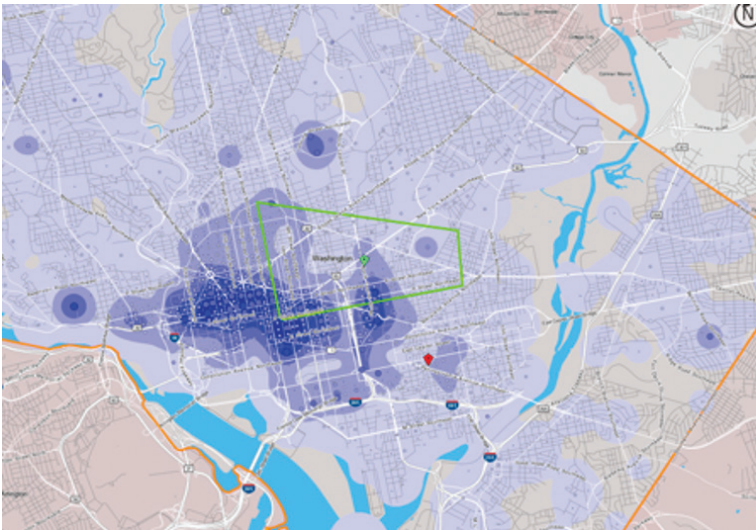
Figure 12   Central Washington, DC commuting map. 2019

This is a map that I generated using census data, which shows the workplaces of people who live in the fastest growing, most quickly gentrifying part of Washington, D.C. (inside the central polygon). Looking at the map, you can see a clear commuting direction: people who live in the center of the city tend to travel to the west and southwest on their commute. Most people living in this central polygon are young white educated professionals who have recently migrated to the city. For anyone familiar with Washington, D.C., this map will not be surprising; the dark areas representing heavy employment for those living within this intensely gentrified area include medical facilities and governmental organizations such as the World Bank in Foggy Bottom, and political offices and lobbying and law firms along K Street NW, as well as Georgetown University and George Washington University.

I originally created this map for the purpose of showing why people were advocating for building bike lanes leading from the central polygon to the areas to the west and southwest, and the map is effective at demonstrating this need. Since many young professionals move to the city partly to rid themselves of car dependence, and since biking is a healthy, cheap, and environmentally sustainable mode of transportation, the case for bike lanes appears transparent from this map. But there is a second story that this map not only fails to tell, but occludes. The area in the center of the city that shows up as to be commuted through on this map is also one which elderly Black residents, who have managed to stay in their homes as the area gentrifies, move within in order to go to one of several local, longstanding Black churches and to visit family and neighbors. It is also an area that Black people displaced by gentrification, who have moved out to public transportation-starved, car-dependent Prince George's County, Maryland, travel into, to see elderly relatives and to go to church. None of this motion shows up on the map.

Thus, this map makes the area look like one to be passed through by residents from the east on their way to work in the west/southwest, rather than one to come into or move around in. The map gives an apparent place-meaning to the space that we are seeing, and in turn this can shape decisions about what sorts of infrastructure the area needs. It turns out that bike lanes through this area will disrupt much-needed parking for Black churches and other key Black community institutions. This commuting map, if taken on its own, thus encourages further gentrification and disruption of the at-risk ecology of the area.

What I wanted to do, in principle, was to make maps showing both kinds of motion, so that I could demonstrate the nuanced and contradictory mobility needs of the neighborhood. But this proved impractical, because the GIS technology and data available to me through the census privileged home-work trips. Showing the uses of the space by Black residents would have required that I somehow collect information on movement around and into the neighborhood

person by person, and the results would have been unreliable and have had much less statistical power than the giant census data sets. Our privileging of some kinds of motion over others is built into our institutions and technology, and reflected in our maps. This commuting map is not inaccurate; it represents what it claims to represent. But it is difficult, when looking at it, not to see commuting as a proxy for motion in general through the city. This is a representational risk that the map poses. Based on such commuting maps, we understand the city as a set of flows that require various kinds of infrastructural support, thereby hiding the lives, motions, values, and needs of those whose spatial lives are not organized around a traditional home-work commute. A mismatch between what this map encodes and what it communicates is likely, given the background assumptions that frame its look and its uptake. It lends itself to misuse, if this misuse is not actively blocked by further communication and framing, or by a countermap that is hard to produce. Here again we have a map that is accurate according to relatively straightforward representational conventions and can communicate important and useful truths about spatial patterns. But it still runs the risk of misleading its users and occluding important information.

4　There Are No Safe Maps

I have tried to show that any map production is riddled with ineliminable representational risks, including what I have called aesthetic, categorization, and simplification risks, so that the values we use to manage these risks will always affect which real patterns the map communicates and which it hides. There are no neutral, value-free choices to be made about aesthetics, categorization, or simplification. Once we recognize that every map occludes and reveals, and that value-laden choices at multiple stages determine how it does this, we can lose our handle on what counts as a good map. A good map, one would think, should be epistemically helpful and fecund, rather than epistemically inhibiting. But I have argued that even well-constructed, epistemically helpful and fecund maps can also be epistemically inhibiting. There does not seem to be any straightforward way to classify some maps as epistemically safe. A map that is designed to direct people's attention in ways that are misleading and epistemically damaging is a bad map, and this is true even if it is accurate according to its representational conventions. But as we have seen, many maps that are well-designed and epistemically illuminating will at the very same time leave out and occlude other important spatial patterns, and can thereby do epistemic damage.

One reason why many maps are likely to occlude important patterns for their users is that they often follow conventions that give

them the look of neutrality and transparency. Many maps present visual data in a way that makes us feel like we are seeing straight through to the objective truth about spatial data. This is partly simply because we find visual representations powerful, but it is also because we have entrenched a specific conventional aesthetic and conventional choices about what and how we map that signal scientific accuracy and value-neutrality in our maps (Ferdinand 2019). Some maps look business-like and neutral, like the map in **[fig. 9]**. Maps that use what we read as a 'neutral' aesthetic, and that represent simple quantitative relationships, look the most objective and transparent to us. Maps that present the world as *neutrally* calculable, measurable, statistically analyzable, and representable are prized, for reasons that we saw at the start of this presentation; they give geography its institutional claim to legitimacy and scientific bona fides. However, they also hide their own representational risks and discourage critical distance from their message. Their apparent transparent objectivity is epistemically misleading. Arguably, maps that aesthetically display their own specific perspective and value-laden production and perspective have distinctive epistemic advantages. For instance, the 'artistic' maps we saw in **[figs 7-8]** had an evident point of view that they were trying to communicate. They seem more honest in their open use of aesthetic choices than do many more 'neutral' looking maps, and they are also informative, even though they too come with representational risks.

Critical GIS is a small but flourishing area devoted to revealing how GIS conventions in geography are not value-neutral. Critical GIS theorists and practitioners push back against the institutional privileging of statistics-rich maps that represent the kinds of relationships that are easy to quantify, and that present themselves as value-free. These maps systematically occlude other sorts of spatial patterns, including patterns that could only be revealed through qualitative inquiry. Critical GIS theorists and practitioners promote uses of GIS that are openly governed by value-laden goals such as social transformation, and the discovery of marginalized and hidden spatial patterns whose visibility has political value (Pavlovskaya 2006; 2018). Often, this involves finding ways to represent qualitative data in map form.

For instance, in 2008, Mei-Po Kwan conducted an already-classic study of Muslim-American women's felt danger and safety as they moved around Detroit in the wake of September 11. She used GIS technology to create phenomenological maps. Each map required the curation of individual qualitative data. Such qualitative maps take a lot of labor to produce. Her maps and their framing reveal clearly that Kwan is invested in unearthing a specific spatial perspective that she takes to have value; she is not revealing the neutral truth about the organization of space. **[Fig. 13]** represents one Muslim woman's phenomenological map of her experiences of safety and danger
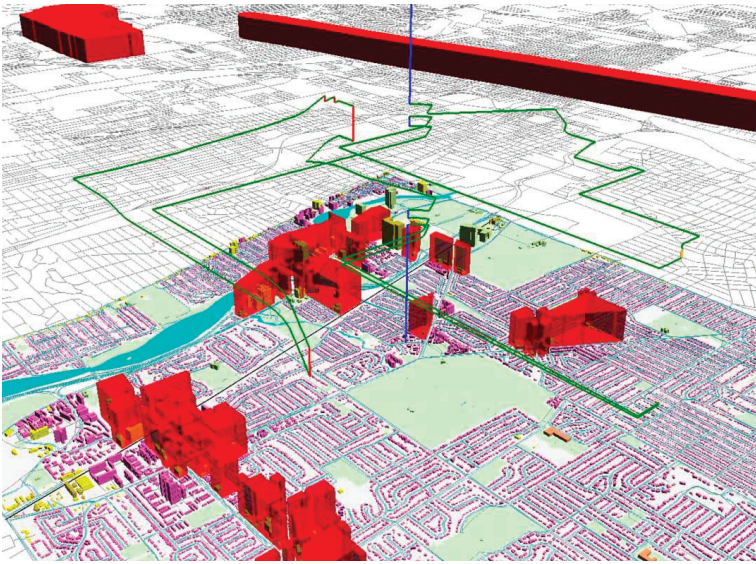
as she navigated her city after September 11. Green lines represent her motion through the city, and red patches represent spaces she experienced as unsafe.

Such maps, like any maps, balance epistemic risks. They are the product of aesthetic, categorization, and simplification choices. They sacrifice some epistemic values, such as statistical power, in order to promote others, such as revealing experienced spatial patterns and phenomena that are hidden by standard quantitative methods. Of course, these sorts of openly value-laden and qualitative maps cannot supplant traditional, conventional maps, as there are many relevant and important patterns that they do not convey. But they have special epistemic value insofar as they reveal real patterns without encouraging the viewer to see these patterns as neutral. They are not pretending to value-neutrality or aperspectivality, but rather trying to capture and communicate a specific perspective accurately in visual, spatial form.

Mapmaking requires a dense and ineliminable series of value-laden choices that balance epistemic risks; there are no such things as safe or neutral maps. The resulting representations are communicative tools that always have the potential to mislead and misdirect attention, as they always hide some patterns in order to reveal others. Maps that use tropes and representational conventions that suggest their own neutrality and transparency may be distinctively

misleading, since they do not invite reflection upon the values and purposes that guided their creation, or upon on the patterns that they occlude. There is some irony in this, since these are the maps most highly prized as science rather than art.

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How Much Geography in Kant's Critical Project?

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Abstract   In this paper we will address the following points: (1) we will question the geneal belief that Kant's philosophical approach has a geographical character, by showing how critical philosophy and physical geography establish, in their respective systems, two inverse relationships between the rational and the aesthetic form of spatiality; (2) we will argue that cartography still plays a role in the realization of a scientific system of cognition, and that this role consists in guiding this very realization; (3) lastly, we will develop the hypothesis that the map of the cognitive faculties, exemplified by the transcendental topic, is part of a device aimed at keeping the subject from the adventures of thought typical of dogmatism.

Keywords   Immanuel Kant. Physical geography. System. Spatiality. Transcendental illusion.

Summary   1 Introduction. – 2 Was Kant Really a Geographer of Human Reason?. – 3 Mapping the Idea Through the Schema. – 4 Seeing So As Not To *schwärmen*.

1 Introduction

Kant's philosophical lexicon includes expressions relating to land-forms and, more generally, to space. Especially in critical writings, it is not uncommon to encounter terms such as *Land*, *Feld*, *Sitz*, or *Stelle* to signify something related to the mind, be it the cognitive faculties or the relationships that concepts and objects can maintain. Scholars have already pointed out that Kant "constantly invokes the geographical" and that the critical project, as a whole, should be considered "'geographical' in character" (Malpas, Thiel 2011, 195). More recent studies have explored the intertwining, in Kant, of the semiotic characteristics of the map and the verbal language (see Morawski 2021; 2022). Everything suggests that a geo-spatial terminology plays a metatheoretical role, allowing a cartographic imagination to intervene in the process with which Kant forms some of his major concepts. In this paper, we do not aim to carry out a lexicographic investigation, to which others have already made a significant contribution (see Hohenegger 2014). We will rather try to understand which strategy the geo-spatial terminology serves, i.e. which effects it is intended to arouse in transcendental philosophy, more precisely in that part of the doctrine of the method concerning the discipline of pure reason. The map of the mind drawn by Kant seems to manifest a device within which the subject is called to verify the validity of its representations by recalling and visualizing where these representations come from and where they are currently taking place, so that it can avoid the transcendental illusion from which reason suffers by its very nature.

In order to corroborate our impression, we will first question the geographical character of critical philosophy, which up to now scholars have recognized almost unanimously. We ask, then: to what extent is it correct to say that Kant was a "geographer of reason" (Cassirer 1981, 45; Hohenegger 2012)? Has the project of a physical geography, a subject that Kant taught for forty years, really influenced, if not informed, the project of a critical philosophy? Do the two disciplines employ the same cartographic process? Indeed, one should distinguish at least two types of maps: physical maps and political maps. While the former seems to be the model of physical geography, the latter seems to be the model of critical philosophy. This appears more clearly if we pay attention to the inverse relationship that the rational and the aesthetic form of spatiality have in the two disciplines. As Kant explains in his lectures, what physical geography aspires to is to give the sensibility, the perception involved in the experience of the world the form of a wholeness. On the contrary, what critical philosophy aspires to is, in some measure, to give the whole a sensible, perceptible form. But when a "whole" is "made visible", nothing natural is represented "on a map", but rather "the provinces of a country [...] which lie to the north, to the west, etc." (AA 7:184).

It is beyond doubt that physical geography and critical philosophy share a methodological principle: both are grounded on an idea, i.e. on a representation of the whole, as they aim to realize a system of cognition. However, we argue that these disciplines differ in two main aspects (besides the obvious one given by the difference in their objects): 1) the cartographic practices with which they draw their maps; 2) the specific function of these maps. As for the first point, the cartography of the world aims to localize objects of nature according to their proper places, while the cartography of the mind arranges the places in which cognitive faculties are then located. Physical geography and critical philosophy do not relate to the spatiality of their systems in the same way: the former conforms its system of cognition to the morphologies of the territories and the habitats of the life forms it observes, as "we are concerned with nature, the earth itself, and those places where things are actually encountered" (AA 9:160); the latter, on the contrary, designs *a priori* its own system and then conforms its objects to it, primarily the cognitive faculties. As for the second point, while the world map given to us by physical geography is a travel map, which is used "to anticipate our future experience in the world" (AA 9:157), the map of the mind given to us by critical philosophy is used to keep us within the boundaries of a plot of land, dissuading us from any aspiration of setting off in search of the absolute, the unconditioned.

At first glance, cartography seems to play no role in critical philosophy, as the entire plan of the system it aims to realize is already contained in an idea of reason. However, since reason does not perceive its own idea clearly – an aspect of the doctrine of the method often neglected by scholars –, we argue that the realization of the system involves a degree of exploration and discovery, which requires the use of a certain kind of map, as a tool that guides inventiveness. This map is recognizable in the schema of the idea, which treats the steps already taken in the setting-up of the system as suggestions for the next one to take, as if cartography were a practice in which the map maps itself.

The paper is structured as follows. In section 2, we will compare the method of physical geography and the method of critical philosophy in order to determine the specific form of spatiality inherent in ideas of pure reason. In section 3, we will follow the concrete application of the method towards the faculty of the understanding, in order to show the role played by cartography in the realization of a scientific system. Lastly, in section 4, we will develop the hypothesis that the map of the cognitive faculties, exemplified by the transcendental topic, displays a device in which the subject, captured in its own reflection, is held back from undertaking the adventures of thought typical of dogmatism.

2   Was Kant Really a Geographer of Human Reason?

The setting-up of a system is the result of an art called "architectonic" (A832/B860), which Kant discusses in the third chapter of the Transcendental Doctrine of Method. This chapter of the first *Critique* has aroused, in the last decade, the interest of scholars (see Ferrarin 2015; Gava 2023; Ypi 2021), who focused in a particular way on the connection that the systematic, scientific unity of cognitions has with the essential, practical ends of humanity. For what concerns the theme of this paper, in this section, we will compare how the form of spatiality inherent to the concept of system is treated in the first *Critique* and in the physical geography lectures, in order to highlight the similarities and differences.

That physical geography relates in a privileged way to space is quite obvious, although Kant still underlines it in his lectures: "Geography concerns phenomena that occur simultaneously in space" (AA 9:160).[1] It is not at all obvious, though, that reason has some kind of relationship with space, and that the idea implies a form of spatiality of some sort, especially if we consider that an idea cannot be adequately exhibited in an intuition. However, it is Kant himself who suggests the presence of this form, when he compares the features of an idea to those of an aggregate, a concept that, in other contexts, he uses to represent the synthesis of the manifold in a spatial intuition (see, for instance, A412/B439).

According to Kant, while the unity that constitutes an aggregate is "heaped together" (*gehäuft*), the unity that constitutes a system is "articulated" (*gegliedert*) (A833/B861). These two different determinations are indicative of two different processes underlying these unities: the growth of an aggregate is quantitative, i.e. it occurs through the increase of the number of parts, which are added to each other externally, while the growth of a system is organic, i.e. its parts, whose number remains unchanged, grow internally. Indeed, Kant compares a system to the body of an animal, "whose growth does not add a limb but rather makes each limb stronger and fitter for its end without any alteration of proportion" (A833/B861). If the size of an aggregate can grow indefinitely in extension, the size of a system has determined boundaries that do not change as its body grows.[2]

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1   Kant gives this definition in order to differentiate geography from history, which narrates the temporal succession of events. On how this differentiation is problematic and not always respected by Kant himself, see Marcuzzi 2011.

2   On the organicity of the system, see Dörflinger 2000, 5-50; Ypi 2021, 57-78. La Rocca (2013) has highlighted how the Kantian concept of system differs from the Wolffian in that the organic connection between the parts is not a logical-deductive connection between premises and conclusions. Baum (2001, 25 ff.), on the other hand, pointed out that Wolff already used the animal body as an analogous of the system. However, for

But the most important characteristic of the form of spatiality inherent to an idea is that it consists in an arrangement of a set of positions given before the things that will occupy them. In an idea of pure reason, "the extent [*Umfang*] of the manifold as well as the position [*Stelle*] of the parts with respect to each other" (A832/B860; transl. mod.)[3] is determined *a priori*. An idea contains the "order of the parts" (A833/B861) even before these parts are actually given. This order is an arrangement in which everything is assigned the place it must occupy. Systematizing does not mean worrying about knowing *where* this or that thing should be put, but rather knowing *what* should be put in this or that place. In realizing a system, "there can be no contingent addition" (A832/B860). One does not proceed by collecting the manifold of parts haphazardly, depending on how one encounters them, and assembling them on the basis of "similarity" (A833/B861). This would be a contingent and arbitrary way of putting together a whole, which would result in a "patchwork" (*Flickwerk*) (AA 24:400; Author's transl.). Instead, one must proceed by selecting the parts on the basis of "affinity" (*Verwandtschaft*), or, better said, kinship, which pertains to the parts as they derive from "a single supreme and inner end" (A833/B861). What differentiates similarity from kinship is that similarity connects the parts together due to particular aspects or properties that individually belong to each one of them, while kinship connects the parts due to the belonging of all to the same idea which has established in advance on their arrangement. Just as the cause at the origin of an animal body, understood as a natural purpose, "deposits [matter] in its appropriate place [*Stelle*]" (AA 5:377), reason prepares the arrangement in which it will place the knowledge to be included in a system.[4]

Like the first *Critique*, physical geography constitutes a treatise on the method. Kant talks about this discipline in terms of a "propaedeutic", although for the "knowledge of the world" (AA 9:157).[5] The aim of physical geography is to carry out a "general survey", thus giving us a "pre-formed conception [*Vorbegriff*] of everything" (AA 9:157). Also, Kant explicitly claims the systematic, i.e. the architectonic character of this discipline: "[It] is not an aggregation but a system; for

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Wolff, an organic body is still something that can be explained in mechanistic terms and is therefore an aggregate, although an infinitely complex one.

3　From here onwards, any translations that have been slightly modified by the Author will be indicated as 'Transl. mod.'.

4　Only if we keep in mind this rational form of spatiality, in which places have ontological priority over the things that occupy them, can the two 'metaphors' of architecture and organism cohere. Various literature has been produced on the two metaphors – especially on that related to architecture (see, among others, Manchester 2003, 2008) –, which, however, has not identified and thematized this form.

5　For the critique of pure reason as a propaedeutic, see A11/B25.

in a system the whole is prior to the parts, while in an aggregation the parts have priority": then, "[w]hat we are doing here is making an architectonic concept for ourselves, which is a concept whereby the manifold parts are derived from the whole" (AA 9:158). In this way, a possible traveller will not prepare themselves to gather partial cognitions on the basis of what they will encounter by chance, but will know in advance where to direct their gaze and what to expect to encounter, since they have a "plan": "Anyone who wants to derive benefit from a journey must make a plan [*Plan*] in advance, and not regard the world merely as an object of the outer sense" (AA 9:157).

Tanca (2012, 15-48) has underlined that Kant's approach to geography is holistic and not chorographic, as Hettner and Hartshorne claimed.[6] The same can be said of critical philosophy. The boundaries of reason cannot be found through an improvised "perception" (A759/B787) of the occasional applications of the cognitive faculties, as in Hume's skeptical empiricism: this would place us on "an indeterminable extended plane" (A762/B790) where the "*facta* of reason" (A761/788) would be following one another like the parts of an aggregate. On the contrary, we must start from an idea, a representation of the whole, that gives reason a spheroidal shape with a determined "volume" (*Inhalt*) and a determined "boundary" (*Begrenzung*) (A762/B790), as for the planet earth.

Having established the commonality of this holistic approach, one wonders whether reason systematizes itself just as it systematizes the natural phenomena of the terrestrial globe. As Tanca has pointed out (2012, 33), properly speaking, physical geography is not a science, but a "description" (*Beschreibung*) (AA 9:160). Now, the kind of description theorized by Kant is undoubtedly different from a merely empirical one, which does not have a "plan" behind it and which simply records what the observer sees from time to time. Indeed, it is a systematic, an architectonic description. Nonetheless, it is not itself a system, an architectonic, since the spatial arrangement of cognitions must conform to the current spatial arrangement of natural phenomena: "As far as the plan of arrangement is concerned, all our knowledge must be allocated to its proper place", but – and this constitutes the differential element –, in physical geography knowledge has to be allotted "according to the time and place where it is actually found" (AA 9:159). In this discipline, that is, "things are considered in terms of the places they occupy on earth" (AA 9:160). Thus, the rational form of spatiality in which physical geography arranges cognitions of the world must perfectly overlap with the aesthetic form of spatiality of the world itself, understood as a whole of phenomena. It is not the same for critical philosophy, in which it is the aesthetic

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6 See also Church 2011.

spatiality acquired by cognitive faculties (in their topographical representation) that must conform and ideally overlap with the rational spatiality determined *a priori* in the idea.

Given this fundamental difference, to what extent is it still appropriate to speak of Kant as a geographer of human reason? Even if we thought of the geographer as someone who does not limit themselves to observing and cataloging according to similarities, but as someone who identifies the proper place of each thing and who considers the *locus natalis* the principle of the kinship between things, such a geographer would still be different from the critical philosopher, whose aim is to draw the map of an engineered space. When instead of localizing things in their proper place, I willfully arrange the places in which I then locate them, I am no longer depicting a territory, but rather reshaping it, and the corresponding map will not be so much a physical map as a political map.

In the next section, we will argue that critical philosophy involves a cartographic practice that is not carried out by the idea towards the world, but by the schema towards the idea. If in the idea of the earth as a sphere lies the *a priori* of physical geography (see Tanca 2012, 44-8), in the sphere as such lies the *a priori* of the idea itself. As a whole, the idea constitutes a world that needs to be mapped to be realized, since it is not fully clear to the same faculty of reason that devises it.

3   Mapping the Idea Through the Schema

In the first *Critique*, we read that "the uncritical dogmatist [...] has not measured the sphere of his understanding and thus has not determined the boundaries of his possible cognition in accordance with principles" (A768/B796). The verb used by Kant, "to measure", *messen*, risks misrepresenting the activity of critical philosophy. Reason does not address the understanding as a natural object that already has defined contours, which only need to be measured. Indeed, a few years before the critical turn, in *Dreams of a Spirit-Seer*, Kant wrote that "the frontiers [*Grenzen*] between folly and understanding are so poorly marked that one can scarcely proceed for long in the one region [*Gebiet*] without occasionally making a little sally into the other" (AA 2:356). From then on, the aim of reason became that of securing these frontiers. The understanding is a terrain that has to be squared through a sort of geotechnical engineering. Its measurement should be thought of as an activity that establishes distances and positions between its parts, as the *mensores* did in ancient Rome, when they had to prepared a military camp.

Thus, reason devises an "idea" (A64-65/B89) of the faculty of the understanding, "by means of which the place [*Stelle*] of each pure concept of the understanding and the completeness of all of them

together can be determined *a priori,* which would otherwise depend upon whim or chance" (A67/B92). But having devised an arrangement of these concepts does not make their effective mutual positioning immediately achievable. Indeed, the idea is somewhat obscure to us and some means to orient ourselves towards it is necessary. This means is provided by the schema, which, having an intrinsic figurativeness, can suggest the direction to take to occupy all the places of the system and thus "fill up [*ausfüllen*] the entire field [*Feld*] of pure understanding" (A64/B89; transl. mod.).

In the Architectonic, Kant claims: "For its execution the idea needs a schema" (A833/B861). The term "execution" gives the impression that we are dealing here with a technical procedure, while in reality a schema of an idea differs from a schema of an intellectual concept precisely due to its non-technical nature. The schema of an intellectual concept is the representation of a "method", of a "general procedure" (A140/B179) through which the imagination synthesizes the manifold of an intuition. As is known, an intellectual schema does not have any figurative character that would lead it to resemble an image, given that it is what "through which and in accordance with which the images first become possible" (A142/B181). On the contrary, a rational schema represents both the "outline" (*Umriß*)[7] of the whole, and "the division of the whole into members" (A833/B861), i.e. the distribution and position of the manifold according to its arrangement. In a literal sense, an "outline" is the result of a drawing and the term in itself is an indication of the cartographic practice with which the schema allows us to envision the idea. What Kant means by "outline" is not a summary concept of the whole, but the drawing of its contours, as when drawing the borders of a country. It is possible to recognize the schema in what Kant calls, in Refl. 4991, *Generalcarte*, where he claims that more than the truth or falsity of cognitions, it is crucial that "they are thought according to the proper method and that they have their proper place in the whole of knowledge, as in the general map [*Generalcarte*]" (AA 18:53; Author's transl.).

At first sight, it seems paradoxical that an idea, which cannot be exhibited, has a schema that resembles a drawing, while a concept, which can and indeed must be exhibited, does not have a schema of this sort. This depends on the role played by the object in the two cases. Since a concept has an object other than itself, the understanding needs a schema that instructs it on how to determine this object through the determination of sensibility. On the contrary, an idea does not have an object other than itself: "It makes a big difference whether something is given to my reason as an object absolutely or is given only as an object in the idea" (A670/B698). The difference

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[7] See also BXXIII.

lies in the fact that the object given in the idea is not really an object, but a *focus imaginarius* to which cognitions must be referred in order to be included in the system. The schema provides a map that leads towards this *focus* lightened up on the horizon by reason. We would say that the schema is an orientation means rather than an "operative means" (Ferrarin 2015, 41), since it cannot really provide "clear directions, orders, commands" (40): at most it can provide hints, suggestions, allusions. Indeed, "in its elaboration the schema [...] seldom corresponds to the idea" (A834/B862).

It seems that the schema can easily draw the outline of the system, i.e. it can circumscribe the "extent" (*Umfang*), the entity, the abstract unity of the system, or, to put in another way, the "essential manifoldness" (A833/B861) of the manifold that is presumed to belong to it.[8] The schema can, on the basis of the synthetic *a priori* judgments, draw the boundaries of reason just as, on the basis of the diameter, one can know the "magnitude" of the "circumference" (*Umfang*) (A759/B787; transl. mod.) of the terrestrial globe. In this respect, schematism plays the role of geodesy, or, as Kant calls it, mathematical geography (AA 9:164). In contrast, a schema cannot so easily show the "order of the parts", the topography of the idea, since the "parts" of the idea "still lie very involuted and are hardly recognizable even under microscopic observation" (A834/B862). The idea is like folded in on itself and so is its schema. Thus, how can the latter serve as a map and guide us in realizing the system if not even a magnifying glass allows us to see how its places are arranged?

We could say that the map unfolds as the territory is traversed. We figure out how to realize the system in the same process as we try to realize it. Since the idea is "lying hidden within us", the articulation of the system appears "only after we have long collected relevant cognitions haphazardly like building materials and worked through them technically" (A834-835/B862-863), i.e. with a high degree of improvisation and constantly challenging contingency, making adjustments as necessary. But the kinship of the parts comes to our aid. Each of them carries, so to speak, the aura of the whole to which it belongs, so that we can guess the direction to take by looking at the path that has already been traversed. Kant claims: "The unity of the end, to which all parts are related and in the idea of which they are also related to each other, allows the absence of any part to be noticed in our knowledge of the rest" (A832/B860). The occupied places indicate those still to be filled. Another passage that clarifies this strategy is found in § 10 of the Analytic of Concepts. Kant is discussing here the possibility of providing a definition for each category, thus compiling a sort of "lexicon" (A83/B109). In his opinion,

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[8] For the connection between the *Umriß* and the *Umfang*, see also AA 16:537.

this work goes beyond the main purpose of the *Critique*. Nonetheless, he claims:

> The headings [*Fächer*] already exist; it is merely necessary to fill them out, and a systematic topic, such as the present one, will make it easy not to miss the place [*Stelle*] where every concept properly belongs and at the same time will make it easy to notice any that is still empty. (A83/B109)

Knowledge of the parts contains indications on the missing ones, just as the filled places contain indications on those still vacant. It is as if just by inserting one piece the place in which to insert the next appears: "There are still gaps [*Lücken*] and empty compartments [*Fächer*], but there is no harm" (AA 24.1, 400; Author's transl.).[9] Only while we are assembling the system, we can, at a certain point, "glimpse" the idea and "draft" (*entwerfen*) (A834/863; transl. mod.) its articulation. A draft, an *Entwurf*, is different from an outline, an *Umriß*, since it does not concern the contours of the territory, but its morphology, its internal conformation.

In sum, the figurativeness of the schema appears from these three elements: the outline, the draft, the topography. All three contribute to "mak[ing] visible" the "whole" (AA 7:184), to translating a rational form of spatiality into an aesthetic one.

As we have seen, physical geography prescribes not to travel without a plan. However, in the journey that leads first to the draft of the system and then to its full mapping, a degree of uncertainty cannot be completely eliminated. Indeed, in order to localize the place for each concept, Kant had to "travel" (*durchreisen*) and to "inspect" (*durchmessen*) the "land of pure understanding" (A235/B294). The juxtaposition of these two verbs suggests that the travel was not planned in every part, but that it was to a certain extent an exploratory travel, precisely to the extent that the idea of the faculty of the understanding was an obscure idea that had to be mapped step by step.

4 Seeing So As Not To *schwärmen*

The map is not only a means to develop the idea in each of its parts: it can be considered as one of the purposes of this same development. Critical philosophy, using a geo-spatial terminology, aims to make the idea visible, so that one can have a plastic representation

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9 Zöller, commenting on this passage, significantly says that the empty places are "sichtbar" (2001, 62), visible, and rightly observes that they indicate the missing parts of the whole.

of the cognitive faculties and their respective territorial boundaries: "Now our critique must, to be sure, lay before us [*vor Augen legen*] a complete enumeration of all the ancestral concepts that comprise the pure cognition in question [the human cognition *a priori*]" (A13/B27). Putting the system of the faculties before our eyes as it were drawn on a map: this is what critical philosophy "must" do. But, one wonders, for what purpose?

If we go back to the physical geography lectures, we can see that this discipline encourages travel, or at least reading travel reports, as it is a tool for expanding our knowledge of the world and making ourselves *Weltbürger*: "By travel we extend our knowledge of the external world, which is, however, of little use unless one has previously had a suitable preparatory exercise" (AA 9:158). The study of physical geography, as well as the study of anthropology, constitutes the preparation that Kant speaks of here. With an idea of the world we can transform the natural perception of things into a process of schematization that localizes them according to a rational order: "We are then in a position to allocate to every experience its class and its place within the whole" (AA 9:158). The simplest utility that physical geography has is, for instance, that of being indispensable for identifying where the events reported in the newspapers occur:

> For many people, newspaper reports are a matter of complete indifference. The reason for this, however, is that they are not able to situate the news in its proper context. They have no conception of the land, the sea or the surface of the earth as a whole. (AA 9:163)[10]

In critical philosophy, as we have seen, it is not a question of converting the aesthetic form of spatiality into a rational one, but of converting the rational form of spatiality into an aesthetic one. But this has the opposite of travelling as its purpose. The map of the system of cognitive faculties aims at dissuading thought from any kind of adventurous journey, or, to put it in more philosophical terms, to divert reason from the transcendental illusions that dazzle it. Kant describes the faculty of the understanding, the "land of truth" (A235/B294), as an island

> surrounded by a broad and stormy ocean, the true seat of illusion, where many a fog bank and rapidly melting iceberg pretend to be new lands and, ceaselessly deceiving with empty hopes the voyager looking around for new discoveries, entwine him in adventures

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10 On the socio-cultural, pragmatic value that Kant attributes to physical geography, see Morawski 2018, 135-40.

from which he can never escape and yet also never bring to an end. (A236/B295)

Ferrini (2014, 168-83) highlighted how at the origin of this passage of the first *Critique* there is a maritime culture of which Kant was well aware. The primary source appears to be J. Georg Forster, who reported in his travel diary (see Forster 1777) the difficulties in sighting Cape Circumcision, a land mass spotted for the first time on 1st January 1739, by Bouvet de Lozier. An aspect of this passage that scholars have not sufficiently highlighted is that the danger in setting sail from the shores of the understanding lies in the fact that the space external to it is a fluid space that would keep us in an endless journey, since it gives rise, with the complicity of the imagination, to the illusion of non-existent lands.[11] In his lectures, Kant defines water as an "immeasurable space" and claims that it "has actually no shape" (AA 9:190; transl. mod.).[12] In this kind of environment, looking around in search of new discoveries, which Kant expresses with the verb *herumschwärmen*, is equivalent, in a philosophical perspective, to *schwärmen*, an almost untranslatable expression which brings together in its semantic spectrum religious fanaticism, madness, dogmatism, and, for what concerns space, the disoriented movement of a swarm. Thus, having the map of the system of the cognitive faculties before our eyes, especially the map of the understanding, has no other function than to keep our feet firmly on the safe ground of the possible experience, to remind us of the well-being that this piece of land assures us and how we should be content with it. Kant claims, dissuasively, that, before venturing into the ocean of illusions,

> it will be useful first to cast yet another glance at the map of the land that we would now leave, and to ask, first, whether we could not be satisfied with what it contains, or even must be satisfied with it out of necessity. (A236/ B295)

Of course, the latter is the conclusion that he would not hesitate to draw.

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11 In the Vollmer edition of Kant's lectures on physical geography, we can read a passage that recalls the description of the "seat of illusion" made in the first *Critique*: "At least he [i.e. the onlooker] sees mountains suddenly arise, valleys curve, gulfs widen, grottos take shape, towers rise high, and what the eye is only used to seeing on solid land, these strange plays of nature represent to it with an unheard-of boldness. [...] In short, what only the most fiery and daring, but not ruleless, imagination could expect from a fairy land is realized here, where only the vagueness, which seems to have set up his kingdom here, leads a few mortals for a short moment" (Vollmer 1801, 16-17; Author's transl.).

12 Interestingly, Kant concludes by saying: "rather it [i.e. water] gives shape to the land" (AA 9:190). This sentence could inspire some speculations on the relationship between truth and illusion, which, however, we do not have the opportunity to carry out here.

If the nomad, i.e. the skeptical empiricist, is the figure from which the critical philosopher must differentiate himself, as far as the method is concerned, the adventurer, i.e. the dogmatist, is the antagonist to whom the critical philosopher owes his very existence. The adventurer is driven by the desire for geographical discoveries, just as the dogmatist is driven by the desire for metaphysical discoveries, which Kant significantly calls a "schwärmende Wißbegierde" (A10). The inclination for adventuring is for Kant a congenital and incurable human disease that must be remedied. The essence of the critical project can be captured in this *Reflexion* dated 1777: "The critique of pure reason is a precaution against a malady of reason that has its germ in our nature. It is the opposite of the inclination that binds us to our fatherland (homesickness). A longing [*Sehnsucht*] to lose ourselves outside our circle and to aim at other worlds" (AA 18:79-80; Author's transl.). This fragment helps us to clarify what it really means to set sail from the island of the understanding. The journey that would be undertaken is very different from that envisaged by physical geography: it is a journey towards *another world*, towards a place which, however, despite what the image of the stormy and icy ocean might lead one to believe, is not exactly unmappable, since Kant, indeed, also puts the transcendental, illusory ideas of the uncritical reason into a systematic form, like many maps of as many Never Lands.[13] In *Dreams of a Spirit-Seer*, these lands are called "imaginary worlds" (*Gedankenwelten*), and the philosophers who designed them "those who build castles in the sky" (*Luftbaumeister*) (AA 2:342). This agrees with the assertion that reason is "by nature architectonic" (A474/B502), although before critique it projected nothing but mirages.

That the critique has a disciplinary, negative nature is certainly nothing new. However, one wonders how Kant thought he could concretize this non-negligible aspect of his doctrine of method. Is there something in the *Critique of Pure Reason* that exceeds the media support of writing and that allows the device to materialize beyond the text? In the last paragraphs of this section we will presents some considerations in order to develop the hypothesis that the critique materializes its precautional device in the "transcendental topic" and that it exploits the inherent perceptibility of maps to cut short any form of desire for an Elsewhere, turning this latter into a Nowhere.

At the hearth of the first *Critique*, the "transcendental topic" is presented as the "doctrine that would thoroughly protect against false pretences of the pure understanding [driven by an uncritical reason] and illusion arising therefrom..." (A269/B324). If knowledge is obtained through judgement, which compares different representations,

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13   On the systematicity of transcendental ideas see König 2001, 46-7.

it is essential for the subject to know how to identify *where* this comparison is taking place, whether in sensibility or in understanding: "The first question prior to all further treatment of our representations is this: In which cognitive faculty do they belong together?" (A260/B316). Kant calls sensibility and understanding "transcendental places" (A269/B324) and the action of locating representations in one place or another "transcendental reflection" (A261/B317). The transcendental reflection is "a determination of the place where the representations of the things that are compared belong, thus of whether they are thought by the pure understanding or given in appearance by sensibility" (A269/B325). The lack of reflection – or, we could say, the blindness of the subject – and a consequent misplacement of the representations produce the so called "amphiboly". It can happen, thus, as in cosmological ideas, that an object that is "merely in your brain", such as the absolute, the unconditioned, is transposed externally and subjected to the conditions of space and time, giving rise to an "amphiboly that would make your idea into a putative representation of something given empirically…" (A484/B512).

Thus, the transcendental topic gives appearance, phenomenality to a device that wards off the illusions of reason through the localization of representations in one of the two *topoi* of the sensibility and the understanding. How does this device work? How can visualizing the mind on a map have any effect on the processes in which the mind itself is engaged? Transcendental illusion seems to be somewhat an optical problem, as it involves a sort of deterritorialization of the eyes. In the *Critique of the Power of Judgment*, Kant defines the *Schwärmerei* as "a delusion of being able to *see* something beyond all bounds of sensibility", or, to put it in another way, "to dream in accordance with principles (to rave with reason)" (AA 5:275). Furthermore, in *Dreams of a Spirit-Seer*, Kant calls "optical deception" (*optische Betrug*) the failed location of concepts in the "true positions […] they occupy relatively to the cognitive faculty of human nature" (AA 2:349). These passages lead us to think of the systematic organization of cognitive faculties as the assembly of a device which has the aim of correcting sight, of discerning the visible from the nonvisible, of establishing what is right and what is not right to see, preventing the harmful alliance of understanding, reason, and imagination (the *Schwärmerei*) from reaching sensibility and dragging it beyond itself towards the supersensible. Now, to get to our questions, it seems that this vision corrector, this orthoptic device, only works if it is itself subjected to vision. Territorializing the eyes on the eyes, making them the overseers of themselves: this could be the role of the transcendental topic, which is a map that serves not so much to see where things are, but to monitor where they are happening, after giving them a place to happen.

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Ryle's Conceptual Cartography
A Brief Introduction

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Abstract Conceptual Cartography is a style of philosophical investigation, named and championed by Gilbert Ryle and somewhat akin to, but independent from, Wittgenstein's examination of 'language games' in *Philosophical Investigations*. This study examines the impetus for this method which includes difficulties with the traditional approaches to conceptual analysis initiated by Plato's Socrates and encouraged by later work in formal logic.

Keywords Ryle. Conceptual analysis. Conceptual cartography. Systematic ambiguity. Category-mistake. Logic. Philosophy.

Summary 1 Conceptual Cartography. – 2 The Problem With Traditional Conceptual Analysis. – 3 Systematic Ambiguity. – 4 Category Mistakes. – 5 Conceptual Analysis vs Conceptual Cartography. – 6 Some Examples. – 7 Conclusion.

1   Conceptual Cartography

Gilbert Ryle promoted a style of philosophical enquiry he called "Conceptual Cartography" in contrast with the traditional styles of decompositional and logical analysis. In comparing conceptual clarification with geographical cartography, he compares what a competent speaker of language is to a philosopher with what an ordinary villager is to a mapmaker.

A local villager knows his way by wont and without reflection to the village church, to the town hall, to the shops and back home again. He knows every house, stream, road, and alleyway from the personal point of view of one who lives there. Asking him to draw or to consult a map of his village, however, may give him pause. For this way of thinking of his village may be new and strange since it employs compass bearings and units of measurement. What was first understood in the personal terms of local snapshots now has to be considered in the completely general terms the cartographer. Whereas the villager knows from the point of view of someone who lives in it the whereabouts of the places in the village, in the sense that he could lead a stranger from one place to another, this is a different skill from one requiring the villager to tell the stranger, in perfectly general terms, how to get to any of the places, or indeed, how to understand these places in relation to those of other villages.

St Augustine, in the morning, could operate with ideas of temporal duration when he wondered how long the battle lasted; "he could follow remarks containing tensed verbs and specifications of dates, hours and epochs, and yet, so to speak, in the afternoon he could not answer questions about the concept of Time" (Ryle 2009c, 451-2). Why? The answer Ryle suggests is that the morning and afternoon tasks belong to different levels of discourse; just as the know-how of the villager is of a lower order from the knowledge of the mapmaker. "The afternoon task requires reconsidering, in a special way, features of what had been done, perfectly efficiently perhaps, but still naïvely, in the morning" (438).

2   The Problem With Traditional Conceptual Analysis

Ryle (2009c, VII) tells us that by the time he became a don in the 1920s, philosophers had begun to give up the view that their subject-matter was ideas in the mind and instead, hankering for a subject matter that was not in competition with the sciences, they succumbed to the "regrettable temptation to look for Objects that were neither mental nor material":

> Platonic Forms, Propositions, Intentional Objects, Logical Objects... [and even] Sense Data were recruited to appease our professional hankerings to have a subject matter of our own. (Ryle 2009c, VII)

Propositions, or the content of judgments, are expressed in sentences. On the view Ryle rejects, these propositions are what the sentences name: the entities to which they refer. And the proposition-factors – including particulars, qualities, relations, and concepts – are also considered to refer to or name objects that subsist in a Platonic heaven or, as Frege (1956, 302) suggests, "a third realm must be recognized".

The traditional method of conceptual analysis, illustrated by Plato in the *Socratic Dialogues* and later by G.E. Moore, and still alive today, is to search for the conditions that are both necessary and sufficient for the application of the concept-term. The problem with this style of decompositional analysis is that it rarely, if ever, works, since there always seem to be exceptions. This problem, as we shall see, will also affect logical analyses.

3   Systematic Ambiguity

Why is it so difficult to provide such an analysis? It is because of Ryle calls the 'systematic ambiguity', of, in particular, common general terms that we categorize as 'concepts'. Unlike obvious 'pun' words, such as 'bank', which can be used in completely different senses (a financial institution or the side of a river), systematically ambiguous ones may take on more subtle 'inflections of meanings' or 'elasticities of significance' as they occur in various discourses. Ryle pointed out that most, if not all expressions of natural language have these elasticities. Wittgenstein (1953, § 108) acknowledges in his later work that "[w]e see that what we call 'sentence' and 'language' has not the formal unity that I imagined but is the family of structures more or less related to one another". This network can be revealed when we consider the different implication or logical threads of a sentence as it is employed on various occasions. These logical threads, as Ryle explains, include what would count as evidence, justification or warrant; as implied or permitted; as contrary, contradictory or otherwise inconsistent or incompatible; as incurred commitments and liabilities; as acceptable uptakes or reactions; and so on. Mentioning any one of these is among the ways we spell out what we mean or what we are trying to say. It is for this reason that an answer to the questions "What is your evidence?", "What are your grounds?", "What is your point?", or even "Give me an example!" may help us understand what is said. In short, given the elasticities of significance in any

given expression, to understand the force of the utterance and its logical ties will often enable us to glean the way its constituent expressions are applied. To better appreciate this, let us consider the following example.

> If you show me a photograph of a woman you call your mother but at the same time claim that she is not a member of your family I may not know what to think until I learn what you mean by 'mother' and 'family': how you are using or applying these expressions in the circumstances.

As we come to understand English, we learn that (in what I shall call) the metaphorical 'folder' labelled 'mother' we tend to include, for example, females who have given birth. We may also include females who have raised their offspring. Often the different considerations that would elaborate, explain, or justify our use of the label 'mother' coincide, but sometimes they do not. On occasion it is important to mark the differences, so if the context does not make it clear, we might use special labels to specify that the subfolder we have in mind is 'birth mother' or 'adoptive mother'. Several decades ago, a separate folder, 'nurse mother' was employed more frequently than it is today. Of course, there are other items collected under the folder 'mother' besides females who have given birth; extending, as a form of address, to very old women, to the head of a female religious community, to institutions or organizations which have 'begotten' other ones; to an extreme example or large specimen of something. The French equivalent, *la mère*, is sometimes used as a synonym for the 'starter' (or 'the mother yeast') used in the production of vinegar and bread. And so on and so forth.[1]

The folder family overlaps in certain places with that of mother – but given the different inflections and thus subfolders of mother and family we may need some time to reflect in order to spell out how. My four cats and one dog are members of my family though many animal owners do not consider their (e.g., working) horses, dogs, sheep, etc. as pets and thus in an intimate way. This is not just a sentimental claim: it is illuminative to those who might otherwise be bewildered by my lifestyle choices. However, though I used to take my sourdough starter on holiday with me (because it needed regular feeding)

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1 Grammatical variants – adverbs, adjectives, or verbs – such as 'motherly', 'mother-like', or 'to mother' will have overlapping occupations with (that is some affinities with and some differences from) those items collected under 'mother'. Indeed, in many philosophically interesting cases, it will be the applications of verbal, adjectival, or adverbial forms of an expression that will determine how best to understand what is subsumed by the abstract noun. This is exemplified by the present study of the notion of meaning.

even if there were any sense in regarding it as part of my family this would have nothing to do with its being *la mère*.[2]

On one central, established use of the expressions 'mother' and 'family', to be a mother is to be a member of a family. Your decision to use 'family' so as to exclude your mother when you showed me her photo, though perhaps not immediately clear, is upon reflection understandable: within the metaphorical folder labelled 'family' are included people who are related to one another and who, because of this, are to be treated with a special loyalty or intimacy. You could well argue that your relation to your mother does not warrant this intimacy but your relation to your adoptive parents or your pets does, and it is this particular inflection which you are bringing out in your choice not to use the term for your mother.

It was suggested that in the docket labelled 'mother' we may include females who raise their offspring as well as those who have given birth. Because the expression 'raise their offspring' also has elasticities of significance, especially as modern, reconstituted families become prevalent, we find the folder labelled 'mother' may also contain 'stepmother', though this expression itself admits of inflections arising from its use, for example, in fairy tales. It would be understandable if a child were to stick with 'mother' to describe a stepmother to whom she feels close, especially if the birth mother is not around. By contrast, because of the suggestion of age difference and the idea of an extended family unit, I would not dream of calling myself a stepmother to my husband's three adult, middle-aged, male children (and nor would they). 'Given birth' can also be stretched: those who are aptly described as having done so may include, for example, a genetic or non-genetic surrogate – also called the gestational mother. Although presently the egg donor is deemed to be the biological mother, it would not be difficult to envisage how this category may undergo further subdivisions as different kinds of procedures for facilitating births or avoiding congenital disorders are invented (for example, when there are two egg donors). In 2023 it was announced that human trials of artificial wombs are about to start for babies born critically premature.[3] Might this one day be extended for the full period of gestation, giving sense to the notion of an artificial mother? Will this category itself divide as robots begin to play

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2 Extended uses, we may agree, can be set aside while we concentrate on those that form the central core. In the discussion that follows, we shall quickly set aside several, more peripheral applications of 'mother' in order to concentrate on core, more literal uses as opposed to metaphorical or figurative ones. But the contrast between what is literal and what is figurative itself tends to blur as the context changes; and, as we shall see, the number of applications even within an arguably literal use will be innumerable.

3 Cf. https://www.nature.com/articles/d41586-023-02901-1.

a nurturing role? This will depend, of course, on the need we have to make use of such notions.

Often what we mean, if we are to be understood, is settled by factors that override any scope or latitude we might have for drawing boundaries on our part. If you, who do not consider your mother to be family, were asked by your doctor if anyone in your family has a history of heart disease, you would be expected to consider the question in relation to the same woman you showed me in the photo, whether or not you choose to use the term 'family' in such a way as to exclude her. If the doctor asks of a child born to a surrogate parent whether she has such a history, presumably the answer here – how 'mother' is to be understood – would be the egg donor or the biological mother. If the doctor were interested instead in, say, diseases that can be transmitted from the womb to the baby this would arguably require that 'mother' be applied to the surrogate. These occasions, in other words, would call for different uses or applications. When the context is not clear and the relevant applications point in different directions the question, 'Is this woman your mother?', might invite the response, "Well, she is and she isn't" until it is clear what is to count as your mother in the circumstances.

This example illustrates the considerations that govern, have governed, and may in the future govern what might be considered core or literal, as opposed to peripheral or figurative, applications of the expression 'mother' and various subdivisions of this general category. There is no reason, however, to think that I have picked a special case. For the illustration of 'mother' illustrates a feature of most, if not all, expressions of any given natural language.

For example, consider what mathematicians count as random number sequences. One criterion – let us call it an 'epistemic' one – focuses on the unpredictability of successive numbers in relation to the preceding ones. Or, exploring how to achieve unpredictability, they might turn to a functional criterion through methods such as rolling a fair die. Or, when deciding whether to judge a sequence as random they might divert to intrinsic criteria, focussing on the types of patterns or types of numbers within any particular sequence. When these criteria clash and priority is given to the epistemic criterion – compromising the functional and intrinsic methods – the result is known as a 'pseudorandom' sequence. When conflicts persist, it is not uncommon to hear mathematicians bemoan that the concept of randomness is too elusive to grasp fully. This suggests that there is a definition of 'random number' to be found: it just has not yet been discovered. A more reasonable approach, following Ryle, would require recognizing the intricate and evolving considerations involved in deeming a number or sequence random, and perhaps even making

choices as what is to count in the circumstances as a random sequence based on specific needs.[4]

Or, as another example, consider the definition of 'planet' agreed upon by the International Astronomical Union (IAU) in 2006,[5]

> A planet is a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, and (c) has cleared the neighbourhood around its orbit.

This definition, to the chagrin of many, downgraded Pluto and upgraded Ceres. Just as it is common to identify tomatoes as vegetables (instead of fruits) in everyday contexts, so do many insist on identifying the original nine bodies circling the Earth as what will count as a planet.

This is also the case for the proprietary concepts of analytic philosophy: Consider 'knowledge', 'justice' or 'beauty', like those of 'time', 'space', 'probable', 'about', 'the same as', 'understanding', 'meaning', 'thought', 'belief', 'right', and 'good', for example, each of which have applications in which their inference-ties will differ. This is especially true for expressions that feature in multiple and overlapping areas of discourse. Reading through discussions in philosophy, we are likely to discover that this is also true of the semi-technical expressions adapted for philosophical purposes, such as 'real', 'idea', 'representation', 'analytic', 'necessary', 'possible', 'entail', 'valid', 'argument', 'property', 'proposition', 'concept', and so on, as these have been and continue to be used and debated in philosophical discussion. Unless the context makes it clear, what a philosopher is *counting* as satisfying any one of these expressions on the occasion of its employment is often necessary for understanding what she means.[6]

4 Category Mistakes

It is this feature of language – the systematic ambiguity of most, if not all of our expressions – that Ryle focuses upon when considering philosophical puzzles in *The Concept of Mind* and in *Dilemmas*.

His method for dissolving this typical philosophical puzzle is to identify 'category-mistakes' or 'type-errors' that have been committed. He shows that there has been this particular type of philosophical

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[4] Cf. the radio broadcast by Melvyn Bragg "In our Time: Random and Pseudorandom". https://www.bbc.co.uk/programmes/b00x9xjb.

[5] Cf. https://science.nasa.gov/solar-system/planets/what-is-a-planet/.

[6] For an extended discussion of the concept of knowledge, see Tanney 2018, in particular Chapter 3 (51-68).

equivocation by untying the logical threads of the key expressions – or, generalised to include what may be expressed in different languages, the key concepts – to show how the error should or could have been avoided. Such category or type-errors tend to occur when, in the same argument, a concept-expression having certain implications, presuppositions, and other logical ties is employed at one moment, and then the same concept-expression is employed with different logical ties at another. On this understanding, the diagnosis of a category mistake is tantamount to a warning of a potentially logically fallacious equivocation.

I have argued (Tanney forthcoming) against others (Strawson 1970; Palmer 2009; Dancy 2014; Kremer forthcoming) that Ryle, in his early work, did not have a 'doctrine of categories' or think that some theoretical account could be given of the notions of category, of category-difference, or category mistake. Indeed, I suggest that he clarifies, rather than changes, his position in *Dilemmas* when he complains that Aristotle's followers 'ossified' their master's teaching by treating his list of categories

> as providing the pigeon-holes in one or other of which there could and should be lodged every term used or usable in technical or untechnical discourse. Every concept must be either of Category I or of Category II or... of Category X. Even in our own day there exist thinkers who, so far from finding this supply of pigeonholes intolerably exiguous, find it gratuitously lavish; and are prepared to say of any concept presented to them' Is it a Quality? If not, then it must be a Relation. (1953, 10)

In opposition to philosophers who claim that there are a finite number of categories (in Aristotle's case there are ten, including substance, quantity, quality, and relations), Ryle launches the challenge: "In which of your two or ten pigeon-holes will you lodge the following six terms, drawn pretty randomly from the glossary of Contract Bridge alone, namely 'singleton', 'trump', 'vulnerable", 'slam', 'finesse' and 'revoke'?" (10).

He reminds us (rather ironically) that the languages of law, physics, theology, and musical criticism are not any poorer than that of Bridge. *Contra* Aristotle, there is not a finite number, let alone a mere six or ten distinct logical domains or *métiers* available for the terms or concepts we use in either everyday or specialized discussions. There are countless ones, as well as indefinitely many dimensions of these distinctions. The characterization of categories or types will depend – to use a metaphor of Wittgenstein's and a more literal example of Ryle's – the game being played.

Not only, for example, will the six Bridge terms, 'singleton', 'trump', 'vulnerable', 'slam', 'finesse' and 'revoke', fail to go into any

of Aristotle's ten pigeon-holes since, "though all alike belong to the specialist lingo of a single card-game, not one of them is, in an enlarged sense of 'category', of the same category with any of the other five…" (10). Furthermore,

> [w]e can ask whether a card is a diamond or a spade or a club or a heart; but not whether a card is a singleton or a trump; not whether a game ended in a slam or in a revoke; not whether a pair of players is vulnerable or a finesse. None of the terms is a co-member of an either-or set with any of the others. The same thing is true of most though naturally not of all of the terms that one might pick at random out of the glossaries of financiers, ecologists, surgeons, garage-mechanics and legislators. (10-11)

It follows from this, Ryle continues, that both the propositions that encapsulate such concepts and the inquiries they aim to address cannot automatically be categorized into a predefined set of logical types or classifications.

> A logician, however acute, who does not know the game of Bridge, cannot by simple inspection find out what is and what is not implied by the statement 'North has revoked'. (11)

The point of searching for category-mistakes in philosophical arguments that champion one position or 'ism' over another is, I suggest, to give a first indication that there is not a genuine puzzle:

> Sometimes thinkers are at loggerheads with one another, not because their propositions do conflict, but because their authors fancy that they conflict. They suppose themselves to be giving, at least by indirect implication, rival answers to the same questions, when this is not really the case. They are then talking at cross-purposes with one another. It can be convenient to characterize these cross-purposes by saying that the two sides are, at certain points, hinging their arguments upon concepts of different categories, though they suppose themselves to be hinging them upon different concepts of the same category, or vice versa. But it is not more than convenient. It still remains to be shown that the discrepancies are discrepancies of this general kind, and this can be done only by showing in detail how the *métiers* in ratiocination of the concepts under pressure are more dissimilar from one another or less dissimilar from one another than the contestants had unwittingly supposed. (11)

It is the job of conceptual cartography to set the matter straight.

5 Conceptual Analysis vs Conceptual Cartography

The existence of the pervasive logical flexibility of our expressions shatters a number of presuppositions that are key to the methods of analytic philosophy. Not only, as we have seen, does it frustrate conceptual analysis in the Socratic-Moorean style because there can be no necessary and sufficient conditions for the application of a concept if it is subject to indefinitely many circumstance-dependent variations. It also puts into question what Wittgenstein called the 'preconceived idea of crystalline purity' of language: a requirement of formal logic. Instead, Wittgenstein (1953, §108) suggests that

> what we call 'sentence' and 'language' has not the formal unity that I imagined, but is the family of structures more or less related to one another. – But what becomes of logic now? Its rigor seems to be giving way here. – But in that case doesn't logic altogether disappear? – For how can it lose its rigor? Of course not by our bargaining any of its rigor out of it. – The preconceived idea of crystalline purity can only be removed by turning our whole examination around. (One might say: the axis of reference of our examination must be rotated, but about the fixed point of our real need).

The philosophy of logic speaks of sentences and words in exactly the sense in which we speak of them in ordinary life when we say e.g. "Here is a Chinese sentence", or "No, that only looks like writing; it is actually just an ornament" and so on.

We are talking about the spatial and temporal phenomenon of language, not about some non-spatial, non-temporal phantasm. (Note in margin: only it is possible to be interested in a phenomenon in a variety of ways). But we talk about it as we do about the pieces in chess when we are stating the rules of the game, not describing their physical properties.

The question "What is a word really?" is analogous to "What is a piece in chess?"

The systematic tendency of our expressions to take on different inflections of significance requires us to reject the Plato-inspired idea that concepts or proposition-factors are logical objects that exist 'in isolated splendour'. It is one thing – and, indeed, a great improvement – to deny that concepts are ideas in the mind. Their autonomy from psychology, however, arises not from their self-sufficiency as third-realm, independent, subsistent and never-changing Objects: on the contrary; our linguistic practices, and the forms of life in which they figure, are their genesis.

The analogy of philosophy with cartography is useful to remind us that philosophers are not, in thinking about Pleasure for example, 'staring hard' at an entity or Essence designated by these abstract

nouns: instead, they are considering "what we are asserting or denying *in concreto* when we say that someone did or did not enjoy the concert; or that someone enjoys this piece of music more than that piece" (2009a, 192). Unlike the abstract noun 'Pleasure', the corresponding live verb 'enjoy' is making specific contributions to the sense of the sentence. Thus, to say anything enlightening about Pleasure we must first examine expressions – in their various employments – operating with this concept by embodying the relevant verbs, adjectives, and so on. Without the morning task there could be no afternoon task. Pace the impression Moore and Russell tended to give, analysing concepts "cannot consist just in acts of contemplating a rarefied object, withdrawn, like a coin in a museum, from its native commercial transactions" (192).

As Ryle explains, we, in the midst of our morning task, are like the villager with respect to our employment of words and phrases. Knowledge by wont of the use of expressions and of concrete ideas is something everybody learns in the course of growing up speaking and understanding a language: "Ideas like spaniel, dog, ache, thunder in their original use are instances of concrete concepts [...] their 'logical geography' is taught by one's daily walks" (207). But just as people often know their way about a village, say, without necessarily being able to describe the distances or directions between places within it or its relation to other villages, so too do people often know how to operate with ordinary, non-technical, and even semi-technical and technical expressions as well as with 'concrete' ideas without being able to codify the rules, permissions, or sanctions that govern their operations. "This workaday knowledge is knowledge but it is knowledge without system and without checks. It is knowledge by wont and not knowledge by rules" (201). The philosopher's task, by contrast, is analogous to that of the mapmaker. It is a higher-order task, for it charts – or operates upon – the concepts, especially the more abstract ones, which are operated with by expressions embodying the live verbs, adjectives, adverbs, etc. doing their particular, circumstance-dependent, morning-task work.

The analogy with cartography is useful insofar as it reminds us of the importance of a synoptic view that surveys more than, say, just one building. For philosophical problems do not arise from difficulties with single concepts. They arise, instead "as the traffic-policeman's problems arise, when crowds of conceptual vehicles, of different sorts and moving indifferent directions meet at some conceptual cross-roads" (325) (Hence the role of the category-mistake cum traffic-cop). Thus, the goal in philosophy, as in cartography, is not to chart the appearance of single ideas, but rather "to determine the cross-bearings of all of a galaxy of ideas belonging to the same or contiguous fields" (201-2).

6   Some Examples

In *The Concept of Mind* (2009b) Ryle examines both the ontological and epistemological consequences of Descartes's view that the mind and body are distinct substances that interact. In contemporary philosophy, Descartes's mind-body dualism is often the starting point for discussions in the philosophy of mind. This expands into debates between competing philosophical theories, such as type- and token-physicalism, mentalism, eliminativism, fictionalism and more complex forms of dualism.

Consider, as a brief example of Ryle's, the question: "How can one seem to see a dragon or hear a tune if there is not a dragon to be seen or a tune to be heard?". Before beginning the search for a psychological representative of that which is seen or heard, we should examine carefully how the expression, say, "she fancied or she imagined she saw a dragon" is employed. We have no trouble understanding it: we know the kind of circumstances in which it is appropriate or not; in which it would be accepted or challenged, and none of this requires theoretical knowledge or as Ryle says, knowledge of the "wires and pulleys" kind. Understanding the nature of imagination involves – as Wittgenstein (1953, § 370) reminds us – understanding how the word 'imagination' is used. This in turn, as I see it, requires understanding the grounds and backing we give and accept for making claims such as "she fancied she saw a dragon". In reminding ourselves how we defend these claims, we should come to see that our initial question is not one that a theory of mental mechanisms is required to answer. (Nor, we should add, one that requires a theory of mental mechanisms augmented by a theory about the mechanisms' alleged physical realisers). The way out of the puzzle is to construe descriptions of people as imagining that they see or hear or do things "without falling back on the idioms in which we talk of seeing horse-races, hearing concerts, or committing murders" (Ryle 2009b, 228). To say someone has committed a stage-murder or a mock-murder "is to say, not that a certain mild or faint murder has been committed, but that no sort of murder has been committed" (228), and similarly, to say that someone imagines seeing a dragon is not to say that she sees a dragon-image or, we might add, that she has a mental representation of a dragon (which counts as non-veridical because it is not the causal effect of a real dragon). It is rather to say that she "does not see a dragon or anything dragon-like at all" (228). When we speculate that when one fancies she hears a tune she really hears a mental tune we are failing to recognize that 'seemings' concepts are at least partly designed to act as factual disclaimers and not to suggest the existence of things. It is worth emphasizing again for today's readers that not only do such concepts *not* suggest the existence of

shadowing things: nor do they suggest the existence of more palatable 'natural' proxies for the ghostly ones.

Ryle's work in *The Concept of Mind* also involves, to give another example, what he considers a mistake that is committed by philosophers of mind who attempt to distinguish certain moves or performances that deserve credit (e.g., 'achievements') from other performances that, though perceptually similar, do not. The mistake involves appending on to the credit-deserving performance an extra, non-perceptual feature. Ryle diagnoses that error as a result of mis-assimilating expressions that employ mental concepts as active verbs, such as 'to think', 'to reason', or 'to deliberate' – which signal occurrences – with other expressions that employ the adjectival or adverbial forms to qualify actions, such as 'thoughtful', 'deliberate', and 'reasonable' – which do not. In the latter cases, where there are no recognizable happenings for the words to symbolize, it is supposed, mistakenly, that there are hidden ones, such as for example a mental mechanism that is thought to constitute the act of thinking, deliberation, or reasonableness.

Later, in *Dilemmas* (1953, 1), Ryle considers quarrels between

lines of thought, which are not rival solutions of the same problem, but rather solutions or would-be solutions of different problems, and which, none the less, seem to be irreconcilable with one another. A thinker who adopts one of them seems to be logically committed to rejecting the other, despite the fact that the inquiries from which the theories issued had, from the beginning, widely divergent goals. In disputes of this kind, we often find one and the same thinker-very likely oneself-strongly inclined to champion both sides and yet, at the very same time, strongly inclined entirely to repudiate one of them just because he is strongly inclined to support the other. He is both well satisfied with the logical credentials of each of the two points of view, and sure that one of them must be totally wrong if the other is even largely right. The internal administration of each seems to be impeccable but their diplomatic relations with one another seem to be internecine.

The concrete arguments he examines here include disputes between scientific theories and everyday platitudes that seem to defy the scientific findings. One example is the difference between a conclusion that seems to follow from any physiological account of perception versus what everyone learns to say, about what we see, smell, taste, or feel. Another involves Zeno's puzzle about Achilles and the Tortoise that seems to prove that their race cannot ever end, on the mathematical grounds that there are infinitely many intermediate (eventually fractional) steps to the finish-line. He also considers the suggestion – found in rationality-based theories of action – that all purposive or

intentional actions are motivated by desires which, at bottom, consist in the promotion of pleasure and the decrease in pain.

The problem of free will vs. determinism is another case:

> On Mondays, Wednesdays and Fridays [the same person] is sure that the will is free; on Tuesdays, Thursdays and Saturdays he is sure that causal explanations of actions can be found or are actually already known.... In his heart he would prefer saying that he knows that both views are true to saying that he knows that actions have no causal explanations or that he knows that people are never to blame for what they do. (4)

7 Conclusion

I have described Ryle's cartographical-philosophical approach, which has commonalities with, but was developed independently of, the later Wittgenstein's focus on language-games. Both philosophers look at our linguistic practices – what we say and do, including how we defend and correct ourselves – in the light of various situations and circumstances. Finding within these practices a plurality of employments of any given expression – everyday, semi-technical, and even technical – Ryle unties the philosophical knots he finds in various philosophical conundrums that typically require prompting for one or other position or 'ism'. In so doing, he challenges many of the traditional assumptions, still very much alive, in Western analytic philosophy.

This, of course, is just a taste of Ryle's work. I highly recommend it to my readers.

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Mappers, Mapmakers, and Cartographers and Where to Find Them in Contemporary Art (a Modest Proposal)

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Abstract The so-called 'art map age', a phenomenon marked by the convergence of visual arts and cartography, emerged between the 1960-70s and early 2000s. The close relationship between cartographic and artistic language is a 'commonplace' of the present world: if the artistic experiments with the maps have been supported by a vast bibliography, in this paper I follow a strictly geographical approach to describe some trends of contemporary art. I take inspiration from a terminological distinction introduced by Arthur Robinson and Barbara Petchenik: and that is between 'mapper', 'mapmaker' and 'cartographer'. Furthermore, combining the 'types' of the mapper, the mapmaker, and the cartographer with the different attitudes regarding maps (as medium, image, abstraction, etc.), I will suggest a small classification scheme.

Keywords Geography. Map. Cartography. Contemporary art. Iconology.

Summary 1 Introduction. – 2 Mappers, Mapmakers, Cartographers in Art. – 3 The Artist-Mapmaker and the Map as Medium. – 4 The Artist-Mapper and the Map as Image. – 5 The Artist-Cartographer and the Map as Abstraction. – 6 Conclusion.

> Now it's as though everything on the map
> represents something but representing
> is not represented on the map
>
> Ludwig Wittgenstein
> in Bouwsma 1986, 343

1 Introduction

To introduce the topic of my paper to the reader I will start with a twentieth-century anecdote taken from Igor Stravinsky's *Chronicle of my life*:

> I shall never forget the adventure which later befell me in crossing the frontier at Chiasso on my return to Switzerland. I was taking my portrait, which Picasso had just drawn at Rome and given to me. When the military authorities examined my luggage they found this drawing, and nothing in the world would induce them to let it pass. They asked me what it represented, and when I told them that it was my portrait, drawn by a distinguished artist, they utterly refused to believe me. "It is not a portrait, but a plan", they said. "Yes, the plan of my face, but of nothing else", I replied. But all my efforts failed to convince them, and I had to send the portrait, in Lord Berners' name, to the British Ambassador in Rome, who later forwarded it to Paris in the diplomatic bag. The altercation made me miss my connection, and I had to stay at Chiasso till next day. (1936, 114-15)

This episode is very suggestive, and according to Franco Farinelli it would be the ideal reverse of *El hacedor*, Borges' tale in which a man intends to draw the world. However, shortly before dying he realizes that the patient labyrinth of lines he has drawn – images of provinces, kingdoms, mountains, bays, ships, islands, fishes, rooms, instruments, stars, horses, and individuals – make up the image of his face (Farinelli 1992, 253). Drawn by Picasso with a fine lead pencil in 1917, at the frontier with Switzerland, the Stravinsky portrait is not functionally recognized as an artwork. The customs officers mistook it for a work of cartography and treated it as such: the musician was temporarily detained and suspected of carrying with him war plans encrypted in a drawing (it is well known that a 'plan' means both a sketch drawn on a plane that shows how something appears from above – in a wider sense a detailed map – and also a scheme or a set of things that you intend to do or achieve). Here the confusion or overlapping between painting and mapping is clearly the result of an error of judgment (World War I is underway). But it's an *unintentionally clever mistake*: as a matter of fact, it suggests a potential circularity between these two practices.

Perhaps it is worth taking seriously the misunderstanding that lies at the heart of this story: behind the misunderstanding of customs officers there may be something for us to learn. In fact, this anecdote reminds us that visual art and cartography are rooted in a common ground:

> Mapping – like painting – precedes both written language and systems involving number, and though maps did not become everyday objects in many areas of the world until the European Renaissance, there have been relatively few mapless societies in the world at large. (Harley 1987, 1)

Examples of the intersections of artistic-cartographic practices have been analysed in a multiplicity of critical plans, theoretical perspectives, and historical interactions as part of a vast and multifaceted interdisciplinary field. Examples may be the following: the networks of acquaintance and/or the professional kinships between artists and cartographers (with some, such as Leonardo da Vinci, who engaged in mapmaking and others who have been both draughtsmen's

and mapmakers); topographical map and landscape painting as alternative but highly compatible grammars or ways of representing Earth's places; the reinterpretation of the cartographic grid (which went from being a device to frame and compose the spatial arrangement and scalar representation of material places and landscapes to a figurative and representational convention); the mapping of works or artistic currents; the presence of maps in paintings (for example Vermeer's well known passion for maps; see Alpers 1983; Stoichita 1997); the standards of graphical representation commonly accepted and the aesthetics of the map – and so on.

Nevertheless, although their relationships are complex and enduring, it may be easy to mistakenly think that visual art and cartography had recently permanently parted ways:

> Cartography has become increasingly rigorous and demanding, to the point that the pictographic and topographic elements that were such important features of earlier maps (e.g., in late medieval portolan charts and in sixteenth- and seventeenth-century Dutch world maps) have been virtually eliminated. Even the purely decorative components of maps, so widely employed in the most diverse cultural settings, have ceded place to strictly utilitarian symbols that have to do with the measurement of space rather than with the landscape of place: sober signs for distance and scale have replaced images of colossi and cities, gods and mountains. We are left with the ordinary road map, primarily of practical value, or with the detailed and precise surveyor's map. Nothing painterly in either case; indeed, nothing even ornamental. [...] In light of this divergent history, it would be plausible to think that mapping and painting can no longer communicate with each other, much less join forces in a single work. (Casey 2005, XIII-XIV)

The close relationship between cartographic and artistic language is not relegated solely to the past: anticipated by Dada and Surrealist experiments, maps' use in art is a fundamental cultural practice – a "commonplace" (Watson 2009, 293) – of the present world. The so-called 'art map age', a phenomenon marked by the convergence of visual arts and cartography, emerged between the 1960-70s and early 2000s (Lanci 2022, 104). Casey himself at the end of his reasoning admits that in the past decades "a renewed interest in the marriage of mapping and painting has arisen" (2005, XIV). For the sake of completeness, we must therefore add a second quote:

> insofar as artists deal with the world around them, during the past century maps have become an increasingly prominent part of it. Because our societies are more map-immersed than any that have previously existed, contemporary map artists have grown up

bathed in maps to an unprecedented degree. It's true that they've grown up bathed in many things, not all of which have become compulsive subjects of art-making, but the unique properties of the map make it an exceptionally apt subject for an art that, as it has become less and less enamoured of traditional forms of representation, has grown increasingly critical. Maps have numerous attractions. In the first place, like paintings, maps are graphic artefacts. There's substantial formal continuity, especially with the painting of the second half of the 20th century and its grab bag of commitments to abstraction, surface, flatness, pattern, and formal systems of sign-making. (Wood 2010, 215)

Since the 1960s, contemporary art has loved to play with the artistic potential of mapping (Lo Presti 2018): precisely because, given its quantity and diversity, no single exhibition or catalogue can ever adequately cover the full range of existing material, nor delve into all the nuanced distinctions that exist between one artist (with its special creative practices) and another (Storr 1994, 14). In this sense, maps serve as an incentive or motive to create: "From *Theatrum Orbis Terrarum* of Ortelius (1570) to the 'paint'-clogged maps of Jasper Johns, the map has exercised a fascination over the minds of artists" once stated Robert Smithson, an essential figure in the history of conceptual art. "If mapping is our most common operational metaphor today, there has been a related increase in the use of maps in art" argued Ruth Watson (2009, 293).

Hence, we can say that "among counter-mapping strategies none mounts the assault on the prerogatives of professional mapmakers that map art does, art […] made as, with, or about maps" (Wood 2010, 189). Their 'creative collusion' has fed many reflections focused on the social implications of artworks and maps; or, to use Bourdieu's terms (1984), their 'distinction' as public, bodily, interpersonal fact. Mapping can be seen as a wide-ranging metaphorical, semiotic and cognitive activity, beyond its institutionalized and customary conceptions. Thus, it is not exclusively attributable to cartographic products *stricto sensu*; more generally, the gaze and the 'visual' as the summa of modernity (and its contradictions), and so on (Rees 1980; Calabrese 1983; Woodward 1987; Allen 2000; Casey 2002; Piana, Watkins, Balzaretti 2021). It should be noted that the relationship between 'artistic painterly' and 'cartographic precision' in turn serves as a metaphor for the relationship between humanistic values and those prevailing in science and technology in Western culture. It should therefore be included in a broader debate within philosophy, the social sciences and cultural geography in which, on the one hand, there is a tendency to move beyond the classical binary oppositions (mimesis-interpretation, art-nonart, objectivity-subjectivity, mental images-physical artefacts, etc.), and, on the other hand,

representational devices are seen as relational entities manipulated by users. In a post-structuralist and non- or more-than-representational perspective, what is privileged is the shift from the *object* (the map) towards the *practices* (the mapping) and, thus, the way *in which* case-by-case devices are concretely *used, looked at, and signified* by people (Dodge, Kitchin, Perkins 2009; Kitchin 2010). As critical cartography has shown (Harley 1989; Harley, Laxton 2001; Jacob 2006; Wood, Fels 1992; 2008; Crampton, Krygier 2006; Wood 2010; for an object-oriented cartography: Rossetto 2019), mapping is a technology of power because it *implies, and at the same time constitutes* its users. Consequently, if reader and map are mutually constituted and entwined; if the way in which people interact with maps is subject (in time and in space) to continuous negotiations and transformations; it follows that, for the most part, both the observer and the observed do not exist 'in pure form', separately and prior to any specific relational context (visibility regimes are a dynamic set of socio-culturally determined practices, strategies, and techniques) (Crary 1990).

2 Mappers, Mapmakers, Cartographers in Art

It goes without saying that such artistic experiments with cartography have been discussed in many ways:[1] all this is well known and supported by a vast bibliography about "the cartographic eye of art" (to quote Buci-Glucksmann 1996). Therefore, I will now follow *a strictly geographical approach*, which draws inspiration from a terminological distinction introduced by Arthur Robinson and Barbara Petchenik: that is between "mapper", "mapmaker" and "cartographer" (Robinson, Petchenik 2011, but originally 1976). Even if these terms are mostly used as synonyms, these two scholars refer to things that are only partly overlapping. To begin with, *mapper* means someone or something that organises information obtained from the physical environment (consisting of the living being's surroundings) into a spatial framework. This operation is extremely important, even vital to move and survive in the environment: from the high-flying eagle to the darting dragonfly to the human beings, all these have the innate ability to arrange what they see and to operate in a spatial way: what is called 'cognitive mapping' is precisely the mapper's distinctive feature:

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1 Storr 1994; Folie, Bianchi 1997; Curnow 1999; Silberman, Tuan 1999; Bender, Berry 2001; Heartney 2003; Albert 2004; Cosgrove 2005; Wood 2006; Cartwright, Gartner, Lehn 2009; D'Ignazio 2009; Harmon 2009; Roqueplo 2010; Tedeschi 2011; Monsaingeon 2013; Brückner 2015; Cabeen 2017; Reddleman 2018; Ferdinand 2019; Gates 2023.

> Naturally the mapper's image [...] will be a function of his past ex-
> perience and his ability to involve himself in a spatial framework.
> Therefore, it will vary from person to person; one can confidently
> assert that the images of no two mappers are alike, and that the
> same milieu can be mapped in different ways by the same map-
> per. (Robinson, Petchenik 2011, 21)

But above all, this mental image – this mental map – is *immaterial*:
"in our definition of mapper we have specifically restricted the map
he develops to an image which is not tangible, that is, it does not ma-
terially exist to be touched and seen by another" (21).

If *mapper* is simply one who mentally conceives things in spatial
relation, the *mapmaker* and the *cartographer* are dealing with some-
thing more. For example, according to Robinson and Petchenik, a
mapmaker is definitely a *mapper*, but a *mapper* is not necessarily a
mapmaker. The latter is the one who communicates their cognitive
activity through a tangible map. This operation implies the use of a
very wide range of activities and compilation tools, from the simplest
(a pen and a piece of paper) to the most refined, "with myriad tech-
nical procedures and executions in between". In short, the *mapmak-
er* is the one who is materially engaged in the production of a map-
object. Thus, while *mapper* is the all-encompassing term, *mapmaker*
is more specific: one who *makes* maps with their hands (literally or
metaphorically). The moment (and *only* the moment) I draw a mental
map of my neighbourhood for you, I turn from *mapper* to *mapmaker*.[2]

Compared to the *mapmaker* the figure of the *cartographer* adds
an additional element of classification:

> The term 'cartography' is generally restricted to that portion of
> the operation often termed 'creative', that is, concerned with the
> design of the map, 'design' being used here in a broad sense to in-
> volve all the major decision making having to do with specifica-
> tion of scale, projection, symbology, typography, colour and so on.
> (Robinson, Petchenik 2011, 22).

In this sense, the *cartographer* is no longer the one who just physical-
ly works on the map, but creatively reflects on ways that empower in
the best way possible each of us to map the reality (a reflection that in-
cludes reasonings about scale, projection, symbology, typography, col-
our, etc.). From this point of view, the *cartographer* may not be always
the material author of the map. Nevertheless, one thing is certain:

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2 For a different interpretation of the relationship between *mapping* ("a universal ex-
pression of individual existence") and *mapmaking* ("an unusual function of specifiable
social circumstances arising only within certain social structures"), see Wood 1993.

for Robinson and Petchenik, in their deepest essence *mapmaker* and *cartographer* are both fully *mappers*, but they are not just *mappers*.

Specifically, in the following pages I will use these three categories, separate ways to describe some cartographic trends of contemporary art. My approach can also be called *geographical* for another reason: I take the geographical map as the 'zero degree' of artistic re-elaboration, or in other words *the formal starting point of artistic practice.* Sure, every scholar on the convergence of visual arts and cartography starts with the map in some way. However, the classification criteria adopted are mostly of heterogeneous nature (for example aesthetic or national classification schemas). With these premises, the conclusion is *all artists who use maps in their work are all cartographers* – something that resembles the Hegelian night in which all cows are black. It is therefore important to distinguish and understand: in contemporary art, who is a mapper? Who is a mapmaker? Who is a cartographer? Everything is mapping, but mapping is said in many ways: it has different senses.

Let it be clear that I am not so much interested here in the referential success or failure of the map's content, but in its being a wide-open field of possibilities. As Wittgenstein observes, "Everything a map represents is possible" (Waismann 1979, 239). Insofar as we take conventional cartography, as we know it, as the standard example of comparison, we can notice the different degrees of re-elaboration of the canon, or rather the 'distance' – the different ways in which this or that artist reworks and deviates from the model – starting from 'map' object. In contemporary art, artwork looks like a *cartifact*, that is, a cartographic artefact that has the typical, socially recognisable, appearance of a map. But it is not used, nor can it be used as a source of information (so, it is not used for orientation in space). As we will see, some artists work 'on' and 'starting from' well-known, previous, and pre-existing physical maps. Others, on the other hand, work on representation rather than on the 'thing': the cartographic *imago mundi* and its more or less explicit meanings. In other words, both exploit the familiarity of us all towards maps.

To be precise, in this first distinction – *thing* and *imago* – I take up a characteristic typical of Hans Belting's critical iconology, namely the analogy-difference between 'medium' and 'image': "The image is present in its medium (otherwise we could not see it), and yet it refers to the absence of that entity of which it is a representation" (Belting 2011, 20). For Belting, a real critical iconology must discuss the *unity* as well as the *distinction* of image and medium, i.e. fact that on the one hand no visible images reach us unmediated, but on the other hand images are not merely produced by their media. If the map is a necessary medium for giving visibility to certain images of the world, then we can analytically distinguish between its mediality and its content. I would therefore distinguish between the map as a thing,

medium, material support, and the map as an image – an image into which the rules of the social order seem to fit (as critical cartography from Harley onwards has shown). Map's mediality is what makes the image of the World visible and allows its meaning or ideological content to be transmitted: "Pictures have always been dependent on a given medium, whether it was a lump of clay or the smooth wall of a cave. Artificial bodies (media) give them birth, control their visible appearance. It is their media that furnish them with both visibility and physical presence in the public realm" (Belting 2011, 18). Certainly, when in a map we distinguish *the material medium* from *the World representation it represents*, we pay attention to either the one or the other, as if they were distinct (which they are not): "they separate only when we are willing to separate them in our looking. In this case, we dissolve their factual 'symbiosis' by means of our analytical perception" (Belting 2005, 304).[3] For example, in this perspective, the mapmaker is above all the artist who works on the materiality of the map, while the artist-mapper is mainly interested in the image detached from its materiality. But according to Belting, all this is possible because the interactions between the medium hosting the image, and the same images include a third parameter: our bodies. In this setting, as Tania Rossetto observes (2015), images colonize and inhabit our bodies and brains. Remembering a map means first disembodying it from its original media – disembodying its argument about the world from symbiosis with the medium hosting it – and then reembodying his *imago mundi* in our brain. Through this process images are transmitted and imprinted in a collective memory: "The politics of images relies on their mediality, as mediality usually is controlled by institutions and serves the interests of political power (even when it, as we experience it today, hides behind a seemingly anonymous transmission)" (Belting 2005, 304); a statement Harley would have approved.

That said, as we will see in the following pages, from the map as medium and the map as image we then move on to the map as abstraction: starting from the assumption that the map is a coded representation of a place, artists want to *decode* it in order to reflect on the spatiality evoked by its grammar: it is as if they took Wittgenstein's statement seriously that "representing is not represented on the map" (Bouwsma 1986, 343). The discussion could be further

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3 I can only mention, here, Richard Wollheim's ideas – very close to Belting's position – about the two-foldedness of pictures: the configurational and the recognitional fold. The first is the picture's physical basis (in the first place, the picture-object is a flat surface with colours, marks, etc., and in general a series of visible features); the second is *the visual awareness* of its content, or in other word the awareness of the specific objects that pictures happen to depict. The two folds do not constitute two independent experiences, but a single, unified experience (see Wollheim 1980; 1987).

extended by considering the most extreme cases: when the map is no longer at the centre of artistic re-creation as a finished product, complete in itself, but mapping exists as a production of something, a carrying into execution, a performing action. This is the case, for example, in so-called land-art, where *mapping* and *the dissemination of lines on Earth* coincide: artworking as a way of provisionally creating the world.[4] However, the topic is more than enough for this text and to address the issue here would take us too far from the goal of this paper.

Therefore, in the following pages I will use the three categories identified by Robinson and Petchenik specifically and distinctly to describe certain cartographic trends of contemporary art: "there is little that contemporary artists haven't done with maps" says Katharine Harmon (2009, 10). Combining the 'types' of the mapper, the mapmaker, and the cartographer with the different attitudes towards maps (as medium, image, abstraction, etc.), I will propose a small classification scheme, useful to orient ourselves in the labyrinthine cartographic eye of art. Maybe this is not fundamentally new, but I would be happy to propose a useful model for mapping artistic experiments with cartography. Of course, these definitions retain value as a descriptive and comparative tool, so long as one does not circumscribe each category too rigidly: as we shall see, on a case-by-case basis, there are artists who are, for example, mapmakers and mappers at the same time (depending on what they do with their art at the time). Indeed, this conceptual apparatus, if at first sight apparently artificial or academically abstract, reveals its usefulness precisely when it allows us to grasp *real* nuances and distinctions. Beyond the rich abundance of different, even contradictory conceptions

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4   In a nutshell: cartographic art is performative art because the cornerstone of these experiments is the 'making of' and not 'the finished product'. Namely, in front of us we no longer have maps – cartographic objects, cartifacts, media, etc. – but a making process ephemeral in nature: *the mapping*. The difference is roughly what Tim Ingold identified between painting and music: "paintings – Ingold says – they are presented to us as works that are complete in themselves... the actual work of painting is subordinated to the final product" (Ingold 1993, 161). To exemplify: Boetti's maps remain available for our admiration long after the female Afghan embroiderers' work that gave rise to them has ceased. In contrast, music is a sequence of activities generated in movement. Or, to be more precise, a series of activities that come into being through movement: "Music exists only when it is being performed (it does not pre-exist, as is sometimes thought, in the score, any more than a cake pre-exists in the recipe for making it)" (Ingold 1993, 161). The mapping is exactly this: art exists only so long as people are actually engaged in the artistic activities. "Earth Art" is an artistic performance situated on Earth' surface, a mapping that has become part of the Earth landscape. But exactly like musical sound is subject to the property of rapid fading – mapping' effects on landscape shortly afterwards are destined to disappear, self-destruct, deteriorate, or decompose. Christo's installations *Surrounded Islands* (Biscayne Bay, Florida) and *The Floating Piers* (the Lake Iseo, Italy) are a temporary, site-specific artworks: have a use-by date (when the artist restores the site to its original condition).

of this field of research, in the final analysis one thing is certain: artistic maps *are not dead objects*, but an opportunity to reflect more broadly about how we construct, experience and represent space.

3 The Artist-Mapmaker and the Map as Medium

In this first type we find artworks strongly anchored in the medial 'consistency' of cartographic object. The tactile experience of handling a map has been largely neglected in cartographic scholarship (Dodge, Kitchin, Perkins 2009, 229). This has, however, not been neglected by contemporary artists. Here, the tendency is to exploit the material features of cartography. The artist is a *mapmaker*: he/she is the material author of an artwork that comes from the reworking of a preexisting cartographic object. The final effect is a reshaped, sliced, twisted, woven, erased, distorted, emptied, contested map in its materiality: a handmade map.

Of course, the artist's hand can be light. With *Carte de L'Europe* (Map of Europe), *Carte politique du monde* (Political World Map) (c. 1970) Marcel Broodthaers alters or adds words to a pre-existing map or retouches the image. In other cases, through the operative and operational – in short: creative – intervention the cartographic medium becomes a starting point from which to begin projecting fundamentally political and socially engaged ideas. These include the critique of maps' long association with the legacy of colonization, the ideological implications of the cartographic representation (who maps? Who is mapped?), the precariousness and arbitrariness of borders, or geopolitical conflicts, and so on. For example, *Mapas* is a series of pleated maps by the Argentine artist Miguel Angel Ríos with the *khipu* method, a technique of handmade encoded knots used by the Incas for accounting and exchange. This system is used by Ríos to alter the smooth surface of the old map and systematically fragment it (knotted strings were used to record memories, stories, and computations). Someone wrote that "in his *Mapas,* Ríos is actually *dis-mapping* America" (Akinci, Korvinus 2022) because the rediscovery of traditional indigenous arts of the Americas meanings the re-emergence of something that religious, military or mercantilist ideology of the conquerors had erased through mapping.

A polemical reuse of cartographic objects inherited from the colonial period can be found in the Brazilian artist Adriana Varejao with the *Mapa de Lopo Homem II* (Lopo Homem's Map II), (2004). Lopo Homem (c. 1497-c. 1572), a Portuguese cartographer and cosmographer, in 1519 produced the *Miller Atlas* for King Manuel I of Portugal, a joint work with cartographers Pedro Reinel and Jorge Reinel, and illustrated by miniaturist António de Holanda. The atlas contains eight maps on six loose sheets, painted on both sides; the *folio 1 recto*
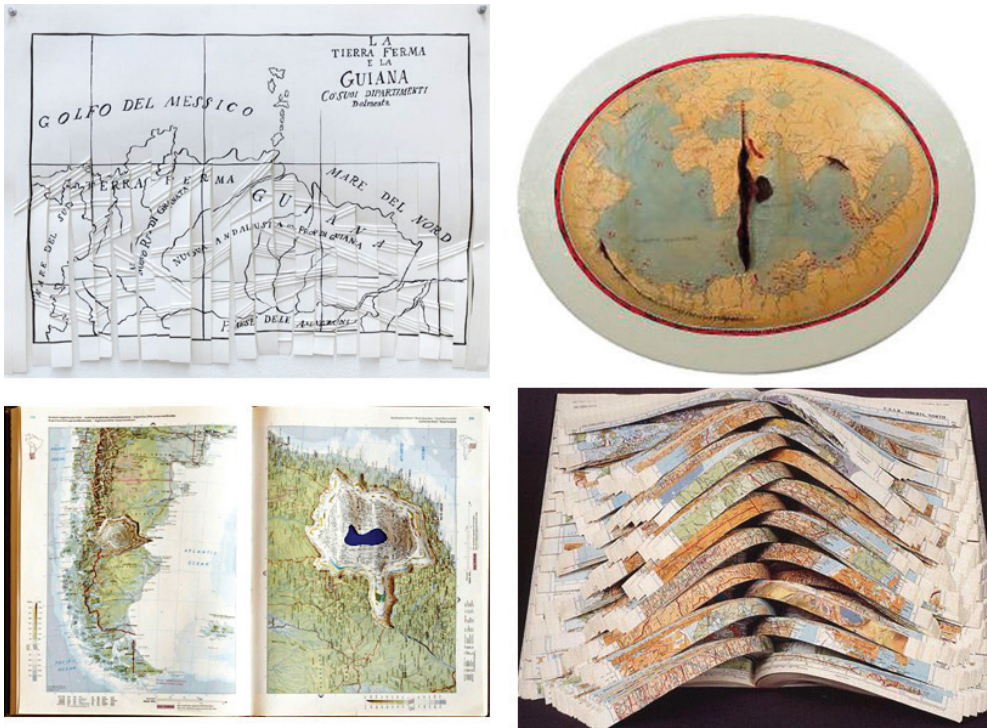
Figure 2 Left-to-right, top-to-bottom: Miguel Angel Ríos, Critical post-colonial No. 23, 1995; Adriana Varejao, Mapa de Lopo Homem II, 2004; Maya Lin, Altered Atlas, 2006; Doug Beube, Fault Lines, 2003. Collage: Author.

shows the parts of the New World allocated to Portugal by Treaty of Tordesillas (1494). Africa, Europe, and Asia appear surrounded by a single, continuous strip of land ("mundus novus" below) consisting of the American colonies. Homem's map clearly has the function of setting forth, defending, and organizing the political expansion interests of the kingdom of Portugal. To dismantle this geopolitical construction, Adriana Varejão reproduces it but with a substantial difference. She physically interferes with its medial carrier, opening wounds in the centre. Hence, the final outcome is a colonial wound map – bleeding, slashed, and iconoclastic (Almeida 2017). A similar material operation is performed to some extent by Maya Lin with *Systematic* Landscapes: carving miniature canyons into each page, the artist transforms old *World Atlases* into sculptural objects. In turn, William Giersbach pours paint on an *Atlas* in *Poured China* (1978).

As anticipated, in all these cases the artistic intervention on a disused map produces a cartifact that has at first sight the *typical*,

socially recognisable, appearance of a map; but cannot be used to get from A to B.

Often artists working on the compactness of cartographic medium favour techniques such as collage, installation, sculpture and so on. This is what Jeff Woodbury's *Map Works* does, for instance. Woodbury dissects the maps: he cuts out sections, cuts away everything but the roads – and reconstructs them. So, the map ceases to be a 2-dimensional representation of reality and becomes an actual 3-dimensional thing. Woodbury writes the following about his *Dissected Maps* on his official website:

> Maps are generally cheap, and their value is predicated on their usefulness. When they become outdated we throw them away. By dissecting them, their use-value is destroyed by the loss of their function. But the use-value is replaced with aesthetic value, and with it a commensurate extension of the object's life-span.[5]

Use-value is replaced by aesthetic value, and this is very important. Sian Robertson also draws on used maps and atlases to create impressive collages. See, for example, *Optical Illusion* (2017) or *Tangled* (2017) excavated vintage street atlases. Along the same lines as these 'altered atlases' starting from an already created atlas, is Doug Beube's *Fault Lines* (2003). Text is cut, folded and transformed into something new and different: an art object.

4 The Artist-Mapper and the Map as Image

For Belting, our bodies (and our brains) act as a living medium that makes us remember images and that also enables our imagination to censor or transform them. The theme of cartographic memory emerges here: that is, the pervasive and silent power – as pervasive *as it is* silent – of the images of the World transmitted by/through the maps that are imprinted in our minds. Therefore, in this category we can include examples which do not take up pre-existing material supports (such as old atlases or maps) but that work on the images of the world inscribed and imprinted in our collective memory. This connects to the Kevin Lynch's concept of *image ability*: the probability of an artwork to evoke a strong image in any given observer (Lynch 1960, 9). Artworks are at first glance graphically respectful of symbolic convention and characterized by more or less recognisable cartographic forms: the artist plays with the *World representation* to the extent that this is still largely familiar (but beware: human

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memory is an imperfect archive, and some memories are more vivid and others more vague).

To clarify this statement: I am thinking mainly of artworks such as *Map*, an oil-and-collage-on-canvas painting by Jasper Johns from 1961. Johns drew a grid on a map and, transferring its coordinates onto a canvas, began to paint. It is precisely because of this that he declares: "I was painting *a* map, not making a painting *of a* map" (italics added). Not a painting of a map, but an actual map – the artist redraws his own *imago mundi*. It goes without saying that the *recognition* by the audience, here, is made possible by our familiarity with cartographic images. Moreover, in the nearly 150 works of the *Mappa* series, Alighiero Boetti draws on a commonly known iconographic repertoire. These are tapestry-woven maps of the world, rectangular in format, with the chosen cartographic projection (focused on Europe) of a classical-conventional type and the scale of approximately 1:30,000,000 (a small scale typical of the World map); but – this is the point – each country is represented by its flag (the canvas is linen, not a painting canvas).

In this specific category, the artist is a *mapper*, as she/he essentially

Figure 4
Top-to-bottom:
Jasper Johns, Map, 1963;
Pedro Lasch, Latino/a America,
2003. Collage: Author

relies on collective mental images with her/his cartography. With the
LATINO/A AMERICA series (route guides, mural version, pamphlets,
posters, and special publications, t-shirts, banners, and public exhi-
bitions), Pedro Lasch describes a new "Latinidad" that extends into
the English-speaking world, changing the meaning of "America" and
of being "American". Similarly, the photographic work of Vik Muniz's
(Vincent José de Oliveraie Muniz) revolves around the theme of waste,
discarding, and recycling. *WWW (World Map),* from the series "Pic-
tures of junk" (2008), is a world map made from discarded computers:
the world we inhabit is a huge landfill of electronic waste. The chal-
lenge is to play with conventions and expectations and to use them
to communicate a message or to disregard and overturn them, sur-
prising the viewer. Once again, we meet Marcel Broodthaers with
La Conquête de l'espace. Atlas à l'usage des artistes et des militaires
(The Conquest of Space. Atlas for the Use of Artists and Military Men)
(1975) a tiny atlas (4 × 2.5 cm) that shows, in alphabetical order, the
silhouettes of 32 countries, all reproduced at the same scale (thus, all
the countries appear to be practically the same size). More recently
(2014), Michael Murphy created an installation called *Gun Country,*

which resembles a map of the United States. The work is made from 150 toy guns. In this case, we are in front of an artwork whose *image ability* is very strong: standing in front of the installation we see the unequivocal outline of the United States. *Gun Country* is obviously not a painting of a map, but *the memento of a map*. In a rather similar way, Luciano Fabro *Italia*' series (1968-75) shows many empty silhouettes of the peninsula in different materials and in unusual positions: overturned, laid on its side, etc. The world as an image or a picture of a representative production returns in the Mateo Maté' work. This artist plays ironically with our cartographic memory: his installations project *Nacionalismo doméstico* (Domestic Nationalism) (2004-14) is an invitation to rethink and reinvent the notion of living. In an era in which the micro (private, domestic space) and the macro (the total space of the nation) merge, Maté makes the plan of an apartment coincide with the outline of various countries (see *Casa España*, *Casa Italia*, etc.).

Art draw from a canonical cartographic repertoire to turn it upside down: Emilio Isgrò's globe *Pacem in terris* (Peace on Earth)[6] (2018) has a cubic shape; on the cube faces the only legible toponyms are "Mediterranean Sea", "Indian Ocean", "Arctic Ocean" and "Pacem in terris"; all the others have been erased by the artist (erasure is the unmistakable feature of Isgrò's artistic research). Sea is beige, mainland is white, erasures are black; on the different sides of the cube, a swarm of black ants. Again, the theme is the peculiar ways in which our mind of organises (and messes up) geographical memories.

5   The Artist-Cartographer and the Map as Abstraction

Carolyn Lanchner reports Michael Crichton's observation that Johns's pictures are artistically positioned "between the found object and the created abstraction" (Lanchner 2009, 19). In other words, works like those of Jaspers Johns, Luciano Fabro, etc. conceptually herald another current of contemporary art in which we find an increasing level of *abstraction*: all that ensures artistic maps definitively ceases to appear as something indicative or useful as a guide. The artist no longer starts from everyday maps or used atlases to dig, cut or fold them; nor does the artist play with the cartographic image ability and with the iconic memory that colonizes our brains. Artistic research becomes an inquiry into the nature of the map as an abstract conceptual entity – an investigation into its *spatial code.* Artists increasingly play with the processes and visualisation practices that

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[6] *Pacem in terris* is the title of papal encyclical issued by Pope John XXIII on 1963, in full Cold War.

may be identified with cartographically ordered space: for example, working on the scalar overstatement (or the subtraction) of maps' formal aspects and the retention of only certain information – a detail is subtracted to affirm or is magnified to make it visible or invisible. But, filtered through the artistic eye, the pattern of lines and points can become poetic. As John Harley once wrote, "silences on maps may sometimes become the determinate part of the cartographic message" (Harley 1988, 58). See for example *Map to Not Indicate* (1967) by the Art & Language group: is an almost completely empty *imago mundi*, where only the American states Iowa and Kentucky appear. *Japão* (Japan), *África* and *Índia* (1972) are a triptych of drawings by Waltercio Caldas, in which most of the information has been removed – except for a few landmarks (scattered strokes and random numbers).

Another well-trodden artistic trail: symbols, signs, places, settings, everything that flows into the cartographic drawing becomes a pure, autonomous form; as happens in Yves Klein' *Planetaire (Bleu)* (1961), a sort of raised-relief map marked by deep blue (a distinctive characteristic of this French artist), the details, the supporting elements of cartographic space undergo a stylization, a reduction to a decorative pattern; artists give them an aesthetic value. Among others, a similar procedure is used by David Renaud in *Basse Mana* (2005):[7] the artist isolates an element of the topographic map (the contour line representing the conformation of the land) and elevates it to autonomous sign.

Many cartographic 'reveries' can be actually investigated to destabilize and challenge – and at turns to help to reimagine – the inward scientific cartography and the spatial relations it aims to portray or enact. In short, artworks 'at their expense' become a sort of meta-maps for scholars (both cartographers and geographers), who may muse on how, by comparison, the cartographic tool is used in their discipline and what horizon the dialogue with art can extend or shrink (Lo Presti 2018, 122).

Rather than the map as image, the appearance of the cartifact itself, what matters is the map as concept: the artist reinterprets the cartographic logic, its codes of abstraction, its immanent contradictions. That is to say, something not precisely defined once and for all guiding our exploration of alternative views of the world in an elastic way. Here the procedure is similar to that of a cartographer: first, the artist reflects on the meaning of the work and explores the folds of the formal grammar of cartographic thought. Of course, as in the previous categories, here too we have different gradations of "spatialization of knowledge", to put it in Christian Jacob's words

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7 Basse Mana is a nature reserve located in the Overseas Department of Guyana.

(2006, 201). For example, Michael Slagle is the author of map-paintings such as *Lakeland 3 (4th & Quinmore)* (2007) dominated by the abstraction of cartographic forms. I find his words extremely enlightening: "What fascinates me, specifically as a painter, is the symbolic arrangement of these formal elements and how they translate as formal elements from a map to an abstract painting" (Harmon 2009, 200). In this sense, artwork is an investigation into the nature of the map as an abstract conceptual entity. Likewise, Janice Caswell uses a reduced language of points, lines, and fields of colour. Her drawings and installations with beads, paper, ink, and pens – see *Alternate Realities-from Ft. Collins* (2006) – are mental maps in which the edges and the movements of bodies and consciousness through time and space are traced. Pierre-Alexandre Remy's work is also similar to a preliminary reading of a map. This helps the artist to become familiar with the physical form of the places, to recognise it, and is above all an incentive to discover it. After gaining direct knowledge by traversing the length and the breadth of the land along roads paths, Remy abstracts from this experience: he shapes his internal

map with different lines to recall the shape of the edges of the places, of movements and impressions caused by the spatial exploration. With his sculpture *Portrait Cartographique* (Cartographic portrait) (2012) he refers to the three distinct colours that are used in IGN maps (maps of the *Institut Géographique National*) to symbolize spatial elements: orange for the contour lines, blue for the streams and black for the roads. It goes without saying that although Remy starts from a map, it is impossible to follow the reverse path: looking at his sculpture does not provide any useful information for recognising the physical form of places.

6 Conclusion

Many maps, many cartifacts, and a rich diversity of mapping practices. A heterogeneous set of techniques, approaches, and materials. Bleeding, emptied, carved, distorted, evoked, contested maps-artworks. Painting, collage, installation, sculpture. Irony, anger, political engagement, disorder, disconnections. Physical medium, collectively shared image, or abstract spatial code: as a medium of expression, map not only inspires many artists, many works, many exhibitions, and many books; it enriches notions of how and why we map and provide a tool with which to expand the boundaries of our place and space representations and our experiences within it. Artistic experiments with cartography "invite us to observe ourselves in the act of seeing – examining not only what we see, but how and why" (Berger 1984, 50); "map artists come to reimagine mapping practice and with it the spatialities of global modernity" (Ferdinand 2019, 10).

There are now by many texts providing overviews of map-based art and proposed classification schemas or criteria, but I believe or hope, humbly, the one proposed here offers something new, something that others do not reveal (mine is a modest proposal but, in my view, it is based on an important principle). In order to distinguish different kinds of map-art and their different modes and contributions, I proposed to use Robinson and Petchenik's distinctions, as well as Hans Belting's image/medium analogy-difference. In my opinion, these chosen points of reference are not widely used in recent writings on map art, and yet they really work. Here, we do not simply say "all artists inspired by maps are cartographers". But: some artists are mappers, some mapmakers, some cartographers. Some of them work on to the medial thingness of cartographic object: they are mapmakers (for Arthur Robinson and Barbara Petchenik, the mapmaker is the one who communicates his cognitive activity through a tangible map). Some of them work on cartographic memory, that is, on the images of the World transmitted by/through maps that are imprinted in our minds; they are mappers (the mapper

is the one who works with the mental images). Finally, some of them work on spatial code and the nature of the map as an abstract conceptual entity; they are strictly speaking cartographers (the cartographer is the one who reflects creatively on design of the map). It is not possible to confuse them.

Mappers, mapmakers, cartographers…artists working with cartography know that a large part of the appeal of the artistic map lies in its ability to take things for granted and imprinted in a collective memory. This is a very serious thing. According to Catherine D'Ignazio (2009), they are "symbol saboteurs" and "agents-actors": on the one hand, they use the visual iconography of the map to overturn, overthrow, subvert or reverse its political meaning; on the other hand, artists make maps as mappers, mapmakers, or cartographers in order to challenge the status quo and/or change our *imago mundi*. The two are not contradictory. In fact, their works concretely test and implement critical cartography and mapping theory by trying to answer specific questions of practical relevance (how do we learn to locate ourselves and the others in the World? How do we learn to represent ourselves and the others? How do we learn to represent ourselves, the others, and things in relation to each other?). A central critical concern of this artistic research, then, is the making, or production, of images. This is why we need artists and the works they create. That is, as Laura Lo Presti writes:

> Many cartographic "reveries" can be actually investigated to destabilize and challenge – and at turns to help to reimagine – the inward scientific cartography and the spatial relations it aims to portray or enact. In short, artworks "at their expense" become a sort of meta-maps for scholars (both cartographers and geographers), who may muse on how, by comparison, the cartographic tool is used in their discipline and what horizon the dialogue with art can extend or shrink. (2018, 122)

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Dáiddakárta
Cartography in Contemporary Sápmi Art Practices

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Abstract   This article explores contemporary art practices in Sápmi which utilise maps as a tool and medium. The importance of the artist Hans Ragnar Mathisen's abundant maps from the mid-1970s is acknowledged, and furthermore the article looks into examples from the next generation Sámi artists who create *dáiddakárta*, which literally translates to art maps. Although not a traditional Sámi way of mapping and orientating in the landscape, *dáiddakárta* is significant in representing Indigenous people, in knowledge production, decolonial resistance, and reconciliation. Various *dáiddakárta* broaden the concept of what a 'map' has been, and could be, and contribute to the cartographic representations of other forms of being. Emphasising the concept of worlding helps understand mapping as a constant formation, relation and negotiation, and as a forceful and sometimes activist process, not only rendering or representing a world 'already there'. Instead, the art maps serve as interpretative, aesthetic and even speculative actors in contemporary society.

Keywords   Indigenous cartography. Counter-mapping. Worlding. Sámi Art. Hans Ragnar Mathisen. Katarina Pirak-Sikku. Outi Pieski. Sissel M. Bergh.

Summary   1 Sápmi. – 2 Mapping as Worlding. – 3 The Sámi Atlas – *Ourselves in the World*. – 4 The Drum's Time. – 5 Meahcci, *Mapping and Memory Work*. – 6 Kiss from the Border – *Decolonial Interventions*. – 7 Slow Cartography – Healing Land. – 8 Guided by *Dáiddakárta*.

1   Sápmi

From where the world is rendered, is a pivotal issue in cartography. In 1974-75, the artist Hans Ragnar Mathisen (aka Elle-Hánsa aka Keviselie, b. 1945) visualised the world seen from his northern homeland in a map entitled *Sábmi*, the name of the land of the Indigenous people in the northern part of Fennoscandia.[1] The colourful map was offset-printed in 5,000 copies and disseminated all over Sápmi. As the first map of the entire Sámi homeland,[2] it was a significant symbol in the coeval ethnopolitical and cultural struggle for Sámi rights in the 1970s and 1980s. Mathisen adopted the ornate and abundant style of the maps produced during the time of European exploration and imperial colonisation of the world, including the north. In particular, his map invokes elements of Olaus Magnus' *Carta Marina* (1539), the first known map of the Nordic countries, which changed the southern European's common imaginary of the northern regions as a *Terra nullus*.[3] However, Mathisen's map from 1975 replaced the colonial and mythical cartes-à-figures with Sámi cultural and spiritual signs, amongst them the *noaidi* drum, a number of *duodji* objects, and the symbolic sun.[4] He added 920 old Sámi place names – including "Sábmi", as handwritten in the cartouche – which he had collected over many years through oral sources, old topographic descriptions, and from pioneer researchers in Sámi history and language.[5] Finally, he removed the national state borders that had come to split the Sámi people.[6] The map "can exclude people, but it also can include people, it can highlight and ignore. My maps are highlighting an Indigenous culture", the artist states in the biographical film, *Cartographer* (2019) [fig. 1].[7]

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1   The name is written differently in the Sámi languages. Mathisen's Sabmi was a tentatively naming. The three main spellings today are Sápmi, Sábme, Saepmie. In this article Northern Sámi is used as a rule, however also other languages when relevant, mainly Lule Sámi, Ume Sámi, Pite Sámi, and Southern Sámi.

2   Cf. Raymond-Yakoubian et al. 2020, 301.

3   Olaus Magnus (Olof Månsson, 1490-1557), Swedish naturalist, ethnographer and titular bishop of Uppsala. The map is considered to be the earliest approximately correct map of the Nordic countries illustrated with people, creatures, real and mythical, related to the area. *Carta marina*, woodcut, 170 × 125 cm, printed in Venice 1539.

4   *Noaidi* (in Northern Sámi) is the most common Sámi word used to designate a Sámi religious or ritual specialist. *Duodji* (in Northern Sámi) is the term for traditional craft, but also comprehends creative production, aesthetic form, practical use as well as spiritual knowledge.

5   Some of Mathisen's suggested place names are disputed within the local communities.

6   Sámpi is part of Norway, Sweden, Finland and Russia. The national borders were decided in 1751 and in 1826. The area is historically referred to as Lapland, a name no longer considered suitable.

7   Cf. M. Ranis, *Cartographer*, film by Hans Ragnar Mathisen, 2019, 48 min, HDV. The quotation is at 00:44'45'' (Author's transcription). The film was shown at the exhibition

During the next decades, Mathisen made roughly 50 maps of different Sámi regions, naming, claiming and changing the dominant perspectives of the northern world from Western to Indigenous.[8] He implemented the simplest counter-mapping method by turning the world map 'upside-down', thereby questioning the cemented global order. Mathisen inspired the global Indigenous movement with his maps, and also through his extensive travels to other Indigenous lands. In Sápmi, his collection and use of local place names became

of Mathisen's map in 2021 in Oslo Kunstforening, titled *Kartografen*.

8   Most of Mathisen's maps are presented on his home page, now archived: `https://keviselie-hansragnarmathisen.net/`. They are drawn on multilayered plastic foil, reproduced photographically or scanned and printed on paper.

an important issue for Sámi activists, and Mathisen was instrumental for activism and engagement among Sámi artists to take back their people's past, present and imagined future (Holm 2022, 188). Despite this pioneering Indigenous cartographic work, five decades later the Sámi vocal artist Sofia Jannok (b. 1982) uttered, in the context of new governmental and capitalist colonisation and exploitation of Sámi land, that "according to the maps, we do not exist". Through her lyrics and video works she underscores the importance of telling "We are still here" and "This is my land".[9]

Mathisen's cartography is the point of departure in this article, and in addition to *Sábmi 1975* I will highlight artworks that were created in the 1990s, and which demonstrate the great variety in his *dáiddakárta* motifs.[10] Furthermore, I will investigate Mathisen's legacy and continuation by looking into more recent art projects related to Sápmi, which all use maps in various ways, as a tool and medium, and as aesthetic images. Rather than give an overview of Sámi artists who use maps in their practice, some significant cases are chosen, which widen the scope of cartography, as well as appraising the contemporary art world of Indigenous presence and relation to the land. The Sámi-Swedish artist Katarina Pirak Sikku (b. 1965) enters the realm of cartography through her profound project on tracing her ancestors' hiking trails and reindeer marks. The Sámi-Finnish artist Outi Pieski (b. 1973), the art-activist Jenni Laiti (b. 1981), and the poet Niillas Holmberg (b. 1990) worked together on *Rájácummá / Kiss from the Border* and use maps as a political and decolonial tool. Sissel Mutale Bergh (b. 1974) has worked in the last decade on participatory and deep map projects in the Southern Sámi region of Norway, where she lives. Thus, the art projects for this study are chosen from several parts of the Sápmi, with artists of different generations. Rather than operating with pre-given categories, the varied *dáiddakárta* extend the terrain of Indigenous cartography in a Sámi context.

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9 Cf. Jannok 2021, 106. Jannok, lyrics and video *We are still here / Mii Leat Dás Ain* (together with the visual artist Anders Sunna) and *This is my land (Sápmi)*, both 2016.

10 Mathisen's art production as such is varied, as demonstrated in the retrospective exhibition *ČSV terra cognita*, in Romssa Dáiddasiida/Tromsø Kunstforening in 2021, curated by Leif Magne Tangen and Gry-Kristine Fors Spein, see Fors Spein et.al. 2021; Bouvier 2021.

2 Mapping as Worlding

Indigenous cartography encompasses a wide range of practices and forms and serves various purposes across cultures. However, scholars highlight some common features.[11] Traditional Indigenous maps are often process oriented and take the form of bodily performances, oral descriptions and experiential modes of mapping. Indigenous cartography is defined by Robert A. Rundstrom as *processual*, which underscores that maps are 'incorporate' *practices* rather than 'inscriptive' *products*.[12] Furthermore, Indigenous maps describe space phenomenologically, as the way places are experienced and used, rather than rendering the landscape from a disembodied viewpoint. Indigenous maps convey situated and traditional knowledge, thereby connecting to the ancestors' use of land, and to spiritual dimensions. The knowledge embedded in the names of places and landscapes are important sources, but remain empty words, reduced to "mere labels", if not contextualised (Cogos et al. 2017, 49). The overall challenge in Indigenous cartography is how to transfer place names, the situated knowledge, and oral and performative modes of mapping, into modern maps – or even to conceive new forms of cartography "that can guarantee the transmission" of the deep Indigenous relation to the environment to future generations (Pearce, Louis 2008, 108).

While Indigenous cartography is a broad research field, it also embraces artistic cartographic practices, which so far have been little studied. This article connects to the discourse of Indigenous cartography, which resonates with the demands of recent critical cartography to embrace "multiple forms of knowledge, including the affective, embodied, oral, cognitive and cultural". With reference to the geographer Ângela Massumi Katuta "we need to broaden the concept of what a 'map' is in order to include 'other' epistemologies or cosmovisions and, therefore, make cartography a tool for the creation of new worlds". Humble study of maps in contemporary art practices in Sápmi is my attempt to meet these demands to "develop a different imagination of the world and our relations with and within it".[13]

Dáiddakárta does not refer to a common concept in the Sámi languages, but is a compound word which literally means 'art map'. Thus, the term *dáiddakárta* underscores that the maps chosen for this inquiry are not maps in the ordinary sense, nor are they a traditional

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[11] Cf. Rundstrom 1998; Pearce, Louis 2008; Sletto 2009; Brattland, Nilsen 2011; Lucchesi 2018; Joks et al. 2020.

[12] Cf. Rundstrom 1998 (and other publications). Tim Ingold has identified a similar distinction between 'mapping' as parallel to speaking, and 'mapmaking' to the privilege of writing (cf. Ingold 2000).

[13] Kollektiv orangotango, quoting Katuta in Schranz 2021, 68-9.

Sámi way of orienting oneself in the landscape. They are visual and material artworks whose functions vary from personal to historical, and political to aesthetical. As both *dáidda* and *kárta* are loanwords of more recent origin in the Sámi languages, the concept does not convey the maps of land and connections, which have been transmitted orally, mentally and performatively in the long Sámi tradition.

The traditional Sámi way of mapping is not rendered on a visual map. Rather, the traditional Sámi mapping gives oral descriptions of geographical features of the landscape that also include methods of finding the way, knowing the sites for vital resources, as well as animal migration paths, environmental dynamics and climatic conditions, and the connections to the sacred and spiritual dimension. Such maps still live on in the storytelling, yoiks[14] and place names, and witness the deep knowledge of the Indigenous art of living. The extent to which *dáiddakárta* is able to embed the knowledge and aesthetics of these oral, mental and performative maps is a question to be explored and can further contribute to the "new arts of noticing" the land, its connections and connectivity (Guttorm et al. 2021, 135). Indeed, the function of *dáiddakárta* is more than just a description of the landscape, and more than highlighting an Indigenous culture. The maps are interpretative, aesthetic and even speculative actors in our contemporary culture.

Worlding as a multifaceted concept encompasses this study, although not as a utilitarian tool to find the way, but rather as a sphere to step into and be embraced by. Worlding refers to a manifold of philosophical, conceptual, critical and methodological understandings, firstly rooted in the existential phenomenology of being as a constant, and poetic, formation of the world (Heidegger 1927). The concept also embraces a productive and symbolic world-making in art and language (Goodman 1978). Furthermore, the postcolonial *counter*-worlding indicates expressions of agency and resistance to imperial worldviews (Spivak 1985; 1990). Not least, a speculative and fabulising worlding-*with* also embraces a multispecies perspective of immense importance today and tomorrow (Haraway 2008; 2016). Thus, varied understandings of worlding deem different aspects of the concept as essential and help understand mapping and *dáiddakárta* as a constant formation, relation and negotiation; and as an active and ontological process not rendering or representing a world 'already there'. Worlding expands upon the concept of world view, which has long been significant in Indigenous studies and cartography.

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14   Yoik is traditional Sámi chanting, a vocal genre. The function of it is wider than being just music, and can be considered representative of the entire Sámi culture and world view, in its structure and meaning. In this context, of interest is the function of yoik to recall *memories* of places and landscapes, and also to describe those places. However, it is important that the description is not *about* a place (or animal or person), rather one yoiks the place (or animal or person), or *invokes* the landscape.

As a non-Sámi speaker and interpreter, I recognize that my knowledge is situated and partial, striving to be attuned to Sámi knowledge and worldviews.[15] Aware of the danger of appropriation, my use of Sámi terms and imagery is discussed with Indigenous scholars. The artwork *Markarna* (*The Fields*, 2018) by Carola Grahn and duojár Nils-Johan Labba serves as a land acknowledgment, to which I give my consent: a small globe-shaped box of wood and antlers encircled by an inscription in Swedish and Northern Sámi. Accompanying the globe is a speech, stating: "We acknowledge that the lands on which we gather are the traditional homelands of the Sámi people. Here, Sámi people have lived and herded reindeer since time immemorial. Now, we strive towards respectful relations with all peoples and work for the healing of both land and hearts".[16]

3 The Sámi Atlas – *Ourselves in the World*

The first *Sámi Atlas* was published as late as 1996 and gives us a broader understanding of Sápmi and important views on land, history and cultural heritage (Mathisen, Aikio, Henriksen 1996). The atlas was edited by Hans Ragnar Mathisen and made in cooperation with Sámi historians. The map sheets are quite similar to any didactic school atlas, showing well-known worldviews of the European continent and the Nordic region. However, the focus, language and topics differ. The publication manifests Sámi archaic history up until the contemporary political situation, as it maps rock carvings (*báktegovat*), places of sacrifice (*bálvvossajit*), trapping sites (*bivdorusttegat*), traditional reindeer grazing grounds, various Sámi language areas *sámegielat*), summer residences and winter residences for the nomadic population (*siida* boundaries), historical borders and today's national borders. Producing this atlas was one important way to pass on knowledge of Sámi history, geography and land use, and to claim ownership of the cultural heritage inherent in the landscape. The conventional format of the atlas is utilised, as a language of science and authority, but produced by Indigenous scholars for the Indigenous people in their own language.

The endpapers that carefully embrace the Sámi Atlas are handdrawn maps created by Mathisen. The front map centres on the North Pole and showcases the Indigenous peoples of the North

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15 The International Labour Organisation's (ILO) Convention 169, 1989. In Norway, it is clear that the Sámi population satisfies the criteria stipulated in this definition. For the ethics of Indigenous methodology, see amongst other Porsanger, Seurujärvi-Kari 2021, 26-39.

16 For the artwork and translation, see Danbolt, Pushaw 2023.
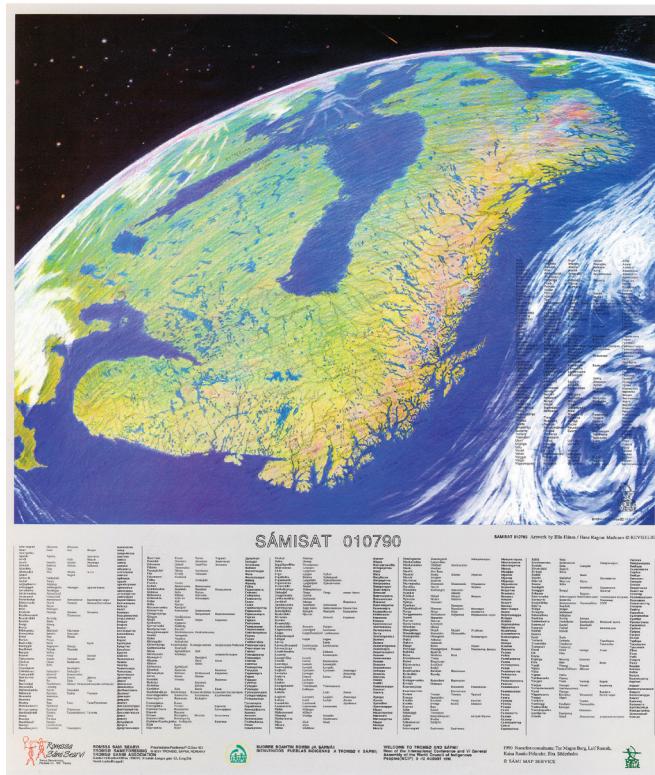
(*davviálbmogat*) and their homelands in the circumpolar Arctic, including Nunavut, Kalaallit Nunaat, Nenetsia, and Sápmi. Surrounding his pastel-coloured map are Arctic animals, reindeer, walrus, salmon, and polar bear. The front endpaper presents a different perspective: a spherical representation of the world seen through the lens of a fictional satellite. Titled *Sámisat 010790*, this depiction reorients the conventional map, highlighting and magnifying Sápmi.[17] Mathisen appropriates the technological optics of Earth images from space in this hand-drawn rendition, linking it to the satellite as a modern visual tool for Earth observation and research, also beneficial to the Indigenous peoples of the North. Just as satellite imagery has trained the modern eye to view ourselves from a planetary perspective, it simultaneously draws our attention to familiar, localized places. In the Sámi Atlas,

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[17] Cf. Mathisen's website: https://keviselie-hansragnarmathisen.net/. His website is now archived; it belongs to the Hans Ragnar Mathisen archive of Árran julevsáme guovdásj / Árran Lule Sámi Centre.

these place names are meticulously integrated into the landscape. In the mass-produced poster version of *Sámisat 010790*, the names are also provided below the map in a multilingual parallel format [fig. 2].

Utilising the master's tool to amplify marginalised voices, highlight their perspectives, and articulate their reality, the *Sábmi* map of 1975, the *Sámi Atlas*, and further Mathisen's extensive collection of maps from all Sámi regions serve as counter-mappings. Counter-mapping emerged from Indigenous groups, initially in the northern territories of Canada, in the 1960s and 1970s, as an act of agency and resistance, allowing Indigenous communities to control how their land was depicted and represented. In a broader context, these maps align with Spivak's theories of counter-worlding, offering alternative narratives and representations that challenge the hegemonic world view (Spivak 1985, 263-4).[18] While Mathisen's maps are situated within this discourse of resistance and are viewed as tools for interrogating power-knowledge inequalities, they are more. The principal recipients are the Sámi people themselves, not the colonisers. And, Mathisen's aesthetic and abundant cartographic style celebrates 'ourselves in the world', rather than expressing resistance or critique.

4 The Drum's Time

Mathisen's extensive body of work demonstrate antipodes in his *dáiddakárta.* The woodcut entitled *Tacitus '98 A.D. / Goahti* (1999) offers a starkly contrasting perspective to that of the satellite. Here, Mathisen re-situates the writings of the Roman historian Tacitus regarding the Sámi (finni) in his literary work *Germania* from the first century in Western time: "Securi adversus homines, securi adversus deos, rem difficillimam adsecuti sunt". 'They do not need to fear either people or God, because the conditions they live in are already miserable'.[19] The Sámi people are not unknown, but have rather been thoroughly studied from ancient times up till today, but for a long time devalued and exotified. In Mathisen's picture, the ignorant and devaluating Latin words of Tacitus are remediated, as they are inscribed as the oval plan form of the traditional Sámi arched tent (called *goahti*), and as they witness survival despite difficult circumstances throughout history. The pictorial perspective is from the ground inside the tent, where the eyes follow the colourful *goahti* construction upwards to the central opening and into the blue sky. Regarded as a two-dimensional graphic plan or map of the *goahti*, this oval form with its

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18 For elaboration and examples of counter-mapping, see Kollektiv orangotango in Schranz 2021, 65-93.

19 The translation of Tacitus relies on Holm 2022.

Figure 3
Hans Ragnar Mathisen, *Tacitus '98 A.D./Goahti*. 1999. Coloured woodcut, 62 × 55 cm. RiddoDuottarMuseat, SD 1042. © M.Miller / RDM

radial forces extending from the centre, is often repeated in Mathisen's artworks as a profound symbol in Sámi culture. When moving the tent to follow the herd during the seasons of the year, the centre of the world moves with it [fig.3].

Many of the old Sámi drum membranes, of which Mathisen has made 32 replicas, have a similar structure to the goahti map. These drum drawings can be conceived as 'cosmic maps'. This is elaborated on in "The Drum as Map: Western Knowledge Systems and Northern Indigenous Map Making" (Keski-Säntti et al. 2003)[20] in which the authors present the different ways the Sámi drum could have functioned as a map: as the individual naoidi's spiritual journey, as hunting maps, as a shared and ritual orientation in space and time, as astronomical orientation, and thus as a connector of microcosmos and macrocosmos. The map, then, is not solely limited to the pictorial representations on the drum skin. It also encompasses a material aspect, such as the rear side with its handle. Furthermore, it encompasses the experience of the drum in use: the rhythmic tapping and the voice of the noaidi, the gathering around the fire in the interior of a tent, the opening up into the constellation of the stars. Obviously, to interpret the image of the drum skin solely "as a representation of an indigenous cartographic knowledge system – a map" is too simple and "fails to do justice to the Sámi world view as a whole" (Keski-Säntti et al. 2003, 122).

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20   See also Mathisen in *Cartographer* (2019): 00:38'.

Figure 4 Hans Ragnar Mathisen, *Trommens tid* [Goabdesjágge / The drum's time]. 1994. Woodcut, monotype on paper, 75 × 56 cm. Troms fylkeskommune, TFK. 1192. © Jan Martin Berg

In Hans Ragnar Mathisen's woodcut entitled *Trommens tid* (*Drum-Time / Goabdesjágge*, 1994) the pictorial outline of a drum skin fills the surface, but printed on a background that seems to be a landscape. In an interview Mathisen clarifies that out of all his graphic drum prints, "this is the only drum that can also be perceived as a map", which more precisely represents the Lule Sámi area.[21] The

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21 Confirmed in personal conversation, cf. Mathisen 2024.

drum's membrane is rendered transparent against a light blue background and is embraced by a brightly coloured landscape. In the top field, the line curves like a horizon, and the mountains, the sea and fields of land are represented in a coherent and vigorous palette. The dominant green and blue colours signify a rich landscape of plants, trees and valleys, rivers and waters with fish and sea birds, and animals like deer and fox and their tracks in the snow. Signs of the sun and the moon anchor each corner of this world, and the glimmering North Star is fixed at the top. In the bottom field, the planetary perspective is reduced to a strip of overlapping zones, dominated by green letters in between the mass-felled trees, upside down most likely saying "Láhppun", which means felled, lost, absence, and also hints to Lapponia, the colonial name on Sápmi (Mathisen 2024). Hidden in the landscape, the artist has left a comment on the capitalist driven and eco-destroying felling of forests in Lule Sámi areas.[22] However, the linguistic meaning of 'Láhppun' also implies 'the possibility of coming back' **[fig. 4]**.

The red outline of the drum is a replica of an old Lule Sámi drum, as it is represented in Ernst Manker's ethnologic monography *Die Lappische Zaubertrommel*, vol. 2.[23] The separating horizontal line inside the oval drum is a significant part of the iconographic programme: in the upper part of the pictorial field there are images of gods and holy places. Underneath, and in the middle, the ordinary world is represented. And at the very bottom, there are varied scaffolds, amongst other used in rituals of sacrifice. In the centre is the sun symbol, encircled by the four cardinal directions, and in its innermost space a figure which is suggested by Manker to represent a bird (Manker 1950, 411), and by Mathisen perhaps a bear, a holy animal in Sámi tradition. In any case, the human is not in the centre in this worlding.

If *Trommens tid* can be considered a map, its two layered print (the drum outline upon the landscape) opens our eyes to a world of connections, between beings of humans and more than humans, and between the spiritual realm and contemporary realities, bridging the past and the future worlds, and healing the broken and lost. At least, that is a hope expressed by the younger artist Sissel M. Bergh "Can the magic be rediscovered, so that everyone can live with and in our surroundings?".[24]

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22   Lee, J. (2023). Unpublished interview with Hans Ragnar Mathisen on his *Drum Motifs*, for *Troms fylkeskommune* (00:10'20'').

23   Manker 1950, Abb. 145, Nr. 63, 410-12.

24   Cf. S.M. Bergh, *Elmie*, short film (2023).

5 Meahcci, *Mapping and Memory Work*

To an outsider, vast northern landscapes may seem uninhabited and uncultivated. A central task in Indigenous cartography is to represent a world that is inhabited for generations, and to dismantle the misconception of wilderness. Such misconceptions laid the ground open for cultural colonialism, as well as legitimise today's 'green', environmental colonialism.[25] In the Sámi lifeworld, the seeming wilderness is *meahcci,* as unfolded in the article "Verbing *Meahcci*: Living Sámi Lands". The Sámi scholars describe the plural, *meahcit*, as places for practical and productive relations between humans, animals and nature (Joks et al. 2020). Meahcit are *taskscapes*, to use the anthropologist Tim Ingold's term, as the time-and-space specific use of the land throughout the shifting seasons. This also encompasses the complexity of the Sámi land use and sharing of resources, which according to the authors is hard to explain in academic terms and even harder to represent on a map. Meahcci is to some degree embedded in topography, and in wayfinding and task-oriented words and place names, in which the Sámi language is rich. These toponyms provide the basis for mental and cognitive maps through which the landscapes are expressed and remembered. However, the place names and their meaning are in danger of disappearing, even from central Sámi areas where the Sámi language is used in everyday life.[26]

The oral transmission of meahcci, which conveys the knowledge of connectivity, boundaries, and where to find resources and shelter, so crucial for humans and other beings in Sápmi, is a profound source in Katharina Pirak Sikku's art practice. Pirak Sikku often devotes herself to slow wanderings through the landscape and through the history of her ancestors. She also follows the trails of the reindeer herd; when following the reindeer, she follows her ancestors. In the exhibition *Dollet* ('Grasp', 2006) she drew trails on the walls and floor corresponding to the migration path. These trails led through installations of reindeer stomach adipose and shattered glass, reminiscent of slaughtering or a place of sacrifice (Jørgensen 2017, 254).

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25 'Green colonialism' is used to describe the ongoing colonialism in Sápmi, similar to such concepts as 'energy colonialism' used elsewhere. See amongst others: `https://www.arcticwwf.org/the-circle/stories/climate-change-and-green-colonialism-in-the-sapmi/`.

26 The reasons for this loss are manifold. One reason Mathisen states in *Cartographer* is that people travel faster, and thus do not need the small names on the locations in between the main destinations. While Sámi scholars reckon this threat, they also argue that today's modern way of living and herding, using snowmobiles and GPS rather than reindeer and sled, not only imply loss. The new experiences of the land, according to their findings, are embedded in the old stories, and new places are added to the collective maps. However, today the mapping process becomes lesser collective and more individualised. *Cartographer* (2019), 00:11'. See also Nergård 2006, 127; Cogos et al. 2017, 45-8.

The installation was accompanied by an oral narrative about a small Sámi settlement, Luovva Luokta. As a whole, this highly sensual exhibition can be considered a map that opens a world of connections between peoples, animals, land, the living and the dead.

In her more recent work created for the exhibition *Down North/Contemporary Art in the Arctic* (opened in 2021), among other artistic outcomes are two paintings to which Pirak Sikku refers to as maps **[figs 5-6]**. The body of work as a whole is titled *From Katarina Pirak Sikku's archive: Pirak's and Klementsson's hiking trails and ancestral reindeer marks / Katarina Pirak Sikku vuorkkás: Birága ja Klementssone johtolagat ja máddariid boazomearkkat* (2021). For a long time, Pirak Sikku has collected stories from people living in the Jåhkåmåhkke district in the interior part of Sápmi and searched the archives for lost knowledge. For this project, she has incorporated a study of the patterns of her families' reindeer marks and their hiking trails, thus adding another layer of visual and historical narrative to the geographical terrain and trails.[27] The two maps, each measuring 145 × 193 cm,

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27 The work was produced for the first "North Atlantic Triennale: Down North" at

depict fields of blue paint representing lakes and rivers, with green spots marking the sites of her ancestors' self-built houses and sheds. The map named 'Luovvaluokta' refers to the small settlement we know from her former exhibition. This is where her father grew up. The place name means 'bay of supply', as Pirak Sikku explains in a written essay about her father, the artist Lars Pirak Sikku (2021, 205-14). The other map on display provides insight into her mother's home place further south in Sápmi (Pirak Sikku 2024).[28] Both maps feature hand-written text referring to different layers: GPS coordinates, names of lakes and places, fragments of secret and collectively forgotten stories, and private memories. Some of the locations that Pirak Sikku has marked are places she got to know while growing up, while others are added based on oral descriptions and archival findings.

Pirak Sikku's maps document traditional knowledge of the environment, as they locate where to find vital resources like water

Portland Museum of Art, Maine, February–June 2022. In 2023 the exhibition opened at Bildmuseet, Umeå, Sweden.

28   Pirak Sikku, mail correspondence, 14 march 2024.

springs and cloudberry marshlands, the best places for fishing, and materials for the work of duodji, and to build shelters to rest. Included are also landmarks like the offer stone, 'the haunted house', and long-kept secret places, like the hidden burial site on a small islet with a written inscription on the map, explaining: "for those who did not want to be buried in Christian soil". Pirak Sikku underscores the importance that the geographical locations of significant Sámi places were not known. They were kept secret to protect them, because if discovered, they would most certainly be visited by ethnologists, who would dig them up and take everything of value to a museum. However, the better protected, the less the places were mentioned, and the more the places fell into oblivion.[29] Similar concerns about keeping secrets are also recognised in other research projects on mapping Indigenous cultural knowledge, which makes us aware that mapping itself may leave Indigenous knowledge vulnerable (Pearce, Louis 2008, 110).

While Pirak Sikku searches historical tracks in place and memory, her visual maps are developed little by little, more like storytelling than pictorial maps. The ink and the fluid watercolour set blots on a white surface, which are further connected with dashed lines and text. These maps may be likened to the mental maps' structure, visualising paths, edges, districts, nodes and landmarks. The body-scaled size of her maps evokes and involves phenomenological experiences, and invite entering the artist's landscape of memory. Obviously, these large-scale maps that are exhibited are not intended to be the end-product of artistic research, but rather seem to be entrances to the reciprocal process of recalling and mapping. The blank paper surfaces that are not filled out are forgotten places, hidden stories and potential histories. The maps thus function "as mnemonic devices, where stories from the past, a memory or shared memories are remembered", as Sámi poet Niilas Helander writes on Indigenous maps in his *Nomadtekst* (Helander 2022, 38).[30]

In Katarina Pirak Sikku's art project, the intricate interplay between history and land is emphasised, where kinship becomes inseparable from geography. Ultimately, the artwork reminds us that the land is interwoven with the lives and histories of our ancestors. Stories and knowledge about specific places are deeply embedded within families and individuals, but are not written down, instead living on as mental maps, orally through storytelling, or bodily through movement in the landscape. Pirak Sikku's research and mapping project thus becomes a poignant work to negotiate personal and collective memories.

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29   Cf. Sikku's website: https://www.katarinapiraksikku.com/katarina-pirak-sikku-vuorkk%C3%A1s-bir%C3%A1ga-j.

30   Helander refers to and quotes Azoulay 2019 and Tuck, McKenzie 2014.

6 Kiss from the Border – *Decolonial Interventions*

In the same spirit as the *Sábmi* map of 1975 celebrated the Indigenous people, free of national borders, regardless of nature interventions and other regulations restricting Sámi way of life, the art project *Rájácummá* from 2017-19 praises the large and rich landscape of the river, Deatnu/Tana (Holmberg, Laiti, Pieski 2021, 154-9). The translation of the project's title to English as 'Kiss from the Border' is both inviting and, at the same time, serves as an ironic commentary on the complex relationship between Sámi rights and the national state regulations between Norway and Finland. This multimedia project includes a graphic map signed by Outi Pieski with the title "Ellos Deatnu!", literally translated as 'Let the Tana river live!'. Interpreted against its historic-political backdrop, this map stands as a sharp comment to the national states and their power. It reminds us of the slogan "Ellos Eatnu!" (Let the river live!), which was used in the most known conflict of land and water in Sápmi, the Áltá/Alta conflict, which escalated throughout the 1970s, reaching a full controversy in 1981 [fig. 7].[31]

The current political conflict to which the *Rájácummá* map refers (and even intervenes) is more recent, but still concerns the ongoing conflict with governmental regulations and the right to land and water. Outlined on Pieski's graphic map is the jagged coastline of the northern part of Norway and Sápmi. The main motif is the Deatnu river, one of the major rivers in the northern Norwegian part of Sápmi, rich in salmon and a connector between people. However, the river has also come to be the border between the two nation states of Norway and Finland.[32] On Pieskis map, against a light monochrome background, Deatnu is rendered as a vital organ, similar to a heart or a

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[31] The conflict was between the Sámi people and the environmental protection movement on the one side, and the Norwegian State on the other, which was to conduct a large-scale hydropower development in the river connecting Áltá and Guovdageaidnu. This consequently would disturb the life of plants and animals and destroy the Indigenous people's vital use of the river and the nearby land.

[32] The borders which spilt the Sámi people into different national states were created in the mid eighteenth century, the addition to the treaty ('Lappekodisillen' of 1751, called the Sámi *Magna Carta*) was to secure the Indigenous people's right to move freely across the borders to follow their reindeer herds or for fishing, hunting or gathering. However, as Sámi scholar Veli-Pekka Lehtola states: "in the 1800s Sápmi, the Sámi homeland was split into four parts by the national borders [...]. Reindeer nomads were prohibited from crossing the border; likewise residents on the Finnish side were denied the right to fish in the Varanger Fjord [...]. The border closing caused upheaval for Sámi culture" (Lehtola 2002, 36). The question of Sámi rights to land in the northernmost County of Finnmark was mostly settled through the 2005 Finnmark Act which transferred state ownership of the county's land to the inhabitants of Finnmark. Historic Sámi rights to land and water, however, is still an unresolved issue (Raymond-Yakoubian et al. 2020, 303).

lung with a network of life-giving veins. The organic flood is encircled by red-coloured text lines, which is a poem written by Niillas Holmberg in the Northern Sámi language. It starts and ends with "gažaldat eana, vástádus eana", which is translated to 'land is the question, the answer is land', and in poetic terms expresses the Indigenous people's close and sustainable relation to nature, and how to harvest its resources, and only take what is needed, "váldit dušše maid dárbbaša".

The map and the poem were part of a more extensive collective art and activist project, which intervened with the geographical landscape around the Deatnu river. Lines from the poem were printed on signs and put up at the borders of the river, and the sites were marked as red dots on the map. Also, signs with more forthright political content were put up, proclaiming: "Moratoria. Decolonized Saami Area. Colonial laws not applied".[33] A moratorium was declared to halt the new fishing agreement concerning the Deatnu river, which restricted the local people's traditional fishing rights and increased pressure from commercial recreational fishing on the salmon stocks. A 'moratorium office' was established in a building on one of the river islands, accompanied by a website, to give information and offer tools to empower and activate the locals to resist colonial laws, and to build connections between the Sámi across the nations' borders [figs 8a-c].

Rájácummá connects art, design, cartography, geography and
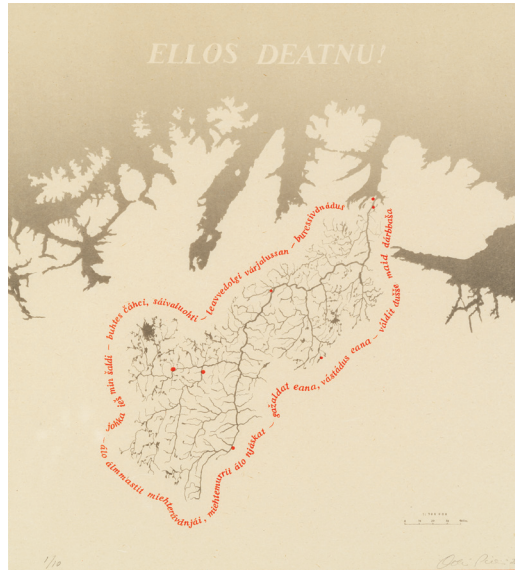
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[33] http://niillas.com/moratorium-office.

Figures 8a-c Outi Pieski, Jenni Laiti, Niillas Holmberg.
The collective environmental artwork *Rájácummá / Kiss from the Border*.
Niillas Holmberg, Jenni Laiti and Outi Pieski. 2017-19. © Outi Pieskis

activism, and thus fits the concept of radical cartography. It is inherently political, as its multimodal layers are embedded in the ongoing political, legal and economic processes, and violation of the Sámi people's right to land and water and ways of living. Defined as "the practice of mapmaking that subverts conventional notions in order to actively promote social change", radical cartography is an important tool for Indigenous peoples.[34] In this Sámi context, such attempts to reveal structures of power, to enable democratic processes, and to promote change, are also practises of decolonialisation (Homberg, Laiti, Pieski 2021, 156-8). Thus, the Deatnu map itself is of less importance, subordinated to the overall goals of the *Rájácummá* project.

The afterlife of the environmental artwork *Rájácummá / Kiss from the Border* is binary. In the first stage, the 'Ellos Deatnu!' map was

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34 Mogel, Bhagat 2008, 6-7. See also Schranz 2021, 31-2.

reprinted on a black background with a heading shouting 'Creating justice', and sold as posters and t-shirts in the campaign to support the Sámi river anglers in their fight and trial against the Finnish government which in 2016 swept away their rights to fish the Deatnu river.[35] This resonates with traditional Indigenous processual cartography that often stretches into the landscape as an extension of the map, as marks in stones or trees, but in this case extending through contemporary means such as inscriptions on clothes and on signboards at the riverside, through websites and activism (Pearce, Louis 2008, 110). In the next stage, the map and the photographs of the poetic signs in the landscape were purchased by the governmental Public Art Norway as a permanent installation at the Sámi upper secondary school in Kárášjogas.[36] Surrounding the school's busy canteen, the artwork's appreciation of the life-giving river is upheld for the younger generations.

To the activistic part of *Rájácummá*, the musician Sofia Jannok contributed a yoik. She continues the Sámi tradition of yoiking the land, the wind and the river. In one of her written pieces, mourning Sápmi as a 'stolen land', she refers to the Sámi belief in the spirituality of nature, as still prominent in her own mother's world. However, nature is threatened by industry's interventions, and she finds a deep fear for the future: "The mountains are sacred. Imagine they start extracting Goabddá and Ráska. That would be like sticking a knife straight into the heart", her mother says. "How would a map for this heart look like?", Jannok responds (2021; Author's transl.).

7 Slow Cartography – Healing Land

The knife has pierced the map entitled *Luonddu gáržžideamit* (Nature interventions) drawn by Hans Ragnar Mathisen, at the beginning of the 1990s [fig. 9]. This map is the opposite of his well-known and celebrated *Sábmi* of 1975. Against the bleak blue outline of Fennoscandia, black holes and red fields bring up central issues in a critical praxis of Indigenous cartography. At the upper left, the indexes for the nature interventions are listed: cities and industry; hydroelectric plants; mining; military; dams and catchment areas; nuclear power plants; gas and oil drilling fields. The intertwined issues of

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35 For the campaign, see https://www.samihumanrights.org/post/thank-you-for-your-support. The fishery in Deatnu river has been regulated since 1873, however in ongoing renegotiations and confrontations between the Norwegian and the Finnish governments and the local population.

36 KORO – Public Art Norway is the Norwegian government's professional body for art in public spaces, and the major producer of art in Norway, cf. https://koro.no/english/about-public-art-norway/.

coloniality and environmental destruction are of no less relevance
today, as the colonising new waves flow over Indigenous land all over
the world. Green colonisation, military control and the commercial
mining industry occupy Indigenous land, extract the rivers, wetlands,
forests and mountains, and build borders that hinder the movement
and migration of fish, birds, mammals, and people.

For several years, the artist Sissel Mutale Bergh has followed such
processes of nature restrictions in the Southern Sámi region, of which
the construction of the controversial industrial wind power plants on
the Fovsen mountain plateau is the largest, and actually the largest
in Northern Europe. In 2021, the power plant was judged by the Nor-
wegian Supreme Court to be in conflict with the Sámi reindeer herd-
ers' use of the land and their fundamental human rights.[37] Bergh's
response to this urgent situation is addressed in recently published
short films, amongst them *Elmie* (2023), "a documentary poem about
air, breath, wind, birds and mountains – and wind power".

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37   Cf. Norwegian Supreme Court, "The Fosen judgement", HR-2021-1975-S.

Despite the political urgency, Bergh has also devoted herself to a slow mapping of the region. One of her driving forces is to question the Norwegian history writings and mappings. For her exhibition *Dalvedh* at the art museum in Tråante / Trondheim in 2014 she organised series of public lectures and workshops aiming to reveal and gather hidden and forgotten knowledge. The Southern Sámi word *dalvedh* means the "re-emergence of that which have been long gone" (Jørgensen 2017, 262).

For a long time, Bergh has searched for Sámi traces and presence in the counties of Trøndelag and Møre, a region which for most people is recognised as Norwegian rather than Southern Sámi. Her art project thus responds to the long story of erasure and ignorance of the Sámi's existence in this area. One of her comprehensive projects, started in 2009 and still ongoing, is the etymological and historical mapping project *Ajmoejimh ajtoejimh*, in Southern Sámi, which may be translated to 'washed out', 'faded' or 'erased'. Here, Bergh investigates the connections between landscape and language, and how old and local place names can be a key to uncover the past. In her work, history and land is seen as archived within language. Thus, it is through the knowledge we have of language that we can unravel the past and reconnect to our environment.

As part of this mapping project, Bergh is working on the monumental map *Noerte Miere Fuelhkie* (Northern Møre County 2018-), measuring 5,6 × 5,3 m **[figs 10a-b]**. She is adding old local place names to the sites and landscape, which convey rich knowledge of the topography as well as the land use. When exhibited, the public is invited to bring their knowledge and stories, to give historical depth to the names and landscape, and to fill out the blank spots on the map (Furseth 2020, 5-10). Bergh invites to take part in the deep and slow mapping as a work of memory, and as a work of reconciliation.

Due to the size of the map, the artist needs to be involved bodily when writing place names and drawing informative signs on the paper. Her cartographic practice can be characterised as deep mapping in the sense of adding archaeological and historical layers to the topographical map; and slow mapping, owing to the long research process, the public involvement in naming and tracing, and the large-scale, hand-drawn materialization of topography and history. These are methods which to some degree evoke 'incorporative' and performative aspects of Indigenous mapping and knowing, and which resist the 'inscribed', Western cartographic form (Rundstrom 1998; Cogos et al. 2017, 49-50). Some of Bergh's performative and participatory map works even appear as a kind of healing process, where the wounds of the land and the loss of history are in the slow making of being repaired. This practice resonates with other Indigenous cartographers, who see map making as a healing process (Lucchesi 2018, 24).

Figures 10a-b   Sissel M. Bergh, *Noerte Mïere Fuelhkie*. 2018-ongoing. Map of Coastal Møre, Norway, with old and local placenames. BIC-pen, ink, coloured pencil, collage on paper, 565 × 530 cm. © Amalie Marie Selvik / Trøndelag Centre for Contemporary Art, 2020

Bergh brings her maps into the realm of fabulation. Through etymological studies and parallel art projects like the Hovren Gåetie, she delves into possible and speculative connections between the past and the present, between humans and animals, between land and the cosmological dimension (Hemkendreis 2023). She investigates how to relate to and understand the physical and invisible world(s), questioning how we can reconnect to the land, the memory, the power and the magic.

8 Guided by *Dáiddakárta*

In this article I have examined a limited number of art maps from the period 1975 to the present day, all of which depict Sápmi from a global perspective and from various local contexts. Through a diverse range of artistic processes and media, utilizing various cartographic methods, strategies, and objectives, these art maps offer an enhanced comprehension of Indigenous mapping practices. They illuminate knowledge and relationships that are in danger of fading away. As artworks, these maps also beckon interpretation as responses to broader global issues, while remaining firmly grounded in local contexts.

The article demonstrates how the art map, *dáiddakárta*, activate Western cartographic practices used in the modern world's discovery and colonisation of 'the other', although changing the perspective and the power to name and claim their own land. Such counter-mapping has long been used as Indigenous resistance to colonial forces, but also to celebrate cultural differences. Furthermore, artists have employed maps as radical, experimental and instrumental tools to effect political changes, both locally and globally – in particular in opposition to governmental and global capitalism's extraction of natural resources that threatens livelihoods and the environment. The art maps contribute to exposing power mechanisms that are generally invisible or oppressed.

However, the urgent decolonial and political context, the article discusses how these types of political and decolonial counter-mappings have little to do with the Sámi's ability and traditional form of orientation in the landscape, with their knowledge about places, how to find resources and ways to survive, and their relationships with animals and other living beings. This Indigenous mapping of the inhabited and utilised landscape may be summarised as *horizontal* maps. They are transferred orally and in place names, through bodily movement, and duodji practices. The article also shows how contemporary Sámi artists are concerned with what we may conceptualise as *vertical* maps. This is the mapping of a landscape that also belongs to ancestors, that connects the underground people and the mythological star constellations, and further opens to new spiritual possibilities. These horizontal and vertical relations set up the phenomenological space which I enter through the concept of 'worlding'.

All of these art maps are processual and continually evolving, as new place names, stories and memories, archaeological and archival material, are added – thus giving new depths to the knowledge of the landscape. They are obviously time-consuming to create, as thousands of names and varied topographies express their richness. On the other hand, the slow mapping also acknowledges the processes that coming to terms with a painful past demand.

As material and visual object, *dáiddakárta* is characterised by multimodality. The use of visual and linguistic signs is abounding, and some maps recall a wider sensory apparatus of rhythms and sounds, and socio-spatial experiences. Furthermore, the art maps are spatial installations, whether they are mass-produced map posters in everyone's homes, canvases that fill gallery spaces, or installations that extend into natural, political, juridical, and digital landscapes.

The article's compilation of various art maps becomes a collective and polyphonic mapping, adding a layer to Indigenous cartography. Some of the art maps oscillate between map and image, which is partially liberating from their referential role, and opens towards a more imaginative or even speculative power of art maps. In this article, I argue that art has the potential to reembed Indigenous knowledge. Artistic practices enable the consideration of Indigenous territorial dimensions - such as the social, the sacred, and the spiritual – as well as deep ecological aspects, and the interconnectedness with land and other beings and entities. This is not just an internal matter for the Sámi population and Sápmi itself, but aims to adjust and guide the course for individuals, and for a society and a planet that are getting lost.

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Mapping a Blank Spot and Making Empty Spaces
Geographic and Cartographic Ontology in Italian Topographic Mapping of the Southern Libyan Desert in the 1930s

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Abstract　This study explores the ontological assumptions of mapping as active processes, rather than passive representations and discusses the need for pragmatic guidelines in map-making, as maps only acquire meaning through their users' minds and bodies. The paper presents historical examples of Italian colonial topographic mapping of the southern Libyan Desert during the 1930s. It emphasizes the interconnected histories of geographical exploration, social and cultural contexts, and technical practices. The paper argues that the 'empty spaces' on maps reflect intentional choices made by cartographers, not insufficient data. The performative nature and diverse sociocultural conditions of maps need to be considered to understand their meaning and use.

Keywords　Geographic ontology. Mapping processes. Italian colonial cartography. Topographic mapping. Libyan Desert. Blank spot.

Summary　1 Introduction: Cartographic and Geographic Ontology. – 2 Expanding Borders: "Libia Italiana". – 3 Modern Cartography: A Myth of Accurate Representation. – 4 Geographic and Cartographic Ontology. – 5 International Borders in the Sand. – 6 Desert: Object or Field. – 7 Navigating the Seas of Sand . – 8 Early Explorers of the Libyan Desert. – 9 Camels and Automobiles . – 10 Italian Military Sketches from Kufra. – 11 Topographic Maps with White Spaces. – 12 "Cartography as Science and Art". – 13 Conclusions and Outlook

1   Introduction: Cartographic and Geographic Ontology

The history of cartography started in a period when maps were considered representations of positive knowledge, images of the calculable geographic space. In the 1990s the accepted view held by 'internalist' historians of cartography was challenged by the socio-cultural criticism represented by Brian Harley and his many followers. The new approach, deconstruction questioned the very ontological assumptions of cartography, and various researchers demonstrated the fundamental problems with true, scientific and neutral representation (Harley 1989). The theoretical basis for new methodologies came outside of the traditional, disciplinary scope of cartography (Eckert 1921): from critical, social and political theories. In the early twenty-first century the epistemological crisis of traditional cartography as a discipline is apparent for both internalists and 'outsiders' if interested in cartographic theory. At the same time, with the enormous pace of technological developments in the social use of spatial information, a new theory on 'mapping', instead of cartography, is more relevant than ever. If the substantial problem is in epistemology research must reach what is beyond it. In contrast to the explanation given by the positivist theory of passive cartographic representation, we can consider mapping as an active process to break out of the cage. Mapping as a process calls for the attention of the situated use and users in the world and focuses on the 'ontologically insecure' meaning of maps (Kitchin, Dodge 2007), created as performative presentations under highly different sociocultural conditions.

While these new approaches offer new vistas for understanding maps as ideological and political discourses, professional and academic cartography and GIS practice are interested in more pragmatic guidelines, the ways that make maps work in common practice. Maps can work because of their existence, either drawn or printed on paper or displayed on the screen of the mobile phone. However, maps as things in the external world become maps once humans use them. Without their users, they are just physical objects – or words, gestures and movements with different meanings. When they are used they work together with the minds of users, who also have bodies surrounded by a physical environment, including the map itself. These are highly complex processes, but we do not need maps when our mental capacities are sufficient. At some point in the long history of human evolution, millennia earlier, we innovated external tools to help us solve problems with high complexity. The powerful tool we use to solve complex spatial problems is what we call a 'map'. Maps are powerful as they exist, and the characteristic patterns of their use are what we can call mapping modes.

I could talk about ontology to Brian Harley in 1990 when he invited me to Milwaukee to do historical research in the American

Geographical Society's Library. This personal remark is included here to propose that, although fascinated with revealing cartographic ideology and masked meaning at that time, Harely was interested in ontology and could see its prospect. Ontology in its strict sense is about 'being', the world in itself, as if we could see it from outside. This is not what we can learn from the experience of the 'beings' in the world. Elden (2001), who compared the philosophical ontologies of Heidegger and Foucault to show their affinity, stressed the distinction, between "ontologic" and "ontic" knowledge. This approach was followed in critical cartography, where Crampton emphasized the difference regarding the conflicting views resulting in "cartographic anxiety" and also emphasized the political role of technology in mapping and GIS (Crampton 2010). In this paper, that ontic knowledge, the knowledge about the properties of entities, however, is also considered part of social ontology. Geographic ontology is about the existence of entities in geographic space, while cartographic ontology is about the graphic entities, signs, lines and areas, existing in the mapping space. The common understanding that a map is 'an image or representation of a part of the earth's surface as it is seen from above' offers a false explanation of the real nature of mapping. The oversimplified and misleading concept of 'representation' becomes apparent once we put European cartography into an extremely different context.

The aim of this study, when presenting historical examples of Italian topographic mapping of the Lybian Desert in the 1930s, is to explore actual mapping processes and make apparent some relations between different mapping modes. To make some of these, highly diverse and sophisticated, technical or socio-cultural processes comprehendible for scholarly readership first the broader social and cultural-technical contexts are introduced. We emphasize the interrelated histories of geographical exploration and mapping, but this paper is limited to some observations regarding the colonial cartography specified above. The conceptual problems of colonial cartography are noted by the authors in the recent volume edited by Lobo-Guerrero et. al (2021), which is organized around the connectivity problem of European colonial mapping practices. This paper, although offers a similar narrative, is more limited to technical questions and takes an ontological approach. Although to demonstrate mapping ontology at work, we are interested in a particular colonial mapping practised under extreme natural and socio-historical conditions, with the diverse interrelations of individuals and institutions (colonial cartographers and mapping agencies), who were all involved in the mapping of the desert. These contextual frameworks are sketched below to enable us to study the historical interrelation and processes between geographic and cartographic ontologies.

Researchers rarely explore this field, especially not in its historical context, although connecting domains and ontologies is substantial for the understanding of mapping processes. A map, a thing in the world, functions as a map in the interactions with humans and environments. Map makers, readers, but also sellers, librarians, the collectors use maps in different ways in various emergent situations. The topic of our paper, however, is not to present any general theory on mapping processes, but the scope of our investigation is limited to some aspects of the field that may be called 'application ontology'. In our historical case study, we try to reveal some of the mental, cognitive or physical, graphic relations between entities of two domain ontologies: geography and 'cartography'. Using these relations we try to interpret a historical mapping task, the re-presentation of the Kufra desert region by a colonial mapping institute on Italian topographic maps in the 1930s.

The substantial problem of cartographic representation theory is demonstrated by the 'empty' spaces on maps: large patches of the topographic sheets with graphic elements with no locational meaning. Blank spaces on modern maps can be problematic for different reasons. Franco Farinelli, for example, proposed that the empty space created by cartography was a condition of global capitalism (Farinelli 2009). The examples demonstrating the paradox of cartographic reason, e.g. Bellman's blank map in Lewis Carroll's satire, are often cited but rarely scrutinized as indicators of ontological questions (Török 2017).

The issue is illustrated here in more detail by historical examples: Italian colonial and military cartographers transformed expedition route maps into territorial cartography to create content for the otherwise blank topographic map sheets. This compilation work contradicted the topographic paradigm. The result was not a more accurate and detailed map of the desert – how one would expect from the cartographic context, masking the procedure. Although the notion of 'desert' means an abandoned place, left by humans with no water, vegetation or animal life, it is certainly not 'nothing'. A related, but contrasting concept is the word 'oasis', an occasional fertile spot with a spring and a dwelling space for humans, is an indicator of sporadic human presence in the wasteland. We argue that the main reason for the 'emptiness' of maps was not caused by a lack of survey and data or information collected. The printed, official topographic maps of *Libia* were created with empty spaces for ontological reasons.

2   Expanding Borders: "Libia Italiana"

Why Italian military cartographers surveyed and mapped the Western part of a huge region, historically called the Libyan Desert – and why mainly British cartographers did the same job on the Eastern half of it is a question we should answer first. And what makes these cartographic processes, at first sight, a common, early twentieth-century topographic survey and mapping significant for our ontological investigations? The short answer is that both the social-historical and geographic contexts make our historical overview especially suitable to study the relations between geographic and cartographic entities in mapping operations, both perceptual and cognitive and technical, and try to explain the real nature of modern 'cartography'.

As to the social-historical environment, our spatio-temporal context, the answer can be found in modern colonialism, a product of imperialism, in our case in the history of modern Italy. Unified Italy, as a relatively late-created state, a European middle power arrived too late on the scene to seize overseas territories, while European maritime powers could build extensive colonial empires at a global scale. By the late nineteenth century, at the infamous 1884 Berlin conference, 'the scramble for Africa' was turned into geopolitical negotiations and international treaties to divide the 'Black continent' among the participants. After occupying Eritrea in East Africa and expressing interest in the much closer and more important North African region, Italy had a second chance in 1911, when Italian troops landed and invaded the major ports of *Tripolitania* and *Cirenaica*. In the following year control of former Ottoman-Turkish territories was taken over by colonizing Italy.

At the beginning the occupied territory, the province called later "Italian Lybia", was a few harbour cities and a rather narrow, but fertile coastal strip along the Mediterranean Sea. The territory gradually expanded after Britain and France ceded further continental regions. Italian colonial administration could not rule the vast, southern desert region, because of fierce resistance organized and led by the Muslim religious order, the *Senussia*. This fundamentalist and purist religious order retreated to the remote Kufra oasis and kept its power in the deep desert, which remained closed to Europeans until the 1920s. The hostile *Senussia* remained the centre of Libyan resistance and presented a permanent threat to the colonial administration. In 1931 the Italian colonial army occupied Kufra and gained full control of the southern region.

3 Modern Cartography: A Myth of Accurate Representation

Modern 'cartography' was born in the European Enlightenment as a paradigm of a rational and positive empirical system of creating immense archives of knowledge. The extensive territorial survey of France, a centralized, absolutist monarchy started in the late seventeenth century. Based on astronomical measurements by Cassini and Picard first, the coastlines of France were calculated and determined in a global, geographic framework. To survey the territory with high precision and detail the entire country was covered by a geometric network of triangles. The triangulated points served as bases for local topographical surveys, including observation and measurements by the military and civilian engineers in the field. The whole procedure of the paradigmatic Cassini survey took more than eighty years. This enterprise was the model for similar, topographic mapping projects. The Napoleonic survey started with the mapping of Egypt (1798-1801) and is a demonstrative example of European 'cartographic' ideals of the Enlightenment. Modern 'cartography', with the normative concept of 'the map', and all the false preconceptions about the nature of mapping reflect this period.

According to Edney's recent book (2019) challenging and refuting the conceptual basis of modern cartography from a historical point of view, what we call 'cartography' is a tempting myth about precise measurements and detailed and accurate maps covering the entire planet Earth and the world beyond. Map making is a huge progress of knowledge and a great success as a human endeavour. However, mapping was never a singular or monolithic enterprise. Realizing the ideal of 'the map', a spatial inventory in a geometric framework, would result in the duplication of the world. The ontological paradox, the contradiction between the 1:1 scale map and true cartographic representation was recognized by Carroll (1893), who playfully suggested an absurd solution: the country as its own map.

This investigation is in line with Edney's theoretical approach, but – instead of challenging that ideal of cartography – we simply look at its working mechanism under specific conditions. For this gentle approach, we use the word 'cartography' in our temporal context as a relevant concept, characterising what was thought about the nature of mapping at that time. The word is a neologism created in the 1820s and became popularized by academic cartography which was born as a discipline only in the early twentieth century (Eckert 1921). This formation period of the cognitive and social structure of the field in the 1920-30s makes the study of contemporary mapping practice relevant. As we would like to demonstrate, the ideal did not work in the way the idealists believed. The logical-epistemological construction of the comprehensive and accurate spatial archive, 'the map' of the world, was not on the agenda of the colonial cartographers.

4 Geographic and Cartographic Ontology

Maps are one of the oldest and most effective tools for storing and displaying geographical information in both cartography and geoinformatics. However, the historical and social determinants of the ontology of cartographic objects have only come to the fore with the paradigm shift of the last decades, mainly in the context of the creation of a more rigorously constructed map model, as required by digital technology. The notion of ontology is not unknown in GIS science or the field of geo-informatics, where it is understood as a set of predefined concepts and entities that form models, representing some features and relations of the real world in a spatial framework. In this approach, an ontology can be a specification written in a formal language. The primary purpose of this domain ontology is to give meaning to concepts, i.e. to describe the semantics necessary to transfer and share knowledge contents, or to create new knowledge from different data contents. All these functions are relevant for any geo-informatics applications, this is why the research and development of geo-ontologies intensified in the field of GIS science in the 1990s.

Compared to this notion of domain ontology, widespread in modern information technology, the term is also used in metaphysics, in philosophy in a different sense. Here ontology means a theory of being ('of what is'), and it is a general theory that deals with the fundamental questions of existence ('being as such').

In the domain of geographical science, the term geographic ontology describes not only the geographic space itself but also its entities, since geographic entities are in most cases also the bases for further conceptual categorization. This is the approach of the 'external' view, where space is the container, a geometric framework that contains the geographic objects. In the contrasting 'internal' view of geographic space is constructed by spatio-temporal geographic entities. From the perspective of evolutionary psychology, Coucleis (1986) suggested a structural approach to describe different spaces in human experience from perceptual to the abstract concept of Euclidean space.

Geographical objects are non-manipulable, large-scale entities in geographic space, which require the study of topological and part-whole relationships (mereology) to describe them (Smith, Mark 1998). Objects in geographical ontology are highly culture-dependent, i.e. their symbolic description is highly variable in different regions of the world. A particularly demonstrative problem is the question of the cartographic representation of geographical objects in a huge, non-European territory such as the emptiness called the Libyan Desert. As late as the 1920s, in the absence of reliable knowledge of the interior, only hypothetical maps and vague geographical concepts

existed. The concept of a 'boundary', for example, is highly abstract: in topological terms, it is a geometric line with no width. On maps line symbols are drawn to mark different boundaries (Smith 1995). In geographical reality, however, the appearance of a border can be very varied: the concept of the former 'iron curtain' in East-Central Europe, and the similar constructions in many other parts of the world, illustrate the complexity of an asymmetric relation realized in defence structures. Disputed international borders are also examples of disambiguates and controversies regarding the interpretation of the concept, and in particular its spatial location.

5 International Borders in the Sand

From a cartographic point of view, international borders are highly important for any territorial mapping projects. Boundary lines, and linear 'symbols' are the highest-order political demarcation lines that define the actual territory, and the systematic topographical survey and mapping expand to the entire region inside the borders. Topographic mapping results in a series of medium-scale map sheets, covering the territory. However, borders may not follow the map's neat lines, so the sheets cover a part of the neighbouring territory as well. Mapmakers usually do not leave the parts of the topographic maps beyond the international borders empty, but they fill it with information about the territory of another, not rarely rival power. These cartographic conditions can create a zone along the international boundaries, which are mapped from two different perspectives. It would be instructive to compare such maps and examine these counter-mappings, but in this paper, we study the view from the Italian side.

Egypt was occupied by the British colonial army in 1882 and became a British protectorate in 1914 and a nominally independent state in 1922. The neighbouring Libya was occupied by Italy from 1911. The border treaty between Egypt, under the British protectorate, and Italy was concluded in 1925. The international border, starting from the Mediterranean, south of Sollum, was surveyed and delimited in 1926-27 in two periods. In addition to the dozens of astronomical points, the points of the Egyptian triangulation network were also used at the coast (Governo della Cirenaica 1927). The report of the border demarcation committee included a map representing 178 numbered border markers, and the copy examined (no. 25) was signed by all the surveyors (Commissione 1927).

The border demarcation resulted in actual boundary markers, and iron poles, which made the boundary line visible in the field. Once these were erected, the boundary had physical markers, while it still existed as a 'fiat' boundary in the treaty. The boundary markers and also the other landforms identified during the survey (e.g. "Williams

Pass") and the triangulation points became important landmarks in the desert. These man-made landmarks were also marked on detailed topographic maps. However, the objects did not mark the exact boundaries. Further away from the coast, in the desert area near Williams Pass, a six-hundred-metre baseline was measured and then graphically triangulated to latitude 29°15′ N. Both parties used a measuring table and a telescopic ruler for the topographic survey at a scale of 1:100,000. During the work, temporary boundary markers were placed according to terrain conditions and visibility requirements, up to 150 m from the theoretical boundary, the meridian line.

6　Desert: Object or Field

The process of topographical map-making of the south-eastern part of Italian *Libia*, the region around the Kufra oasis group is described below, and the historic cartographic material, demonstrating the process is examined below. The case study, we hope, would reveal the cartographic creation of an international boundary line between *Libia*, an Italian colony, and Egypt under British protectorate. At the same time, this significant element on the maps challenges the common belief that maps represent objects in the physical world.

If we explore the issue of borders fundamental problems of geographical ontology become apparent. International borders – and other political or administrative borders – are abstract or physical entities, just one set of concepts which may not be visible or measurable in the field. The mapmaker's problem is how to describe the terrain itself with graphic marks on the map so that they correspond to the characteristic features of the landscape. These features are usually emerging entities, visible from a large distance, so are easily identifiable and serve human navigation as landmarks. Nevertheless, although these vertically 'positive' landmark objects, e.g. hills or mountains, are identified as *places* with a geographical name, they become rather fluid at a closer look, once we try to define or delimit their spatial extent.

What is a hill for the surveyor can be a mountain for local people, as the famous movie (*The Englishman Who Went Up a Hill But Came Down a Mountain*, 1995) demonstrated. But the real problem is not just categorization here, which could be solved by some qualitative method, e.g. establishing a height limit for mountains. The real problem in geography is to tell what the hill as an object and as a *field* is, that is to be able to tell what part of the physical environment belongs to the category of the concept. What seemed to have been an object, when looked more closely, is a field...

7   Navigating the Seas of Sand

7.1   The Perception and Cognition of the 'Nothing'

> In the absence of any official definition, it is useful to consider the dividing line in the west as the belt of high ground Fezzan-Tibesti-Ennedi and to limit the term Sahara to the French territory in the west. According to this description, then, the Libyan Desert covers one huge unbroken tract of true desert stretching from the foot of the high ground in the west to the River Nile in the east, a distance varying from 1100 miles in the north to 600 miles in the south. The southern boundary may be taken as the northern limit of annual summer rainfall, about lat. 18° N., so that the desert extends for about 1000 miles from north to south. (Bagnold 1933, 103)

The Libyan Desert covers the Eastern part of the Sahara in North Africa. This is a hyper-arid region in the world, which excludes the possibility of permanent water flows, occasional rains occur and can result in a short-lived water world with abundant vegetation and animal life. But these are exceptional cases because human life in the vast region is present in the oases where water is available. These are green spots in the huge inhabited desert.

In the Libyan Desert vast areas are sand sheets or covered by endless chains of dunes (Kádár 1934). The most remarkable region is the Great Sand Sea, which is filled with parallel chains of whaleback dunes, sometimes more than 100 meters high. This formidable landscape is not an impenetrable obstacle for the European traveller: the 1873-74 Rohlfs expedition crossed the region first to reach the oasis Siwa in Egypt (Rohlfs 1875). For the light automobiles in the 1920s and experienced drivers hose huge dunes caused little practical problem.

All those humans, natives and European explorers alike, who would travel in the desert reported their subjective feelings about the difficulties of navigation in the wasteland. The major problem is not only limited visibility but the limited chance to see anything characteristic of the environment. Although the morphology of desert areas may be quite rugged, as is the case with the rock surfaces, rock and gravel-covered terrain are difficult to find the way without some distant landmark. The problem of desert navigation was the landscape itself, which is unanimously mentioned as dull and monotonous by both natives and Europeans. In this geographical environment, human senses, especially vision were of very little use, but the lack of features and the identification of characteristic objects resulted in problems. Of course, native tribes had more articulated desert ontologies from European, which is reflected in their language. But

Figure 1 'Regenfeld': the turning point of Rohlfs' 1873-74 expedition in the Libyan Desert.
Detail of the expedition's route map by Jordan in Rohlfs 1875

actual navigation in the deep desert remained dangerous for most of them. After the Italian occupation of Kufra (1931), for example, groups of Senussi refugees who wanted to reach Dachla in Egypt were lost in the desert. Women and children died before some were found by Clayton's expedition and many was saved by a rescue team from Dakhla (Almásy 1935).

According to Siegel and White (1975), large-scale human spatial cognition is a developing system, including spatial knowledge of different levels. They proposed to classify knowledge into the categories of landmark, route and survey knowledge. The first level includes the knowledge of landmarks, the location and characteristics of objects in the environment. The specific problem of the desert environment is the scarcity of landmarks to be observed and memorized for the navigator. The perceptually poor space, where the identification of individual places is difficult, causes a cognitive disadvantage. At a semantic level, this is apparent from the geographic names like

"Great Sand Sea", which is a metaphorical proposition. It suggests that the chains of dunes are similar to waves on the surface of an ocean. Their number is infinite and they are moving and changing, just like drifting sand at different scales from ripples to vast dunes. While it is difficult to identify objects, the desert may be considered a field entity. In this case, the problem we encounter is to find its natural borders in the physical world.

Land and water are qualitatively very different geographic features in the field, but defining fluid objects is a challenge in physical ontology. Deserts may also considered fluid, so their geographic ontology is similar to the water-covered surfaces. The cartography of these categories, from ponds to oceans, is very peculiar because these cases may violate the rule that general maps represent objects on the solid surface of the earth in the plane. The sand desert and the sea are considered similar, so it is not surprising that in many respects desert cartography is similar to charting the seas. How the sea chart does not depict water a desert map does not show the actual grains of sand. Anyhow, the desert is something hard to map.

The cartographer is interested in well-defined, large-size and permanent objects. On European maps of the region, one can not find the common water flows, indicators of fluvial erosion, or the major power of landscape morphology at medium latitudes. On the other hand, dry riverbeds, *and wadis*, especially on the elevated surface are marked as they serve as landmarks for orientation. The ontological problem in cartography is the graphic representation of a river without water. The spatial extension of these linear objects depends on their state, they are narrow valleys in the mountains but after heavy rainfalls, they stretch deep into the desert. This is a problem, which is very similar to the more general issues of the ontology of fluid objects (Hayes 1985).

7.2 Naïve Geography of Experts

The European explorers and surveyors worked in unfamiliar environments with special geographic conditions. Although they were all trained in geography and other disciplines, academic scientific knowledge was unsuitable for mapping projects in the desert. This is why contributors to European, colonial mapping enterprises, who were certainly experts in their fields in their own geographic and cultural environment, became novice observers. The conceptual system they possessed included only a few concepts that they could apply in their practice.

Naïve geography is the field of common sense, intrinsic geography: what people think of geography in their environment. In different parts of the world, people think highly differently about their

surrounding landscape, a key concept in this approach suggested by Egenhofer and Mark (1995). We mention the peculiarities of desert landscape below, but here we mention an element, which is highly relevant for our study. This is what the authors call "Maps are more real than experience" and they explain that the key issue here is the higher geometric precision of maps over the mental calculations. This is certainly the effect of the cartographic ideal (Edney 2019), and this is why the study of the maps of the region is important for ontological investigation. It is a well-known phenomenon, that once something appears on the map it has its existence, regardless of its actual ontological status. There are many examples from map history, from mythical lands to never-existing islands. Below we mention a desert myth; the ancient tale of the lost oasis, Zerzura, whose location and existence are still contested.

Words for native languages, mostly Arabic, were used as more expressive than European concepts. When looking at the explorer's maps below we can frequently find words like *wadi* or *djebel* instead of valley or mountain. On the Italian topographic maps, we can find hybrid geographical names like "Piccolo Gebél" at the end of the dune chain north of Uweinat. However, the full meaning of those words was never considered as that small hill and the almost 2000 meter-high Uweinat massive were both called "Gebel" on the same map sheet…

Regarding the temporal characteristics of geographic objects or fields, they are relatively stable. More precisely, for the human observers they appear as very large, long-term structural elements of the configuration of geographic space. The relatively permanent existence and spatial stability, however, illuminates another issue, the temporal aspect of geographic ontology. In recent years this question became practically important to develop a new GIS technology, where modelling spatio-temporal information is a key element. Traditional cartography produced printed maps, interpreted as snapshots, temporal sections demonstrating the co-existence of objects. This approach corresponded to the ideal of modern cartography, although everybody knew that any survey or data collection took time. In other words, spatial data is always temporally heterogeneous. If one considers the extensive surveys of larger countries it is clear that map objects on the same sheet may be separated by decades.

8 Early Explorers of the Libyan Desert

The geographical exploration history of the Libyan Desert by Europeans goes back to the eighteenth century, but due to the climate and terrain conditions and the unfavourable socio-political situation was completed only in the twentieth century (Negro 1991; Vivian 2000). The most important cartographic premises were undoubtedly the

Napoleonic survey and modern mapping of Egypt. This work was carried out under the supervision of the French geographer, Pierre Jacotin in 1798-1801 (Godlewska 1988). However, the Napoleonic survey focused on the Nile Valley and did not include the majority of desert areas. To depict some of the desert areas, the French engineers used earlier sources, especially the map enclosed in the travelogue of the Englishman George Browne or the one by German Friedrich Horneman.

8.1 Gerhard Rohlfs' Route (1873-74)

The 1873-74 expedition led by the German Gerhard Rohlfs was the first experiment to explore the interior of the desert. Beginning the journey from Dachla Oasis in Egypt Rohlf's plan was to reach Kufra in Libya. At some point on the way towards the target in the southwest, he suddenly headed northwest and marched to Siwa in Egypt. His large caravan was the first to cross the unexplored Great Sand Sea, but the project was not accomplished until 1879 when Rohlfs reached the Libyan oasis from Tripoli.

The route of the expedition was depicted on the map constructed based on astronomical determination of positions by Wilhelm Jordan (Jordan 1875). The map of the Rohlfs expedition became a model for all later explorers working in the region, and it was also used as a source by many atlas publishers. The scale of the map enclosed in the book published by Rohlfs (1875) was 1:1,300,000 and it represented the main route of the expedition, the separate routes of its members, as well as the routes of some earlier explorers. The title emphasized measurements and field observations by Jordan, a leading expert in contemporary geodesy.

This was a route map, so it included information along the navigational traverses and the sections of the journey. Visual observation and measurement were limited to a narrow strip of field along the route. As with all similar route maps, it was a graphic description of the journeys and belonged to the body of texts doing the same with words. The dates on the routes are evidence that the intentional function of Rohlfs' map, a "cartographic text", was storytelling. Expedition route maps were diachronic, cinematic views – not snapshots, providing a simultaneous and comprehensive spatial view according to the cartographic ideal. On the other hand, once temporal points and events were put into the graphic space and connected to the storyline, the route, became visible and represented continuity, showing the route from the beginning to the end. As a new entity created this way, the expedition route was considered a cartographic 'object'. With these preliminary insights in mind now we look at the map itself.

Although it was a map, it is remarkable that the majority of the content along the route is not graphic, but textual notes. These labels

are the expedition's history (e.g. *Zittel's westlichster Punkt*), descriptions of the surface geology (e.g. *Nubisher sandsteine mit Braunesenerz*) or the sparse vegetation (vegetated areas in the oases were coloured green). Inscriptions marking desert landforms mention but one generic form, 'dunes' (*Dünen*), without making any morphological difference. The extensive regions covered by dunes are coloured yellow. The explorers gave German names to some places they would find important or interesting (e.g. *Sandheim*).

Perhaps the name *Regenfeld* ('Rainfield') is one of these telling names, where they experienced rainfall in the desert. This was the turning point of the expedition, as they abandoned the plan to reach the unknown Kufra. Map ontology was a key issue in the decision: the validity of the coordinates of the Siwa Oasis was the main argument of the decision. The scholars trusted more in the scientific framework than any local guide, and after the turning point, Jordan used the map and his instrument and navigated the expedition across the entirely unknown territory to the oasis. In the spirit of Enlightenment, this fact was also emphasized by Jordan (1876, 13) as evidence of the practical application of 'mathematically oriented travel'.

8.2 Hassanein's Lost Oases

After shorter reconnaissance trips significant technical developments made it possible to access the areas by motorcars or aeroplanes that were previously inaccessible. Romantic motifs, especially the legend of the lost oasis, "Zerzura" ("The Zerzura Problem" 1930) also highly motivated explorers, colloquially called "desert fools". After the First World War, research of the inner Libyan Desert was systematically advanced through research trips and expeditions. The peculiar conditions of the Libyan desert turned the story of the discovery of one of the last 'blank spots' into an adventurous novel.

Desert mysteries and romantic motifs significantly stimulated desert exploration in Egypt in the 1920s and 1930s. Still a classic camel caravan, the expedition of the Egyptian diplomat, Achmed Hassanein was a journey around the inner Libyan Desert (Hassanein 1925). Using the routes connecting the oases, Hassanein Bey successfully reached the more or less legendary Kufra oasis from the north in 1922. He continued the journey to the south, explored the mountain oases Archenu and Uweinat and went on to the Sudan. In the 1920s the Egyptian prince, Kemal el Din experimented with motor cars and made a long-range journey into the southern regions, discovering the huge sandstone plateau, "Gilf Kebir".

However military-political interests influenced the results of all expeditions at this time. The account of the expedition of Hassanein Pasha was, published in the National Geographic Magazine in 1924.

Its subtitle suggested not purely scientific interest: "*The Record of a 2,200-Mile Journey of Exploration which Resulted in the Discovery of Two Oases of Strategic Importance on the Southwestern Frontier of Egypt*" (Hassanein 1924). From this time on, desert exploration became more and more military-oriented. Explorers' maps were considered confidential sources of strategic information, especially regarding communication routes and water.

9 Camels and Automobiles

An earlier type of 'romantic' explorer was Harding-King, an Englishman, who, with the support of the Royal Geographical Society in London decided to find the legendary oasis. In Dakhla, the westernmost oasis in Egypt, he observed the migrating birds coming from the southwest and with freshly eaten olives in their stomachs. Based on his experiments, he calculated the distance of this 'olive' oasis and made three attempts to locate it in the desert. In 1911 he reached a point approximately 250 kilometres southwest of the oasis, but his camel caravan had to return because his native guide tampered with his water supplies. To summarize his research findings Harding King published a book (Harding-King 1925) with a non-traditional map. The map he constructed was based not on the survey but on native information. Disguised as an overview map, it was an amalgam of information of highly different reliability, as it was distilled mainly from verbal reports including many lies. In modern terms, it may be considered a 'mental map', constructed by an outsider, a European explorer.

9.1 Bagnold Journeys

The motorized expeditions into the desert from the Egyptian side led by Ralph Bagnold, a British officer represented the new situation and the change in the nature of desert exploration. Using specially equipped Ford automobiles, Major Bagnold, and his companion explored enormous tracts in the Libyan Desert in the early 1930s, but could not find the lost oasis. The map showing the routes of Bagnold's 1929 and 1930 expedition was the best expedition map of the region. "Owing to unforeseen delays in receipt of material" the sheet was published in The Geographical Journal as an appendix, but half a year later than the paper it belonged to (Bagnold 1931, 525). The mapping of the 'blank spot' required unusual cartographic solutions to the problem of graphically depicting nothing important, the desert.

Bagnold's map was filled with information, but these are short
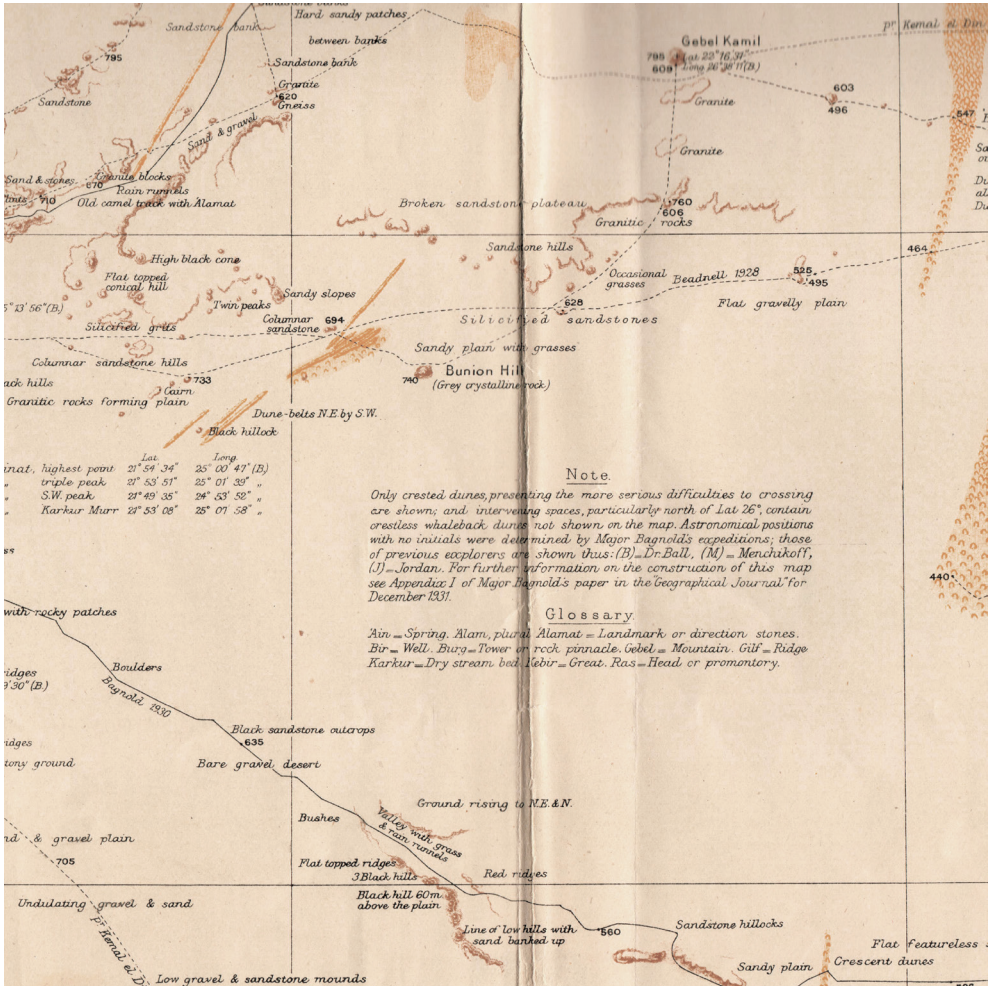
Figure 2 The Gilf Kebir region on Bagnold's expedition map. Detail in Bagnold 1931

remarks and notes regarding surface geology, botany or zoology. These types of information would have been ignored by any compiler of a geographical map on a scale of 1:1 million. Cartographers normally would not depict topographic features such as a "dead camel", apparently a landmark in the field west of Rohlfs' Ammonite Scarp. In lack of suitable conventional signs, the map included textual notes as the graphic language of European geography became insufficient to represent objects like "hawks" or the repeated telling inscription "flat featureless sand plain". The map maker created an illusion: when

placing something non-geographic into the blank spaces of the map the scientific, technical and cultural preconceptions of cartography' ideal suggested to the reader that the territory had been surveyed. The representation of the sand desert illustrates a more intricate effect of mapping. Although some of the areas covered by crested dunes were indicated by generic graphic forms and yellow colour on the map, most of the areas were left empty. A special "Note" on the map explains that dunes are shown only if they cause difficulty for the motorist, a point certainly important for the military. Bagnold's expedition map, based on route survey, included many empty spaces between the known routes, moreover, intentionally left huge desert tracts empty. What to represent when nothing was cartographically important was indeed a serious existential problem.

9.2 Count Almásy, a Hungarian Desert Explorer

The Hungarian László Ede Almásy, the model of the character in the novel and movie *The English Patient*, was born into a noble family (Török 1998). The last Austro-Hungarian explorer showed a passionate interest in automobiles and aircraft since his childhood (Török 2004). In 1926 he drove a Steyr automobile for the first time through Egypt to hunt in the Sudan (Almásy 1928), in 1929 he carried out his first expedition to East Africa, Sudan and Egypt. During this journey, he re-discovered a section of the legendary, ancient caravan route *Darb el Arbain*, the "Path of Forty Days". This experience was a turning point in his activity, as he learned about the legends of the Libyan Desert. In the next few years, he pursued these legends, especially the story about Zerzura, the lost oasis (Almásy 1935; 1939). His companions and 'competitors' were mainly British, who were all loyal to London and served the colonial interest of the empire. The series of long-distance, motorized expeditions led by British Army Major Ralph Bagnold, a member of the "Zerzura Club", started in 1929. The interest in expeditions approaching regions of the Egyptian-Libyan was heightened after the Italian occupation of the Kufra oasis in 1931. The Italian colonial army's operation, carried out with modern military technology and air support, drove some of the Senussis, the inhabitants of the oasis group into the desert, most of whom died of thirst. After the capture of Kufra, topographic mapping of the colony began, carried out by the Uffizio Studi at the Italian colonial headquarters in Bengasi and/or by the Istituto Geografico Militare in Florence.

In April 1932, the Almásy-Clayton expedition came close to the western edge of the Gilf Kebir, a sandstone plateau in the frontier area, when further exploration and return was made very risky by the depletion of reserves. On 27 April, to collect supplies Almásy drove a car to Kufra in Italian territory.

Figure 3   László Almásy with commander Rolle (in the middle) and Italian officers in Kufra (1932)

After completing his mission, he managed to explore two vegetated valleys by plane. In 1933, Almásy's expedition visited Kufra again and, following a native's narrative, found Zarzura's third rain oasis (Almásy 1936; Török 1989). These Almásy-expeditions did not, of course, escape the attention of Italian military intelligence. The expedition maps of the time were an extremely important source of information, so it is understandable that the military and colonial authorities attached great importance to them and sought to obtain them. However, the sketch maps of the Almásy and the other contemporary expeditions were not only important documents for intelligence services, but they were also used in the construction of the Italian colonial topographic map series (Almásy 1997).

10   Italian Military Sketches from Kufra

The name of Almásy as a desert explorer became internationally known after the release of the movie *The English Patient* (Török 2008). The general interest in his achievements in Hungary resulted in a lucky find in the archives of the Military Historical Museum in Budapest. The archivist, who prepared maps for a presentation about the Libyan Desert found a group of Italian maps, both printed and manuscript, which were earlier unnoticed. According to the inventory, these maps were acquired from a private person in 1985, but, unfortunately, more information about the source of the content of the two large folders was not found. This cartographic material

reflects Italian colonial interest before World War II and it consists of mainly printed Italian topographic map sheets, representing Libya and Ethiopia. We could separate a smaller set of the material, which included copies of the manuscript, apparently military map sketches. The manuscript material was created in the 1930s, probably by the same draughtsman working in *Cirenaica*, in Libya. The Budapest material on contemporary, brown-yellowish paper could have been made by some Diazo reproduction method in the lithographic office in Bengasi (Török 2012).

The survival of these maps offers the rare chance to have insights into Italian intelligence and map compilation processes. Although, all the manuscripts were copies of expedition maps, which were published in books and journals, handwritten notes on the verso side of the sheets directly link the material to Kufra. The most important is the handwritten ownership note and signature on one of the maps: *Proprietà Cap. Fabbri*. Cesare Fabbri was the interim commander of Italian Kufra in the absence of Major Ottavio Rolle. Based on this identification we can be pretty sure that the military sketches are related to and might have come from Kufra. Of course, it would be tempting to suggest that they related to Almásy, who visited Kufra in 1932 and 1933 (Almásy 1935), and whose documents and papers hidden in the wall of his Budapest flat were confiscated by the Nazis in 1944, but further evidence for this hypothesis is lacking.

The group of military sketches was originally arranged in chronological order, following the exploration history of the Kufra region from the 1928 visit of Doctor Brezzi, through the expedition routes of Kemal el Din (1925) to the 1933 visit of the Almásy expedition. When compared to the original publication the major difference between the copies is that they are all Italian translations. This is just partly because of easier communication, much more because of the ownership of the territory.

10.1 Preparation of Material and Map Compilation

An example of this attitude is the 1:1 million scale sketch map depicting the exploration of the areas west of Gilf Kebir. It is a copy of the 1932 Almásy-Clayton expedition map, published in the Geographical Journal, but with Italian title, notes are translated names. The expedition map originally showed the routes of the expedition and the main topographical features and landmarks along the routes. A further addition by the Italian maker is the inclusion of the international border line, which was not present in the model. The emphasis on the territorial division reveals that the border was crossed by the Almásy expedition (Török 2011), and, in a broader military strategic sense, it calls for the accessibility of Kufra from Egypt. This

map has nothing to do with espionage or secret information. The map editor supplemented the sketch with the main location of Kufra and extended the coverage as far south as the Uweinat Mountains. The reason for the inclusion of these two strategically important points was the defence of the international border.

Another map in the group already reflects the clear intention to include the geographical information represented on the expedition route maps in the construction of topographical maps. The large sheet "Kufra, Auenat, Gilf el Nebir" (sic!) at 1:1,000,000 scale, at first sight, is an original work covering a large region of the southern international border. A closer look reveals that is a compilation work that combines the 1931 Bagnold map, introduced above, with the 1932 Almásy-Clayton one. By simply rearranging the two parts of Bagnold's original and adding new information about the Gilf Kebir region the compiler successfully created a cartographic overview of a contested region along the international border.

11 Topographic Maps with White Spaces

These Italian military sketches were most probably part of the preparations for the construction of Italian military topographic maps, and it is not a surprise if their content appears unchanged. As we have limited information regarding the technical processes of the making of the topographical map series, the relevant sheets of the *Carta dimostrativa della Libia* were examined as material evidence of the technical, but also some mental procedures (Török 2008). The Italian military and colonial cartographers, like any professional map maker in the 1930s, held all the preconceptions of modern cartography, either they worked in the field in the colony or they worked in the Istituto Geografico Militare in Florence, Italy. How would they solve the inherent problems of the European rational and empiric system to make a geographic archive in graphic form, a 'true map', when encountering the mapping of the Lybian Desert?

The sheet *A'rchenu* in the 1:400,000 scale *Carta Dimostrativa della Libia* proves this general statement. This official map was constructed from expedition material after 1934: the topographic mission of Captain Marchesi and the publication of the Almásy-Penderel report in the Geographical Journal are mentioned in the marginal note. The label "Almasy-Penderel 1933" appears twice along the route of this expedition. It is noteworthy that Almásy's track from the Gilf Kebir to Kufra is partly shown with a directional arrow, presumably for security reasons the last section, near the oasis (actually on the next sheet) was omitted. Italian interest in Libyan colonial territory reached the area of the Uweinat mountains at the 22° northern latitude, which is the mark of Egypt's southern international border.
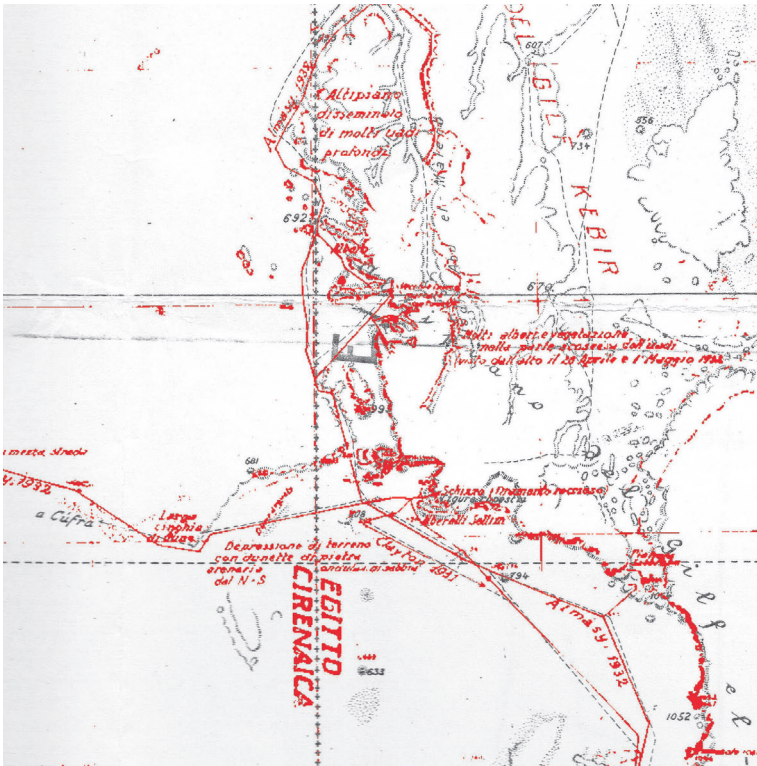
The sheet *Cufra* in the *1:1.000.000* series of the *Carta Dimostrativa della Libia*, which was published in 1938, covers the Gilf Kebir and Uweinat region. Although the colonial institutions were very much aware of the importance of reliable topographic maps and were anxious to collect more information, it is somehow amazing how empty this sheet remained. Compared to the larger-scale map, published a few years earlier, it is apparent that nothing changed. The area west of the Gilf Kebir is still without any graphic content as beyond the coordinate grid and the expedition routes indicated (but this time the explorers' names were not included) the map is empty, and there is no geographic object represented.

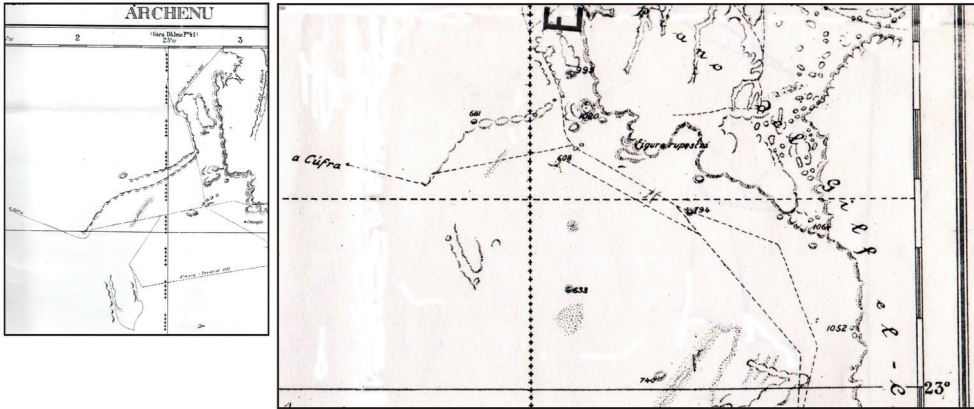## 12 "Cartography as Science and Art"

The emptiness of the maps is not the conclusion of the missing topographic survey in the region – how one may think. Although the use of expedition maps, the information collected by route survey would inevitably result in large empty spaces between the narrow strips of 'known' territories along the routes. Route surveys are not suitable for modern topographic mapping. Topographic maps are based on a systematic, territorial survey. But this is not the case here, because it was practically impossible to conduct extensive survey work covering the inner desert. Instead, the Italian mapmakers used various sources they had, worked with heterogeneous information and did their best to compile the sheets up to contemporary standards. Had the Italian military cartographers surveyed the region, the emptiness of the desert maps would have remained the same. The reason for this limitation was the mapping ontology they adopted, which made them unable to represent anything beyond a limited set of categories.

The legend on the sheet lists the conventional signs (*Segni convenzionali*) systematically used by the cartographers. The primary importance was given to the linear sign of the international border, which is on top of the list. Topographic mapping is territorial, this is why the delimitation of the territory is the first object mentioned. Next other linear signs and different types of communication lines are represented, their characterization is based on suitability for automobiles. Further below we have a longer list of point-like objects, where the first signs are related to water. Indeed, without

water, there is no life in the desert, but once you have a permanent spring or well the desert becomes an oasis. The rest of the conventional signs are related to human habitat (e.g. fortress, mosque, cemetery) occasionally noting the local Arabic name of the object (e.g. *Moschea o Závia*).

What is missing from the list of signs is any representational convention related to the desert landscape. And here is the cartographers' trick: they represent the high mountains and the large and prominent hills with form lines, as well the characteristic dune chains and *wadis* that are visible for the navigator – and simply consider anything else insignificant. This is the thinking that Bagnold explained in his Note on his expedition map regarding crested dunes (mentioned above), but the lesson comes from the roots of Enlightenment cartography. Already the editors of the maps of the Napoleonic survey ignored desert regions, which were not mapped as a field – but represented caravan routes, immaterial objects.

The graphic depiction of the desert was symbolic on the maps with a reddish-yellowish background, the colour of the surface. In the case of characteristic chains of dunes, they used dotted form lines indicating bulging. When the draughtsman had spare time to demonstrate his artistic talent the desert areas were filled with tiny physiographic symbols, giving the reader an impression of the landscape as if it were seen from above. Working with areas covered by dunes they always used dots, not lines, to avoid any solid localization. Dots with different sizes reflected shadows of the slopes, the steeper sides were darker. This is another evidence that these topographic maps did not represent comprehensively and accurately what was in the territory. However, there is a huge difference between the blank spots of unknown territories and the empty spaces created by cartographic ontology.

The emptiness of the maps of the desert is misleading for the common map reader, as these 'blank' spots stand not for 'unknown', but substitute 'flat and featureless sand' and similar descriptions of a landscape. The desert territory could be considered irrelevant and uninteresting – but still was an important expanse. Although the map maker may draw nothing on the paper, make sure, the desert was there. Although marking nothing the mapmaker represented something, desert as a geographic entity. One could find hardly a more instructive example of why geographic and cartographic ontologies are different and related. The Bellman's chart, an empty map sheet, which is presented as another cartographic absurdity by Carroll (1876) is not an absurdity. Empty charts of water bodies and desert map sheets do exist because of the ontological preconceptions of the cartographic ideal – and they do nearly as well as the territories.

13 Conclusions and Outlook

Using the exploration and mapping history of the western part of the Libyan Desert we tried to reveal some of the cartographic processes which resulted in Italian topographic maps in the 1930s. Although not very much is known about the relations of the maps and map makers, the hard evidence of the maps could reveal some direct connections between the earlier and the later works. The modern European exploration of the region started with the Napoleonic survey of Egypt, a typical Enlightenment enterprise. It was the 1873-74 Rohlfs expedition, whose route map already shows the characteristics of all later works. The depiction of the desert on route maps was not the portrayal of the actual landscape, only some landmarks were indicated graphically. Route maps illustrated a story and included information related to the journey. On Bagnold's expedition map, a dead camel or the hawks were observed in the field and became geographic objects. In the 1930s Italian cartographers used route maps to compile sheets in the topographic map series of the colony.

Of course, Italian map makers could do excellent surveys and construct wonderful maps. In the spring of 1933 Captain Marchesi's topographic mapping unit surveyed the Uweinat Mountains (Marchesi 1933). In the following year in the treaty of Rome, the Sarra triangle was ceded to Italy. The southern border of Libya was demarcated by Colonel Agostini. The new international boundary was prominently featured on the Italian topographical map sheet *Cufra* (1938), published on the eve of World War II. This process transformed the formerly fluid Libyan-Egyptian border into a defined abstract entity, then a cartographic object and in the end a geographical entity in the field in the form of border markers. Some have survived the colonial period as the modern international border is the same, so the 1934 border markers are still there in the desert. But before we would think that a 'fiat' border has gained physical existence, we should consider the always limited accuracy of any border demarcation measurement, which means that international border markers are never the real borders.

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Territorial Images of Yorùbáland
Cartographic Styles and Symbolic Representation in the Mid-Nineteenth Century

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Abstract   In the nineteenth century, Euro-American maps of Africa in the cultural contact of Europeans and Africans were also rhetorical devices, which articulated the politics of territorial conceptions of the geographical space. I contend that cartographic styles visually prompt alternative territorial perspectives with insights into past geographies. The paper examines three nineteenth-century maps of Yorùbáland in West-Central Africa highlighting cartographic styles, symbolic representations and territorial politics. Through a historical-stylistic analysis, I explore the cultural motivation of map production, their composition and the semiotic evaluation of their representations to stress alternative map appearances. These maps worked in territorial power relations, which highlight map styles as a persuasive element in the social construction of territorial identities and interests. Overall, the paper stresses maps are vital devices in the nineteenth century territorialisation of Yorùbáland, which exemplify the cultural interdependence of Europeans, Americans and Africans.

Keywords   Cartographic Styles. Symbolic Representation. Territory. Map. Yorùbáland.

Summary   1 Introduction. – 2 Territorial Space: Cartographic Styles and Symbolic Representation. – 3 The Maps of Yorùbáland. – 4 Maps: Territorial Politics and Representational Practice. – 5 Conclusion.

1   Introduction

This paper examines the cartographic styles of Euro-American maps deployed in territorial power relations of mid-nineteenth century Yorùbáland. I argue that cartographic styles of geographical maps, regardless of symbolic misrepresentations, stimulate alternative perceptions of territorial spaces. Territorial images as cultural objects prompt territorial conceptions of space but also draw insight into the territorial politics of past geographies. On one hand, good map appearances inspire confidence in geographical information (Kent 2005, 183). On the other hand, maps are not precise representations of geographical reality but might include symbolic misrepresentations (Kent 2018, 203). However, institutional map styles visually promote different viewpoints in spatial discussions. In the nineteenth century, alternative Euro-American cartographic images played important roles in altering the territorial conceptions of the Yorùbá geographic space in West-Central Africa (Usman, Falola 2019, 5).

Whereas there are map design studies of modern African maps (Stone 1995; McGowan 2013; Akinyemi, Kibora, Aborishade 2013), there is an underrepresentation of stylistic examination of nineteenth-century maps of Africa. Indeed, fewer map studies of West Africa investigate linkages of style and politics in mapping ethnic territories. However, the nineteenth-century maps of West Africa are not only genres of cartographic styles and good map aesthetics manifesting effective pictorial representation of space but also immersed in social practices of territoriality. For example, the visual images of Yorùbáland produced in mid-Nineteenth-century Euro-American geographies are immersed in the contestations and negotiations of its territorial interests. Therefore, how do mid-nineteenth-century maps of Yorùbáland reflect stylistic qualities that prompt mental images of space, which irrespective of symbolic misrepresentations, translate into territorial power relations?

The paper aims to examine nineteenth-century maps of Yorùbáland drawing attention to how institutional map styles exemplify alternative territorial realities. The next section examines the conceptual background of styles and symbolic representation; the neglect of linkage of map style and territorial politics in West African map studies; and the methodological approach in the paper. The third section separately analyses the three maps of Yorùbáland. In the fourth section, I explore how these maps translate into territorial power relations and briefly discuss their implication in representational practices. The final section presents the concluding remarks.

2 Territorial Space: Cartographic Styles and Symbolic Representation

Map appearance has an impact on the enduring mental picture of the geographical space, which highlights the importance of cartographic style. The concept of style refers to the differentiating appearance, which stresses an identifiable form of visual expression (Geczy, Karaminas 2012, 14). The visual expression of a mapped geographical space has a particular, identifiable appearance. Kent (2010, 20) notes that cartographic style "is introduced through the process of symbolization: the deliberate and specific ordering of graphical form to present the character of a feature in an abstract way". Map appearance involves the elements and qualities of map design. Although map design elements such as titles, legends and place names convey territorial representations, but also with other map elements such as symbols, colour and lettering manifest formal qualities of the visual arts (Skelton 1972, 3). Punia (2008) points out three qualities that determine beauty in maps: harmony, composition and clarity. In contrast, Deluca and Bonsal (2017, 76) emphasise two key design principles "that all good maps" incorporate: visual hierarchy and balance. In broader terms, cartographic style denotes the visual identity that belongs, "to a particular region, cartographic edition and/or map producer" (Beconyte 2011). Map appearances prompt emotional responses from viewers.

The emotional attraction of a good map engenders trust or inspires confidence in the represented geographic space (Kent 2018, 203). Indeed, map effectiveness relies on the choice of symbolic representation. Symbolic representation, as used here, denotes the use of graphic marks or elements to stand for or represent cartographic ideas and geographical concepts. Symbols are essentially used on maps to indicate position on the earth's surface and to describe "what is being represented" (Keates 1982, 73). Purpose and audience determine the symbolic representation in a map rather than depicting the exact reality of geographical space. Since the map is a miniature version of the natural space, there arise often problems of symbolic representation. Indeed, there could be misrepresentations in maps with good appearance, which could be a consequence of purposeful decision, oversight or poor judgment (Dent, Torguson, Hodler 2009, 19). For instance, there might be cognitive inaccuracies and cultural misconceptions. While cognitive errors include locational distortions of geographical features and omission of place names, cultural misconceptions include misspelling and mistranslating of place names and misunderstanding of geo-cultural features.

The key concern in this paper is alternative map appearances and how, regardless of symbolic misrepresentations, it worked in the contestations and negotiations of territorialisation. Territorialisation

involves a series of social practices, such as cartographic mapping, through which a human society organizes and operates in the natural space (Casti 2015, 20). Whereas map appearance stimulates emotional responses, symbolic representation allows the mental prompt of a territorial image through the individual's knowledge, skill, experience and cognitive reflection (Kitchin, Dodge 2007, 338-9). Since the construction and reconstruction of the territory through the map is a process (Edney 2019, 26), the emotive impacts of map discourses, as a representational practice, are integral in persuasive acts of territoriality. Dent, Torguson and Hodler (2009, 18) observe the "desire for the map to be not only informationally effective but also aesthetically pleasing". Hence, this stresses engaging the map as an artistic object and mappings as part of territorial practice.

Whereas there are map design studies of modern African maps (Stone 1995; McGowan 2013; Akinyemi, Kibora, Aborishade 2013), there is an underrepresentation of stylistic examination of earlier maps of Africa. Akinyemi, Kibora and Aborishade (2013) examined early post-independence Nigerian topographical maps, which focused on design alternatives to update the maps' appearance. Interestingly, the consistent style of national topographical maps continues to structure mentally the citizens' geographical consciousness of their respective geopolitical spaces. In contrast, there is extensive literature on African map history before the twentieth century (Relaño 1995; Glenn 2007; Liebenberg 2021) but it also had tangential treatment of map style and aesthetics. For instance, Glenn (2007, 35) briefly referred to the impact of the 1790 map style of François Levaillant on Almoro Alvise Pisani's 1793 map of Southern Africa. However, there is little engagement of the interlinkage of stylistic qualities and territoriality in historical map studies of West Africa. Although Usman and Falola (2019) stress the significant role of modern cartographic maps in the emergence of the current Yorùbá territorial identity, they did not elaborate further on these cartographic practices of territoriality. Conversely, Ogundiwin (2023) examined the stylistic evolution of missionary mapping of Yorùbáland in the 1850s, but there was no detailed investigation of alternative map appearances and territorial politics.

Although African studies of modern map design emphasize pleasant map appearances, African map history engages diverse narratives including stylistic evolution, but there is also the need to explore linkages between cartographic map appearances and ethnic territorialisation. Hence, the case of mid-nineteenth-century territorial images of Yorùbáland in this paper illustrates the linkage of cartographic style, regardless of symbolic misrepresentation, and territorial process of ethnic and sub-ethnic identities in the cultural encounter with the Euro-American world. The historical-stylistic examinations of nineteenth-century maps of West Africa are important

because these maps played important roles in the territorial politics of Yorùbáland, which had the largest number of sub-ethnicities in West Africa.

I shall employ a historical-stylistic analysis to explore these maps of Yorùbáland in West-Central Africa, sourced from travel books and an atlas, to examine the visual impressions of territorial space. The production of the three maps was in 1859, 1860 and 1861. The selection of the maps was guided by certain parameters, which include their reflection of different facets of Afro-European cultural relations such as religion, philanthropy and commerce. Again, they represent several Yorùbá sub-ethnicities, unlike maps produced before the 1850s. In addition, they were visual illustrations produced during the British annexation of Lagos in 1861; the Ijaye war (1860-65); and the eve of the American Civil War (1861-65), which influenced the Black American emigration scheme, events that all shaped Yorùbá territoriality.

A study of alternative map appearances as a rhetorical device in territorial politics requires a cartographic appreciation of the map. Cartographic appreciation refers to the "critical assessment of maps" (Brookfield, Dury 1962, 180). This map assessment, as used here, includes a form of art criticism concerned with the artistic qualities of graphic elements, the geometric accuracy of symbolic representations and the usefulness of the map. The usefulness of maps highlights the circumstances of map consumption. As Edney (2019, 44, 45) contends map studies need to "explicate the precise social, cultural and technical contexts within which people have sought to represent spatial complexity".

The historical-stylistic analysis comprises three components: contextual, compositional and representational (Rose 2016, 56). The contextual component of each map briefly introduces the cultural motivation and historical background of the map production. The compositional examination involves; the formal analysis of graphical elements – topography, hydrography, cultural information, lettering style and marginal information; and stylistic judgment of each map in its specific aesthetic view of the terrain (Brookfield, Dury 1962, 195-6). The semiotic examination of symbolic representations focuses on the cognitive inaccuracies and cultural misconceptions evident on each map. Thereafter, I collectively explore the work of these maps in territorial power relations (Edney 2019, 86). In the nineteenth-century, several Euro-American maps depicted the Yorùbá territorial space.

3   The Maps of Yorùbáland

3.1   The 1859 Map

In the 1850s, the preaching of the gospel by the Church Missionary Society (CMS) expanded globally, reaching West-Central Africa. The CMS, an evangelical arm of the Church of England, founded in 1799, commenced missionary work in Yorùbáland in 1846; an exploratory mission in 1843 had preceded this commencement (Ajayi 1965). However, the location of these missionary stations remained unknown to missionary enthusiasts in the Euro-American world. The CMS Atlas, introduced in 1857, provided visual knowledge of the geography of the CMS missionary work (1896). It perceptually solves the problem of geographical comprehension of CMS missionary work. The CMS commissioned the atlas production; the firm of William Collins and Company of London executed the colour printing of the maps.

   The 1859 map of Yorùbáland was the second issue and the fifth map in the atlas, which illustrated the chapter on the Yorùbá and Niger Missions [fig. 1]. The map data was derived from previous maps and information collected from resident missionaries such as the Rev. Henry Townsend and Rev. Samuel Crowther at Abeokuta (Gollmer 1889, 110). The atlas aimed to educate church congregants but also 'the general reader' interested in the Christian missionary movement (Stock 1899, 443). In the 1859 map, the mapmakers employed graphical contrast, balance of form and harmony of colour to explore geographical reality and territorial imagination.

Figure 1   CMS, The Yorùbá Country, with the Course of the Niger and Tshadda 1859, Engraving, The Church Missionary Atlas, CM House, London

Topography is sparingly depicted using hachuring. Indeed, the focus of the terrain, the Yorùbá Country, is devoid of landform portrayal. By contrast, hydrographic evidence dominates the terrain with rivers, lagoons and the ocean. Double thick lines represent the Rivers Niger and Benue. Conversely, single lines indicate the two river systems of Yorùbáland. The fork-looking Ogun River, labelled at the mouth of the lagoon, glaringly beams the focused terrain. Equally, to the east, the Osun River, elaborately portrayed with a labelled River Oba tributary, evokes a sense of isolation. To the far east of the map is the exaggeratedly represented Old Calabar River, which also curiously echoes its imaginative rendering.

Cultural information is plentiful, highlighting ethnicities, sub-ethnicities, settlements, mission stations, travel routes and exploratory events. The typographic labelling, which indicates ethnicities, is distinguished with the label "Country", and rouses the sense of an African terrain. The focused terrain had sub-ethnicities signified by lesser typographic font size, which envisioned spatial ordering in contrast to the ethnic labels. They are blatantly abundant in Yorùbáland but also had a pleasant and spaced concentration in the upper right-hand corner along the Benue River. Some settlements are keyed in the legend as "Church Missionary Stations are underlined, as *Abbeokuta*".

The style of lettering ensured a balanced presentation of the territorial knowledge. There is a clear perception of the varied black typographic fonts on the yellow background of the terrain. Whereas there is no distinction between the labelling of settlements, there is a classification of ethnicities and sub-ethnicities. Marginal information on the map includes neat lines, Lines of Latitude and Longitude, and a legend box. The one-degree interval spherical coordinate, which provides a focal frame, evokes a geographical sense of the terrain. The legend box vigorously advocates the exploratory lens of missionary geography.

To the viewer, the very attractive colouring of the map, which exudes the warmth of the terrain, secures a sustaining observation and signals a pleasant composition. There are apparent defects in this map, which include crowdedness and the blurry-looking shading on the shoreline. Nevertheless, the harmony of colours evident in the sound contrast of the blue and yellow of the ocean and land respectively as well as the dual black and red lines of the settlements with missionary stations, highlight the success of the map in presenting the intended information. Its general effect is an alluring view of West-Central Africa, which gracefully highlights the Yorùbá country.

The map that resolved the geographical problem of the spatial comprehension of CMS mission work in Yorùbáland reflected some symbolic misrepresentations. Local informants, exploratory feedback and mission work influenced the representation of the river system

but the omission of geographical names during the mapmaking created cognitive inaccuracy about the hydrological feature. The unnamed river system created the challenge of identifying particular rivers by a map reader unfamiliar with the territory. However, the depicted rivers were the river Ogun to the left and its tributary river Oyan to the right. Whereas limited map space possibly caused the avoidance of the label of River Ogun to the east, there was sufficient map space to label the tributary to the left. The River Ogun was the main river highway into Western Yorùbáland. The consequence of the unlabelled rivers or omitted geographical names resulted in a wrong impression of the river Ogun in the 1861 map.

The representation of the Egba, Egbado, Oyo-Yorùbá, Ijebu and Ijesa sub-ethnicities was influenced by the CMS encounter with them among recaptured Africans in Sierra Leone but in the cartographic process of representing these Yorùbá subgroups there emerged cognitive errors concerning their territorial occupancy related to other unrepresented Yorùbá sub-ethnicities. Whereas the suggested territory of Egbado covered areas where the Ketu, Ifonyin and Ohori sub-groups lived, the suggested territory of Ijesa covered where the Ondo, Idoko, Owo and Akoko sub-groups inhabited. Indeed, Charles Gollmer (1889, 145, 159-60), during his "missionary tour in the Ketu country", conducted in the mid-1850s, referred to "the names of ninety-four towns belonging to the Ketu province". However, there was no depiction of Ketu as a sub-group but only the indication of the capital town on the map. This omission of Ketu might be associated with the challenges of the CMS work there during the late 1850s.

There are also cultural misconceptions evident in the map. Some place names cause geo-cultural misunderstanding. For instance, the typographic label of Yorùbá Country refers, not only to the territory of the Oyo-Yorùbá sub-group but also to the entire territory of the Yorùbá speaking peoples of West-Central Africa. James Horton in 1868 observed, the CMS: "from want of a more specific name and from the whole of the tribes being once subject to the king of Yoruba... designated it the Yoruba Country" (quoted in Oduyoye 2010, 7).

Again, there was an incorrect place name of the Efon instead of the Ekiti. Although Efon-Alaye is an Ekiti town, it was misinterpreted as the name of the Ekiti sub-ethnicity. Besides, there was the representation of Kakanda as a part of Yorùbáland. Although there were arguments amongst European explorers about the Kakanda being or not "a dialect of the Yaruba", however, the Yorùbás does not have any sub-group known as Kakanda.

3.2   The 1860 Map

The Niger River Expeditions had established the knowledge of the Niger Delta in 1834, ethnicities and trading possibilities along the river and its hinterland in the 1840s, and the value of an overland route to the Atlantic Ocean across Western Yorùbáland in the mid-1850s (Ajayi 1965). However, there was still the geographical problem of overland linkage between Eastern Yorùbáland and the Niger-Benue confluence. Hence, Dr William Baikie, leader of the Niger Expedition, sent Daniel May, a Royal Navy officer, to explore this unknown route (May 1860). The 1860 map was only partly successful in depicting Eastern Yorùbáland because he was prevented to explore the east fully due to Yorùbá power politics and war **[fig. 2]**. The military officials of the Ibadan empire insisted he should not proceed to Akoko but return to the Niger River by Yagba territory. This 1858 exploration was part of the British Government and MacGregor Laird's partnership to explore further trade opportunities in the Niger River hinterland. The mapmaker was John Arrowsmith, who drew the map based on the sketches of Daniel May and his earlier maps. The map illustrated a Royal Geographical Society (RGS) journal article published in 1860. The mapmaker explored geographical reality through the capture of the cultural encounter and the terrain in a contrast of lines and shapes.
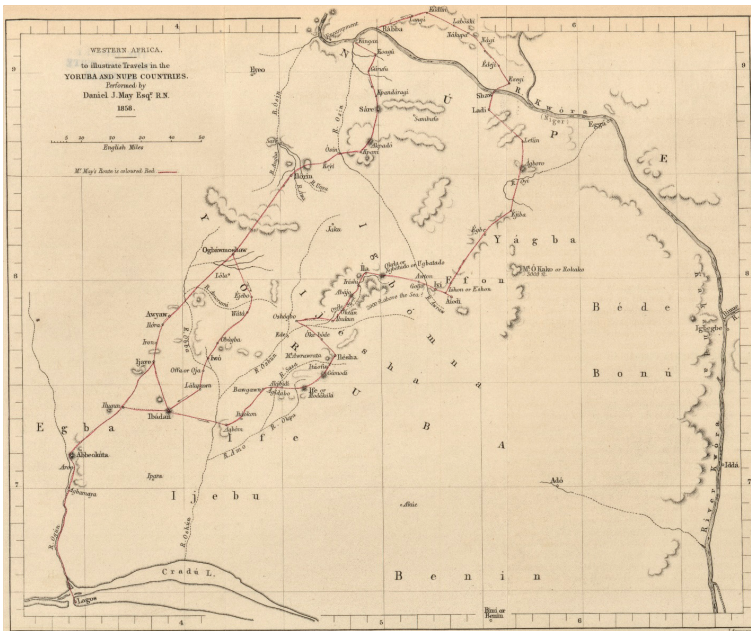

Figure 2   RGS, Yorùbá and Nupe Countries, 1860, Engraving, Royal Geographical Society, London.
Source: Perry-Castañeda Library, University of Texas

The topographic impressions on the map include hachure, a form of spot height and another graphic symbol. For instance, there are the hachures, which at a farther distance reflect a poor topographic impression, but closer examination shows elaborately done heavy, sharp strokes indicating the slopes. Yet the hills appear curiously dissimilar from the rest of the terrain. In [fig. 2], the represented hydrography includes rivers, coastline, lagoon and the Ocean. For example, dash lines represent the rivers of Yorùbáland, which include northward and southward flowing rivers, inducing a more active look. A continuous thick line depicted the coastline, which gave the effect of a soothing riverbank and shoreline. The texture created by this darkened line contrasts the generated shape, which portrays the lagoon labelled as a lake.

Cultural representation on the map includes ethno-territories, settlements and travel routes. A typeface of different fonts labelled and distinguished ethnicities and sub-ethnicities prompting the visual sense of geographical scale. Signifying settlements by small circles modestly extol their presence on the landscape. The red colour line, keyed in the legend, depicts the travel route of the explorer and conveys activity across the terrain. This travel route, which suggests a sort of southwest-northeast parallel lines with zigzags, heightens the sense of movement and focus of the map as Eastern Yorùbáland.

The style of lettering on the map follows an orderly approach. For instance, the wide letter spacing of the Niger River label creates a pleasing look that balances the close-fitting letter spacing of the rivers in Yorùbáland. Cultural features, clearly labelled, reveal the classification of typographic fonts to distinguish the order of importance. This fine lettering instils in the viewer the visual narrative of the geographical encounter of the British explorer. Marginal information comprises the border and legend box. Interestingly, the map border did not limit the geographic representation but included parts of the Niger River and the Yorùbá coastland that added an innovative look but also an irregular disparity to the geometric frame of the terrain. The legend box includes a title, date, scale and key but gracefully dominates the viewer's attention above the depicted landscape.

This well-composed map embodies a sense of direction and movement that serves as an attraction to engage further this terrain. However, the dull background colour, the poorly shaped lagoon and the poorly executed hachures signal the main defect of this map. The noteworthy success of the map is that it beautifully registers, with a sense of more detailed proportion, central and northeast Yorùbáland as an active landscape. Despite the defects, the general effect of the map is that of an expressive representation of geographical and cultural encounters, which evokes an active terrain.

The map that resolved the geographical problems of visualising Eastern Yorùbáland included some symbolic misrepresentations

created during the mapmaking. Cognitive errors are evident in the represented physical features. By way of example, the hilly representation suggested an isolated hilly topography instead of a table-land interspaced with inselbergs. In the 1850s, Thomas Bowen, who explored this landscape, correctly explained the Yorùbá topography as "a table-land" (Ogundiwin 2023, 7). Again, there was a misleading representation of the River Ogun because the depicted upper course was not the main river but its tributary of River Oyan. Likewise, there was the placement of Lagos at the tip of the peninsula instead of indicating it as an island. In 1859, Robert Campbell observed: "Lagos is a small island about six miles in circumference… it is very low, and formed by an accumulation of sand" (1861, 17).

The geographical coverage of sub-ethnicities suggested by the typographic spacing of place names introduced sub-territorial distortions. For instance, there was the territorial extension of the Ijesa, Igbomina and Oyo-Yorùbá sub-groups into other unmentioned sub-groups. Daniel May (1860, 231) stressed, "I passed out of Ijesha into the less extensive district of Igbo[mina]", but John Arrowsmith depicted it extending into the Ekiti and Ondo territories. In addition, there was the incorrect placement of the Ife sub-group and the town of Akure (Akue). Whereas the location of the Ife-Yorùbá was where the Owu-Yorùbá inhabited, the position of Akure was farther south of its actual location where the Ikale-Yorùbá resides.

Again, there were cultural misconceptions, such as the mislabelling of the Ekiti sub-group as Efon. Similar to the 1859 map, the uppercase label of the Yorùbá synonymously referred to the Oyo-Yorùbá sub-group as well as the entire territory of the Yorùbá-speaking people. Besides, there was the depiction of Eyeo, the ruins of Old Oyo, as if it was still a habitable settlement. Since the British explorer did not visit Old Oyo, it was a reflection of Arrowsmith's earlier maps of Yorùbáland.

3.3 The 1861 Map

There was a growing interest in the 1840s of Black American emigration to the West African interior (Blackett 1977). Indeed, an American Southern Baptist (SBM) missionary, Rev. Thomas Bowen, had suggested and visualised on two maps in 1857 and 1858 respectively, potential Yorùbá settlements (Ogundiwin 2023). However, the geographical problem of suitable towns remained. This led to further exploration, which revealed newer information that was mapped, for instance, in this 1861 map. The 1861 map unveiled the towns explored during the exploratory mission and added other geographic information about Yorùbáland. The Niger Valley Exploring Party (NVEP), led by the Black American, Dr Martin Delany and the Jamaican, Robert

Campbell, were sponsored by philanthropic interest in Europe to examine the Niger River hinterland in 1859-60 (Campbell 1861; Delany 1861). The map illustrated the travel account of Robert Campbell published in 1861 **[fig. 3]**. The mapmaker employed the harmony of lines, shapes and typography on a monochrome to evoke the reality of the geographical space.
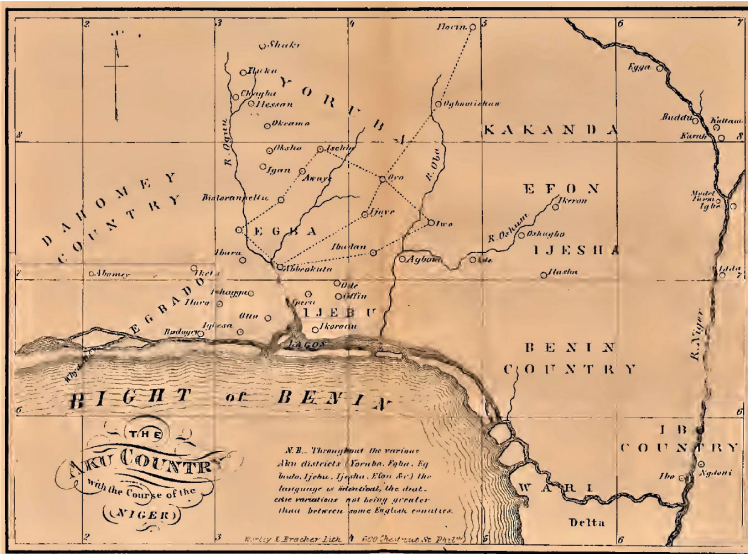

Figure 3 The Aku Country with Course of the Niger, 1861, Engraving, Thomas Hamilton, New York. Source: Internet Archive

The hydrographical representation on the map comprises the ocean, coastline, lagoon and rivers. A black italic label indicates the Bight of the Atlantic Ocean complemented by finely drawn black wavy lines along the coastline, which reinforces the oceanic look. Thin lines traced the coastline flanked by a light coastal shading that evokes a form of soberness. Double black lines depict the Niger River and its delta branch with a close-fitting look that proclaims its geographical prominence to the viewer. Conversely, carefully drawn single black line with varying line thickness signifies the rivers of Yorùbáland inducing a closer glance at the focused landscape.

Cultural information on the map includes ethno-territorial organisation, settlements and travel routes. The typographic label "Country" signifies adjoining ethnicities prompting the visual impression of territorial organisation. A similar bold and pleasant labelling indicates the Yorùbá sub-ethnicities, assertively extolling sub-territorial spaces. The sparingly depicted settlements along the Niger River

contrast the interspersed portrayal of Yorùbá settlements, which gives a pleasant viewing of the terrain. Close dash lines signify the travel routes with a sense of mechanical accuracy. These dash lines reflecting a straight formation, linked eleven towns, but also gave an alluring shape.

The style of lettering on the map is simple but effective. For instance, lowercase lettering labelled a greater part of the cultural information, but Roman lettering indicates ethnicities and sub-ethnicities. The finely executed wide letter spacing of the uppercase and lowercase admirably suggests spatial extents or territorial occupancies. The simplicity of the varied lettering types adds to the curious personality of the map. Marginal information contains the margin lines, title, north arrow and textual note. The beautifully drawn title is an artistic rendering that reinforces the attractiveness of the map. The fancy swash lines recall the decorative ornaments evident on earlier European maps. On the upper right-hand side is a north arrow defined by simple lines but also considerably draws attention to the focal point of the landscape.

This map has an attractive pull of its own regardless of the monochromatic background, which evokes a sober feeling but has sufficient curiosity to prompt repeated looks by a viewer. Deficiencies noticeable in the map include the possible confusion between the Osun and Oba rivers. Nevertheless, the combination of artistic simplicity with minimal geographic information to describe visually the landscape and narrate the unfolding event reveals the map as a remarkable success. The map is succinctly composed, and the general effect stimulates a clean and uncrowded terrain; evoking a mood of concern that seems appropriate to the issue of emigration.

The socio-spatial problem of suitable places, which the map form sought to address, contained some symbolic misrepresentations. The 1861 map primarily relied on the 1859 CMS map but also derived territorial information from SBM maps produced in the 1850s. Cognitive errors are evident in the depicted physical and cultural features. For instance, there was a mislabelling of River Ofiki as River Ogun. The Ogun River was the unnamed river to the right on the map face. Campbell observed:

> I crossed the Ogun [river] in three places above Abbeokuta; the first time between Oyo and Isehin, next between Biocu [Bioku] and Beracudu [Berekodo], and finally between the last place and Abbeokuta. (1861, 25-6)

This representational error as aforementioned derived from the omission of naming the river in the CMS map, which the mapmaker copied without checking the travel account of Robert Campbell. Again, the geographical positioning of Lagos Island was inward in the lagoon

and farther away from the seacoast. Likewise, there was the incorrect placement of Egbado, Egba, Efon and Ijesa territories. Hence, there are unnamed sub-groups around the represented sub-ethnicities such as the Awori-Yorùbá between the Egbado and Ijebu.

Cultural misconceptions also exist on this map. The map title introduced the entire Yorùbá-speaking territory as Aku Country but the designation was also synonymous with the Oyo-Yorùbá territory as above-mentioned in the previous maps. Campbell wrote: "The people are of the Egba tribe of the Akus, sometimes incorrectly called Yorubas" (1861, 32).

Hence, this probably influenced the mapmaker to replace Yorùbá with Aku in the map title. Similar to the 1860 map, there was an incorrect representation of the Ekiti sub-group as the Efon. Again, there was the reappearance of Kakanda as a part of Yorùbáland. In contrast to the 1860 map, which correctly placed the Yagba-Yorùbá where the Kakanda was located, the 1861 map reproduced the cultural misunderstanding of the 1859 map. Hence, the challenge to place correctly the Kakanda ethnicity reflected a representational problem on the map depicting Yorùbáland.

4 Maps: Territorial Politics and Representational Practices

These three maps in the 1860s worked in the territorial power relations of Yorùbáland. This was evident in the religious, commercial and imperial politics, which contested and negotiated different territorial identities in the furtherance of their alternative territorial interests. Whereas the CMS accentuated the Egba territorial identity through the Abeokuta policy, the NVEP emphasized the Oyo territorial identity in its quest to settle Black American emigrants. In the late 1840s and early 1850s, the CMS policy held that Abeokuta was the advanced post of Christianity and Western civilisation, from where the gospel could expand into the rest of the Yorùbá interior.

The 1859 map worked to attest not only to the missionary success of that policy but also to the need in the 1860s to increase British political-economic support for the Egba government. However, after the annexation of Lagos in 1861, the British administration was interested in the sub-groups in the Yorùbá hinterland because of commercial and economic reasons exemplified in the 1860 map. Therefore, during the Ijaye war, between the Egba-Ijaye alliance and the Ibadans, the CMS "took the Egbas' side", as it argued, "the British authorities at Lagos" misjudged the Egbas (Stock 1899, 435). Stock observed: "Abeokuta being at that time the most popular of all the Society's Missions, the Society at home found itself opposed to Glover's policy" (435).

The colonial policy favoured the Ibadans, an Oyo-Yorùbás group. Eventually, in 1862, the CMS Committee and other friends of Africa discussed with British government officials in London aided by the 1859 map. The British Colonial Secretary was urged to remove: "the hostile policy pursued by the Governor of Lagos against Abeokuta" (437).

Conversely, the Niger Valley Exploring Party devoted more time to exploring the Oyo-Yorùbá territory but eventually secured a treaty at Abeokuta (Campbell 1861, 143). This territorial interest reflected the American Southern Baptist aspiration of propagating Christianity and Western civilisation in northern Yorùbáland, which favoured the Oyo-Yorùbá (Ogundiwin 2023, 6). For example, the 1861 map depicted eight Oyo-Yorùbá towns among the eleven potential settlements the NVEP visited for Black American emigration. Two of these eight and an additional three Oyo-Yorùbá towns appeared initially in the SBM maps published in 1857 and 1858 (Ogundiwin 2023). While considering the commercial and agricultural prospects for potential emigrants, Campbell discussed the importance of the river system, for instance, the Ogun River, its limited streamer transportation and available waterpower to run steam engines for cotton mills (Campbell 1861, 23, 136, 142-3). Nonetheless, the labelled Ogun River along some Egba and Oyo settlements on the map was a cognitive error but it continued visually to persuade the African Aid Society in London to think about Black American emigration.

The mapping of Yorùbá sub-ethnicities of the hinterland, which resulted from the 1857 Niger Expedition, highlighted their territorial advantages. The sub-territories provided an overland route across Yorùbáland to the Niger hinterland, which several British officials highlighted (Glover 1897, 78). They emphasized it had an advantage over the Niger waterway, where the Niger Delta kingdoms were opposed to British penetration into the hinterland (Ajayi 1965, 168). Besides, it highlighted the importance of Eko or Lagos, while it brought the eastern Yorùbá sub-groups of Ife, Ijesa, Igbomina, Ekiti (Efon) and Yagba into the limelight to serve British political-economic interest. Interestingly, the CMS also highlighted the value of the overland route, which the 1859 map worked as a visual illustration to discuss the Rev. Crowther's travels on the: "'overland route'… by way of Ilorin and Abeokuta to Lagos, in February 1859" (Stock 1899, 452).

However, the CMS missionaries argued the usefulness of the route requires friendly interaction with the Egba (Ajayi 1965, 169). It was apparent the visual persuasion of the 1860 map about the importance of the overland route reflected in the British annexation of Lagos in August 1861 (Burton 1863, 214).

By contrast, these three maps and some maps derived from them also worked in the cartographic marginalisation of other Yorùbá sub-ethnicities. Sub-territories not within the missionary sphere of influence or not along the overland route became and remained unknown.

For example, there were the Ketu and Sabe to the west, the Ondo, Idoko, Owo, Akoko and Ikale to the east. This sidelining was also evident owing to the cultural misunderstanding of sub-groups such as the Ekiti for Efon or the northeastern Okun-Yorùbá with the Kakanda. Since the 1840s, Crowther wrote about Yorùbá sub-groups, such as the Dassa and Ife, living between the Mono and Opara rivers but there was a consistent omission of these sub-ethnicities from the rest of Yorùbáland in European maps. In 1877, a map, titled *Part of the Yoruba Country*, illustrating a missionary account stressed only the Egbas, Ijebus and Oyo-Yorùbás, while summing up the remaining sub-groups as the "others" (Hinderer 1877, 215). Consequently, the cartographic identity of a Yorùbá sub-group reflected Euro-American territorial interest, the several unrepresented or unnamed sub-ethnicities became the visually marginalised Other.

Although these maps emerged in different years, they were parallel productions with different aims, expanding the cartographic stage for territorial politics in Yorùbáland. These parallel maps stress different territorial images, whose particular appearances were persuasive acts in the Euro-American territorialisation of Yorùbáland. In the above study, the visual prompts of the good looks of the CMS map emphasize expanding Christianity; the solemn gaze of the NVEP map stresses humanitarian concern; and the lively impressions of the Niger Expedition map highlight economic potentials, privileging alternative territorial interests. These visual persuasions highlight the contending and negotiable social productions of territorial identities. They urge and encourage 'alternative cartographic truths' within the spatial debate of competing territorial interests. This agrees with Casti's (2015, 107) contention about "maps as a persuasive tool in public debates". Therefore, the cultural politics of maps in the cultural encounter of the Euro-American world and the Yorùbá of West-Central Africa introduced a visual dimension into the representational practices of ethnic and sub-ethnic territoriality.

5 Conclusion

The paper has examined the interlinkage of alternative map appearances and territorial politics in mid-nineteenth-century Yorùbáland. Cartographic styles stress the idea of differentiating appearance, which bestows confidence in geographical information but maps with good looks do include symbolic misrepresentations. Regardless of cognitive errors and cultural misconceptions, the emotional responses to these geographical maps are integral to territorial politics but there has been little study or no attention to the linkage of map style and territorial politics in the nineteenth-century maps of West Africa. In this paper, three maps of Yorùbáland, variously executed with

pleasing and exciting use of graphical elements, reveal symbolic misrepresentations, but still serve as visual prompts in thinking and acting out alternative territorial interests in the cultural relations between the Yorùbá sub-ethnicities and the Euro-American world. These maps are vital devices in the nineteenth century territorialisation of Yorùbáland, which exemplify the cultural interdependence of Europeans, Americans and Africans.

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The Strait and the Sea
Unsettling Scores

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Abstract   In this inquiry I build on my previous work on contemporary aesthetics to engage the media practices and bio-acoustic mappings of cetacean scientists, as well as fishers' video diaries and sound cartographies of interactions with cetaceans. To these, I also juxtapose a contemporary composer, sound engineer, and media artist's sonic and musical records of encounters with these decidedly intriguing marine mammals alas too often reduced to the adjective 'charismatic'. Concretely, I zoom in on three media practices: the sound compositions of Ariel Guzik, founder of the Nature Expression and Resonance research laboratory, who designs and engineers instruments to communicate with grey whales, sperm whales, and bottle nose dolphins in the Sea of Cortez; the hydrophone recordings, spectrograms, drone footage, and photo-identifications by a team of cetacean ethologists and communication scientists who run a research vessel and a marine ecology lab in the Tyrrhenian Sea; and the multimedia online platforms of fishers who produce video diaries of potentially fatal interactions with orcas in the Strait of Gibraltar. These carefully selected and juxtaposed audiovisual practices are the graphic, acoustic, and musical fragments that compose the curatorial mise-en-scène I am calling *The Strait and The Sea*. The reader will also be able to explore some of these media practices by navigating the links provided in the endnotes.

Keywords   Strait. Sea. Ocean. Sound. Music. Mapping. Cetaceans. Recording. Marine ecology.

Summary   1 Prelude: Map-Territory Resonances. – 2 Hetero-Ethologic. – 3 Stretto Fuga.

Like God, no one could agree what they really looked like, or what they might be capable of. Whales bore all of this ignorance on their backs, burdened by scholars and artists balanced up there. Dürer new better. He'd been reading about these creatures since he was a boy.
(Hoare 2012, 15)

Any sound can be made into a radiophonic sound by the treatment it receives. The sort of sounds we usually use are electronic sounds of various sorts, and sounds that are recorded, picked up by a microphone, everyday sounds, and also musical instruments.
(Delia Derbyshire, "Sculptress of Sound")

Music is a mysterious mathematics whose elements partake of the infinite.
(Debussy 2012, XI)

1 Prelude: Map-Territory Resonances

The design for this essay is an echo of the worlds and territories traversed during my latest inquiry. Like Theremin[1] player, classically trained violinist, and electronic music pioneer Clara Rockmore, I tried to gently touch and adroitly move my fingers in the vicinity of a singular instrument that enables the performer to generate eerie acoustic patterns and melodies out of an invisible yet perceptible electromagnetic field. What follows is a written piece composed of images and sounds inspired by the intriguing audiovisual territories encountered during fieldwork engagements with the media practices of my most beloved interlocutors. These creative practices not only render untenable the all-too neat distinctions between the arts and the sciences,[2] on the one hand, and between the philosophical

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[1] "The theremin is an electronic musical instrument controlled without physical contact by the performer (who is known as a thereminist). Patented and invented by Leo Theremin in 1928 this fascinating monophonic instrument generates electronic pitches of various volumes that are controlled by the proximity of the player's hands to metal protrusions associated with each. Thus, moving the hands closer to or farther away from the pitch protrusion will result in a higher or lower pitch and moving the hands closer to or farther away from the volume protrusion will result in a louder or softer volume. The somewhat eerie quality of the theremin can be heard in many movie soundtracks in the sci-fi and horror genre in the 1940's, 1950's, and 1960's". OnMusic Dictionary.

[2] The call to straddle the boundaries between the "two cultures", to borrow C.P. Snow's expression, is a staple of contemporary dialogues between the humanities, arts, and technosciences. Suffice to mention the work of Donna Haraway, Paul Rabinow, Stephen Helmreich, Claire Colebrook, Kriss Ravetto, Todd Meyers, Tobias Rees, Elizabeth Grosz, Roger Bartra, and Gary Tomlinson, to name only those whose work I have learned a great deal from. Indeed, inquirers are today increasingly moving playfully between the sciences and media arts, often animated by an imagination that endeavours towards
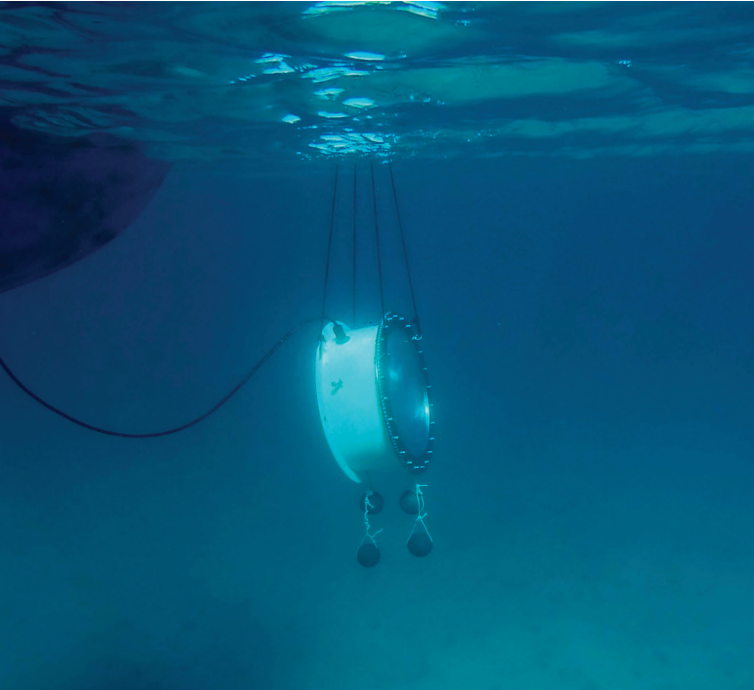
Figure 1 *Timpano Marino*, acoustic instrument and music composition.
Ariel Guzik, 2021, Sea of Cortez, Baja California, Mexico.
Although not visible on this image, a hydrophone was used to record the artist's improvised alto saxophone
'musical offering to the sea' and to its cetacean inhabitants.
Courtesy of Ariel Guzik

and the scientific, on the other. They also invite a form of navigation across geographical maps by drifting in them with a kind of love[3] that seldom finds harbour in existing nations and disciplines. Their

the creation of new domains of inquiry. In her *Darwinian reflections* (2011), Elizabeth Grosz has called such emerging domains the "inhumanities", a heterogenous field of investigation that does not lend itself to being tamed by a single discipline or life form. Historian of science Mario Biagioli invites us to cultivate "post-disciplinary liaisons" (2009). Georgina Born (2010) proposes creative inter-disciplinary options between musicology, the social sciences, and the history of science.

3 I use the word 'love' for two reasons. First, an empirical reason: the term often arises in the context of my fieldwork conversations, often in reference to marine environments and life. Second, in reference to Emily Dickinson's poem *My River Runs Through Thee*, a poem about the plea of a river to be welcomed by her lover, the sea it is flowing into. "My River runs to thee – Blue Sea – Wilt welcome me? My River wait reply. Oh Sea – look graciously! [.] Say Sea – take Me?". The last line of the poem usually closes with either an exclamation point (!) or interrogation point (?). The undecidedness between interrogation and exclamation in Dickinson's riverine and marine poem evokes matters of hospitality and welcomeness inquirers face as they move between places and disciplines.

creative energy fuels travels to realms that are both worldly and cosmic yet never otherworldly.

One of my interlocutors, the artist, engineer, composer, musician, and inventor Ariel Guzik, founder of the Nature Expression and Resonance Laboratory in Mexico City, remediates the art-philosophy-science triumvirate by nourishing it with sources inspired by natural history, science fiction, and spirituality. Another fieldwork interlocutor, the marine scientist, bio-acoustician, and photographer Dr. Daniela Silvia Pace, with her team of collaborators, has been studying and monitoring bottlenose dolphins, a species of dolphins described as "cosmopolitan". This is the term recruited by the Encyclopedia of Marine Mammals to designate life forms with a wide geographic range on the planet. To my knowledge, there are no indications that the term is here being used (or that it ought to be) in its technical philosophical declinations, Kantian,[4] Cynic, Stoic, or otherwise. To be sure, these dolphins and other marine mammals (pilot whales, orcas, sea lions) were "conscripted" as "biological assets" by the US Office of Naval Research and Soviet army (Colby 2020) for all sort of instrumental reasons – primarily for service missions to recover undersea military equipment[5] – and therefore belong to the dark legacies and assemblages of the environmental history of the Cold War, its global order of things, and the ecologically onerous space race (Elhaik 2022). Said differently, the practices of my interlocutors unsettle the connections between the maps and territories imagined by scientific, political, artistic, and philosophical communities. They have one foot in the various intermedia worlds of our cosmopolitan order of things, and the other foot resonating with other realms.

The audiovisual practices of these interlocutors, an artist-engineer-composer, and a team of scientists-bioacousticians-photographers, are therefore also cosmic, and not only for the aforementioned geopolitical reasons. Indeed, our current maps and navigation instruments fall short of the pathos out of which the contours of their imaginative territories and intensive encounters with marine creatures emerge and take shape. "The art of reading a sextant", Ariel Guzik tells us in his beautiful essay *Deriva* or *Adrift* in which he discusses his current design project to engineer the "helmless" ship named *Narcissa* – a ship designed to communicate with cetaceans and marine environments – "surpasses that of reading maps, when it forces us to turn our gaze to the sky, and thus to give the helm to the

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4 Cf. Kant 1991.

5 "Technical film reports" and other media materials about these cetacean-led retrieval tasks are now available online. One of these is a 1972 film that was part of the series Moving Images Relating to Military Activities that documents the activities of Project Deep Ops, a program designed to train orca and pilot whales to assist the US Navy. The film can be viewed here: `https://www.youtube.com/watch?v=isyO5tQfeqM`.

stars". He further adds: "Perhaps, being adrift is now the most promising form of transit of all. It overlooks maps, compasses and sextants, and in the unlikely flight forward, it saves us from that worn-out certainty of science that breaks the mysteries of the world into pieces. And in a world of a thousand certainties and few mysteries, maps and navigation instruments no longer make sense".[6] Cosmic because, as an inquirer, my own writings on 'reveries' and 'drifts'[7] resonate with that of these esteemed intercessors who use these terms in ways that complicate the general semantics of Alfred Korzybski, author of the widely read and influential *Sanity and Science*. "A map is not the territory it represents", we are told by the author who would influence a generation of illustrious thinkers interested in articulating productive dissonances between Aristotelian and non-Aristotelian systems of thought, from anthropologist Gregory Bateson (1972) to philosopher of science and of the imagination Gaston Bachelard (1940). Instead, Korzybski further elaborates, "the map has a *similar* structure to the territory, which accounts for its usefulness (Korzybski 1998, 145)". To symmetrically reverse this statement and state instead that The Territory is Not the Map would only consist in inserting an inversion that falls short of the more profound work of difference. Thanks to stimulating fieldwork encounters and interlocutors, I find myself drifting in the interstices between map and territory, without the secure helm of representation.

Consequently, our sanity will not consist in recovering, after the fact, a lost territory. The art of unsettling our maps, with their nightmarish dream of absolute exactitude, will consist in recomposing and repopulating our world, albeit ephemerally, in the company of beloved interlocutors whose singular media practices both resonate with our invisible cities and animate other kinds of scientific reveries. Moreover, this spiral-like voyage would take its cue from the efforts of those ancient and medieval philosophers, mathematicians, and astronomers (at times also astrologers, Kepler!) whose understanding of philosophy as "a way of life" (Hadot 1995) and music as a "mysterious mathematics" (Debussy 2012) begs for a contemporary reconfiguration of the anthropo-cosmic bond. In other words,

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6 "El arte de leer un sextante supera al de la lectura de los mapas, cuando nos fuerza a tornar la mirada al firmamento, y así a ceder el timón a los astros [.] Quizá derivar sea ahora la forma de tránsito mas prometedora de todas. Obvia los mapas, las brújulas y los sextantes, y en la improbable huida hacia adelante, nos pone a salvo de esa desgastada ciencia cierta que rompe en pedazos los misterios del mundo. Y es que en un mundo de mil certezas y pocos misterios, no tienen ya sentido los mapas y los instrumentos de navegación". This unpublished short text was kindly shared with the author by Ariel Guzik.

7 See *Tricontinental Drifts* (2012); *Strait of Gibraltar: A Reverie in Blue* (2020); *Ermenautica* (2023)

a reconfiguration, in new forms and modes, of the severed link between the music of the spheres[8] and the *politea* of a cosmic city. The inquiries of my interlocutors take place in conceptual and experiential "penumbras" (Bachelard 1940, 113) between map and territory, and certainly not by privileging *physis* over *techne* (or vice versa) since in the ancient cosmic city "human laws produced by civilization are replaced by the universal laws of nature" (Goulet-Caze 2017, 25). Far from being a naturalism in the New Age sense of the term, the cosmic city yet to come requires a different understanding of the bond between the new sciences, with their "atomistic intuitions" (Bachelard 2019), and a new spirituality with concrete and practical exercises. This city would also call for another kind of relationship to technology and instruments, including the urge, as is the case of Ariel Guzik's marvellously engineered families of instruments, to build new ones since most available instruments only keep returning us either to imperial exactitude or melancholy over lost territorial bodies.

Unsettled between map and territory, I now find myself inhabiting a *space* and *mode* of thought and practice that re-assembles and re-curates the physical oceanographic maps of cetacean scientists and the spectrograms of bio-acousticians *with* the helmless adrift capsules, invented instruments, and harmonic compositions of Ariel Guzik whose cosmic reveries and spiritual exercises are spoken in the idiom of a "cetacean calligraphy" (2019). This mode of thought and practice requires the cultivation of an *ethos*, with the understanding of the term inspired by the Greco-Arab tradition – from Pythagoras to Al-Kindi to Avempace – that associates ethos (plural *ethoi*) with musical modes and moods. To test and be worthy of the multiplicities of modes and moods encountered in the spaces traversed during an inquiry is to both wink at previous illustrious essayists[9] and to allow oneself to be animated by what I propose to call a "heteroethological" imagination.

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[8] The astrophysicist Sylvie Vauclair (2013) has even suggested a "new music of the spheres" in her beautiful study of the resonances and frequencies of stars.

[9] Suffice to mention philosophical and anthropological essays such as Claude Lévi-Strauss' *Tristes Tropiques* (1955), Paul Rabinow's *Gerard Richter: Unconsolable Contemporary* (2018), and Roger Bartra' *El Mito del Hombre Lobo* (2023). One can add the 'reflections' of illustrious natural scientists, including Stephen Jay Gould's *Ever Since Darwin: Reflections on Natural History* (1977), oceanographer Anouar Aleem's *Concepts of Marine Biology Among Medieval Arab Writers* (1968), and more recently the genre-defying essays of falconer and historian of science Helen McDonald.

2 Hetero-Ethologics

In this new 'inquiry' (Rabinow; Stravrianaki 2014) I build on my early fieldwork on critical art and curatorial practices in Mexico City (2016), as well as on a recent book on contemporary aesthetics (2022).[10] In the latter, I had engaged the image work, ethical demands, and existential struggles of contemporary artists who find their inspiration in natural history, ornithology, and marine worlds. I now shift my attention to the audiovisual media practices of cetacean ethologists and communication scientists, as well as fishers' video diaries of interactions with cetaceans. To these, I also juxtapose contemporary artists' sonic and visual records of encounters with these decidedly intriguing marine mammals alas too often reduced to the pacified adjective "charismatic". Concretely, I zoom in on three audiovisual media practices: the sound compositions of Ariel Guzik, an artist who designs and engineers instruments to communicate with whales and dolphins in the Sea of Cortez; the hydrophone recordings, spectrograms, drone footage, and photo-identifications by a team of cetacean ethologists and communication scientists who run a research vessel and a bioacoustics lab in Rome alongside the Tyrrhenian Sea; and the online platforms of fishers who produce video diaries of potentially fatal interactions with orcas in the Strait of Gibraltar. These carefully selected media practices are the fragments of actuality and micro-tonalities that compose the curated series I am calling *The Strait and The Sea*.

Dubbed 'curatorial design' (Elhaik, Marcus 2020), my research design turns on an assemblage of *ethoi* or manners of being in the world that both corresponds and exceeds the terms "scientist", "fisher", "artist", and "cetacean". None of these forms and ways of

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10   I am indebted to Paul Rabinow and Anthony Stavrianakis' philosophical-anthropological style of practice and "designs on the contemporary''. In lieu of thinking in terms of "method" which often results in a moralist economy of "self-justification", Rabinow and Stavrianakis follow a Deweyan understanding of inquiry whereby the inquirer moves "adjacently" to situations of conceptual and experiential breakdown. In both my previous and current work, I have sought to both observe and participate to situations in which the practices and spaces of curation are undergoing such conceptual breakdowns. To this end, I have concretely situated myself alongside fieldwork situations and conversations that beg for new conceptualization of curatorial practice. Moreover, these situations draw our attention on other forms and ways of being human. Such is the mode of conduct and form of truth-seeking of the "anthropologist as curator" (Elhaik 2016; 2020). Here, I have therefore extended my previous inquiries on curation to include the practices of cetacean scientists, bio-acousticians, fishers, and artists who are sound designers. Concretely, I am testing and searching for emerging forms and modes of curation in an ecology of marine environments, venues, and sites, including marine ecology laboratories, artists' studios, annual congresses for the study of cetaceans, fisheries institutes, research boats, as well as by involving my fieldwork interlocutors in the various series and activities I curate at the laboratory I run in UC Davis, including co-teaching workshops with them.

life is ethically primed over the other and neither is a representative of a given ethos, *Bildung*, character, and culture. However, the order "cetacean", species individual "*Tursiops Truncatus* tag number 345", and vernacular "ese viejo cachalote" are here consistently mediated by the domain of human practices we call audiovisual media (artistic, scientific, amateur). The motion of the inquiry takes place across a *triptych* of sites and venues that together forms a transversal mise-en-scène: the Strait of Gibraltar, the Tyrrhenian Sea, and the Sea of Cortez. This transversality enables me to avoid the pitfall of hypostatization which would unduly stabilize the case studies under examination. In doing so, I steer clear from national-culturalist[11] ways of mapping vocations and practices, as well as from symptomatic diagnoses that would read into cetacean-human relations catastrophic harbingers of extinction or the sublime dawn of post-human worlds. Attentive to these marine environments' politico-ecological dynamics and to technologies currently being tested in marine mammal ethology, communication science, and fisheries management, I am beginning to discern the contours of an aesthetics of existence animated by a hetero-ethological imagination. By relying on the tools of bioacoustics, music composition and theory, as well as those of media studies and media anthropology, this research also aims to draw the reader's attention to the intermedia worlds of those who experience and inquire into cetacean-human interactions.

During the past two years I have been in conversation with and learning about marine mammals at the Marine Ecology Lab of the Environmental Biology department at the Sapienza University of Rome, as well as from the National Institute of Fisheries in Tangiers.[12] The marine ethologists and cetacean experts I'm observing and sailing with in the Tyrrhenian Sea are exploring bottlenose dolphins' sonic repertoire and acoustic behaviour to understand how they communicate amongst themselves and with other marine life forms, as well as how they interact with and respond to human activities. They also try to understand whether cetaceans' forms of sentience, behaviour, and attitudes – their *ethoi* – may or may not relate to the affective lives of humans. Daniela Silvia Pace and Giulia Pedrazzi, in particular, have been examining "epimeletic" behaviours – what we designate as grieving, empathy, altruism – among

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11   However, references to media practices taking place in multiple sites and locations (eg. Belyounech, Ksar Sghir, Fiumicino, Tiber river Estuary, laboratories, institutes, research vessel) will be specified.

12   For my Podcast with Dr. Mohamed Malouli see Alboran Sea. For a conversation with Dr. Pace and Giulia Pedrazzi on the venues and media environments of cetacean research see *Cetaceans: All Over the Place*. Further collaborations can be found in the lab's series *The Strait and the Sea*.

the very iconic species of dolphins studied by the notorious neuroscientist John Lilly (1961) in the 1960s and 70s, namely *Tursiops Truncatus*, but with completely different objectives (Pace, Pedrazzi, Giacomini 2022).

Pace and Pedrazzi's audiovisual practices and data mappings are based on a use of various instruments and technologies (drones, photographic cameras, hydrophones) the aim of which is *both* to "confer authority" to their observations *and* maintain an "ambiguity in the word instrument" (Van Helden, Hankins 1994, 4-5). On the one hand, sensor-based hydrophones register analog sound signals that are then digitally converted into visual spectrograms. These are afterwards juxtaposed to other visual footage sources – photo-documentation of dorsal fins and drone footage tracking the movement of individuals carefully catalogued in data bases – to provide a visual map and preliminary assessment of the behaviours of "resident" or "transient" dolphins near the mouth of the Tiber River. The aim of this sonic and visual data is to ultimately contribute research findings that could advance conservation policy in the central part of the entity known as The Pelagos Sanctuary for Mediterranean Marine Mammals, a large marine area placed under a trans-national juridical arrangement (Italy, France, Monaco). On the other hand, these scientific instruments fall short of expressing the poetic imagination of these marine scientists who, like Albert Dürer at the dawn of modernity, have been interacting with and reading about these creatures since childhood. In other words, their invisible cities and taxonomic imagination renders tenuous the rigid art-science division of creative labour. While looking together at blueish spectrograms of a "mysterious" sequence of "gulps", "grunts", and "squeaks" belonging to a group of vocalizations called "bray-calls" recorded in both the Tiber estuary on the Tyrrhenian Sea and Mazara del Vallo on the Strait of Sicily, I could not help but notice Dr. Pace's awe for bottlenose dolphins and their acoustic repertoire. Of sperm whales, whom she "fell in love with long ago", Pace often reminds me they are "very special animals".

I also have in mind here Pace's images from her inspiring lecture at AIL, the Anthropology Image Lab I direct at UC Davis. One of the slides in her presentation drew our attention to the polychromatic acoustic maps and graphic scores from the hit album *Songs of Humpback Whales*, famously featured on the cover of the celebrated 1971 issue of the journal *Science.* Sounds graphically shown on these scores and heard on the album comprise acoustic fragments recorded by hydrophones and other bioacoustic instruments belonging to the Marine Mammal Program of the US Office of Naval Research. These unsettling scores are not only reminders that humans often tend to anthropologize cetaceans as musical animals. They also function as acoustic data maps that complicate the relationship between

notational and non-notational understandings of sound composition,[13] a relationship often used to distinguish classical music from electronic music, Voltage Controlled Oscillator (VCO) sound synthesis, and the field recordings of ethologists and eco-acousticians. Pace's slide was taking us in a realm between musicology and bioacoustics. Indeed, it was becoming clear that early cetacean scientists who attempted to transcribe the songs of humpback whales did not rely on the solfeggio notes of the five-line staff notation. Instead, they used a form of graphic representation related to the medieval notation systems used in both so-called Western and Eastern music, a system of inflective marks known as *neumas* that indicated the general contours rather than the precise pitches, notes, and rhythms to be vocalized. If "infographic studies of whales songs" (Deal, Rothenberg 2014) consider cetaceans to be musical animals, I mused half-seriously, then these marine creatures have affinities with both Gregorian chants that used neumatic notation to guide singers with their vocal levels and electronic composers who compose with spectrograms and by means of modulated waveforms. At the very least, and beyond any facile analogy, the graphic scores shown on Pace's slide are an occasion to explore the ambiguity and challenge posed to classical music by electronic composition or bioacoustic mappings.

Dr. Pace is also a consultant and contributor to the marine mammal section of the *Atlante degli Habitati dei Fondali Marini del Lazio*, the atlas that maps the habitats, ecosystems, and ocean dynamics of the marine seafloor of the Lazio region alongside the coast of Rome. In that invaluable resource, one can learn a great deal about the marine environments from the "symbolic form"[14] of perspectival thinking. To simply dismiss, as it is customary these days, these maps, diagrams, and graphs on grounds that they are mere variations of Mercatorian cartographic techniques and as visual representations of spatial relations framed in Euclidian terms would be to miss out on Korzybski's complex lessons discussed in the prelude. The creative work and scientific imagination that sustains Pace and her team's engagement with a certain kind of phenomena, such as dolphins' signature whistles, is decoupled from the certainties assumed to be guaranteed through direct observation. On more than one occasion while on the research vessel, I recall instances of sensorial mismatch: I could see a graphic representation on the spectrogram all the while being unable to hear the high frequency vocalizations

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13 Contemporary composer and music theorist Richard Beaudoin uses spectrograms to study the non-notational elements heard during live performances but downplayed by record producers of iconic musical performances. For more, see his fascinating work on the sounds of the "creaking chair" (2021) during pianist Glenn Gould's performances.

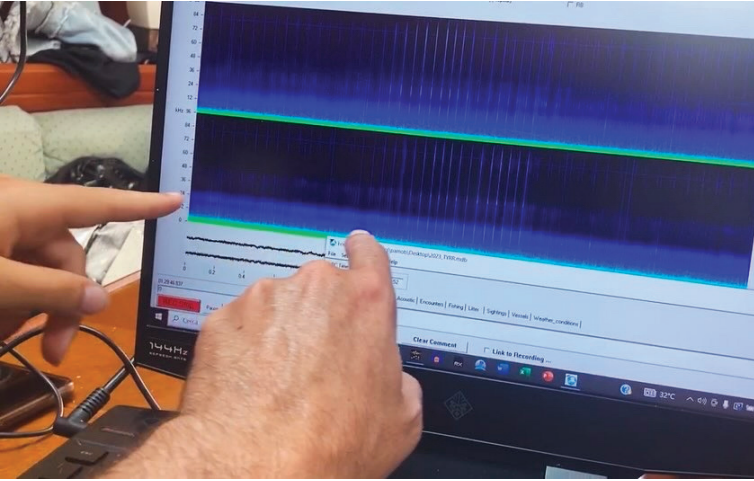**14** See Panovsky's (1997) classic *Perspective as Symbolic Form.*

Figure 2 The anthropologist and bio-acoustician discussing the multiplicity of marine sound signals and their graphic representations on a spectrogram aboard the research vessel sailing near the Tiber estuary in the Tyrrhenian Sea. © Author

on the headphones. Conversely, I remember vividly situations where no graphic cue was visible on the spectrogram while I could hear a cacophony of sounds of unclear multiple provenances (eg. snapping shrimps). By means of the combined technologies of hydrophones and headphones, these underwater marine sound signals arrive to our ears in intermittent waves of shapeless hallucinations the timbre of which is uncapturable by spectrograms. When hearing and listening to them we enter complex "soundstates"[15] that beg for other

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15 Stephen Helmreich (2010) refers to media philosopher F. Kittler on the "psychedelic" nature of headphone listening. Helmreich conducts fieldwork in underwater environments and proposes the term "soundstate" as an alternative to "soundscape". The latter is the term most of my interlocutors (who are also divers) mobilize to talk about the acoustic dynamics of marine environments, often by following naturalist and soundscape ecologist Bernie Krause's tripartite understanding of acoustic environments: anthropophony (sounds produced by human activities, including sound pollution), geophony (wind, earthquakes, and so on), and biophony (sounds generated by non-human lifeforms). Indirectly, the notion of soundstate resonates with my reconfiguration of curatorial practice into "states of curation" (2016). Ultimately, as Helmreich remarks in an argument with Tim Ingold, this is more than a question of being for or against "soundscapes", of being experientially immersed versus being detached contemplators, a debate ultimately too concerned with dualisms such as visual vs. sound media, immersive phenomenology of perception with artisanal tools vs. transductive phenomenology with scientific instruments, or indeed tiring debates about sensoriality vs. cognition. It is a matter "of listening to, listening for, listening through, listening- in, listening out, listening over and listening with. I would add to this listening against: a style

conceptualizations of curation.

Moreover, human scientists should not be expected to engage a marine scientist's sound catalogues and maps by asking them to relate to the worlds they traverse and imagine as if they were Calvinos, Borgeses, and so on. Yet, Pace and her team of cetacean scientists have long both welcomed uncertainty and abandoned the drive to exactitude uninformed commentators imputes to them. They have not given up on the infinite, as Deleuze and Guattari (1996) too hastily suggest scientists have. Indeed, uninformed commentators often tend to overlook the complex status of (un)certainty in the visual representations of maps and mapmaking processes of scientists. Instead, I find the attitude, indeed the ethos, of my fieldwork "epistemic partners" (Holmes, Marcus 2005) quite modest insofar that they welcome inexactitude in their statistical interpretations of spectrograms and the software that underwrites them. To be sure, for them as for the media anthropologist with a curatorial sensibility, the specter of positivism looms large. But, it is often unclear what form that specter takes when it takes possession of the thinking and making of the underwater geophysicists, cetacean scientists, seismologist, ethologist, and marine ecologists who too shuttle back and forth to grapple with their own vertiginous transits between map and territory. To put it differently, these epistemic partners handle these maps by introducing a certain uncertainty principle via a subtle and nuanced articulation and modulation of the relation between "globe, world, and planet" (Giardini 2013).

Another kind of cartographic poetics is taking place on the fisher end of the curatorial design, a poetics prefigured in the tradition of documentary cinema about fishers, of which John Grierson's *Drifters* (1929) on the precarious herring industry in the Northern Sea

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of anthropology of sound, of transductive ethnography, of theorizing against immersion, of hearing inside, outside and – ultimately – beyond the notion of the soundscape" (Helmreich 2010, 10). In my own words, it is not only still a question of curating human practices and ways of life between experience and science, but also a matter of composition that requires from the anthropologist-as-curator to tune into and broadcast the complex harmonics and microtonalities of our curatorial designs. The task at hand is to cultivate the art of curating the lives of those (fishers, scientists, artists, bioacousticians, composers, and so on) who somehow have thrown or found themselves in marine media environments, assemblages, and mise-en-scène, including the anthropologist who too have found himself there in different ways and for different reasons. The aim is therefore to re-curate the technologically mediated soundstates we experience when we follow and move with/alongside our interlocutors. This re-curation must also not only rethink our habitual ways of questioning technology. It ought to also take seriously into account the status of signals rather than signs in the linguistic or semiological sense of the term. Signals cannot be accommodated by a new semiotics, dualist or triadic. On this point, see the illuminating work of musicologist Gary Tomlison (2023) who shifts our attention from meaning-generating signs to "countless organisms that generate awe-inspiring behavioural intricacies without meaning".

remains the undisputed precursor. For a number of reasons (sound pollution, overfishing practices), orcas on both the Spanish and Moroccan sides of the Strait of Gibraltar have been disturbing the practices of fishers, at times 'attacking' their boats, even sinking them, and therefore endangering their lives. In response, fishers sometimes retaliate in ways that have been deemed "cruel" and even criminal by activists and citizen science groups. On a video documenting a nearly fatal interaction, we see and hear a terrified Bilal Arhoun, a popular fisher and active internaut, shouting: "Oh Allah, I implore your protection from these mother fuckers". Scientists and citizen science groups eschew the word "attack" preferring instead "interaction". The video diary was later edited by Bilal, posted on his platform with geographical indications, and liked by 17,000 subscribers. It circulated virally on Youtube[16] and other social media platforms, including that of the citizen science group Okeanos. In a way, these

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16 See the complete video on Youtube: `https://www.youtube.com/watch?v=cMQxmzguudo&t=4s`.

fishers' video diaries of tense interactions with orcas and bottlenose dolphins – as well as bewildering sightings of large basking sharks near the shores – have become both signals and visible evidence of a disorganized ecology.

From an ethological perspective, various behavioural hypotheses have been advanced, including play or hunting attitudes transmitted by female adults to young practicing orcas, or learning process requiring the rehearsal of aggressive techniques on moving targets that will ultimately be put into action when "depredating" fisher's bluefin tuna catch. As recently noted, "orcas who call the Strait of Gibraltar home feed off endangered bluefin tuna, following their migration patterns and even interacting with drop-line fisheries to find food. Like Chinook salmon, bluefin tuna is of high commercial value to fisheries. Despite how iconic these massive mammals are, orcas are difficult to study in the wild. They are classified as 'Data Deficient' by the IUCN, meaning that there isn't enough information on population or distribution to make an accurate assessment of their conservation status. *The only exception is in the case of a small subpopulation of orcas living in the Strait of Gibraltar; they are listed as 'Critically Endangered'*" (Gallagher 2022; emphasis added). Other scientists (perhaps less cautious, certainly less cautious than my interlocutors) suggest that Strait orcas have been cultivating an ethos of "revenge", a collective call for revolt against humans that gradually "spread" among this small ecotype and community of 40. This unusual attitude towards humans was allegedly "transmitted by a female orca named Gladis Blanca after a traumatic event" (Monica Gonzales, CEMMA spokesperson),[17] most likely either an injurious collision with a commercial ship or a fatal collision of her calf with a cargo ship in this transit zone characterized by relentless maritime traffic[18] and sound pollution.

From a fisheries perspective, these episodes have practical implications on binational coastal economies and communities, fishers and other citizens alike. They also prompt transnational collaborations about the use of technologies to prevent these interactions from occurring, as well as discussions about more durable mitigating tools like Marine Protected Areas (MPAs). Mohammed Malouli (2020), an MPA expert, director of the Institute of National Fisheries Research

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17 Interviewed by *The Washington Post* on YouTube (21 August 2023) to give the perspective of the Galicia based organization Coordinadora para o Estudo dos Mamíferos Mariños (CEMMA).

18 These kind of incidents in the Strait of Gibraltar are not new and have taken different forms in the past. During World War I, a Brazilian Navy cruiser called the Bahia, on a patrol mission in the Strait, mistook a pod of porpoises for German submarine, firing at and killing them. This incident became known as "The Battle of the Porpoises". For more, see Alvarez 2023.

in Tangiers, and a key interlocutor for my inquiry, has been at the forefront of these debates. Similar interactions with sail boats have also been digitally mapped by experts and reported and discussed on social media, extending this argument beyond fisheries and halieutic concerns. From an existential perspective, a perspective I find lacking in these discussions, one can read the fisher's video diary as a multimedia event that converts a historical technology of mechanical reproduction – a camera – and a new media platform – a Youtube channel – into a venue for the remediation of limit-experiences the ancients called "meditations on death" or "spiritual exercises" (Hadot 2022): a kind of fear and trembling that tests the "anthropo-cosmic relation" (Bachelard 1964, 4).

These contemporary accounts are new media adaptations of a long line of cartographic and narrative accounts (mythological, naturalistic, and scientific) of interactions between cetaceans and humans. These include texts and fragments of manuscripts from various traditions. Suffice to mention Aristotle's *History of Animals* and *Parts of Animals*, with its designation and naming of the genus Cetacea, a 'kind' of leg-less aquatic mammal distinct from both terrestrial mammals and fishes; Oppian's description of dolphins and orcas in his *Halieutica*, alongside praiseful pages on the *techne*, skills, and art of fishermen when these are concerned with 'beluae'; Pliny the Elder's tales of friendly interactions between musically endowed dolphins, swimmers, navigators, and fishers; and Al-Qazwini's section on oceans in his classic book of world marvels and wonders with its beautiful illustrations and colourful representations of dolphins as smiling half-human and half-fish hybrids. Indeed, the plural naming practices surrounding these marine creatures, invariably marked as fish or mammals, provides us with a heterogeneity of attitudes, or *ethoi*, towards marine environments. It also provides us with tools and resources for critically "re-curating *anthropos*" (Elhaik 2016) in the border zone between taxonomic and mythological imaginations.

In the Sea of Cortez, I've been following and in conversation with artist Ariel Guzik's two-decade long "Proyecto de Comunicación con Cetáceos". Guzik's long-term dedication to communicating with cetaceans brings to the table something different. His concerns are neither scientific nor halieutic nor ethological. What animates his inquiry is strictly "spiritual". He is also inspired by science-fiction. Guzik views cetaceans as a "civilization". With a group of collaborators, he has undertaken several expeditions to contact grey whales, sperm whales, and bottlenose dolphins off the coast of Baja California. In 2007, Guzik completed the construction of an underwater capsule, Nereida, a musical instrument to interact with cetaceans. He distinguishes his work from scientific inquiry and is recalcitrant to generate useful data maps for practical applications. He is only animated by the 'intuition' that "co-existence is in itself a form of

communication".[19] The founder of the Nature Expression and Resonance Research Laboratory, Guzik is also clear about the *techne* of his making process. Even if he uses hydrophones, they are assigned a marginal role. The Nereid capsule, named after the Greek mythological sea nymph, is "a different kind of instrument". It is "not" composed of "sensors". It uses the acoustic and electromagnetic properties of its fused quartz crystal membranes, especially the properties of "harmonic resonance"[20] and "optical conductivity".

His current project consists in the design of a "helmless" vessel named Narcissa, to which he would attach the musical instrument Timpano Marino **[figs 1, 3-4]**, an underwater drum as intriguing as the above-mentioned Nereida. One of Narcissa's features is that it is "designed to drift". Although often collaborating with scientists – and although writing unsettling scores combining cetacean calligraphy with complex electric circuitry – Guzik takes another approach: cetaceans invite us in a space and mode of interaction as singular "ancestors who have migrated back to oceans" (conversation with the artist). His cetacean alphabet remixes the tools of classical anthropology, classical physics, and those of science fiction. The tropes of "encounter" and "contact zone" are key to his endeavour. Interestingly, his engagement with cetaceans overlaps with the current orientation among ethologists who attribute "culture"[21] to them. During encounters, cetaceans and humans "glance at each other" in the language of reverberation and resonance. Through instruments "understood in musical terms", dolphin and sperm whale echolocations "cross path" with the resonating capacities of the Timpano Marino, an instrument serving as a medium through which the artist sends a musical offering to these migratory inhabitants of the seas. The Timpano Marino emits sounds that might or might not be received, and if they are answered, they cannot be identified or anticipated as coordinates on spectrograms or on oceanographic and navigation maps. Encounters are furtive and feel like caresses, whispers, and glances. In his hetero-ethological imagination, *logos* is kept to a bare minimum, but never shut off given his deep knowledge of physics and electronics. Yet, Guzik de-instrumentalizes sound recording devices

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19 Conversation between Ariel Guzik and Benjamín Mayer Foulkes at the Instituto de Estudios Críticos 17 in Mexico City. The dialogue took place in June 2015 on the occasion of the institute's awarding a Doctorado Honoris Causa to Guzik at the Biblioteca Vasconcelos in Mexico City.

20 The reader can listen to Guzik's sound compositions on the online audio distribution platform Bandcamp: `https://arielguzik.bandcamp.com`.

21 While I am not sure how Guzik (and ethologists) would respond to the "post-ethnos" orientation of contemporary anthropologists and its call to think "beyond culture", cetacean communities for him are no less differentiated. They are composed of a multiplicity of *ethoi* (i.e. hetero-*ethoi*).
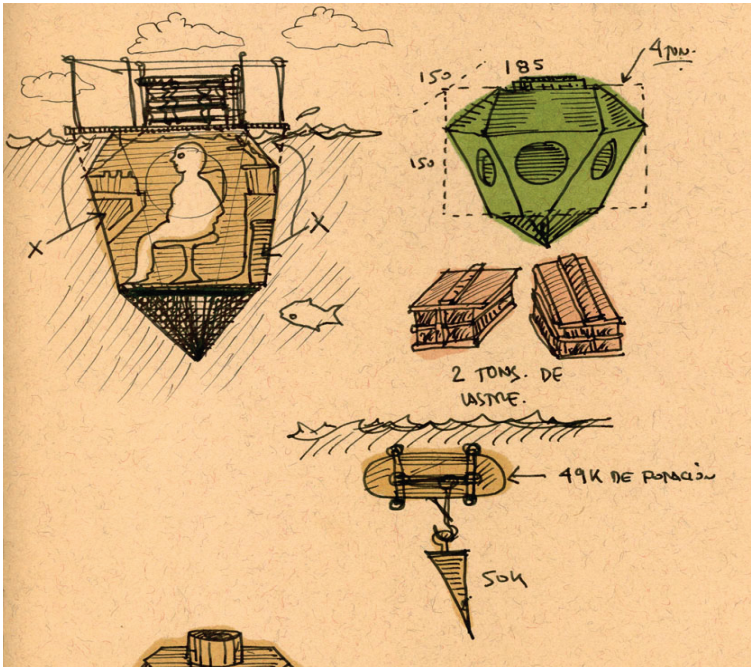
such as hydrophones and takes away their authority while redeeming their enigmatic, if not hermetic capacities. Attuned to the question concerning technology and poetically situated beyond "technophobia and technophilia",[22] Guzik's practice proposes another kind of cetacean-human co-flourishing. By taking us on the Nave Narcissa **[fig. 5]** to a cosmic city yet to be accommodated by our maps, his practice is inviting us to repair, remediate, and perhaps even to recreate the anthropo-cosmic relation that has been severed by the still largely dominant instrumental ethos of both scientific practice and fisheries management policy.

3 Stretto Fuga

Artists, inventors, and composers like Guzik are taking a first step, as are multi-media fishers, and imaginative cetacean ethologists who together are recalcitrant to both scientistic uses of technology and

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22   Cinema and digital media scholar Kriss Ravetto's expression.

science-phobic formulations of artistic creation. To curate this kind of enigmatic flourishing, to flourish tout court, is to accept that we live, today, in a conceptual and experiential intermediary zone located between biocentric and anthropocentric views of the *vivants*. As ethologist Bernie Würsig remarked in his keynote address at the 34th Annual Conference of European Cetacean Research:

> All of nature is special, as in the concepts of biophilia and 'natural goodness'. This is the biocentric view, not at odds with the anthropocentric view of conserving nature for the good of humanity, if we reject the dualist notion that humanity is a separate entity from nature. As we blend the two, we realize that to truly do good for nature does good for humans also, and the better stewards of water environments we become (we are not there yet), the better chances marine mammals have to thrive. (Marine Mammals, Humans, and Nature, April 2023)

The *anthropological problem of the hetero-ethological imagination* begins with, yet reconfigures the philosophical ethos of a "critical ontology of ourselves" (Foucault 1984, 45). While I remain committed to my previous endeavours to *curate anthropos* (Elhaik 2016) – to curate "the being that suffers from an excess of hetero-logoi and perhaps of hetero-ethoi" (Rabinow 2003, 6) – I nonetheless expand the conceptual cursor of "ethos" to include the manners of being of cetaceans. The aim of this curatorial design is two-fold: to juxtapose audiovisual media practices that together form an unstable arrangement without a centre of gravity, *and* to test whether we can transform this excess and suffering into co-flourishing: cetacean and human flourishing. This type of imagination therefore demands from us to reconceptualize new forms of curation that challenge exhibition designs at work in art, ethnographic, and science museums and to think beyond "the exhibition complex of the visual arts" (Smith 2021, 12). In order to eschew naïve therapeutics, curation must still be taken up in pharmacological terms: at once poison and antidote. It therefore begins with the understanding that curation has its etymological sources in a series of ethical, clinical, and spiritual terms – care, well-being, cure, curare, curé, incurable – that turn on the question of flourishing in *both* its eudaemonic[23] and non-eudaemonic senses. The first sense takes flourishing as a *telos*, an end reached through means, while the second invites us to drift in the manner Ariel Guzik imagines his helmless marine inventions to harmonically resonate with cetaceans.

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[23] "neltiliztli" (Nahuatl), "*al-sa'ada*" or 'izdihar' (Arabic), "*haslahah*" (Hebrew), and "*felicitas*" and "*beatitudo*" (Latin).

The re-compositions and hetero-ethological imagination at work in the audiovisual practices of fishers, artists, and scientists I have shared in this essay demands other curatorial designs and curatorial designers. Perhaps, we need to train a sci-fi inspired and spiritually oriented generation of Curators of the Sea who would reanimate and reconfigure, from the future, the conceptual personae of the ancient *Curator Aquarum*. In Ancient Rome, the Curator Aquarum was a public figure responsible for the care of water works and flows from aqueducts to the city. The Curator did not have any technical knowledge and relied instead on an assemblage of human practices: hydraulicians, engineers, artisans, and so on, to make sure that flourishing and livelihood was secured between the city, the river, and coastlines. It was a "distributed centred" (Mialet 2019) mode of curation, one that takes place in a space and mode of thought and practice in which the anthropological inquirer resonates with his interlocutors and the marine creatures they seek out and follow. To be concerned with the well-being and flourishing of coastal communities, the sea, its straits, and marine lives – including the flourishing of top predators like humans and orcas – is to embrace the task of creating venues that can host a triptych composed of artists and inventors like Guzik, marine scientists and bioacousticians like Daniela Silvia Pace, and multi-media fishers like Bilal Arhoun.

I have learned these provisional insights particularly from media practices taking place in, near or around straits, with their adjacent seas and oceans. They have the capacity to prompt new relationships between mathematics, music, and philosophy by remediating the ecology of ideas and materials that compose them. Straits, perhaps, harbour practices that, when juxtaposed with care and adequate curation, renders palpable the topological nature of the cosmic city dreamt by the Epicurians, the Cynics, the Avempacists, among others. A strait is above all a composite of marine, coastal, and landforms that cannot be grappled with without turning first to the etymological registers of the term (legal, aesthetic, oceanographic). Etymologically, in Latin, a strait "stems from 'strata' from the verb 'strenere', which means to pave or build a road, and from '*strictus*' from the Latin verb '*stringere*', which means to contract or to restrict. The Oxford dictionary defines a strait as a 'narrow passage of water connecting two seas or two other large areas of water" (Caminos, Cogliati-Bantz 2014, 112). And, finally, given the fact that the maps and territories we've traversed in this essay can only be composed and recomposed, a strait cannot be experienced properly without an engagement with its musical etymological register. A Stretto

Fuga.[24] The territories that circumscribe our curated mise-en-scène do indeed appear and are named on oceanographic and geopolitical maps: the strait of Gibraltar and the Alboran Sea, the Tyrrhenean sea and strait of Sicily, the Sea of Cortez or Gulf of California and the Pacific Ocean.

Together, these names form the contour of a triptych which demanded a fieldwork-specific curatorial and compositional thinking. You might perhaps recall Dziga Vertov and his *The Man with the Movie Camera* (1929) who created a futuristic cinematic city by montaging and synthesizing fragments of actuality filmed in four different cities. Montage is both sensible and insensible to Maps that are not Territories and Territories that are not Maps. It is both a "cinematic metaphor" (Marcus 1995) and a key practice for the media anthropologist as curator. The straits and seas composed here are cinematic in that they retain yet transform the actual straits and seas experienced by the inquirer at various intervals and instants during the inquiry. They are also musical insofar as the media practices of the bio-acousticians, fishers, and artist-engineer making up this curatorial design can be likened to the frequency knobs of a modular synthesizer or the multiple tracks on a digital audio workstation. If arranged contrapuntally and played sequentially, they sound like a radio documentary that unsettles and resonates with the worlds of both the inquirer and his interlocutors.

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[24]   The term 'fuga' refers generally to successive appearances of a certain subject in different voices. The term 'stretto fuga' refers, specifically, to a case where the appearance or appearances of subjects occurs immediately, while the first subject is still playing. The result is a type of counterpoint with a strict set of rules. However, there are sources that suggest that such technique was also taught and practiced in improvisation, making it really the bread and butter of musicians, performers, and composers alike" (Rotem, Schubert 2021).

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The World as Allegory in Cartography
Symbolic and Allegorical Reference Systems in the Aesthetics of Digital Cartography

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Abstract   This philosophical essay explores the idea of the world as allegory in cartography, drawing on the works of Hannah Arendt, Walter Benjamin, and Nelson Goodman. It argues existentially that maps are not only representations of measurable objects, but also of aesthetic experiences. It analyses epistemologically how maps use symbols and allegories as representations to determine meanings or reveal truths. And finally, it shows how digital maps today, like works of art, reflect and shape world views and how, as a medium, they are interwoven with the perception, cognition and (inter)action.

Keywords   Walter Benjamin. Nelson Goodman. Allegory. Symbol. Epistemology. Digital.

Summary   1 Introduction. – 2 The Presence of the World. – 3 The Appearance and the Essential. – 4 Representation as a System. – 5 Cognition and Truth. – 6 Reproduction and Distraction. – 7 Cartography and the Digital World.

> A noticeable decrease in common sense in any given
> community and a noticeable increase in superstition
> and gullibility are therefore almost infallible signs
> of alienation from the world.
>
> (Arendt 1998, 209)

1   Introduction

How do we map the world? From a philosophical point of view, this question initially points to the problem that by 'world' we do not mean the earth. The world is not an object. As an idea, it points to what determines us as human beings. This distinction is further clarified using Hannah Arendt's thoughts on the conditionality of human beings.

Subsequently, Walter Benjamin and his theory of art and technology are used to scrutinise the task of mapping in the digital age. In particular, the representation of something that is not given as a measurable object, but is only brought into being through our actions, brings with it difficulties that point to the field of art. Further, Nelson Goodman's theory of art and symbols, in contrast to Benjamin, enables a clear analysis of what it means, when the question of how the world is, shifts to wanting to show each other what the world is like. Showing each other the world is the basis of important pillars of human existence such as community, a sense of reality and orientation in action and planning.

However, a more detailed analysis of these areas of common sense and their connection to the aesthetics of cartography would go beyond the scope of this text. Therefore, the focus below is on the symbolic and allegorical reference systems which, with a view to Benjamin and Goodman, form the prerequisite for showing each other the world by means of cartography.

2   The Presence of the World

The confusion between the earth and the world becomes particularly clear in cartography. The Earth can be mapped using satellites and sonar technology. The topography of its surface, including the deep sea, will be fully mapped in the next few years, making it possible to visualise the globe as a planet in its entirety as a surface structure. The borders of countries on a world map, on the other hand, are not the result of measurements. Their changes are not the outcome of natural processes but arise from wars and exist in treaties. Neither satellites nor sonar help to determine them and, contrary to the question of the completeness and timeliness of the measured data, the question of the validity of the country borders of a world map can arise spontaneously. In this way, the world maps with their nations

and continents are a first indication that the idea of the world encompasses more than just a planet.

This aspect becomes clearer when we consider the geopolitical significance of the way world maps are depicted. Which country is at the centre and which at the edge, who is at the top and who is at the bottom – such questions point to the possibility of geopolitical framing in the representation of the world as a map of countries.[1] We are not confronted with different worlds, but with the same world viewed from different perspectives. In this sense, the concept of the world does not describe an objective thing, but rather areas of validity and ways of looking at things.

This tension between the earth and the world also preoccupied the thinker Hannah Arendt in her 1958 written book *The Human Condition*. For her, the "human condition as a whole" goes beyond the conditions of human life on earth. She writes: "Whatever enters the human world of its own accord or is drawn into it by human effort becomes part of the human condition. The impact of the world's reality upon human existence is felt and received as a conditioning force" (Arendt 1998, 9). Anyone who wants to make a map of the world is, in Arendt's sense, faced with the task of using aesthetic and technical means to depict the "conditioning force" for humans, the feeling that we describe as 'world'. Accordingly, the world is regarded as a subjective experience that exists under collective conditions. Arendt writes: "To live together in the world means essentially that a world of things is between those who have it in common, as a table is located between those who sit around it; the world, like every in-between, relates and separates men at the same time" (52). The world as the place where people live together thus reveals itself as a medial phenomenon of mutual networking.[2] In this sense, the world grows with the increasing digital networking of people.

The earth as an object of the imagination, on the other hand, is shrinking, as Arendt emphasises. In the satellite-based mapping of the globe in the twentieth-century, she sees the overcoming of "the infinite horizons, which were temptingly and forbiddingly open to all previous ages" (250). This shows that "[m]en now live in an earthwide continuous whole where even the notion of distance, still inherent in the most perfectly unbroken contiguity of parts, has yielded before the onslaught of speed" (250). In this sense, the world no longer

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1   In analogy to the relationship between world view and national borders, comprehensive research on the relationship between the world and urban planning is based on Walter Benjamin, in particular on his unfinished work *Passages*. From the current debate, the following essay draws an interesting link between the city, cartography and world view cf. Akkerman 2016.

2   A critical examination of the social dimension of Arendt's concept of 'world' can be found in Gómez 2016.

grows in terms of its earthly spatial extent, since the earth has been completely discovered and is accessible in its entirety through the technological means of mobility. Even the open and inaccessible horizons of the universe, which are mapped with telescopes and thus become concrete, are increasingly losing their claim to infinity in the modern view of the world. However, this 'shrinking' of the earthly conception of the world from a seemingly infinite horizon to a concrete and cartographically mapped planet does not diminish the extent to which the world is growing through the increasing cultural networking of people.

As a collective and medial phenomenon, the world is given its space not only by analogy with the globe and the universe, but genuinely through the public space of action and communication. The presence of things and ideas in the world is based between experience and information. People leave their next generation not only a globe and its nature, but also a cultural stock of objects, beliefs, and knowledge. This cultural heritage connects and unites people through the production and use of things, but also through shared beliefs and common knowledge. For Arendt, this means that "[i]f the world is to contain a public space, it cannot be erected for one generation and planned for the living only; it must transcend the lifespan of mortal men" (Arendt 1998, 55). This permanence of the public space gives rise to the so-called 'man-made world' of human artifice. Arendt emphasises:

> The man-made world of things, the human artifice erected by homo faber, becomes a home for mortal men, whose stability will endure and outlast the ever-changing movement of their lives and actions, only insomuch as it transcends both the sheer functionalism of things produced for consumption and the sheer utility of objects produced for use. (162)

Cartography plays a special role in this production of things. It is what enables people to orientate themselves in their environment and the world around them. At the same time, maps of the world refer to that what stands in opposition to the 'ever-changing movement' of human existence. The validity of a map is in tension with its actuality. The danger of a map is that it could become outdated. But the moment a map goes beyond its pure functionality and usefulness as a commodity, it transcends its temporality and becomes a work of art and cultural heritage itself, whereby for Arendt, "because of their outstanding permanence, works of art are the most intensely worldly of all tangible things" (167).

The presence of the world as a media network, as a public space but also as cultural heritage is in a tense relationship between transience and permanence. The actuality of maps plays a special role

here. Overcoming this dependence on the 'ever-changing movement' of human existence in the context of art and cultural heritage thus also gives cartography the opportunity to be a component of the shared world beyond objects of daily use.

Arendt has shown that maps of the world can represent more than the typical world maps with their continents and national borders. It has become clear that the concept of the world refers to more than just the globe. This raises the question of how cartography can relate to media networking, public space and cultural heritage, and thus to the man-made world, and therefore requires a search for mapping methods that lie beyond the measurement of the world.[3]

3 The Appearance and the Essential

In cartography, a distinction must be made between the depiction of an appearance and the representation of the essential. While, for example, the appearance of the globe in terms of its topography will be completely depicted as a 3D model in the coming years, the essence here comprises the representation of the differences in altitude. The visual processing of the topography is carried out according to its essence in structures and colours that convey gradients and metres in altitude. Regarding the phenomenon of the world as a conditioning force, the question of the method of capture arises analogously. We cannot measure the world like a stretch of land but must observe it as a conditioning force and sharpen its perception as an in-between or as a medium between people. The epistemological prerequisites for this can be found in the art and cultural theory of Walter Benjamin, who was a close friend of Hannah Arendt.

In his approach to art theory, Benjamin assumes that the human world – philosophically mediated – is represented in symbols and allegories. In his dissertation "Der Begriff der Kunstkritik in der deutschen Romantik" (The Concept of Art Criticism in German Romanticism) from 1920, he emphasised that "nature and art […] are continuums of reflection, media of reflection" (Benjamin 1991a, 707).[4] To this end, he distinguishes between observation and perception. He places the scientific experiment in a tense relationship to the magical observation of nature in the sense of the Romantics – above all Novalis, whereby he emphasises that Novalis extends the theory of

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3 Regarding the cultural and social aspects of Arendt's understanding of the world, the discussion of her references to the earth as nature and the world as a force conditioning nature was excluded. For further reading the following is recommended Cannavò 2015.

4 "Natur und Kunst sind Kontinuen der Reflexion, Reflexionsmedien". Unless otherwise stated all translations are by the Author.

the observation of nature to a theory of the observation of spiritual entities. The media of nature and art thus find a dialectical identity within the framework of this tension between perception and observation (cf. Benjamin 1991a, 60 f.). The poles of this dialectic can be subsumed under the fields of natural science and philosophy of art. In his dissertation, Benjamin thus already sketched out lines of research that can be traced right through to his late work. In his further development, he is not only critical of systematic philosophy, but also reflects critically on his early references to Romanticism.[5] Regarding the cartography of the world, Benjamin's references to the philosophy of art in particular need to be worked out more closely in this context, whereby the tense relationship to natural science and thus to the cartographic representation of measurements serves as a productive contrast.

Eight years after his dissertation in 1928, Benjamin published his habilitation thesis – the so called "Trauerspielbuch" (The Origin of the German Tragic Drama). In it, he formulates a direct criticism of the ideas of the Romantic aesthetes, to whom he had previously been affirmative. It is the distinction between symbol and allegory that motivates his criticism. Benjamin speaks of the "rule of a usurper", a "fraudulent use", of the "misuse of form analysis and content aesthetics" and ultimately of a "distorted concept of symbol" by the Romantics (cf. Benjamin 1991b, 336 f.) He assumes that "where the 'appearance' of an 'idea' is addressed as a 'symbol' in a work of art[,] [t]he unity of sensual and supersensual object, the paradox of the theological symbol, is distorted into a relationship of appearance and essence" (336).[6] He wants to counteract this distortion with his criticism.

Benjamin therefore introduces the differentiation between a symbolic reference to appearance and an allegorical reference to essence as part of his critique. Exemplary for the former is the "adamitic naming", i.e. the labelling of things with proper names (217). A fundamental process for cartography. This symbolic character of the word, understood as a name, is countered by the allegorical reference. Benjamin uses the examples of Goethe and Schopenhauer to analyse how the concept of allegory is understood in classicism as a counterpart to symbolic denotation (338 f.) The allegory is understood here as an expression for a concept that underlies a work of art, whereas the symbol refers to its idea. According to Benjamin, these classicist and romantic misunderstandings persist into the modern age (cf. Benjamin 1991b, 339).

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5   A detailed discussion of Benjamin's concept of allegory, based on historical and contemporary Romanticism, can be found in Carr 2017.

6   "Denn dieser Mißbrauch findet, und zwar überall da, statt, wo im Kunstwerk die 'Erscheinung' einer 'Idee' als 'Symbol' angesprochen wird. Die Einheit von sinnlichem und übersinnlichem Gegenstand, die Paradoxie des theologischen Symbols, wird zu einer Beziehung von Erscheinung und Wesen verzerrt".

He concludes from his studies in contrast to the classicist and romantic understanding that the symbol is used as a symbolic correspondence and representation, whereas the allegory represents a dialectical technique and form of expression (340 ff.) For Benjamin, we label and name with symbols. "Allegories", on the other hand, "are in the realm of thought what ruins [are] in the realm of things" (354).[7] They correspond to a dialectical process of emergence, which requires an already existing symbolism as a prerequisite. In other words, the aesthetic technique of allegory represents an appearance that is only an allusion to unambiguous representation via symbolism. This is comparable to the construction of a temple in ancient times (the unambiguous symbol) and its appearance today as a temple ruin (the allegory of time). Consequently, allegories link a pre- and post-history within themselves. They thus circumscribe an origin. Similarly, the temple ruin refers to the former building as well as to the history of the building's existence and decay, even if it is impossible for it to represent the entirety of this history in the sense of an image.

In this sense, a world map with its national borders is an allegory of the political history of mankind. In them we are confronted with the prehistory of their political validity, just as they are the basis for future planning. At the same time, analogous to the temple ruin, they are not a representation of the actual action. Just as no religious ritual takes place in the temple ruin, but is only present in retrospect, the boundary lines of the world map do not show a political discourse, but its solidified 'ruin' of validity.

It is this processual and historical dimension that characterises allegory as an important art technique. The ruin perspective on an art form refers to the use of the medium in which it takes place. Benjamin also describes this as an actualisation corresponding to the 'now' (358). The symbolic details at the moment of the artwork's creation appear in this perspective as allegories for the history of ideas that has since passed. Applied to cartography, this becomes particularly clear when comparing historical maps. While in the symbolic view the symbols stand for concrete, valid data, when leafing through historical maps of the same region one changes to an allegorical view. The symbols become references to changes in the world. In this way, every time a cartographically relevant data set is updated, its previous representation becomes a 'ruin'. With the ruin perspective, Benjamin's method creates a link between appearance and essence. By viewing them as ruins, the former symbols are actualised in the allegorical view of the present.[8]

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7   "Allegorien sind im Reiche der Gedanken was Ruinen im Reiche der Dinge".

8   The following work is highly recommended for a detailed reconstruction of Benjamin's arguments Palmier 2019.

Here, the process of actualisation is tied to the present of the recipient. From an epistemological point of view, the symbolic correctness of a country line on a map from the eighteenth century remains valid today as long as it was valid at the time of its creation. In this sense, its appearance is coherent. However, the essential aspect to which this line refers, namely its political validity, requires an allegorical consideration of its pre- and post-history.

The link between these levels of observation is the concept of the medium. On the medial level, the representation takes on a historical and actualising aspect, namely the allegorical (cf. Benjamin 1991b, 336). This linking of historical factual content qua symbolism and philosophical truth content qua allegorical reflection forms the core of Benjamin's aesthetic epistemology. Starting from scientific correctness, cartography succeeds in becoming a medium for revealing the world in allegorical perspective. The aspect of mere usefulness as a tool for representation and planning is supplemented by an artistic perspective. Such a world map allegorically refers to the historical point of view of its creation and places this in tension with the moment of its reflection. The question of the correctness of its symbols becomes the question of the truth of its validity. Before this link between allegorical view of the mapping of the world in the context of digital cartography is examined in more detail, the symbolic foundations on which every allegory is based need to be analysed more closely.

4 Representation as a System

In *Languages of Art* (1968), Nelson Goodman examines the question of the interface between sensual and intellectual representation. In his main work of art theory, he is interested in the reception of the work as well as the notation of art in the process of creation. In this context, he describes his approach as the search for a "general theory of symbols" (Goodman 1968, XI). He breaks down the conceptual framework of a specific symbol theory or the context of reference into a system of classification, i.e. logically linked categories. He describes the two basic modes of this systematisation as pictorial representation (depiction) and verbal description – for example, a newspaper picture and its subtitle. He notes that representation and description are characterised by different types of classification, namely by means of pictorial or verbal labels. However, these labels do not represent through similarity, but through denotation (5). This means that a relationship is created between the newspaper image, subtitle and photographed situation, whereby neither the photograph nor the words are similar to the real situation, but in the system of the daily newspaper they refer to a journalistic representation of

the event in the article. Goodman states: "Application and classification of a label are relative to a system; and there are countless alternative systems of representation and description" (Goodman 1968, 40). The event represented journalistically in the newspaper image could therefore also be represented and described as an oral narrative with fantastic embellishments in a lyrical work or as an emotional report by a contemporary witness in a video message. In each case, the same newspaper image is used as a label for the event in different systems of representation.

Similarly, different world maps can be generated from the same data set, for example with Europe or Australia at the centre. If there is no 'verbal description' or labelling, the map speaks for itself as an image. This creates the problem of relating the labelling to a possibly unknown or at least ambiguous system of representation and description. Goodman attempts to promote insight into and understanding of systems of representation with regard to this problem by means of his symbol theory. To this end, he argues in favour of the central position of representation in his symbol theory. He understands representation in such a way that it is unequal to an imitation, "that no degree of similarity is required between even the most literal picture and what it represents" (46). There does not have to be any similarity between 'what' is represented and 'how' it is represented, because

[n]othing is intrinsically a representation; status as representation is relative to symbol system. A picture in one system may be a description in another; and whether a denoting symbol is representational depends not upon whether it resembles what it denotes but upon its own relationships to other symbols in a given scheme. (226)

Here, it is important to note that Goodman differentiates between analogue and digital symbol schemes. Both are regarded as categories for possible symbol systems, which he distinguishes by the fact that the former are "syntactically and semantically dense" or rather "undifferentiated in the extreme" and the latter "are one-one correlated with compliance-classes of a similarly discontinuous set". Such quantised digital symbol schemes are therefore "notational" (160 f.). Goodman's differentiation between analogue and digital symbolization can be illustrated, for example, using a clock hand, as the movement of the second hand represents an analogue symbol for the passage of time, whereas the clock face, as a notation of time in hours and minutes, introduces a digital aspect via quantisation. Therefore, it usually allows the time to be read according to the speed of the hands as well as the recorded units and thus in an analogue and digital scheme. A digital clock, on the other hand, in which the time display literally scrolls through its numbers or jumps from one second

to the next, only emphasises the consistently discontinuous and differentiated aspect of digital symbol schemes. In this sense, hand-drawn maps are also digital symbol schemes of an analogue world. Understood in this way, the epistemological basis of cartography is not only revealed in abstraction and summarisation but primarily a translation of analogue situations into digital data points.

If we look at the technical possibilities of today's cartography from this epistemological basis of translation between analog and digital, the question of the 1:1 problem as in Berge's 1946 short story *Del rigor en la ciencia* (On Exactitude in Science) no longer arises for the spatial size of the map or the so called Bonini-paradox (1971) of the complexity of the representation. By separating the digital data points as a representative symbol system from the dynamic representation in the user interface, any number of details can be given in the data set without this complexity having a static influence on their cartographic representation.[9] Thereby, zoom and filter systems can dynamically adjust the complexity according to the representation. Consequently, it is no longer a problem that "A city map that aspired to represent every traffic light, every pothole, every building, and every bush and tree in every park would threaten to become as large and as complex as the city that it depicted" (Scott 2020, 87). Today, the translation of analogue cities into digital twins is based on precisely this aspiration.

Goodman understands the transformation from analogue to digital as a definition of the degree of fineness of discrimination. This takes place by deriving a digital fixation, for example in the form of a unit of measurement, from an analogue exploration phase (cf. Goodman 1968, 161 f.). For the mapping of the world, this means questioning the exploration of the conditionality of the human being in terms of how it can be represented in digital fixation.

While the degree of fineness of discrimination in satellite projects for mapping the earth corresponds to the quality of the measuring instruments, socio-cultural data sets face the problem of an analogue exploration phase of situational observation. In this case, aesthetic experience takes the place of the objective measuring instrument. Goodman writes:

> [T]hat aesthetic experience is dynamic rather than static. It involves making delicate discriminations and discerning subtle relationships, identifying symbol systems and characters within these systems and what these characters denote and exemplify, interpreting works and reorganizing the world in terms of works and

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[9]   The tension between large amounts of data and the complexity of their visualisation was lately empirically investigated in: Gedicke, Jan-Henrik Haunert 2023.

works in terms of the world. Much of our experience and many of our skills are brought to bear and may be transformed by the encounter. The aesthetic 'attitude' is restless, searching, testing – is less attitude than action: creation and re-creation. (Goodman 1968, 241 f.)

This makes it clear that the digital fixation of a cartography of the world is ideally a dynamic one. It recalls the perspective emphasised by Kitchin and Dodge that maps "are not ontologically secure representations but rather a set of unfolding practices" (Kitchin, Perkins, Dodge 2009, 21). Especially since the technological progress of the computer technology has made it possible today to create maps with data sets that are updated almost in real time. In addition, data collection in the socio-cultural field via digital media is the result of a restless searching and testing attitude. With regard to Goodman, the aesthetic field of experience is not only about the accuracy of the data sets but also about their interpretation. Therefore, the cartographer's scientific approach is complemented by the aesthetic act of categorising and linking data with a system of symbols. The related task of representing the data with the symbolic system as a map evokes the tense relationship between correct representation and the communication of a truth, as already mentioned by Benjamin. However, representation and communication do not refer to a static object in this case, but to worldly and thus dynamic phenomena. In their situational observation, an aesthetic experience is conveyed whose interpretation depends on the perspective and the horizon of ideas of the observer.

5 Cognition and Truth

From an epistemological perspective, Benjamin's view on ideas is crucial. In his theory, they do not comprise the concepts or laws of phenomena but refer to their configuration. He writes: "Ideas relate to things as constellations relate to stars" (Benjamin 1991b, 214).[10] A constellation of stars, for example, refers to a bear or a chariot without depicting or describing them. For Benjamin, anyone who asks about the ideas behind things is not aiming for a conceptual realisation of things. In other words, he does not try to use a telescope to find out what certain stars have to do with bears but approaches an original truth about the idea that reveals itself in the configurations of astronomical phenomena.

While Goodman, for example, assumes that aesthetics is about gaining cognition: "The primary purpose is cognition in and for itself;

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10 "Die Ideen verhalten sich zu den Dingen, wie die Sternbilder zu den Sternen".

the practicality, pleasure, compulsion, and communicative utility all depend upon this" (Goodman 1968, 258). Benjamin endeavours to clarify the relationship of aesthetics to truth: "Truth never enters into a relation and especially not into an intentional one. The object of cognition as a conceptual intention is not truth. Truth is an intentionless being formed from ideas" (Benjamin 1991b, 216).[11] And he goes on to emphasise: "Truth does not exist as a meaning that would find its determination through empiricism, but as the force that shapes the essence of this empiricism in the first place" (216).[12] For him, truth is that which characterises sensory perception. It therefore guides aesthetic apperception and thus helps to shape what is perceived. Benjamin's view goes beyond the question of identifying the correct symbol system on the aesthetic object and emphasises the clarification of the ideas conveyed. In this way, a map that depicts a worldly phenomenon, unlike a land map, is not faced with the question of the most useful scale. For a world map, Benjamin's perspective makes it clear that whether Europe or Asia is at the centre of a world map is not an opinion that can be determined by empiricism. A world map thus refers to an idea of the world or a possible world view. The truth of the map shapes the expression of this idea. It therefore does not appear to be absolutely or relatively correct, but as a perspective view. For Benjamin, this allegorical questioning of a truth beyond right and wrong symbolises the decisive principle of the aesthetic approach, namely the dialogue between experience and medium.

Benjamin describes truth as an immersion in unique constellations. An aspect that Goodman also mentions in the context of the refinement of exemplification and presents as an endless search (cf. Goodman 1968, 238 f.) In his critique of cognition, Benjamin, in contrast to Goodman, understands truth as "unquestionable" and presents it as something that becomes transparent through the configuration of being (cf. Benjamin 1991b, 209) In this context, "unquestionable" refers to the fact that it cannot be achieved cognitively as an answer to a question, but only emerges or crystallises in spontaneous monadic revelation, to use Benjamin's jargon. While cognition reveals something previously unclear, truth reveals what is sought by means of the form of its representation. In other words, cognition is defined conceptually and truth is shaped in the way it is presented. From Benjamin's perspective, the way in which a map is presented, which nowadays also includes its digital user interface, therefore does not

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11   "Wahrheit tritt nie in eine Relation und insbesondere in keine intentionale. Der Gegenstand der Erkenntnis als ein in der Begriffsintention bestimmter ist nicht die Wahrheit. Die Wahrheit ist ein aus Ideen gebildetes intentionsloses Sein".

12   "Nicht als ein Meinen, welches durch die Empirie seine Bestimmung fände, sondern als die das Wesen dieser Empirie erst prägende Gewalt besteht die Wahrheit".

originate from a process of cognition, but encompasses a search for a possible truth – a revelation in the artistic sense.

The search for truth and its representation in the work of art correspond when what is aestheticised in the artificial object becomes transparent through the observation of the object as a medium. In contrast to a symbolic decoding, as presented by Goodman, Benjamin emphasises the search for truth within the aesthetically medialised object as a configuration of transparent layers. Instead of an exemplification, the recipient is thus confronted with a configuration in the work. For the cartography of worldly phenomena, this would mean that it does not depict these phenomena or show them as they are but represents them by asking the viewer a question in the sense of a search for truth by means of a configuration.

According to Benjamin's theory, the design technique of allegory provides a clue to what is to be signified. In other words, it does not represent it, but brings the seeker closer to what is behind the allegorical constellation via suggestions. Goodman's idea of an understanding of design and reception not as a question of aesthetic attitude, but as action, for example, also refers to this allegorical aspect – even if Goodman does not mention the concept of allegory, although it is correlated with symbolization. As follows, these theories can be summarised: symbols are references that are as unambiguous as possible in the sense of identification, which can be related to each other in a system, whereas allegories describe constructive acts of searching and pointing.

Worldly Maps understood in this way therefore do not depict a measurement of an object but represent a phenomenon by means of an identifiable system of symbols. The way in which such a map is depicted and viewed is based on a medium that allows constructive actions, the allegorical result of which mediates between the viewer's search and the map's clues. With a view to the mediality of the maps and thus also to their materiality, for example the 'mappae mundi' on parchment showed a world view. They were "based more on fiction than fact, were a way of visualizing a world yet to be charted. Yet they provided the most accurate maps of the time and helped shape European intellectual life for more than three hundred years" (Desimini, Waldheim 2016, 7). Their searching and pointing were dedicated to questions of worldly orientation. The paper maps of the modern age, on the other hand, were primarily used for navigation and thus for finding routes and spatial orientation. It is only through the digital maps of the twenty-first century that a mediality of cartography comes to light, whose constructive actions allow for a wide spectrum of allegorical acts. Depending on the filter settings, the same data set in the same user interface can, for example, produce a map of navigation or a map of a world view. Maps have always been interactive in this sense, but it was only in the age of technical reproducibility that they also became responsive.

This is particularly evident in the technology of digital twins. "Digital Twins are virtual representations of the real world that incorporate physical objects, processes, relationships, and behaviours. Digital twins are used to represent accurate historical state, to observe and monitor performance, and to explore or predict future state" (Andrews 2021). Therefore they offer a dense identifiable system of symbols as good as wide range for constructive actions in an allegorical sense. In terms of the history of cartography, they symbolise the transition from maps on paper to mapping with digital user interfaces. However, the dynamic interaction made possible by this requires the user to adopt a different attitude to reception than was previously the case with static maps. Accordingly, the question of the reception of digital or, more precisely, digitised world maps needs to be examined.

6 Reproduction and Distraction

Regarding digital user interfaces in cartography and their content such as a digital twin of a city, it is important to clarify the connection between medium and reception. The fact that when we receive something tactilely, i.e. by using it instead of looking at it, a non-contemplative case of reception occurs, is according to Benjamin exemplary of the aesthetic upheavals of the twentieth-century and goes along with the age of technical reproducibility.[13] In this age, the industrial means of production in the form of media equipment and art techniques brought about a profound change in the capacity for apperception (cf. Benjamin 1991c, 505) Benjamin argues that contemplation as an attitude of reception is in regression and that in the twentieth-century, distraction becomes primarily the direction of attention towards the optically and tactilely received technical reproduction. The contemplative decoding of aesthetic experience thus undergoes a change to the effect that, instead of identification, there is a dispersed attention that perceives and appropriates the artwork or design object not as an object of contemplation but as a medium of interaction. Against this background, if we compare the contemplative attitude with looking at a globe and the distracted attitude with interacting with a google map, for example, it becomes clear how zooming in and out on the globe requires mental concentration and deepens contemplation, whereas interaction with the digital map takes place somewhere between tension and boredom. This refers to the typical sensations of a distracted attitude of reception, as is particularly evident in film (cf. Benjamin 1991c, 505).

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13 A more in-depth look at Walter Benjamin's media theory and its context in the twentieth-century can be found in Kang 2014.

The conditions of aesthetic reception established on the basis of Benjamin's theory and its distinction between cognition and truth as well as between symbol and allegory stand in contrast to Goodman's cognitivist theory of symbols. According to Benjamin, the change in apperceptive mediation in the context of the age of technical reproducibility goes hand in hand with the observation that the linking of a dispersed reception with the allegorical form of design corresponds to the aesthetic handling of apparatuses. By using computer technology to design user interfaces for cartography, we not only enable Goodman's central cognitive engagement with a map in contemplation, but also create possibilities for interaction with the map, which in its aesthetic experience enables an allegorical search for truth.

7 Cartography and the Digital World

The question of mapping the world has led us to understand the world as a human condition. Contrary to the earth, the world does not consist of stardust, but of ideas and things with which people create an 'in-between'. Networked in this way, the world grows in particular through the means of technical reproducibility. From the question of what the world is, the philosophical gaze then turned to the question of how the world is. With Walter Benjamin, it was expressed as a phenomenon between ideas, names, and concepts in the symbols and allegories that we show each other. Based on symbolization, which, in Nelson Goodman's words, begins in representation and not in depiction, it became clear how analogue and digital reference systems differ. The quantised analogue world, captured as a data point, is fixed and schematised in its differentiations. In the context of a cartography of the world, the aim is to link a system of symbols not with the quality of a measuring instrument, but with aesthetic experience. Accordingly, the ideal mode of representation is a dynamic event.[14] This symbol theory was then expanded by Benjamin's understanding of allegory as a configuring action. It accompanies a search for truth instead of making empirical statements. Its perspective reveals a horizon of ideas or allows ideas to become transparent. With a view to today's maps and digital twins conveyed in digital user interfaces, the question of the attitude of reception arises in conclusion.[15] Benjamin's approach, which is based on art and cultural theory, must be distinguished from Goodman's cognitivist approach. Instead of a

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[14]   An example of this is the empirical research on eye movement when looking at different digital maps is Popelka et al. 2022.

[15]   The following practical research on user experience in cartography is a notable example Roth et al. 2017.

contemplative attitude of reception that is strong in the identification of symbols, Benjamin ascribes a dispersed attitude of reception to the recipient in the age of technical reproducibility and thus in the use of media devices. In this sense, media-based digital cartography is less read and more experienced. The interaction with the cartographic data set and its user interface as well as its responsiveness take centre stage.[16] This gives the allegorical search for truth a further playing field. Understood in this way, the cartography of the world becomes not only a useful object of cognitive processes such as determination and planning, but also an artistic and aesthetic experience of an interactive search for truth.

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[16] An overview of these new areas of cartography regarding user-centered design, virtual environments, and digital visualisation can be found in Robinson et al. 2023.

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A View From Above
Vertical Perspective in the Age of Total Images

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Abstract   Thanks to the technological dislocation of the eye of the beholder, the mechanical eye or both of them together, along recent decades the view from above has become a widespread, somehow trivial way to experience the world, imposing a new scopic regime. Deeply enmeshed and dependent upon technologies of surveillance, vertical perspective does not only democratize the point of view of the power: it provides us with an inhuman gaze on the world, liberating images from the constraints of naked human vision and erasing the distinction between images and maps, producing what Peraica has called total images. These topics are explored through a number of case studies from the visual arts.

Keywords   Vertical perspective. Scopic regime. Surveillance technologies. Machine gaze. Drone photography

Summary   1 Introduction. – 2 Vertical Perspective as a New Scopic Regime. – 3 Between Photography and Mapping: Total Images. – 4 Conclusions.

1   Introduction

Thanks to the technological dislocation of the eye of the beholder, the mechanical eye or both of them together, along recent decades the view from above has become a widespread, somehow trivial way to experience the world. From flying over the clouds to free fall experiences, from navigating Google Maps on our desktop to riding our GPS-equipped smart car, from playing video games in God's eye view mode to reserving a parcel on the metaverse, from satellite pictures to space telescope imagery to drone images, vertical perspective has, in the words of artist Hito Steyerl, replaced linear perspective with a "disembodied and remote-controlled gaze, outsourced to machines and other objects" (2011), and effectively imposed a new scopic regime.

Borrowed from philosopher Martin Jay (1988) and currently widely adopted in visual culture studies, the expression "scopic regime" effectively underlines how vertical perspective is deeply enmeshed in and dependent upon technologies of surveillance and power. Its implementation into our daily experience of the worlds we inhabit, however, does much more than simply democratizing the point of view of the power: it provides us with an inhuman gaze on the world, liberating images from the constraints of naked human vision and giving birth to what Ana Peraica has called "total images" (2019); and it erases the distinction between images and maps, between a granular, detailed, positioned, subjective view of the world and an abstract, apparently objective yet profoundly biased, representation of it.

By delving into the literature summarily referenced here, and focusing on a selected number of case studies from the visual arts, this essay explores how vertical perspective is affecting both the map and the territory, and how we can resist to it.

2   Vertical Perspective as a New Scopic Regime

Back on 5 February 2003, the U.S. Department of State Secretary Colin L. Powell gave his infamous remarks to the United Nations Security Council, in which he tried to present irrefutable evidence that Iraq was defying U.N. disarmament demands, relying on a multimedia presentation of communications intercepts, satellite photos and accounts from both spies and defectors. His 90 minutes presentation was aired on television, making his slides highly accessible and impactful on popular imagination. As it is widely accepted (Borger 2021), this speech didn't cause the war in Iraq, which was already decided by the U.S. administration; nor it succeeded in its goal of persuading the council to pass a second resolution backing military action against Iraq. In a few weeks, the claims that Powell described

as "facts and conclusions based on solid intelligence" started to fall apart, and that speech is currently referred as a proof of the U.S. unreliability within the United Nations.

Yet, twenty years later, it would be difficult to disagree with visual cultures scholar Nicholas Mirzoeff, when he describes this presentation as the "first political use of Microsoft's PowerPoint software" (2016, 112) and an important step in what he calls "the war of images". From the point of view of this essay, however, it's even more important to recognize in this event one of the first cases in which satellite images are discussed in public, and in which photographs and maps merge into an indissoluble whole. Introducing the pictures supposedly indicating "that banned materials have recently been moved from a number of Iraqi weapons of mass destruction facilities" (Powell 2003), annotated with yellow captions by security experts, Powell states:

> Let me say a word about satellite images before I show a couple. The photos that I am about to show you are sometimes hard for the average person to interpret, hard for me. The painstaking work of photo analysis takes experts with years and years of experience, poring for hours and hours over light tables. But as I show you these images, I will try to capture and explain what they mean, what they indicate, to our imagery specialists.

With this statement, Powell is not only reiterating the die-hard trope of the indexical value of photographs as proof of evidence; he's also applying this value to inhuman artefacts shot by machines orbiting hundreds of miles from Earth, with no human eye pointing the scope, and no human hand pressing the button; and he's, even more importantly, declaring that these visual artefacts are not accessible to the average eye – not even his own; they require interpretation, experience and labour to be turned into faithful information; they require outlines and notes. They are pictures, but they need to be looked at like maps, rather than photographs.

A few years later, the same war and a similar, black and white, blurred imagery resurface in a rather different media artefact. It's April 2010, and Wikileaks has just released, on a dedicated website, a 39 minutes video called *Collateral Murder*.[1] The video combines footage shot, on 12 July 2007, from an American AH-64 Apache helicopter flying over Baghdad, in which the crew fires, along three different

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[1] The video was one of the documents, including videos and diplomatic cables, that in 2010 American Army intelligence analyst Chelsea Manning leaked to Wikileaks. For the leak, Manning was convicted, processed and sentenced to 35 years' imprisonment, to be released in May 2017 after President Obama commuted her penalty.

strikes, on a group of people and kills several of them, including two Reuters journalists, civilians and even kids. The soldiers comment upon the action, laughing at and insulting some of the casualties, and saying things like "Oh yeah, look at those dead bastards" or "Well, it's their fault for bringing their kids into a battle".[2]

Today, *Collateral Murder* is widely regarded as an impressive visual reference of an increasingly remote-controlled war, in which orders are transmitted by radio from very far away, and soldiers themselves project on their victims a highly mediated gaze from above, with little or no ability to distinguish between reality and the simulations they play for training purposes. Although not shot from a drone, the video bears strong resemblance with drone's imagery: neither the information overlapped to the image, nor the ambiguity of the pointer which, in Mirzoeff's effective words, made the shooters misrecognize their "camera as a weapon" (2016, 122)[3] help the soldiers to feel closer to the ground and to their victims than the average drone pilot, sitting in their office somewhere in the U.S.

2.1 The View from Above

Far from new, the view from above has a long history in Western culture. Mirzoeff traces its roots in the need, for the general at war, to visualize the battlefield as a whole – a task that can be better performed from a higher position, ideally from the air. From there, or when not possible, from the top of a hill, the eighteenth and nineteenth century general could map the battlefield, see the war in its broader dynamics, rather than in its granular reality.

This origin sets a number of relations that have haunted, and will probably haunt forever, the history of this specific point of view on reality. The first relation links the view from above with the point of view of power, control and surveillance. This is obviously visible in the following developments of aerial photography, up to satellite photography and drone imagery; but it can be traced as well in the widely researched model and metaphor of the Panopticon, conceived in 1791 by British philosopher Jeremy Bentham as the design of a prison where all prisoners can be observed by a single corrections officer, aptly positioned at the top of a tower in the centre of the building; and in the techniques of forensic photography developed in the

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2 The video is still available for download at https://wikileaks.org/wiki/Collateral_Murder,_5_Apr_2010.

3 If we follow Virilio (1989, 4), this is not "misrecognition" but full recognition: "From the original watch-tower through the anchored balloon to the reconnaissance aircraft and remote-sensing satellites, one and the same function has been indefinitely repeated, the eye's function being the function of a weapon".

late nineteenth century by French criminologist and photographer Alphonse Bertillon as scientific protocols to produce documentation of murders, mounting the camera on a high tripod and photographing the crime scene from above before it was disturbed by investigators, or using measuring grids to document the dimensions of a particular space and the objects in it (metric photography).[4]

The second relation is with the inhuman and the technical: being the human gaze naturally grounded, tied to the soil, only by freeing themselves from the limitations imposed by gravity, or by means of some technical prosthesis of their own eyes, can humans gain a view from above. In other words, differently from human vision, the view from above is always mediated – either facilitated by a device that allows us to bring ourselves up in the skies, from Icarus' wax wings[5] to hot air balloons, from aeroplanes to spaceships, or enabled by prosthetic technologies of vision, from spyglasses to cameras. Therefore, its evolution is inextricably linked to the history of aviation, as well as to the history of photography.

Finally, the third relation links the view from above to the history of mapping, which has always been based on imagining, simulating or physically adopting a point of view on a territory that allows to capture it in detail, and to represent it proportionally on a flat surface. Unsurprisingly, the first massive adoption of aerial photograph along the World War I was used not just to visualize the battlefields and decide the spot of bombing, but also to map new territories with increasing precision and astonishing detail.[6]

Along the following decades, the evolution of technologies of flight and image capture drove the adoption of the view from above in warfare, mapping, scientific research and in the arts. Tracking the evolution of such technologies – from aircrafts to satellites, from the GPS system to unmanned aerial vehicles, from the spacecrafts that allowed us, along the Seventies, to see and photograph the Earth from outer space to space telescopes such as Hubble, launched in 1990, and Webb, launched in 2021, which with its infrared cameras allows us to look into the depths of the universe both in space and time – would go far beyond the scope of this essay. Along this journey, the aerial became, as Mark Dorrian and Frédéric Pousin wrote, "central to the modern imagination and, indeed, might even be claimed to be its emblematic visual form" (2013, 1). It conquered artistic imagination, shaping ways of seeing and approaches to image creation far

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[4] Alphonse Bertillon (1853-1914) published a book called *La Photographie Judiciaire* (1890), invented the mugshot and pioneered biometrics as a tool to identify criminals.

[5] Christine Buci-Glucksmann refers to the aerial view as an "Icarian Gaze" in her 1999 essay "Icarus Today: The Ephemeral Eye".

[6] See the U.S. Army doctrine "Map as you move", referenced in Mirzoeff 2016, 105.

beyond the plain adoption of aerial photography as an artistic medium, in Nadar's pioneering experiments with balloon photography to the shots made in the Seventies from a Piper aircraft by Italian photographer Mario Giacomelli. It has been found in the Suprematist approach to abstraction, in László Moholy-Nagy's photographic work and theoretical statements,[7] in Marcel Duchamp's and Man Ray's *Elevage de poussière*, shot in 1920 and first published in the Dadaist magazine *Littérature* with the caption "Vue prise en aéroplane". It has been tracked, furthermore, in Futurist Aeropittura, in Jackson Pollock's approach to horizontal painting, in Lucio Fontana's Spatialist manifestoes and artworks, as well in the aerial point of view implied by most Land Art works, to name just a few examples.[8]

And yet, although most of this technological apparatus was already in place by the late Nineties, it was only with the beginning of the twenty-first century, and more precisely in the late Oughts, that the aerial view became "virtually ubiquitous", and started pervading "popular and consumer culture" (Dorrian, Pousin 2013, 9), saturating "global media as well as social networking practices" (Kaplan 2018, 6) and becoming "so much a part of our everyday life as image consumers" (8). As Caren Kaplan acutely noticed, it's quite revealing that, although there were a number of eyes in the sky capturing images of the Twin Towers on 11 September 2001 – from the National Oceanic and Atmospheric Administration (NOAA) geostationary satellites to the International Space Station to the North American Aerospace Defence Command (NORAD) – only a small fraction of these generated images was made available to the public and captured people's imagination. Still at that time, aerial imagery was still controlled and filtered by those in power, and as such it was mostly classified; furthermore, it was perceived as something with a utilitarian function in military practice, yet difficult to interpret and unable to provide an emotional storytelling of a given event, capable to communicate on a human level.[9] As we already wrote, the human gaze

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[7] As he wrote in *The New Vision*: "Aviation has a special part to play in this respect. New views appear below an airplane, and also from looking upward at an airplane. The essential is the bird's-eye view, which is a more complete space experience. It alters the previous conception of architectural relations" (Moholy-Nagy 1949, 63).

[8] Most of these references are borrowed from the edited collection *Seeing From Above. The Aerial View in Visual Culture* (2013). Already in 1999, Buci-Glucksmann wrote about "the point of view of the aviator, common to Malevitch and Duchamp" (1999, 54), stressing how the aerial view affected the advent of abstract art. Aeropittura is discussed in Steyerl 2011.

[9] "Until the coincidence of the ramp-up of visual technologies that became associated with the war on terror after 9/11 and the advent of social networking with its intensely rapid circulation of digital imagery […] the 'God's-eye view' of violent scenes was either classified as 'secret' by the military or released on an extremely selective basis" (Kaplan 2018, 5).

is naturally grounded – or, to adopt Beaumont Newhall's terminology, "earthbound" (1969, 11). In order to easily adopt a novel point of view on reality, and to identify with it, we need to experience it, either directly or in mediated form; and until the early twenty-first century, this experience was still rare, and controlled, for the average image consumer.

The two media events we mentioned earlier, respectively from 2003 and 2010, confirm what we are saying now. From his power position, Powell shared satellite images to non-expert eyes to persuade his audiences to adopt his own point of view, and believe in it. *Collateral Murder* was classified material that got leaked. The technical, cold, inhuman gaze of both became shareable only thanks to a high level of mediation and interpretation, performed by Powell and Wikileaks, respectively, and for political and rhetorical purposes. And yet, they were dropped into a media environment that was increasingly capable to receive and see them. Thanks to cheap flights, taking a plane became a commonplace way of travelling already in the Nineties; everybody could see the upper side of the clouds, but only the simultaneous advent of smartphones and social media allowed everybody to shoot and circulate pictures of clouds, cities and mountains from above. While consumer technologies – from smartphones to head-mounted cameras – made the experience of flying (or even free falling) shareable, the release of Google Earth in 2005 made satellite vision accessible to anybody. Similarly, the increasing availability of webcams and surveillance cameras in the consumer market, driven by the smart home industry, popularized the Big Brother's view as much as, a few years later, the commercialization of drone technology outside of the military world – either as a game or as a powerful tool for photographers and video makers – made the drone's eye view something that everybody can easily recognize, both on television and social media. And finally, video games played a decisive role in educating younger generations to the view from above: from flight simulators to the God's eye view introduced by global phenomena such as *Sim City*; from the frequent habit of including a game's map in the game interface, allowing the player to see where he's on the map when running around in first or third person's view; to the "long zoom" described by Steven Johnson (2006) as "our own defining view", allowing anyone to move seamlessly and instantly between different temporal and spatial scales, from ground level to outer space, and from the micro to the macro dimension.

If we consider all this, it comes as no surprise that – with a few notable exceptions – much of the theoretical, historical and critical work concerning the aerial view has been produced along the last two decades. One notable and original example is the short essay "In Free Fall" (2011), by artist and writer Hito Steyerl. Steyerl takes off not from flying, but from the experience of free falling – with the

consequential loss of a stable horizon – to claim how traditional, linear perspective, born out of the need to establish a paradigm of orientation, happened to be replaced, as a consequence of the technological evolution following the invention of aviation, by a new paradigm, that she calls vertical perspective. Yet, Steyerl goes even further, claiming that if linear perspective worked as a complete reinvention of the subject (placed at the centre of vision, but also subjected to "supposedly objective laws of representation"), of space (which became "calculable, navigable and predictable") and time (which became linear, and allowed linear progress); we have to expect the same reinvention from vertical perspective.

Just as linear perspective established an imaginary stable observer and horizon, so does the perspective from above establish an imaginary floating observer and an imaginary stable ground.

> This establishes a new visual normality – a new subjectivity safely folded into surveillance technology and screen-based distraction. [..] Additionally, the displacement of perspective creates a disembodied and remote-controlled gaze, outsourced to machines and other objects. [...] New technologies have enabled the detached observant gaze to become ever more inclusive and all-knowing to the point of becoming massively intrusive – as militaristic as it is pornographic, as intense as extensive, both micro- and macroscopic. (Steyerl 2011)

This new visual paradigm, mirroring the process of verticalization of power that Eyal Weizman has called "the politics of verticality" (2002), might be "inclusive and all-knowing", shaped by surveillance and policing, capable to turn the eye's function into "the function of a weapon" (Virilio 1989, 4), but it's far from objective. Borrowing from artist Trevor Paglen (2013), we could say that "the view from above is less an expansive panorama than a view through a keyhole". However filled with visual and non visual information, satellite views are often opaque and require, as we already noticed, interpretation in order to be understood. They are often the result of an algorithmically controlled process of patching that occasionally generates glitches, and that merges images taken in different times, from different machines; they mirror, as in the case of Google Earth, politics of resolution and commercial interests (Dorrian 2013, 301-2). Similarly, the drone sight offer a relatively narrow range and low image quality, and it's often controlled by an extended network of operators that affect the way it works and sees (Kaplan 2018, 211). They both abstract the landscape and minimize the human. They show "the world as the angels may see it from the midst of space", not "as men see it who dwell in it, and cultivate it, and love it", to quote what a British art critic from the 1880s had to say against balloon views (Newhall 1969, 12).

2.2 Scopic Regimes

And yet, notwithstanding its limits and biases, this new visual paradigm affects not only the way we see the world, but also the ways we design and inhabit it (Dümpelmann 2014, 1). It is the result of "a cataclysmic shift in our ability to navigate, inhabit, and define the spatial realm"; it is embedded in "infrastructures and systems, and we are located, however insecurely, within them [...] we do not stand at a distance from these technologies, but are addressed by and embedded within them". (Kurgan 2013, 14)

All this, together with Steyerl's claim that vertical perspective replaced visual perspective, suggests that it would be productive to replace the concept of visual paradigm with the stronger concept of scopic regime.[10] The term was popularized by Martin Jay in his contribution to Hal Foster anthology's *Vision and Visuality* (1988), a foundational publication for the then emerging field of visual culture studies. Jay himself borrowed it from French cinematologist Christian Metz (1982), who coins the term to describe how the cinematic apparatus constructs the viewing experience by creating a scopic arrangement in which the spectator has a designed position. As it's been noticed (Sendyka 2013, 104) the term "suggests absolute subordination", "a kind of oppression, violence or enforced formatting of the viewer". It describes the act of vision as a construction, positioning the viewer within a technical apparatus that is itself shaped and conditioned by dominant ideologies. Visual regimes don't suggest, or simply make available, but

> prescribe modes of seeing and object visibility and [...] proscribe or render untenable other modes and objects of perception. A scopic regime is an ensemble of practices and discourses that establish truth claims, typicality, and credibility of visual acts and objects and politically correct modes of seeing. (Feldman 1997, 30)

In his foundational essay, Jay identifies what he considers the three visual regimes of modernity: linear perspective, otherwise named Cartesian Perspectivalism; the Dutch art of describing, or Baconian empiricism; and the Baroque "madness of vision", following Buci-Glucksmann (1986). He concludes designing the Baroque vision the dominant regime of our time, although coexisting with surviving elements of the two others; but also suggesting that other regimes, now hard to envision, "are doubtless to come" (20).

In Jay's analysis, Cartesian perspectivalism generates a space that

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10 The concept of scopic regime has been previously adopted to discuss the view from above, and more specifically the drone's eye view, by Gregory 2011.

is "geometrically isotropic, rectilinear, abstract, and uniform" (Jay 1988, 6), observed by a monocular, "static, unblinking, and fixated" eye, producing "a visual take that was eternalized, reduced to one 'point of view,' and disembodied" (7). Dutch art of describing emphasizes "the prior existence of a world of objects depicted on the flat canvas" (12), focusing on the objects' surface rather than their position in space; it's descriptive instead of narrative, and treats the surface of the canvas as a map, following the model of the Ptolemaic grid rather than that of the perspectival grid (15). Finally, the baroque is "painterly, recessional, soft-focused, multiple, and open" (16), and pursues an impossible, erotic relationship with reality. Adopting Norman Bryson's terms (1981), it follows the logic of the Glance (the embodied view, emotionally and erotically entangled with reality) rather than the Gaze (the disembodied, externalized point of view). As such, it is the true opponent of the two other visual regimes, "a permanent, if often repressed, visual possibility throughout the entire modern era" (16) rather than a historically confined one.

Vertical perspective does not easily identify with any of the scopic regimes described by Jay, although it shares features with all of them. It's definitely a Gaze, rather than a Glance, but the way in which its "floating observer" relates to its "imaginary ground", embodying the long zoom and roaming between different scales, turning objects into abstract and distant shapes or suddenly and abruptly penetrating into their reality, bears some resemblance with Baroque's crazy vision. It pretends a God's eye view on reality, seeing everything and positioning any thing in the right spot on the grid, but it as well treats reality as a surface to be mapped, shifting between the perspectival and the Ptolemaic grid. As a new visual regime, it could aptly be described as the bastard child of the three visual regimes of modernity, the outcome of Western culture ways of seeing as they have been embedded and translated in our current technological apparatus.

3 Between Photography and Mapping: Total Images

I was always fascinated that while eyes can reach astronomical distances, till the black holes sometimes, but voice cannot exceed a few hundred meters, and hands less than a meter. I told him, "M., in order for you to be accepted as a refugee, you would need to give vision to your hand, a voice that can reach as far as the eye".

In the video work *View from Above* (2017) **[fig. 1]**, the calm, soft voice of Hiwa K. tells the story of M., who – like the artist – came to the Schengen area from Kurdistan, in the north of Iraq, applying for the status of refugee. Along the Nineties, the U.N. considered Kurdistan a "safe

zone", which of course was a reality only in the minds of the U.N. bureaucrats. Yet, one has to come from an unsafe zone, or at least to be able to prove that one does, in order to qualify as a refugee. M. applied for asylum in the country X; he waited years for a positive answer, but unfortunately he got one negative answer after another, until he received the final rejection from X and was set to be deported back to his country. After a while he managed to cross the border without legal papers and enter another country, to apply for refugee status again. There he met the narrator, who helped him learn everything about a city from the unsafe zone by looking at a map, and memorizing details about every street, every building. When M. finally got his refugee interview, the official asked him questions about the geography of the town, and compared his answers to a map. It took only twenty minutes for the official to grant M. refugee status; other people that were actually from that city waited for years, as their accounts were flawed and inaccurate.

In the video, neither M. nor the narrator appear. The story is told as a voiceover, as the camera slowly pans over the model of a deserted city in a bird's eye view, zooming in occasionally on a few details. M. is successful because he internalized the view from above: he shares

Figure 2   Hiwa K., *View from Above*. 2017. Single channel HD video, 16:9. Colour, sound (with English language), 12:27', 5+2AP. Courtesy Kow, Berlin

the same view and the same knowledge of the officer, who probably never went in the unsafe zone, and only knows it from maps, reports, and documentation. Additionally, he is able to translate his view into words, information and data: two abilities that the people actually coming from there rarely share, knowing their city only from the ground. Their gaze falls short, and so their voice and hands.

View from Above is sometimes shown together with *Destruction in Common* (2020) [fig. 2], a 20-by-20-foot handwoven carpet showing an aerial view of Baghdad. The Iraqi capital has been subjected to massive bombings from the air on several occasions, both during the first and second Gulf Wars; these attacks have been widely documented and broadcast in the media. Many people from around the world, who have never visited it, see Baghdad in this way: as a target. We share the point of view of the missile that falls, of the bomb that kills. The work reproduces the point of view of the western power involved in an asymmetrical war. Yet, by strolling around the carpet or sitting on it, we are somehow invited to become more acquainted with the city, to 'inhabit' it and to learn it as M. did with his imaginary town from the unsafe zone.

Both the city that M. builds in his mind, and the aerial view of Baghdad are more than maps. They blend together the vertical perspective of maps, the representative fidelity of photography, and layers of information. They are, in the words of Croatian photography theorist Ana Peraica (2019), total images.[11]

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11   Peraica borrows the expression from Ingrid Hoelzl and Rémi Marie (2015, 24), but she expands it beyond its original narrow limits.

> I use the term total image to mean any and all images which are liberated from the constraints of naked human vision and, particularly, the angle of view (AoV) or 'view-angle', sometimes called the field of view (FoV), which is the extent of a given scene which can be imaged. A total image, therefore, is the result of a long process of research and development in image technologies in order to extend human vision to the point of being able to see the whole of our world all at once. (13)

Total images are unmanned, "in-human by its politics" (Peraica 2019, 14) and nonhuman (Zylinska 2017) for the point of view they adopt and their often constructed and computed nature. They comprise various categories, from pseudo-photographs to orthophotographs to photomaps, depending on the way they are constructed and their relationship with maps. Although inheriting the indexical function of photography, they are "more fiction than document" (64). If "the landscape describes place, and the map describes space" (66), total images blur the difference between the two, and between vision and visualization, topography and cartography. They are often asynchronous, layered in time as well as space. They include layers of visual and other-than-visual information: geo-positioning information, tags, commercial information, traffic data, crowdsourced rating. In them, "the photograph is but one layer of many", "merely a visual style for the image", "a coded function" (88). They introduce a "polyperspectivalism", denying "the absolute point of view" and introducing "many simultaneous views", all of them dynamic: "One single reality may be experienced in a multitude of ways, which in turn produces multiple realities, each providing a coherent picture" (111). Finally, they do not just represent, but they affect and change physical reality as well: if we don't want to mention the drone and its "targeted killing", we can think to satellite calibration targets, buildings and installations conceived to aid in the use and development of satellite and aerial reconnaissance; to the Palm Jumeirah islands and the World archipelago in Dubai, tourist destinations designed to be admired from above; or to the way crowdsourced rating featured on online maps can affect tourism in specific places.

Total images have been investigated, researched, exploited and portrayed in a growing number of artistic projects. The widespread adoption and easy access to Google Earth in its various articulations, in particular, paved the way to a number of post-photographic projects, based on the exploration of this second order reality, shot, computed and assembled by machines with little intervention by humans. Four works from the early Tens can briefly summarize the spectrum of possibilities opened up by the platform. In 2010, Canadian artist Clement Valla started documenting "strange moments where the illusion of a seamless representation of the Earth's surface seems

to break down": rather than glitches, these images are – in Valla's view – the "absolute logical result" of the way Google Earth is made and of what it actually is – a "database disguised as a photographic representation" (Valla 2012). While *Postcards from Google Earth*[12] focuses on the distortions produced by the effort to adapt photographic imagery to the map of the world [fig. 3] – the "perspectival losses" of this ambitious machinery – and tries to save the peculiar features of this alternate reality from their slow but inevitable disappearance, in *Dutch Landscapes* (2011) Dutch artist Mishka Henner documents the visual consequences of the clash between the politics of total transparence and visibility at the core of Google Earth and the politics of opacity of local governments and regulations [fig. 4].[13] Cloning, blurring, pixelization, and whitening out sites of interest are some of the methods adopted to censor sites deemed vital to national security, and can vary from country to country. Surprisingly, the

12   The project can be found at http://www.postcards–from–google–earth.com/.

13   The project is available online at https://mishkahenner.com/Dutch–Landscapes.

Netherlands – the country of the Dutch art of describing, but also a place that would not exist as it is without a massive human intervention that completely transformed the natural landscape – decided to impose bold, multi-coloured polygons over these sites, turning the view from above on the Dutch landscape into a colourful, occasionally abstract patchwork.

Again in 2010, Italian artist Marco Cadioli modified Google Earth by removing the "photographic skin" from its surface **[fig. 5]**. The resulting video[14] presents a bird's eye view moving slowly over an abstract white surface inhabited only by data, pins, icons, colored lines, textual information, as if the total image of the Earth was peeled off from everything that made it a faithful reproduction of the territory, revealing its hidden layers of information, its alien, artificial depths. Finally, with *Dronestagram* (2012) British artist James Bridle effectively exploited the "eye in the sky" against itself, by using Google

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14   Marco Cadioli, *Over Data*, 2010. Video, 3'13". See `https://marcocadioli.com/over-data/`.
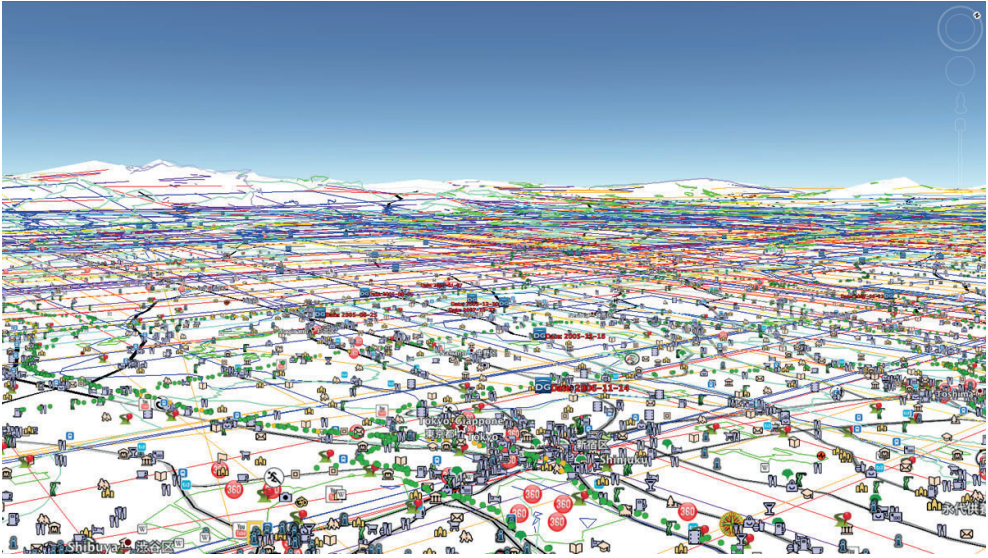
Figure 5 Marco Cadioli, *Over Data*. 2010. Video 3'13", shot in Google Earth 2010, HD 1280 × 720 (H264). Still. Courtesy of the Artist

Maps Satellite View to visually identify and circulate on social media platforms places in Afghanistan and Yemen that have been the location of drone strikes as they occurred **[fig. 6]**.[15] Bridle fights against the politics of invisibility of drone attacks, which find little coverage on mainstream media not only because the information is classified – most of the records of strikes were drawn from the Bureau of Investigative Journalism, an independent media channel – but also because these places can be neither seen nor visited – except by military drones. According to Bridle,

> The political and practical possibilities of drone strikes are the consequence of invisible, distancing technologies, and a technologically-disengaged media and society. Foreign wars and foreign bodies have always counted for less, but the technology that was supposed to bring us closer together is used to obscure and obfuscate. (2012)

The drone's eye view itself has been used by artists for alternative, and often critical, purposes. In 2012, Paris based artist and photographer Tomas van Houtryve heard about a drone strike in

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15 The project is documented at https://jamesbridle.com/works/dronestagram.

northeast Pakistan which killed a 67-year-old woman picking okra outside her house. Following this event, he attached his camera to a small drone and travelled across America to photograph informal gatherings – weddings, funerals, groups of people praying or exercising – the kind of events often targeted by American drone strikes in foreign countries. *Blue Skies Days* (2013-15) borrows its title from a sentence uttered by the grandson of the old lady: "I no longer love blue skies… The drones do not fly when the skies are gray".[16] By moving the drone's eye view to the U.S. territory, van Houtryve tries to empathize with a fear that, not unlikely the wars that cause it, is totally asymmetrical **[fig. 7]**.

Paraphrasing Eyal Weizman, we could say that artists like Bridle and van Houtryve are making an active effort to "reverse the forensic gaze" (Weizman 2017, 9), using the same apparatus that produces

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16 The project is documented at `https://tomasvh.com/works/blue-sky-days`.

Figure 7 Tomas van Houtryve, *Suspect Behavior*. 2016. Digital print, 24 × 24.
From the series *Blue Sky Days: A Drone's Eye View*. Courtesy the Artist

and controls total images in order to investigate, question and deconstruct it. Back in 2010, Weizman co-founded Forensic Architecture (FA), a research agency based at Goldsmiths, University of London, investigating human rights violations including violence committed by states, police forces, militaries, and corporations. This ever evolving research body employs cutting-edge techniques in spatial and architectural analysis, open source investigation, digital modelling, immersive technologies as well as documentary research, situated interviews, and academic collaboration to produce an extremely consistent body of work which is presented in a variety of venues, from exhibitions to international courtrooms, from parliamentary inquiries to United Nations assemblies, from citizen's tribunals to their online platform[17] and social media accounts.

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17   Available at https://forensic-architecture.org/.

FA's investigations provide a striking example of how the total image can be used for counter-information and alternative research. For example, in June 2022 FA published *Russian Strike on the Kyiv TV Tower*, a video investigating a series of strikes that happened in March 2022, as part of the Russian invasion of Ukraine. The strikes were directed against the Kyiv TV tower, a 385 meters high structure erected in 1973 in the Babyn Yar, the site of one of the worst massacres of the Holocaust, later concealed under strata of terrain that modified the topography of the site. The tower was reportedly used by a wide range of civilian TV and radio stations – and thus, did not represent a legitimate military target in itself. Accompanied by a number of other Russian attacks on TV towers throughout Ukraine, the event reveals the Russian attempt to disrupt the spread of information and demoralize the population. The tower survived the attacks, but a nearby building was hit, sustaining significant structural damage. Part of a sports complex, the building had been due for renovation to host the new Museum of Holocaust in Ukraine and Eastern

Europe. The report not only uses videos from different sources (user-generated content, CCTV camera feeds, mainstream media) and methods such as synchronization, 3D modelling and geolocation to reconstruct the event; but, thanks to a collaboration with The Center for Spatial Technologies, it digs deep into the history of the site, described by FA as "a tangled nervous system of historical references and repressed memories" (Forensic Architecture 2022). Commissioned by the Babyn Yar Holocaust Memorial Center, between 2020 and 2022 The Center developed a landscape model to digitally reconstruct the original topography of the Babyn Yar, by combining topographic maps from the early twentieth century, aerial images, and archival photographs. By using this landscape model as a tool, the investigation digs into the history of the site:

> not only one of violence but of different practices of cover-up and negation. The latter term refers here not only to the topographical practice of burying crimes beneath layers of earth, but also to the act of controlling the dominant message by interrupting the circulation and interpretation of news and personal narratives, isolating individuals and restricting unwanted solidarity. (Forensic Architecture 2022)

More recently, FA started an ongoing investigation about Israeli military attacks on medical infrastructures in Gaza, that have been taking place repetitively since October 2023. The research, suggesting "that hospitals in Gaza are being subjected to a systematic pattern of intimidation and violence by the Israeli military as part of the ongoing invasion" (Forensic Architecture 2023), replaces the relatively stable and closed medium of the video report with three web platforms – one for each investigated target – that are continuously updated as events develop. By scrolling the websites vertically, the user roams geographically in bird's eye view over a 3D model of the hospitals, and temporally along a timeline of the attacks, occasionally illustrated by pictures and videos from mainstream and social media. Perfectly mapped over the 3D models, this media debris – often low-res and poorly made, yet picturing the events in their tragic, crude reality – adds evidentiary realism to the cold objectivity of the 3D model, while the vertical scrolling – reminiscent of the infinite scroll of social media – makes the platform experience a painful journey through information, whose end is hard to glimpse.

4   Conclusions

> Resistance in an age of mass surveillance requires the ability to
> see as surveillance states do. It requires understanding different
> methods of surveillance, from the intimately physical to the ab-
> stract and electronic. It requires that we consider all possibilities
> even if they seem remote. (Appelbaum 2016, 157)

The scopic regimes of modernity emerged as collective ways of see-
ing that mirrored the worldview of the societies that produced them,
and more specifically the point of view of the ruling classes: Carte-
sian perspectivalism placed the human subject at the centre of the
visible world; the Dutch art of describing responded to the needs of
a burgeoning capitalist economy that turned the world of objects in-
to a catalogue of commodities, and perspectival depth into a surface
to be mapped; and the Baroque was the art of the Counter-Reforma-
tion church, an expression of its urge to beguile and embrace the
worshippers. Artists, architects and craftsmen, who worked in the
service of the ruling classes, made essential contributions to the de-
velopment and implementation of the scopic regimes of modernity.

Along this essay, we have tried to show how the vertical perspec-
tive has been defining itself as a new visual paradigm along the Twen-
tieth century, going through a sudden acceleration in recent years
that has imposed it as the scopic regime of the Twenty-first century.
This process took place through the slow fine-tuning of a complex
techno-social apparatus, including institutions, laws, devices, hab-
its and a dense network of cultural artefacts that we have called, fol-
lowing Peraica, total images. Left on the margins of its elaboration,
artists must, and can, recover an active role in investigating, under-
standing, illustrating, deconstructing, criticizing and sabotaging this
apparatus, injecting entropy in the machine.

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Mural and Landscape Painting Revisited
The Art of Mapping the Digital Technosphere

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Abstract   The elusive dimensionality and ecologically entangled materiality of clouds have always made it hard to map and visually depict them. But while visual artists of the Romantic and Impressionist eras at last managed to relate the ecological entanglement of man-made clouds and their 'natural' counterparts, the twenty-first century is facing another challenging addition to the almanac of clouds: the cloud of the digital technosphere. In this article, artistic attempts at capturing its dimensional elusiveness and invisible ecological entanglement will be presented which draw both on previous representational strategies and on innovative practices to render visible this quasi-autonomous force of planetary magnitude.

Keywords   Art. Digitalisation. Ecology. Clouds. Hyperobjects.

Summary   1 When is a Cloud a Cloud?. –2 Digital Clouds Everywhere. – 3 Cloudy Thinking, or: Staying with the Trouble of Unrepresentability. – 4 Romantic Landscape Painting Revisited. – 5 Renaissance Mural Painting Revisited. – 6 Reconnaissance.

Clouds always tell a true story,
but one that is difficult to read.
(Abercromby 1887, 163)

1 When is a Cloud a Cloud?

Mapping the heavenly, celestial or meteorological spheres of clouds has always been a challenging but desirable enterprise for philosophers, poets and painters alike: while the components that make up the natural occurrence in the sky which is called a cloud can be analysed and listed, the precise moment the various ingredients come together to give visible form to said cloud is harder to define. It is a problem of being *singular plural*, of being made up of a combination of factors, and emerging and vanishing as a concrete formation as a result of innumerable ecological factors in a mere matter of moments. In fact, the question could be: when does a cloud begin and where does it end? This is a question concerning the vagueness of the definition of the 'natural' phenomenon of the cloud itself. A problem which has been picked up by metaphysical philosophy as the 'Problem of the Many': even though puffy picture-postcard clouds suggest that clouds have sharp boundaries, the manifestation of a cloud results from the different density accumulations of water droplets – but that density is of a transitional and gradual nature, so that "there is no stark stopping place to be encountered. Rather, anywhere near anything presumed a boundary, there's only a gradual decrease in the density of droplets fit, more or less, to be constituents of a cloud that's there" (Unger 2004, 197) – or, indeed, not there.

This transitory, elusive and ephemeral nature consequently makes it hard to give clouds visible representation. A fact that has not only been exploited by famous poets for their own purposes of alluding to the unattainable, the ungraspable and the unrepresentable, such as Shakespeare, Swift and Wordsworth, but was already remarked upon by amateur painters such as eighteenth-century cleric William Gilpin who observed that everything "faded away" (Gilpin 1798, 130) in front of his eyes while attempting to sketch the splendour of a Somerset evening sky in the 1770s.[1] But while some of this interest in

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1 In his *Observations on the Western Parts of England, Relative Chiefly to Picturesque Beauty*, Gilpin (1798, 129-30) writes that the natural prospect "invited the pencil; but it was a transitory scene. As we stood gazing at it, the sun sunk below the cloud, and being stripped of all its splendour by the haziness of the atmosphere, fell, like a ball of fire, into the horizon". Also: there is not only the famous dialogue between Hamlet and Polonius about the shape of clouds but Shakespeare also used this metaphorical image in his *Antony and Cleopatra* (Scene 14, Act IV), which was echoed by Swift's 1704 *A Tale of a Tub* (Swift 1986, 16): "If I should venture, in a windy day, to affirm to

the difficulty of depicting clouds stems from ideas revolving around the picturesque qualities of unattainable beauty and sublimity,[2] other early art critics, such as John Ruskin, already saw the difficulty of representing clouds in a more profound relationship with representations of ecology at large: Ruskin had joined the London Meteorological Society at the age of 17 and throughout his writings made a point of stressing that "every class of rock, earth, and cloud must be known by the painter, with geologic and meteorologic accuracy" (Ruskin 1844, 16). In Ruskin's time, this mapping and ecological entanglement of clouds was then probably best understood by painters both from the periods of Romanticism and Impressionism, such as J.M.W. Turner and Claude Monet. For these artists did not only see a connection between clouds and ecology but also recognised the increasing effects of technological advancement on their environmental surroundings, as they "painted natural water vapours mixed with smoke produced by the railroad, anticipating the mix of nature and culture that would be so dominant in the twentieth-century cloudscape" (Peters 2015, 258).[3] Monet's excursions to London and his *Waterloo Series* (1900-4) as well as Turner's 1844 *Rain, Steam and Speed – The Great Western Railway* are prominent examples of this. As opposed to the clouds in medieval imagery, which had served as portals to the divine realm, the modern industrial age thus not only saw clouds as "visual indications of something that cannot be depicted" (Hamblyn 2017, 121; Damisch 2002), as something that exceeds representability on the scalar level, but also already as something that illustrates the dissolution of the purely 'natural' sphere.[4]

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your Highness that there is a large cloud near the horizon in the form of a bear, another in the zenith with the head of an ass, a third to the westward with claws like a dragon; and your Highness should in a few minutes think fit to examine the truth, it is certain they would be all changed in figure and position, new ones would arise, and all we could agree upon would be, that clouds there were, but that I was grossly mistaken in the zoography and topography of them".

2 Gilpin himself established the notion of the picturesque scenery in his 1782 practical guide *Observations on the River Wye, and Several Parts of South Wales, etc. Relative Chiefly to Picturesque Beauty; made in the Summer of the Year 1770*, which drew heavily on Edmund Burke's concepts of the beautiful and the sublime.

3 Also: German polymath Johann Wolfgang von Goethe as well as English art critic John Ruskin were both enamoured with nephology, the science of cloud formations, and the spiritual qualities of those sky apparitions. The entire host of Romantic poetry and painting followed suit, including Shelley, Constable, Caspar David Friedrich and Barrett Browning, and was "obsessed" with depicting the ephemeral qualities of clouds. For more, see: Hamblyn 2017, 47-60; 109-12; 123-35.

4 Ruskin's perception of "diabolic clouds over everything", which have since been widely interpreted as products of the oppressive industrial smog of the time, have led twentieth century commentators to attribute the title of proto-environmentalist to Ruskin (Hamblyn 2017, 130).

2 Digital Clouds Everywhere

In our times, this ecological entanglement of clouds has gained even more traction, as we swiftly approach the breaking point of ecological crisis and are consequently in need of ever more representations that illustrate the scalar extent of Anthropogenic ecological interferences, with clouds at the forefront of the study of meteorological change. At the same time, this project of planetary ecological mapping has been complicated by another shift in the perception of what a cloud can be – because these days we seem to be constantly surrounded by clouds: Due in large part to the way language has imbued our 'technosphere'[5] with a metaphorical sense derived from descriptions of so-called 'elemental' or 'natural' phenomena, we now do not only consider the material formation of both 'natural' and industrial water particles and vapours but also the interactive digital technosphere as a cloud. Today "we cannot think of the cloud without thinking about data" (Peters 2015, 49). While at the turn of the millennium any internet search query for 'cloud' was dominated by information on weather and climate, now we can find tech giants and their digital services headlining the lists (Hamblyn 2017, 174).

On the one hand, this metaphorical link between Nature and Technology indicates the intricate entanglement and embeddedness of digital technology in our so-called 'natural' surroundings, something the paintings of the industrial age already alluded to. On the other hand, it also represents the *dimensional elusiveness* of the digital technosphere, because just as the poets of old used the cloud as a way to describe that which escapes definition, the cloud has now become a stand-in for seemingly borderless, complex systems and networks that escape our rational grasp: while electrical engineers from the early days of computing used the symbol of the cloud as a shorthand for any as yet undefined complex external connection – "a power system, or a data exchange, or another network of computers" (Bridle 2018, 6) – the cloud in today's digitalized world encompasses literally anything and everything, as the promise of decentralised data storage has become a selling point in its own right and globalization, as a phenomenon driven by capitalist market expansion, is now largely based and dependent on digitally supported connections. We thus use cloud computing for almost anything, from private data storage, resource pooling and virtual networks to entrepreneurial big data management and increased computing power

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5 The term technosphere represents "the interlinked set of communication, transportation, bureaucratic and other systems that act to metabolize fossil fuels and other energy resources", and which is "considered to be an emerging global paradigm, with similarities to the lithosphere, atmosphere, hydrosphere and biosphere" (Haff 2014, 301).

and scalability. And as a result, the material manifestations of our computational age can also be found all around us. Because, despite its ethereal, ephemeral, numinous and opaque nature, the cloud of the internet is also rooted in the material world and relies on a firm physical infrastructure that requires attention and care. A metastasizing infrastructure that criss-crosses international jurisdiction and power relations in the form of computer servers, data centres, wireless frequencies and submarine communication cables, touching on issues such as national security, data privacy, taxation and the environment.[6] In a critique of this capitalist colonisation, one could say that the idea of "empire has mostly rescinded territory, only to continue its operation at the level of infrastructure, maintaining its power in the form of the network" (Bridle 2018, 247).

Digital globalization, this new geography of distribution, has thus imbued our environments with artificial devices to such an extent, that screens, frequencies and cables now create an invisible system of background entities and the infrastructural basis to our lives. The resulting global digitalization has reached enormous dimensional magnitudes and scales. In the words of eminent computer scientist Joseph Weizenbaum, the complexity of today's digital web of telecommunication and information systems has "surpassed the understanding of their users and become indispensable to them" at the same time (Weizenbaum 1976, 236).

3 Cloudy Thinking, or: Staying with the Trouble of Unrepresentability

It must be obvious then that any ecological mapping is being further complicated by the idea that clouds are now everywhere and anywhere, that clouds, whose visible manifestations were previously at best hard to define, have now even become invisible to the naked eye and that territory is not a category to rely upon anymore. How can we then map the latest Anthropogenic interferences: the digital planetary interventions? How can we make visible that which is not bound anymore to a concept of locality? How can we relate the *dimensional elusiveness* and *ecological entanglement* of the digital technosphere to a greater public?

Some hints can be found in the arguments brought forward by Object-oriented Ontology, especially by Timothy Morton's concept of hyperobjects: the digital technosphere like "the dimension and effects of climate change cannot be grasped, or accessed, all at once in its entirety" (Morton 2021, 10) – so we might need to acknowledge that

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6   For more on this, see also Hu 2016.
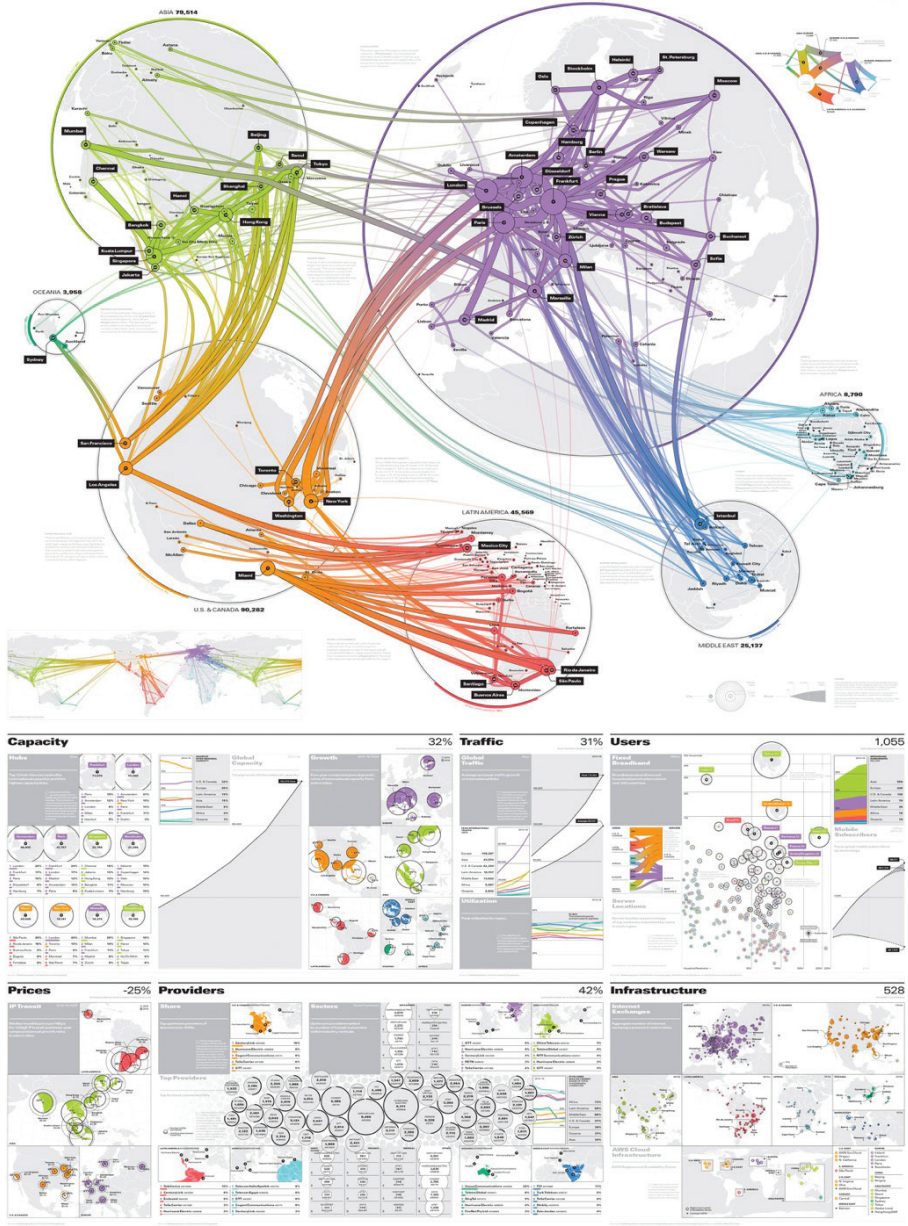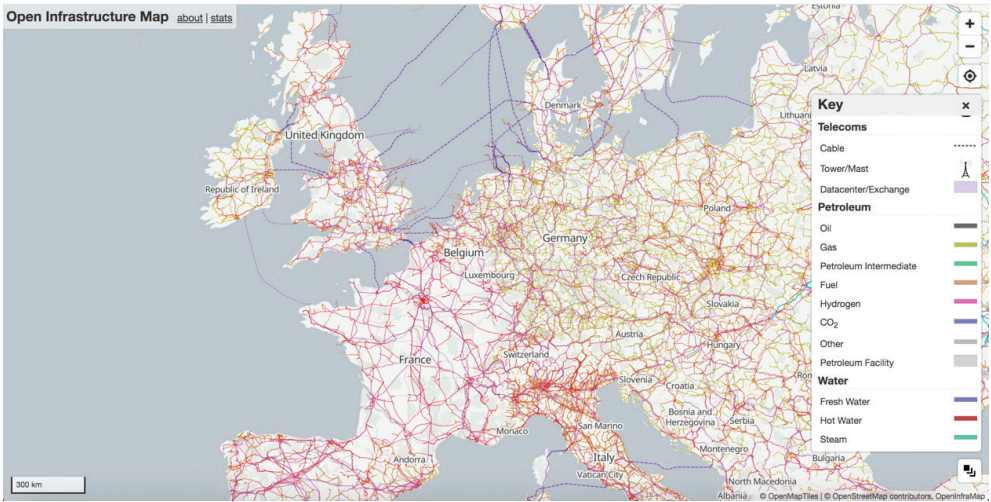
traditional rational access modes will not suffice in comprehending these issues. Because these access modes have only succeeded insofar as they have spoken to the digital technosphere's dimension in terms of statistical estimates and to its ecological embeddedness in terms of individual material manifestations. This reduction of the network to its output sources, however, sidesteps the dynamic spatial diffusion of the digital cloud and any navigational desire by the human user.

While industry-sponsored telegeographical maps might therefore detail such aspects as bandwidth traffic, the number of international submarine cables and average technological penetration rate per capita **[fig. 1]**, they only engage in a practice of oversimplification, or, to put it in the terminology of Object-oriented Ontology, in a practice of 'overmining': "Overmining is when one reduces a thing 'upward' into an effect of some supervenient system" (Morton 2013a, 155). In fact, by attributing only certain effects, they isolate all other aspects. Digital telecommunication thus gets separated from other industrial production pathways or resource transportation cycles, such as oil or water, in order to make an easy reading possible **[fig. 2]**. However, as we are only to aware these days, global digitalization is not limited to private telecommunication practices, since "the practice of medicine is increasingly a branch of informatics. The forestry industry is a data business" (Peters 2015, 4).

Meanwhile, the other far end of the traditional spectrum features meticulous surveys of individual local materialization of the global

digital network, such as detailed 3D renderings of publicly inaccessible major data centres – as can be seen in John Gerrard's artistic renderings *FARM (COUNCIL BLUFFS, IOWA) 2015* and his earlier rendition *FARM (PRYOR CREEK, OKLAHOMA) 2015* **[fig. 3]**. This approach is based on the assumption that a single materialization might channel the vast, complex and elusive nature of the digital technosphere and bind it within one object – and thus portray it as more real. However, Object-oriented Ontology demonstrates that this reduction is just another instance of 'undermining': "Undermining is when things are reduced to smaller things that are held to be more real" (Morton 2013a, 156).

Both approaches therefore cannot speak to the direct environmental embeddedness, they only reduce a thing downward to its

components, or reduce it upward to its effects. They only create an abstract, distanced vision of something "over yonder" (Morton 2013a, 155) by clinging to the idea of a border-specific territory or the suggestive power of numeric values. But these are both two-dimensional cartographies that are either too big or too small to portray the magnitude as well as the three-dimensional embeddedness of the digital technosphere. They neither account for the 'non-locality' nor for the adherent 'viscousness' (Morton 2013a, 1) of the digital signals that penetrate our world. They might give an idea of the estimated scope or individual shape of incremental parts, but they do not – as maps are supposed to – help us navigate the cloudy, three-dimensional digital environment, because their reductionism fails to illustrate how the invisible digital cloud disseminates across space, and how that dissemination is subject to complex and sometimes unaccountable environmental factors. To refer back to the 'Problem of the Many': Both approaches only concern themselves with the composition of individual droplets, as in the material manifestation of individual nodes in the global network, or focus on the number of droplets that underlie the formation of a cloud, as in the statistical estimation of telecommunication traffic. But neither accounts for the moment of taking shape of the cloud, for its *gestalt* in a three-dimensional environment – because neither makes visible the invisible density level of the digital cloud.

What is needed then is a new view that does not reduce to individual aspects or dissolve the ever-changing flux of material manifestations by means of vague numeric estimates. Especially as public reception to oppressing amounts of data mapping the increasing ecological crises on planet Earth is still at best lukewarm, it might need other forms of representation that do not adhere to strict statistical enquiry and scientific observation. In fact, the unimaginable scale, individual powerlessness and complex interrelationships of climate change seem to be resistant to persuasive public mass media representation – which might explain humankind's failure to counter the alarming trends (Ghosh 2016). It will thus need a strategy that is situated between the far ends of scientific enquiry, which are only oriented towards scales of organisation that reside at the extremes, such as the infinite or the infinitesimal. It will need a representational strategy that helps us think and feel at an inter-dimensional scale, one that stays with the trouble of vagueness and helps us gain a systemic literacy based on 'cloudy thinking': a practice that acknowledges what is dimensional elusive and seeks "new ways of seeing by another light" (Bridle 2018, 11).[7]

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7 Bridle actually intends the *New Dark Age* of the book's title to be read as an opportunity, not a lament. To embrace this opportunity, he argues, we have to give up

Recalling earlier allusions to the way painters of the Romantic and Impressionist era handled the encroachment of man-made clouds, all of this, of course, points to the aesthetic realm. Because the digital technosphere's magnitude, domination and entanglement with other lifeforms has made it unrepresentable, uncontrollable and yet always present, it has become the withdrawn and irreducible object of Object-oriented Ontology. To put its elements in the rhetorical register of Object-oriented Ontology: they are always a surplus unmastered by all our efforts to grasp their properties.[8] Access to it can thus be given in one region: the aesthetic dimension (Morton 2013b, 18). Because in that dimension, there have since emerged artists who have become aware that in order to map something invisible that constantly surrounds one requires a thinking that draws both from previous representational strategies, which create an accessible frame for the audience, but also from innovative practices, which find new ways of letting the individually uncontrollable technosphere depict itself as a quasi-autonomous force of planetary magnitude. These artists represent the new hybrid of the digital cloud age: They are "a fusion of artist, programmer, and complexity theorist" (Johnson 2003, 177). And their technology-driven artworks make us aware of the omnipresent dimensionality of the digital technosphere and show us how digital technology itself has ceased being simply a bridge between the human and the Other and has instead itself become a configuration of the Other that we are equally part of ourselves, namely, the 'dark' Anthropogenic dimension of ecology.[9]

Focusing on one exemplary artistic position, this article will thus make clear that by drawing on previous artistic techniques of the Romantic and Impressionist period, the artistic realm has managed to open up the existing visible and sensible world to other layers of perception, giving a glimpse of the sublime spatio-temporal magnitudes and scales of the digital more-than-human realm since it has become an integrative part of the so-called 'natural' environment.

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pretensions about perfect knowledge in order to develop new modes of access distinct from the predominant functionalism of "computational thinking" (Bridle 2018).

8   Object-oriented ontologist Graham Harman (2019, 18) states that "Heidegger is certainly right that our scientific objectification of a fish or flower fails to exhaust the full depths of these things. Perceiving something directly with the mind does not mean capturing the whole of its reality: no sum total of views of a mountain, for instance, can ever replace the existence of that mountain, any more than the set of all organic chemicals exhausts the existence of their key ingredient, carbon. [...] In Heideggerese, we could say that the being of the chemical or mountain are not commensurate with any knowledge or perception of them; the mountain is always a surplus unmastered by all our efforts to grasp its properties".

9   Timothy Morton (2018) speaks of 'Dark Ecology' in order to include all Anthropogenic meddling in our definition of ecology.

4   Romantic Landscape Painting Revisited

In the eighteenth century, renowned cloud painter John Constable already asked the public to consider landscape painting "a branch of natural philosophy, of which pictures are but the experiments" (Thornes 1999, 51). Similarly, Dutch artist and designer Richard Vijgen asks us today to consider his digitally enhanced interpretation of landscape painting as an ecological technique capable of mapping the embeddedness of the digital technosphere in our 'natural' surroundings. By means of real-time data processing, his 2019 art installation *WiFi Impressionist* **[fig. 3]** "draws electromagnetic landscapes inspired by the cityscapes of William Turner" (Vijgen 2019). Using a directional antenna on a pan-tilt mechanism that monitors local Wi-Fi signals and builds a three-dimensional model of those signals, a viewport and mobile plotter visualise these signals and draw a picture remindful of the *House of Parliament Series* of Impressionist painter Claude Monet. And, indeed, Vijgen himself makes the connection to the tradition of landscape painting:

> Pretty much like a painter would sit down in a field with a canvas on an easel and paint a representation of the view. I took this analogy literally because I felt it was helpful in achieving my goal of imagining WiFi as a landscape of radio signals. Just like visible light, radio is a part of the electromagnetic spectrum. And just like a painting of a landscape is an interpretation of the electromagnetic vibrations (colour), so too is radio, albeit in a different range of the spectrum. (Vijgen 2020, 14-15)

Vijgen thus uses "code, space and pixels to visualise the invisible" (Pittaway 2019). But his artistic mapping of the surrounding ecology is not concerned with showing and listing everything there is to find in the sense of scientific representation. Rather *WiFi Impressionist*'s visual renderings are more "a way of understanding" (Pittaway 2019). Or, in the register of Anna Tsing, Vijgen's attempt at mapping the invisible ecology of the digital technosphere is a way of "thinking with the landscapes" (Tsing 2020, 21), which opens analysis to the invisible multiplicity of the digital technosphere. He thus engages with the idea of the cloud on the level of the metaphorical motif of a complex network rather than the scientific study of visible territorial and local manifestations. *WiFi Impressionist* thus directly engages with the traditional interpretative practice of landscape painting, as it does not depict what is evident but creates a vision of the invisible becoming visible. Because "landscape painting does not depict what we see, i.e., what we notice when looking at a place, but – the paradox is unavoidable – it makes visible the invisible, although it be something far removed" (Straus 1963, 322).

This slight distortion of the primacy of the visible territory is very much the domain of the artistic realm, as art's purpose is defamiliarization, or 'estrangement', as the early twentieth-century literary critic Viktor Shklovsky called it. Using the period technique of landscape painting as a playground or foundation, Vijgen's spectator can see more clearly the dimensional elusiveness and intricate embeddedness of the digital technosphere in the so-called 'natural' surroundings. Yet, Vijgen's appropriation of the landscape painting does not submit to any romantic escape velocity:

> The classic image of Nature is the Romantic or picturesque painting of a landscape. There it is, over yonder – on the wall in the gallery. And it has over-yonder-ness encoded throughout it: look at those distant hills, that branch suggesting that we follow the perspective lines toward the vanishing point, and so on. (Morton 2013a, 72-3)

Whereas the landscape paintings of the Romantic and even Impressionist period allowed the idealized beholder to flee and find refuge from an increasingly demanding and challenging environment that was already infused with technological advancement, Vijgen's traditionalist landscape enframing of the presently operating digital technosphere turns into an act of constant revelation. The beholder is not a "Romantic consumer" (Campbell 1987) but a web user caught in present abstinence: not presently contributing to the digital technosphere in its local Wi-Fi manifestations but engaged in awareness-building appreciation of their own overall implication as a driver of digital expansion. And therein lies a sense of melodramatic and dark pleasure, because the spectator sees the becoming of a representation they could and others are actively creating through their use of the local Wi-Fi networks: "Ecological awareness is dark, insofar as its essence is unspeakable. It is dark, insofar as illumination leads to a greater sense of entrapment" (Morton 2018, 110). This mapping of the Wi-Fi activity therefore also exits the purely two-dimensional sphere of the canvas and engulfs the spectator. And for this reason it also needs not open so far as to require everything to enter the analysis, because effectively Vijgen's installational setup portrays "data interpretations" (Pittaway 2019) as opposed to data visualisations: "The point is not to see the world 'as it is' (whatever that means), but to be faced with the world that we regularly look past" (Bogost 2016, 234-5). The point is to see that part of the world which is hidden to us due to our own complicity in its creation.

5 Renaissance Mural Painting Revisited

In the context of Manifesta 12 in Palermo in 2018, Vijgen also made use of another traditional painting technique: *di sotto in su* (paintings seen from below). At the Palazzo Ajutamicristo, his installation *Connected by Air* [fig. 4] projected a live animated graphic feed of all discernible airborne substances passing over the city onto the Renaissance palace's ceiling. Inspired by the highly realistic *quadratura* perspective, which seemingly extends the architectural space, *Connected by Air* thus created a window that provides "a comprehensive overview of all the data and objects that fill the sky. It includes wireless signals (2G, 3G, 4G coverage), satellites, air traffic (flight patterns), air conditions (particles, dust), and air flow (wind patterns)" (Vijgen 2018).

But the transposition of the *quadratura* and the *sotto in su* techniques not only create the illusion of the opening up of the palazzo's ceiling, it once again also engulfs the spectator. As Frieze art critic Evan Moffitt (Moffitt 2018) writes about the effect of Vijgen's installation in his review of the art festival: "The graphic is unsettling: even on the clearest day, we always breathe in something we wish we hadn't, and there is always somebody watching us". Pre-digital painting analysis, such as Gilles Deleuze's theoretical writings on the art of Francis Bacon, might suggest that "as a spectator, I experience the sensation only by entering the painting, by reaching the unity of the sensing and the sensed" (Deleuze 2003, 31). However, this 'living' digital painting reverses the path of sensation. It rather infiltrates and takes over the space as the spectator realizes the embeddedness of their own position in this dome of radio waves, ozone layers and flight paths (again it also "visualises the wireless activity caused by visitor's devices as they try to connect to the cloud", Vijgen 2018). Instead of seeing the landscape embellished with a sky that is infinite, the spectator is confronted with something that finitely surrounds them:

> Habit tells us that what's displayed on that screen (like projections in a planetarium) is infinite, distant – the whole Kantian sublime. But inside the belly of the whale that is global warming, it's oppressive and hot and there's no 'away' anymore. (Morton 2013a, 132)

The art installation therefore does not map or open up the inner dimension of Hegelian spirits or a Kantian sublime, but it wakes the spectator up to the fact that we are "inside of a gigantic object, like finding ourselves in the womb again, but a toxic womb – but we are responsible for it" (Morton 2013a, 183).

Vijgen's appropriation and reinterpretation of traditional painting techniques is thus more akin to process philosophy in that it helps us

Figure 4 Richard Vijgen, WiFi Impressionist, 2019 © Richard Vijgen.
`https://www.richardvijgen.nl/#wifi-impressionist`

see the high-dimensional digital technosphere by using the algorithmic techniques of plotting and mapping. In fact, Vijgen's artistic concept is one that finally allows the data and digital processing to take over as the parameter-controlling digital set-ups only create the image according to the input of the autonomous agency of the surrounding digital signals: once installed, the artist hands control to the digital 'easel and painter' set-ups, and all that will consequently reveal itself aesthetically on the canvas or the ceiling is left to the activity of the incoming data, which cannot be manipulated by any one individual. The playful interpretation of Romantic landscape and Renaissance mural painting by Vijgen is thus less a reflection about the portrayed landscape but an expression of the autonomous agency and elemental dimension of the surrounding digital signals themselves. As John Black (2002, 136) attests, a Romanticist approach in art can "probe the dark places between subject and object". In the case of Vijgen's appropriation of the Romantic landscape as well as the Renaissance

mural painting, the spectator is consequently shown "a contemporary sky's image as a carrier of people, matter and information" (Vijgen 2018). This image of human and nonhuman activities is thus both ecologically meaningful and constructed by a more-than-human agency.

6 Reconnaissance

As Richard Vijgen's artistic renderings of the digital technopshere show, appropriation of previous artistic techniques allows a greater public

> to spend time with things, to visit with them, to give them a chance to be exactly what they are, [...] that we become continuously blind to them, that we exercise the ability to see them fresh, familiar or not, by refusing to allow them to collapse into servants or obstacles. (Bogost 2016, 351)

Rather than reducing complexity, the metaphorical link between the 'natural' and 'digital' as represented by the cloud and its accompanying reinterpretation of Romantic and Impressionist techniques make the unrepresentable dimension of Anthropogenic interferences more accessible.[10] The landscape motifs created by Vijgen's installations show us the dimension, forces and connections of the contemporary digital technosphere by unleashing them from an unrestrained two-dimensional space onto our three-dimensional spatial awareness. They thus relate the content of ecological issues and relationships to the beholder by way of making use of previous aesthetic practices while also not reducing these digital technologies to singular material manifestions, uses, functions or effects. To quote Timothy Morton once more: "One glimpses in radical environmental art the possibility of a radical openness to other beings, without goal" (Morton 2007, 164). Vijgen's art installations can therefore be regarded as *Bewusstseinsapparate*, as aesthetic 'thinkfeel' devices cloaked as maps to the digital technosphere: their technology-driven renderings make us aware of the omnipresent dimensionality of the digital technosphere and how digital technology itself has ceased being simply a bridge between the human and the Other and has instead itself become a configuration of the Other that we are equally part of ourselves, namely, the 'dark' Anthropogenic dimension of ecology.

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10 It is also rather telling that Friedrich Kittler praised the artists of the Renaissance as 'great' because he deemed them engineers (Peters 2015, 26). This links back to today's commentary that artists like Richard Vijgen are complexity theorists and programmers.

On the basis of Mark Johnson and George Lakoff's work on the importance of metaphors in our perception and construction of the world (Lakoff, Johnson 1980), we can therefore acknowledge that the "meteorological mystique" (Hamblyn 2017, 174) of the cloud metaphor, which already signals an elusiveness and ephemerality in the 'natural' world, can consequently enable us to cope with the sense of incomprehensibility we feel in the face of the abstract global and interconnected local dimensions the digital cloud now traverses. As Mark Johnson (1987, 126; cf. Croyne 1995, 288) elaborates, "metaphorical projection is one fundamental means by which we project structure, make new connections, and remould our experience": it is "our mode of being-in-the-world or our way of having-a-world". It is therefore no surprise, that our fascination for clouds has been rekindled in today's digital world. Just as around eighteen and nineteenth centuries, the Romantics and the Moderns were fascinated by "the changing, the

indefinite, the distant and the unattainable" (Badt 1950, 4), in the twenty-first century the metaphorical worldmaking connected to the cloud has also come to represent "the new leaning towards anything vague, unclear and unbinding" (Kunz et al. 2005, 8). Because "rather than evoking technocratic control, the Cloud evokes the weather. In naming it, we seek not mastery but accommodation with forces greater than ourselves" (Bridle 2023, 159). The metaphor of the cloud can consequently be said to be a way of familiarising oneself with the *dimensional elusiveness* and *ecological entanglement* of today's digital technosphere.

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The Evergrowing Map
A Fluid Account on Cartography

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Abstract   Geography and cartography lay in the intersection between two knowledges, namely physics and geometry. In his book *La naissance de la physique dans le texte de Lucrèce*, Michel Serres shows how geometry – and the consequent static model of reality, on which cartography is traditionally based on – originated from the mechanics of fluid, as fluid was, in the atomistic philosophy, the process of agglomeration and dissolution of things made by atoms. In the last two decades, thinkers like Michel Serres, Tim Ingold, Luce Irigaray and others, have raised awareness on the possibility of conceiving reality on a fluidity based model, in order to better explain the complex, *moiré,* variety of our experience of the world. In front of the problems raised by the rapid changes happening in the physical and biological realm, the model of the world as a static plane on which object are situated and experienced is no longer sustainable, because it is unable to describe and orient human being between the emerging characters of life on earth. A new sensibility to acquire orientation in the multi-faced and multi-layered world goes hand in hand with the one of a new geographical and cartographical description of physical reality. Through the concept of *evergrowing map* this article aims to outline a cartographical strategy of orientation through a fluid conception of the world, based on multilayered representations of the territory rooted in multiple relations weaved by human inhabiting the world.

Keywords   Cartography. Fluidity. Palimpsest. Michel Serres. Maps.

Maps are a tool for orientation and description of reality. They serve to understand one's position and describe the territory one is traversing, so as to reach reliably[1] a destination or goal. However, the idea that orientation can be reduced to knowing one's position in space – the coordinates of one's 'point' on a plane – seems to have reached a turning point: even if the surface of the Earth has been discovered and mapped altogether, thanks also to satellite systems, the space in which human beings inhabit and move never ceases to hold surprises. Half a century ago a forest, an area neither urbanized nor exploited by humans in any way, could be represented as empty territory on a map, just as empty is, even today, the surface of the sea on Google Maps. Today, historical-environmental circumstances, from global warming to the problem of natural resources to the emergency over the staggering decline in biodiversity and the increase of migratory fluxes, call for new ways of representing the earth, new descriptions of reality that allow humans to orient themselves not only on the surface of the globe, but also in the multiplicity of its thicknesses, in the continuous flow of processes at work that compose the reality we experience.

The idea that the truth of space – the concept on which both cartography and geography are based – consists in its homogeneous stillness (Newton 2018, 70) and absence of form, demonstrated all of its destructive potential. Behind such a model, commonly referred to as 'absolute', lies a theoretical framework that goes back to the origins of the relationship between physics and geometry, and which, if we want to lay the theoretical foundations of a different mode of orientation, must be critically retraced. What is more, insofar as traditional cartography carries with it well-defined structures of domination and oppression, seeking new ways of describing and orienting space becomes an opportunity to rediscuss balances of power.[2]

If we exclude for a moment the artistic expertise needed to make any map, cartography can be said to stand at the intersection of two knowledges: physics and geometry, which correspond to the two instrumental needs we mentioned at the beginning, namely, description and orientation, respectively. Either of these poles, i.e., nature (I use this term to indicate the *physis* with which physics is concerned) and the geometric-mathematical system, appear to be absolutes; absolutes in the sense that they do not depend on any particular point of view, or rather on a point of view that suppresses itself as a historical particularity to make room for the stability of numbers and

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1   As Heidegger notices (1984, 20), the nature of the means, to which tools can be ascribable, is in its reliability to accomplish a task.

2   To understand how power is produced and reproduced in and through space, a key text is Lefebvre 1999.

objects. But this same possibility of suppression is not true, from the account that Michel Serres offers in *The Five Senses,* following Leibniz. There's no way (except for God) for an eye to overtake the profile of the single thing and the "coordination with the surrounding visible" (Serres 2016, 46); geometral, in this sense, doesn't mean completely abstract neither objectual, as "the geometral subject, far from perceiving a geometral-object, sees space as the sum of places, while still seeing each thing according to its profile" (47).

Even after at least fifty years of criticism about the absolute paradigm, it seems that today the conception of space as an absolute reality that lies under a world made of objects is still rarely questioned outside academia. Today it's really common to travel in unknown places, for work or tourism, and orientation in those situations is almost-inevitably demanded to G.I. systems, such as the well known Google Maps, that lies precisely on an absolute and uniform plane. Even the possibility of a user-implementation of those maps doesn't move forward the same model: it consist of creating landmarks on the surface, adding information to the plane. But they're not related one another, they don't build a spatial experience but simply stay on the space. The point of view is external, an abstract subject.

This belief in the existence of a static and stable reality for the subject to orient on is the point Michel Serres focuses on, in particular, in his *The Birth of Physics*. In this text, Serres' aim is to understand the nature of that philosophical concept that has always made atomistic physics obscure and, apparently, absurd: the *clinamen*. It consists of the kind of 'wind' that, at a random place and time, creates a minimal deviation and initiates the movement of atoms committed along the original fall by virtue of their mass. According to the French philosopher, this strange phenomenon is far from unthinkable; indeed, far from being the black hole of the atomist system, it constitutes its most concrete instrument, the point of contact between the philosophical system and the world: "a flow always is or becomes turbulent. The *clinamen* is, first of all, the infinitesimal turbulence, *but it is also the passage from theory to practice*" (Serres 2018, 106). The mistake is to consider "the original fall of atoms in the global framework of a mechanics of solids" (23), that is, to think in the terms of static mechanics (which brings together most of modern mechanics) a concept that in the bosom of Greek physics was linked to fluid mechanics. If we think of the fall of atoms not as a set of falling solid 'balls' but as a real laminar flow of atoms composing a fluid, then it is easy to see that the most normal and inevitable thing is precisely the original mixing by which the fall is configured as a whirlwind and not as an ordered bundle. The evaluation and, subsequently, the elimination of the gap that occurs in every fall is the business of geometry. According to Serres, geometry stands in relation to physics as, first and foremost, a theory of evaluated gap

and its overcoming, that is, as a conscious reduction of the experience of the fluid whirlwind to a model, through the elaboration of a "statics of movement" (Serres 2018, 67) based on the idea of the minimum angle as a minimum deviation to get rid of. When discussing Archimedes, Serres' goal is to show that the Greeks "produced rigorous formal systems *and* dissertations upon nature, like two separate linguistic families, or two disjunct wholes" (31): on the one hand, therefore, nature as the absence of a plane, or rather as a laminar plane that continually morphs into whirlwinds in search of the unstable equilibrium of a form; on the other hand, geometry that takes the form of "is a discourse on inequality, which cancels itself out as it grows. It evaluates the deviation, describes it, measures it and brings it back to zero" (39-40). We are faced with a paradoxical reversal of the order with which we habitually think of these two sciences. The geometric, pure, quality-free, metrically ordered plane is understood as an *apriori* of our experience of the world at least since Kant. Consequently it genealogically precedes the physical world of temporal and changing reality. The instrument comes before the substance on which it operates. Serres launches himself precisely against this genealogy in *Le Gaucher boiteux*, where he writes that:

> Anaximander discovered or constructed the indefinite space in which Greek mathematicians, followed by Euclid and others, later and seamlessly, placed the objects of geometry, points, lines, planes, solids and vectors. Assume that such objects, whatever they may be, recede from each other indefinitely; will leave between them the ultimate desert abstraction proposed by the pre-Socratic, and without which nothing in mathematics could ever have been thought. However, a famous fragment of Simplicio declares that the indefinite emerged "at the moment its inventor understood that the elements, air, water, earth and fire, pay each other the penalty and expiation for their mutual injustice".[3] (Serres 2017, 158)

In conclusion, the "Northwest Passage" between physics and geometry, which makes the latter an abstraction aware of itself and of its own debt-fee to physical reality, consists in the permanence of the relationship between objects in space (159), which ontologically constitute the plane through its own presence or present-absence. The atomist void-plane then, even where it resembles the Cartesian, isotropic, proto-modern plane, shares with nature its dependent and relative character. Any space is permeated by a tension made by relations between things (man included) that can be excluded to give

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3 Unless otherwise stated, all translations are by the Author.

rise to mathematical space, but which nevertheless reappears in contact with reality, asserting its concrete, empirical transcendentality (Deleuze 1995). In nature there is no empty, isotropic plane devoid of "operation", rather, the plane itself arises from the operations among the elements acting in what, only then, can become its interior (Jammer 1996, 86). Serres seems to suggest that the plane itself as a static structure has no connection with the plane of reality as a processual, fluid, changing and tumultuous creative process of entities and forms.

It now seems clear that maps, and more generally any system of representation of reality, are not simply pure lenses that return an intact reality, but rather devices capable of producing, reproducing or favouring certain orders of power. In cartographic representation, there is always an ontogenetic, as well as a descriptive, component. The notion of "cartographic anxiety" elaborated by Martin Saxer (2016a, 112) shows precisely the effects that the ability of maps to "create reality in the territory itself" (113) have on the inhabitants of the mapped areas. In other words, the choices made in representing the land affect and shape the land itself. For the same reason, cartography is far from a harmless science. Returning to our present, it is worth asking whether traditional cartography, carrying with it the belief that the world is in its essence a pure space, is an adequate tool for perceiving and guiding us in a world whose complexity is increasingly urgent to preserve.

Let's take a closer look to three kinds of spaces, that for different reasons are now of outmost importance both for the description and orientation of contemporary world. This is not to say that these kinds are the only one to which this article's argument is suitable, I'm only offering examples of situations that well fit this argument and, most importantly, inspired it. The first ones are margins of cities, especially western or western-like ones, that are difficult to grasp, from a geographical point of view, if we rely only exclusively on a traditional map. The division between the main municipality and the periphery ones, mirrors in the co-presence of multiple cultures and historically stratified cultural milieux. In these spaces, the only possible geographical reading is the one that stays in between the fluid encounters of multiple individuals and histories, that are involved in a non-stop process of mutation and adaptation, in which the intervention on space is one of the active forces. A second kind of space can be seen in rural areas, especially the ones that are not involved in massive agroindustrial processes, such as "Mountains in the Middle" (Varotto 2020). In these areas, there's a relevant need of a geographic narrative that is able to highlight the historical backgrounds (and resources) as well as the present demographic processes. People living in those areas can mostly rely on resources and practices that are difficult to transmit and represent through a traditional map, such as pastures with

specific biodiversities (García-Dory et al. 2021), strong and localized artisanal traditions and foodscapes (Fontefrancesco et al. 2023) that are the result of many years of adaptation and dwelling of the space. A third kind of space that can be seen as a possible laboratory for alternative and even critical forms of cartography are the areas where strong migratory fluxes happens. Whether we are talking about seas, mountain passes or zones that precede a frontier. These places need to be comprehended way deeper than what traditional cartography can do. If we agree that the world is not made of static objects put on a surface, then those migratory fluxes and their trajectories are part of the space, and need to be included also as geographical data. As Forensic Architecture frequently demonstrates (such as in the work dedicated to *drift-backs* (Forensic Architecture 2024), boat maneuvers and trajectories operated in the Aegean Sea against people seeking rescue), geography need to broaden its perimeter in order to properly represent and orient a space of conflict, welcoming data analysis, video and textual narrations and innovative visual solutions. For now, we referred mostly to socially-battled spaces, but the same argument works for biologically-battled spaces, often related to climatic processes. Both humans and non-humans are part of the Harlequin costume of the earth's surface, that can no longer be reduced to "virginal coat" (Serres 2016, 237). New tools are needed to orient us in those unprecedented phenomena. This task has a peculiar aspect: we need to draw the map of territories at once very well-known and completely new. The tools used to make it known are no longer of any use because, relying on a static physical reality, they fail to account for the multiplicity of processes at work, which continually reshape the territory's physiognomy and experience.

At this point, the simplest but least usual solution is to return to pose ourselves in the original condition of all mappings and perceptions of space, that is, that of walkers, or, as we shall see later, navigators. With no points on the sheet to indicate the route in advance, "this way of dwelling and understanding the world is based on a 'traveller's path', the experience of land which arises by moving through it, that differs fundamentally from the notion of land as fixed bounded plots, typical of European based perceptions of the land surface" (Johnson 2010, 138). Without having a point to reach, we are forced to draw trajectories "on pen-toe" along the paper and, drop by drop of ink, to build a track (*pathway*)[4] that connects in the same story human and space. This pathway is the starting point of the *evergrowing map* we will eventually arrive at.

Let us return again to Serres' text: we can conclude that, with

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[4] "Rather than a space, the notion of pathway describes a socio-spatial constellation that aggregates heterogenous elements" (Saxer 2016b).

respect to the fluid and manifold variety that originates the world, geometry unaware of its own debt of existence becomes responsible for an annihilation: it in fact offers a set of unambiguous coordinates to orient oneself, a yardstick for measuring the world, but this world and this orientation are inert, dead, they concern a static vision that exists only at the price of killing the space of our concrete experience. Carl Ritter, quoted by Franco Farinelli in the first pages of *Geography*, writes this clearly: "maps stand to the essence of the world as the anatomy of the corpse stands to the living substance of the heart" (Farinelli 2003, 21). It is a practical demonstration that geography, as Farinelli himself writes, tells not only *where* things are, but also *what* they are (37). When this second question is not asked, it is simply because this 'something' is reduced to nothing, to death.

On the geometric plane nothing moves. The world, seen through a traditional top-down map, could die and life could cease, without any change on the map. Entire aquifers, fields and portions of land could cease to produce edible food and water, and yet their cartographic representation would not change. Human beings today are immersed in exactly these kinds of changes and it is within them that they need to orient themselves.

It is not true that traditional maps are drawn from God's point of view. The "extraterrestrial" point of view (Calvino 1984), has nothing of the divine one that Leibniz described as the totality of all profiles simultaneously. Perfect perpendicularity does not consist in the multiplication of viewpoints, understood as the sensitive and perceptual (not only visual) nodes from which knowledge of the world is articulated, but in the indistinct departure from the perceptual ecosystem and thus, literally, near-death.

How did it happen that the descriptive requirement of the physical nature on which the map insists was overridden by the geometric one, related to orientation? It is necessary to concentrate on the moment when the reversal in the genealogy identified by Michel Serres becomes taken for granted. This moment, if we were to identify it precisely, I believe may consist in the words with which Newton calls absolute space, that is, precisely that desert, empty and isotropic space, "true space" (Newton 2018), addressing the other as "relative space". Many authors have identified the English physicist as the turning point that leads directly to the Kantian perspective, in which the plane of absolute space becomes the foundation of experience and no longer, as in the atomism with which Serres is concerned, the derivative by subtraction of an eternally moving function. It was this revolutionary step that opened the door to modern cartography as we know it. Here, too, description (absolute space as true space) and orientation (man as a point in neutral space, orienting himself thanks to a coordinate system outside the world) go hand in hand.

The real problem we face today is that the plane on which we have for centuries undisturbedly placed objects, roads, our own bodies, has proven its agency. In other words, it has proven to be null and void (and dangerous) if the processes that shape it are not taken into account. This sort of muteness into which, suddenly, the main support of the cartographic tool has resolved itself is well demonstrated by a series of works by artist Luca Vitone entitled *Carte atopiche*, belonging to his very first production.

If we take away from maps their toponyms, that is, that element which in its complete conventionality robs maps of their objective character, all that remains is a dumb and useless sheet of paper. What remains is pure space, pure representation that achieves the opposite result from the desired one of describing and orienting reality.

The agency that space demonstrates when considered in conjunction with the processes that constitute it had already been highlighted, with regard to urban space, by Michel De Certeau in his *The Practice of Everyday Life* (1984). Reacting to the failures of modernism and focusing on the concrete dynamics by which space is inhabited in

urban contexts, the French author had highlighted the fact that space is never neutral. On the contrary, every urban choice, every closure and every opening of the inhabitant's possibilities for action, affects the life and political existence of individuals and the community. As in De Certeau's text, today the surface that is highlighted by traditional cartographic representation matters less than any other aspect of our experience of the world: less than the richness or poverty of the soil, less than the healthiness of the aerial medium of the biosphere, less even than the sky and its role in the continuation of life.

Awareness of this irreducibility of the physical world to surface also means openness to a new human experience of space. Today there is a need to rethink the 'force' of space, which rebels against its simplifications, the processual thickness that is revealed in the nature of every surface; and cartography can help to represent this possible need.

Michel Serres has reflected extensively throughout his oeuvre on the notion of fluidity, understood as a true expression of the consistency of the world and experience, to such an extent that she has defined his own work as a "navigational map-a mobile and floating inventory" (Latour 1992, 105). But he is not the only one. The debate about the possibility of perceiving the world as a set of fluid flow processes that stochastically and momentarily shape what we call objects has involved several thinkers in the physical and human sciences. For example, Tim Ingold who, in much of his output, has reflected on how forms are generated from flows: "If there is regularity in the form of the artefact, it comes from the fluent rhythmicity of the movements that gave rise to it" (2013, 45). The very notion of line, fundamental to his thought, is nothing more than a tool for modelling such fluidity. The earth, the *geo-* of geography, is composed of folds, of forms in which flow is structured and deconstructed – not by objects placed on a surface. The mountain is not an object on the earth's surface, just as the path is not a line drawn on the earth, but both belong to the earth itself: the forms are the handwriting of the flow of the earth's material life. As Perullo writes, "the life of beings is a flux that is born, develops, and continually transforms itself among masses, spirals, tangles, and crossing/running lines not on the surface of the world but in it, in the sense that it is this incessant process that constitutes it" (2016, 404). Ingold himself spoke specifically about how solidity is to be understood as a particular state of fluidity, and not vice versa (Ingold, Simonetti 2022). Luce Irigaray showed how metaphysics, understood in heideggerian terms as the being of the entity in the age of technology and nihilism, is intimately linked to the solid earth and 'evaporates' in contact with an element as widespread and fundamental as unthinkable, air:

> Metaphysics always supposes, in some manner, a solid crust from which to raise a construction. Thus, a physics that gives privilege to, or at least that would have constituted, the solid plane. Whether philosophers distance themselves from it or whether they modify it, the ground is always there. As long as Heidegger does not leave the "earth", he does not leave metaphysics. The metaphysical is written neither on/in water, nor on/in air, nor on/in fire. Its *ek-sistance* is founded on the solid. And its abysses, whether from on high or on low, doubtless find their explanation in the forgetting of those elements that do not have that same density. (Irigaray 1999, 2)

Such perspectives hinging on the physical notion of fluidity have the great merit of trying to account, at least in theory, for the complex system of mixtures, contradictions, causes and effects of which we suddenly find ourselves too little aware actors. Climate issues for example are as much about air as they are about land, as solid as they are about air and liquid. We are being pushed in the direction of an unthinkable future, and the force that pushes has nothing of the static mechanics, but is enacted through a patchwork of elements that, at a distance, seem to us unreadable and incoherent, confused.

Part of this difficulty in consciously reacting to a fluid system of forces stems from "distantism" (Clark 2017), upon which our perception of reality and much of cartography are based. Space is essentially a seen space, that needs distance to be perceived; there is only little room for the other senses in cartography. By remaining at a distance, however, the relationships we can have with the world, which are mostly sensory, diminish dramatically (Serres 2016; Levin 1993).

At this point we need to ask whether and how it is possible to imagine cartography and geography of physical reality viewed from the standpoint of fluidity. The explorer Robert Shaw writes "after all, we do not desire to know a country in order to map it, but we map it in order to know it" (Shaw 1871, 18): cartography has always been used to control – a subject reducing a territory to an object of knowledge – but now, in the irreducible multiplicity of the world's thickness, any purpose of control fails and any static grid becomes useless. Meanwhile, the ontogenetic power of cartography can be useful to rethink cartography in a political way. If we know that description, as well as orientation, is never pure and detached, then is possible to orient geographical enquiries toward descriptions and orientations that work as agents for the spaces they insist on. At the same time, geography can be used to create awareness and self-representation of communities that live in certain areas (of the kinds that we mentioned before), opening to co-projection of maps and spatial accounts.

It is necessary to ask how we orient ourselves in this fluidity. In this regard, there is one point on which all the thinkers we have cited,

from Ingold to Serres, via Heidegger, De Certeau and Irigaray, agree: the internal point of view, that means to put attention on the geographer, as well as the user, as a part of the description. It is summed up well by the geographer Eric Dardel, when he says that geography is based on the link between man and earth: "geographical science presupposes that the world is understood geographically, that man feels and knows himself to be linked to the earth as a being called to fulfil himself in his earthly condition" (1986, 38). This means never leaving the position of the walker, the explorer that with "attentive observation" (Erlwein, Gandy 2019) dwells an unknown land, or an unknown aspect of a land, with the aim of describing and orienting. Again, leaving the idea that there's a static surface to rely on, distractedly. There follows a passage where it is well understood how the work of the geographer, of the Dardelian geographer, is inextricably linked with closeness to the land and its variety:

> Everywhere geographic space is carved into matter and diluted in a mobile or invisible substance. The pure space of the geographer is not the abstract space of the mathematician: it is the blue of the sky, the frontier between the visible and the invisible; it is the emptiness of the desert, the space for death; it is the frozen space of the dock, the torrid space of Turkmenistan, the mournful space of the heath under the storm. (Dardel 1986, 16)

Without this connection, which takes the form of a feel-a-part of the earth and space one's working on, there is no possibility of navigating at the heart of Harlequin's costume. So first, internal point of view.

Second then, relationship. Relationship that can only arise from a sensitive, and not solely visual, involvement with the world. We can no longer consider ourselves inhabitants of an empty desert, of a surface in itself devoid of quality. Although the earth in the not-too-distant future might, according to many estimates, increasingly resemble a desert, this would not mean that a desert cartography would become more real. On the contrary, it would be up to us to realize how much richness and affordances there are of the desert, or we would not be able to survive. To orient ourselves in search of these resources we will certainly have to change the map. We have talked about the relational origin of geometry: relationships, seen simultaneously, produce a fabric. Not a fabric already made, however: we must not imagine, once again, a grid made and finished that overlaps the territory, but a fabric that is ceaselessly being produced, on which we always position ourselves on the end yet to be spun, at the limit. The same limit with which Aristotle identified place itself in his physics. Map and territory are no longer the central point: the very point of view from which these two elements can be separated is lost. Relationship means attention, it means alertness of the senses to have as much

data as possible, feel as close as possible to the earth. As we already pointed out regarding the work of Michel Serres, building a dense net of relations out of our sensible experience is the key element for experiences a spatial horizon that doesn't fall into abstraction. The possibility of orientation in a fluid world begins from the active perception of what is around, in order to insert the geographer (or the men existing geographically, in Dardel's words) inside, and not outside, the map. In this sense we can speak of an *evergrowing* map, because it perpetually needs intervention and active perception to work, and grows preserving a trace of its own past.

It's a continuous putting into play: returning walkers, or navigators. The navigator never goes straight, but responds through continual crookedness of the rudder to the angles that the fluidity of the sea presents to him, only then can he follow his own trajectory. Like him, the walker responds to the constant obstacles of the terrain, which require him to adjust his course, to change course, to recognize the tracks and resources the path offers. Both the navigator and the walker are always immersed in the environment they're traversing, ravenous of significant relations with the space that can show them the orientation for their next move. It is clear how this perspective is marked by a strong limitation: it never goes beyond the openness around us, but

> to inhabit the earth does not mean to nestle in a place, but to inhabit a space that opens between a here and a there, it means to traverse this space in all senses. The spatiality of existence is movement, not rootedness. (Besse 2008, 116)

The evergrowing map is not something to be simply read, but more of something to participate and join.

In this continuous movement, what stays on the map is, more than a plain, the vectors of which Serres speaks about in many occasions (2016; 2017; 2018). Vectors between what? Between names, icons, sensitive similarities that "take as a maionnaise" (Besse 2008, 111) only in contact with the things we depend on for our relationships. A cartography independent of the human, understood in its sensible being-a-thing, is a cartography independent of the world, which is exactly what we are trying to distance ourselves from. Vectors instead of static realities, signs that connect places and things and that compose space. The sum of these vectors is a layering of lived experiences that linger in relationships. To orient oneself in a fluid reality requires multiple layers, and so the evergrowing map consists of multiple layers of the same area, that give thickness to space not only in a stratigraphic sense, but in a way that conjuncts social, biological and historical realms. Each layer corresponds to a point of view, a gaze in motion and in a perpetual state of dependence from the others. As

written by Simonetti: "Maps are always the result of a specific perspective of space since we are never able see the world from everywhere at once" (2018, 70). Clearly here endless possibilities open up for the artistic component inherent in cartography, for each palimpsest can be composed of sound, literary, graphic, olfactory and so on. Each, partial. Through vectors, time can appear in space, overcoming the paradigm outlined by Simonetti, in which space is a surface of simultaneity while time can be seen only in the vertical overlapping (76). Vectors can be signs of simple movement, or can take the form of narratives that creates "trails of story" (Johnson 2010).

To get a model of this conception, one need not go far: just look at how we experience our homeland, understood, in Tuan's sense (2013, 149), as the inhabited space theatre of livelihood. Overlaid in it are tactile, auditory maps, tales of the past, memories, and plans for the future. No piece remains pure, detached. The synchysis (Bosca 2023) of all this is a kind of manifold narrative, capable of traversing space in all its fluid thickness, without falling in a simple stratigraphic model. It is an awareness reserved for inhabitants, for those who can have a stable as well as a deep relationship with a ground. But is it not then true that the need to know a territory without inhabiting it is at the heart of the colonial enterprise? Doesn't it consist in reducing the active multiplicity of a place to a static plane on which to intervene?

There is no single work of art or research that represents the idea of evergrowing map, for two reasons. The first is that it is a concept that requires further research and attention, the theoretical basis for which has hopefully been laid in this article. Consequently, the hope is that the suggestions contained therein may generate not only more reflections about it, but also focused research in the context of contemporary art. The second reason, on the other hand, is more of a theoretical order and concerns the possibility that this evergrowing map is itself multiple, like a synchysis, a mixing and copresence of multiple maps. An open concept or, to use a figure dear to Michel Serres, a *character*, that keeps moving and operating whenever it becomes part of an encounter with a reader or, in our case, a traveller. If this is true, if evergrowing map indicates a multiplicity of readings of space united by the tendencies outlined throughout the article, then there are some artistic elaborations that can give an idea of what we are talking about. Some examples were given at the beginning, I am thinking in particular of the research of Forensic Architecture, which through a process of graphic and arithmetic processing of data, offers interesting spatial perspectives referring to situations of geopolitical conflict and humanitarian emergency.

An entirely different work is that of the Inland collective, engaged for years in research on the theme of pastoralism and food production. Its centre is a village in northern Spain, whose location
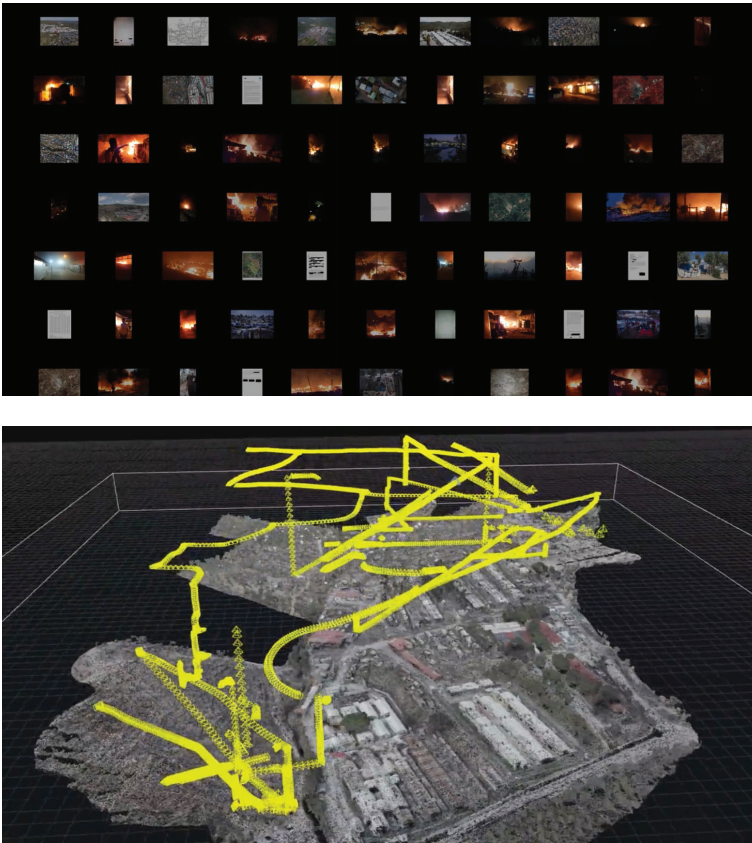
Figures 2-3 Screenshot from Forensic Architecture, "Fire in Moria Refugee Camp", 03/2023

is unknown, but whose geography continues to be enriched through all the projects the collective puts forth, from those related to honey and bees to those related to cheese, such as the recent pavilion exhibited at documenta fifteen. While not revealing the location, Inland's works related to the village manage to give an orientation within the history of food production in that area, highlighting the geographical and biological characteristics of the space, aimed at raising awareness towards rural areas. A similar operation, but referring to a marginal urban space, has been carried out for years by the collective Stalker, Osservatorio Nomade, which organizes collective walks and crossings of those areas of the Italian capital that would otherwise be invisible or, at most, marked by a simple name on a map. By walking, together, and making themselves available for encounter, the paths designed by Stalker are able to orient and describe shadowy
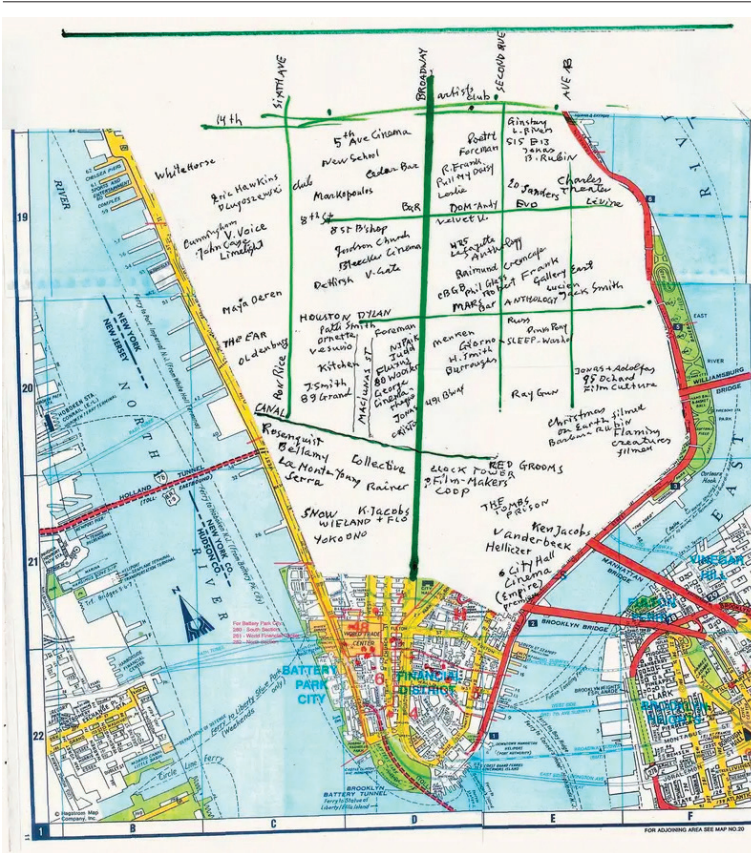
territories in a profound way. *Terra Forma* also offers a rich variety of visual elaborations of space, that try to bind together space and the processes that constitute it (Aït-Touati et al. 2022). There are also several artistic interventions that have maps at their core: for example Jonas Mekas overlaps the map of New York with the spatial locations developed by his memory in *A Map of 1969s New York from Memory*; or, on a totally different approach, Andrea Zanzotto, that gives life to a simply-drawn map of his *heimat* through words that proceed along specific trajectories in space.

In conclusion, it is worth remembering that what comes closest to the idea of evergrowing map is not a single one of these maps, but rather their co-presence, their joint tension to multiply the possible readings of space. Map, in this sense, remains a verb rather than a noun, as a continuous attitude of mapping, reading and rereading,
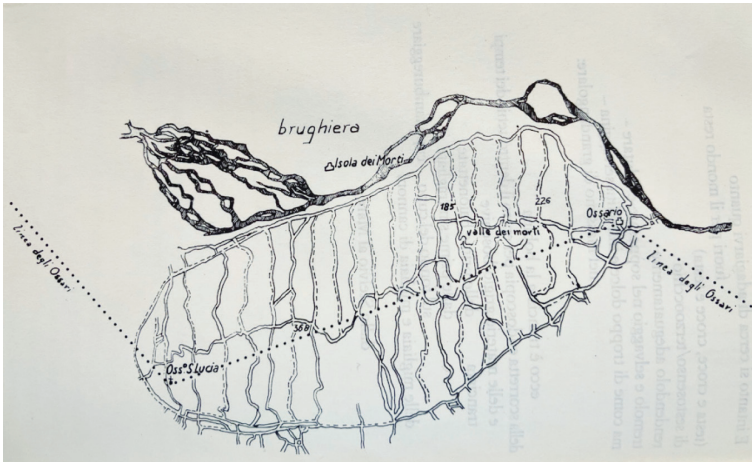
Figure 5   Andrea Zanzotto, *Le poesie e le prose scelte*. A cura di S. Dal Bianco e G.M. Villalta, Milano: I Meridiani Mondadori, 1999

rather than delimiting and establishing a single reading. This reading ties in with recent criticisms from Non-Representational Theory, summarized by Kitchin as "space can be seen as a verb, rather than a noun" (2009, 270). One of the actions of the verb is, probably, mapping the "dynamic simultaneous multiplicity" of space in present "spatial times" (Massey 2005, 177).

The *evergrowing map* is this continuous overlapping of layers of territorial knowledge, the continuous intersection of viewpoints situated along ever-changing trajectories. It is a map where no point is drawn before the pathway arrives to it. A map that is born like a tree, rather than a spider's web, and that, like a tree, is capable of maintaining its structure and usefulness even in the aftermath of the severe shocks we will inevitably encounter in the future into which we are venturing. A map that gives an account of gestures and movements, more than of a supposedly stable reality. To read it is to participate it, both in the encounter with the past and in the necessity to continue the walk in the future. Time stays in the correspondence. As Giuseppe Penone writes:

> Fossilizing the gestures that have developed in a space
> brings humans closer to plants forced to live
> eternally under the weight of the 'gestures' of their lived experience.
> Is not permitted to the tree to forget: it is its contortions,
> its balance, the harmonious distribution of its masses,
> its static perfection, the freshness of its shaping,

the purity of its structure combined with the compact character
of its bronze surface, making it a living sculpture.
Producing a column made of overlapping gestures
is like building a tree.
Forging and fixing the lines of force of the blow at a point,
taking into account the set of actual and probable breaths
that has place in this space, is to produce a sculpture.
By imparting a rotational motion to the chin that grasps and holds,
and to the lip that licks and pours, you get a vase.
(Penone 2022, 113)

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Biston Betularia Carbonaria
Repopulating Maps
with Climate Monsters

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Abstract   The monster appears in geographical texts throughout the ages as a 'guardian of the border' that defines the limits of the possible, inducing action or averting behaviour and restricting movement for political or economic purposes. Through a philosophy that uses unorthodox means, I intend to present a climate monster by which, based on a possible imagery about the current climate crisis, an invitation for a change in our habits is produced. I propose that repopulating maps with situated imaginary monsters can deploy specific education of attention that invites focusing on concrete aspects of our surroundings. To do this I will present the mixed media art project *Biston betularia carbonaria,* an eco-distopia created in collaboration with the photographer Valeria Scrilatti.

Keywords   Monsters. Maps. Eco-dystopia. Climate change. Biston betularia carbonaria.

Summary   1 Art, Cartography, and Climate Change. –2 Monsters and Borders. –3 Monstrous Education of Attention. – 4 Globes, Maps, and Zombies. – 5 *Biston Betularia Carbonaria*: Experimenting with an Unorthodox Philosophy to 'Summon' Climate Monsters. –6 Globalgothic: All Roads are the Same.

1 Art, Cartography, and Climate Change

> Remember now, my Love, what piteous thing
> We saw on a summer's gracious day:
> By the roadside a hideous carrion, quivering
> On a clean bed of pebbly clay,
> Her legs flexed in the air like a courtesan,
> Burning and sweating venomously,
> Calmly exposed its belly, ironic and wan,
> Clamourous with foul ecstasy.
>
> Charles Baudelaire, *A Carillon*
> (Allen Tate's transl.)

> "Would you tell me, please, which way I ought
> to go from here?"
> "That depends a good deal on where you want
> to get to," said the Cat.
> "I don't much care where—" said Alice.
> "Then it doesn't matter which way you go,"
> said the Cat.
> "—so long as I get somewhere," Alice added
> as an explanation.
> "Oh, you're sure to do that," said the Cat,
> "if you only walk long enough."
>
> Lewis Carroll, *Alice's Adventures in Wonderland*

This proposal is situated within the framework of the philosophy of the embodied mind, experimented here with unorthodox means, that is, not usually used in academia. Specifically, through mixed-media artwork, I will use the figure of the monster in relation to the cartographic medium to develop reflective and imaginative processes in favour of the environment.

Cartographers have always operated at the intersection of art and science (Ribeiro, Caquard 2018). In Ancient Greece, cartographers were influenced by scientific procedures based on geometry and astronomy (Brotton 2014). Western medieval maps used artistic techniques to reinforce religious and mythical beliefs about the world (Zumthor 1993). During the Renaissance, maps played a key role in the purposes of exploration and colonization, and it was in that context, according to Denis Wood (2010), that modern Western cartography would be born, that is, during the period when nation-states and formal sciences in the academies were becoming established. Parallel to a scientific-functional shift in cartography, artistic practices began to make increasing use of maps. Exemplary in this regard is the work of Jan Vermeer, who, beyond his paradigmatic *The Geographer* (1669), in which the subject is a scholar immersed in his research, manifests throughout his production a genuine obsession with cartography.

When there were no more spaces to explore in the early 1900s, artists' interest became focused on unveiling the political power of maps, and on imagining new and alternative ways of orienting oneself

in space and visualizing it. Wood calls this new approach "map art" (2010), which can be defined as mapping enacted by artists to challenge conventional cartographic practices. Central in this sense is the experience of first the Dadaists and Surrealists, and then the Situationists.

In Paris, on 14 April 1921, the Dadaists met in front of the church of Saint-Julien-le-Pauvre. From there began the first of a series of urban excursions to 'banal' places in the city. This was the inauguration of a series of experimentations that over the twentieth century have from time to time taken on specific characteristics defined by terms such as 'visits', 'deambulations', and *dérive*. The Dadaists with their visits that took them to insult places in the city, in addition to producing a desecration of the idea of art, enacted an absurd and anti-modern wandering in the footsteps of the Parisian *flâneur*. With surrealist deambulations, on the other hand, the aim was, through a state of loss of control and hypnosis, to reveal the unconscious zones and the 'repressed' of a territory. Also on the Surrealist side, the experimentation related to alternative ways of crossing and visualizing territory takes the emblematic form of *Le monde au temps des Surréalistes* in which nothing is described in the usual ways, every aspect is distorted and difficult to recognize. Realized by Paul Éluard, one of the founders of Surrealism, and published in a special edition of the Belgian Surrealist magazine "Variétés. Le Surréalisme en 1929", it was intended to challenge the imperialist and Eurocentric representation of the world (Wood 2010). Another example is the *Inverted Map of South America* (1936) by a former member of the Surrealist movement the Uruguayan artist Joaquin Torres-Garcia who precisely developed a map turned upside down from cartographic standards. The purpose was first to question the practice of placing the South at the bottom of any map as opposed to the North positioned in a dominant position that defined a hierarchical relationship. Second, it was intended to support the idea that cartographic art and processes should be created from the bottom up.

The practices pioneered by the Dadaists and Surrealists would be systematized by first the Letterists and then the Situationists in the mid to late 1950s. A key term for the Situationists is *dérive* which stands for a walk with a playful and collective character without a defined itinerary characterized, however, by precise rules. Through such ludic exploration, it is possible to free oneself from habitual orientation procedures and enact *détournements* i.e. subversions and reversals. The psychogeographic practice is thus defined: according to Situationists, through it can be explored the potentially imaginative relationship between individual behaviour and urban space. It is precisely from this notion that two emblematic maps are made by Guy Debord, a pivotal figure in the movement. In 1957 is the first real Situationist psychogeographic map, *La Guide psychogéographique de Paris*

designed to be distributed to tourists who were invited to get lost. In this guide Paris is divided into pieces and connected by arrows based on psychogeographic surveys, that is, the city is reimagined from subjective experience, as a result of the psychic effects that the urban context causes on the individual. Also from 1957 is *Naked City*, which takes the form of a collage in which Paris is reassembled through unusual routes in a chaotic manner, stripped of utilitarian grids: through psychogeographical *dérive* the Situationists naked the city and playfully reimagined the territory (Pinder 1996; Corner 1999).

Situationism occupies an eminent position regarding explorations of the relationship between art and cartography in the context of the twentieth century and has strongly influenced several contemporary art practices guided by similar activist agendas (Kvas 2014). Just think, as we shall see in a moment, of the influence it managed to exert in the following century on Locative Art, which operating within and in opposition to Media Art is particularly concerned with mapping and processes of questioning everyday orientation.

At the turn of the twenty-first century, the transdisciplinary dialogue between artists, scientists, and cartographers has further intensified. If we want to identify some key moments to indicate the beginning of a renewed interest in cartographic issues, we should first refer to the 1990s when the U.S. government liberalized GPS signals, and to 2005 when Google introduced its GeoTools – Google Maps and Street View – and Apple launched the 3D iPhone through which geospatial data could be used. From now on, digital cartography can be explored and manipulated by users through informatic devices that will become more and more widespread as the years go by. This means that data and images are available to anyone and provide material for critical and creative experimentation.

Many artists, moving from the field of so-called New Media Art or Net Art – a genre that includes artworks designed and produced employing multimedia technologies –, have used the cartographic medium to investigate processes related to globalization, climate change, pollution, migration, surveillance or the acquisition and use of biometric data. Particularly interesting in this regard is the so-called Locative Art, in which location-based mobile technologies for satellite tracking and navigation services are employed. Locative Art that arose in the early years of the new millennium, while emerging in the context of New Media Art, stands in opposition to it in that it challenges the disembodied, screen-based experience that the latter promotes. Locative Art's emphasis is on the reappropriation of space through active intervention and exploration of territory. New practices related to Locative Art emphasize the possibility for the user to actively enter the chain of networked connections and thus the cultural production of the systemic device. The main purpose is to question the techniques of viewing, filming, and tracking and their impact on everyday practices.

Within this subgenre operate collectives such as Social Fiction, Blast Theory, and Proboscis, and artists like Christian Nold, Teri Rueb, Masaki Fujihata, Stephen Wilson, and Jeremy Wood. Emblematic in its simplicity is a project by the art collective Social Fiction entitled *.walk* (dot-walk) awarded at the 2004 Transmediale media-arts festival in Berlin. *.walk* combined computer code and urban exploration in which participants left the gallery to follow a randomly generated path through the city. Such a project emblematically enacts the main instance of locative art, which consists of leaving deputed places, detaching oneself from the screen, and actively exploring the city to remap it.

Locative Art encompasses a range of heterogeneous practices with ubiquitous manifestations. Such practices may operate at the boundary of data art – in which is data, and in this case, geodata, that is employed as the material of the work –, or they may be enacted to develop georeferenced digital storytelling in which Google Street View images are used, or they can be employed to bring geofiction to life in which new maps are manipulated and created, or they can be put in place to develop deep mapping processes in which a wide range of geographical information from fiction, art, stories, and memories associated with places is employed.

Following the general subdivision proposed by Marc Tuters and Kazys Varnelis in the essay *Beyond Locative Media* (2006), it is possible to distinguish within this subgenre between annotative and phenomenological mapping practices. This distinction is made based on the terms *détournement* and *dérive*, which are central to the explorations of Situationism, the inspirational movement of Locative Art. Annotative practices, which would inherit the subversive instances of *détournement*, are characterized by the fact that they add data to change the world – as we shall see, this is where *Biston betularia carbonaria*, the artwork presented here, stands. Phenomenological practices, on the other hand, are characterized by the fact that they aim to trace the subject's actions in the world. Adopting the mapping and wandering tactics of *dérive*, such practices invite the re-inhabitation of this world by escaping the utilitarian trajectories already established. Annotative projects have a strong demystifying charge, while tracking-based projects seek to use technology to stimulate highly underutilized everyday practices such as walking or occupying a public space.

The direct filiation with the avant-garde movements of the twentieth century is underscored by Tuters and Varnelis, who note how artists working within Locartive Art insist "not only that their work is capable of creating a paradigmatic shift in the art world, but also that it can reconfigure our everyday life as well by renewing our sense of place in the world" (2006, 358).

One of the most pressing issues today for which we are actively called to reconfigure our lives and thus renew "our sense of place in

the world" is the current climate crisis. As the 2023 report of the Intergovernmental Panel on Climate Change (IPCC) shows, the last century has seen a global average temperature increase of 1.1°C compared to the pre-industrial period. The main cause is attributed to the use of fossil fuels, unsustainable energy practices, and land exploitation. This has led to an intensification in the frequency of extreme weather events such as floods, droughts, storms, and fires that threaten our survival and that of ecosystems. Associated with these scenarios are sociopolitical events related to climate migration, social polarization, inequality, and enhanced exposure to death of economically marginal populations. If global warming is to be limited so that it does not exceed the pre-industrial level of 1.5°C, ambitious actions must be taken now to cut greenhouse gas emissions by 2030. Remedies implemented so far to counter the climate crisis have been inadequate. Increasingly urgent is the call from many fronts for artists, researchers, and scientists to develop a dialogue and join forces with the aim of enacting effective interventions to bring about real change (Tsing et al. 2017; Kaaronen, Rietveld 2021). There are many practices in which artists operate based on environmental instances (Davis, Turpin 2015); given that cartography has always fostered encounters between artists and scientists, it seems to stand as a privileged place to enact the much-invoked dialogue. In this sense, practices related to Locative Art seem to allow very promising heterogeneous experimentations.

Particularly significant is the work of Natalie Jeremijenko, an artist and engineer with a background in biochemistry, physics, neuroscience, and precision engineering. Her work focuses first and foremost on exploring the relationship between society, environment, and technology. Consider, for example, *Amphibious Architecture*, a prototype created in 2009 by Natalie Jeremijenko's Environmental Art Clinic at New York University in collaboration with Columbia University's Living Architecture Lab, and then developed as public art at Glenorchy Art and Sculpture Park (GASP) in Australia. *Amphibious Architecture* is an interactive light array of 20 high-tech polycarbonate buoys that, through a sensing system, illuminates through coloured lights in the bay making visible dissolved oxygen levels in the water – which is an important indicator of estuarine health. In addition, more information can be acquired from visitors via SMS. The project, in this way, makes visible what is usually invisible. The *Amphibious Architecture*, by creating a poetic map of pollution levels, aims to promote a multi-layered dialogue between humans, fish, and their shared environment.

Another emblematic case, especially as part of a practice in which multiple disciplines intertwine to foster interventions that transcend the art world, is *Cloud Studies* created by the research centre Forensic Architecture. The collective, led by founder Eyal Weizman,

consists of architects, engineers, lawyers, and activists. Their work investigates space using video, archival images, and maps to produce and present spatial evidence within legal, political, and cultural contexts. In the video installation *Cloud Studies*, the collective, using numerous case studies, tries to bring to public attention data, images, and maps that account for how petrochemical emissions or forest fires infest the air that millions of people breathe. Originally produced for the exhibition Critical Zones: Observatories for Earthly Policies for the ZKM in Karlsruhe, the work has been presented in various exhibition spaces including the 12th Berlin Biennale.

An extremely significant other work is *A quiet desert failure*. The project was started in 2013 by artist Guido Segni, who programmed an Internet bot (a small program that automates the execution of actions to be performed on the web) that can take images of the Sahara Desert from Google Maps and post them on a Tumblr blog, one image every thirty minutes. The project will have to last at least 40 years. *A quiet desert failure*, in addition to mapping the progress of an otherwise invisible process, will show the inadequacy of the technological means used to develop it. This is because, in all likelihood, the technological means used will become obsolete within the time frame envisioned for the development of the work. *A quiet desert failure* highlights how, although technologies are becoming increasingly sophisticated, they may not be able to withstand climate upheaval.

2 Monsters and Borders

The presence of what is completely out-of-the-ordinary or more-than-natural manifests itself within our form of life through the figure of the monster that emerges in stories, dances, songs, and rituals in every age and every culture. The monster has held and still holds disparate functions. My purpose in this paper will be to experiment with its imaginative functioning within *Biston betularia carbonaria*, a mixed-media artwork created in collaboration with photographer Valeria Scrilatti and articulated from an eco-dystopia that uses the map medium as a site of exploration.

Thesis V of Jeffrey Cohen's seminal text *Monster Theory* argues that "the Monster polices the Borders of the Possible" (1996, 12). The monster is placed at the edge of our knowledge, on the margins of what we master, on the limit of what we can do, and beyond which we cannot venture. From that threshold, the monster "stands as a warning against exploration of its uncertain demesnes" (12).

Crossing the boundaries set by monsters can involve making ourselves vulnerable to their attacks or becoming monstrous ourselves. This is precisely the case of the first werewolf in Western literature, the Lycaon, king of Arcadia, who, as Ovid narrates in the

Metamorphoses, was guilty of violating the bond of trust that binds host and guest, first by trying to kill Jupiter while he was sleeping in his house, and then, the next day, serving him the body parts of a hostage as lunch. Jupiter then transformed Lycaon into what Cohen calls "a monstrous semblance of that lawless, godless state to which his actions would drag humanity back" (1990, 13). The king of Arcadia deprived of the use of speech began running through the fields howling and hurling himself at sheep to feed on their blood.

The same happens with its 1990s film version of John Landis's *An American Werewolf in London*, where the main character David, fleeing and thus leaving his travelling companion John alone in the face of danger, is guilty of breaking the pact of friendship and rescue. David, having become a werewolf throughout the film, will embody the loneliness and social and emotional isolation that he has enacted.

As Cohen explains, there are monsters born of political expediency that prompt action, and monsters of prohibition that control boundaries and interdict certain behaviours (1990, 13). This is the paradigmatic case of medieval merchants who, to discourage certain routes with their potential trade and thus establish a monopoly, purposely spread maps dotted with the presence of sea snakes (13). The prototype of the "'geographic' monster'" (14) in Western culture is represented by Homer's Polyphemos. Cyclopes constitute the "quintessential xenophobic rendition of the foreign" (14); devoid of community, savages with atomized lives, they inhabited a space outside of civilization as ancient Greeks understood it. Cyclopes embodied the fear of losing one's status as a human being: Greeks, educated within a deindividualizing society in which identity was determined by one's function within a system, were terrified of being swallowed up by the monster of individuality, literally incorporated within a different form of life.

September 2025. A melanic form of peppered moth – *Biston betularia carbonaria* – on a charred birch trunk in Athens. *Biston betularia* is a lepidopteran moth widespread in Eurasia and North America that occurs in two main chromatisms: the white form (*typica*) and the melanic form (*carbonaria*), which has dark-colored wings instead. *Lepidoptera* comes from the Greek word 'Lepis' meaning 'scale', and it refers to the typical 'fur' that covers the body of moths, which is actually made up of thin scales made of chitin, a keratinous material that makes up the Arthropods' exoskeleton.

The monsters we encounter today in popular mass culture have inherited, to some extent, the police function of respect for boundaries, characteristic of their ancestors. Such contemporary monsters, however, are alienated, that is, placed on the margins of everyday life, relegated to designated places where we are called upon to enjoy them, according to that division between imagination and reality that characterizes the modern age (Ingold 2022). Among the countless examples that embody this police role, albeit in some ways depowered, particularly emblematic is the case of Ron Underwood's 1990 film *Tremors*. In this blockbuster movie, that later would spawn a famous franchise, some monsters – hungry giant earthworms – with their attacks, with their menacing looming over people's lives, literally define a boundary by forcing the characters to stay within the perimeter of the fictional town of Perfection. Throughout the movie, the underground monsters, from time to time, force the characters to take refuge on a rock or, in one very emblematic scene, in a drugstore among consumer goods. In practice, the inhabitants of Perfection are prisoners of a perfection – a shared norm, a way of life – that has defined their relationship with the environment intended as a mere commodity-not coincidentally, the two protagonists after killing a monstrous

creature immediately sell its corpse for 15 dollars, a corpse that is then displayed in the village store to make a derisory profit. In the end, the need to confront these monstrous creatures will lead one of the protagonists, Val, to better observe his surroundings, that is, he will be able to move from not seeing to seeing, or from seeing to seeing more or seeing differently» (Noë 2015, XI). This has to do with what I will refer to throughout this paper as monstrous education of attention. The female main character, Rhonda, who was invisible to Val, becomes attractive to him at the end. The problem here, as indeed in other products of the American film industry – such as for example Steven Spielberg's *Jurassic Park* in which the traditional family is threatened by prehistoric creatures but in the end the monsters succumb inexorably – is that in the closing scenes, when Val decides to declare himself to Rhonda, everyone returns to the perimeter of Perfection, thus re-establishing the initial *status quo*.

The monsters I will try to 'summon' in this paper are meant to challenge our practices and not to reassure us with the idea that sooner or later they will be defeated and everything will go back to the way it was, because the climate crisis we are experiencing will not let everything remain unchanged. This means that there will be no perimeter in which we can take refuge to console ourselves with the categories that have governed our form of life so far.
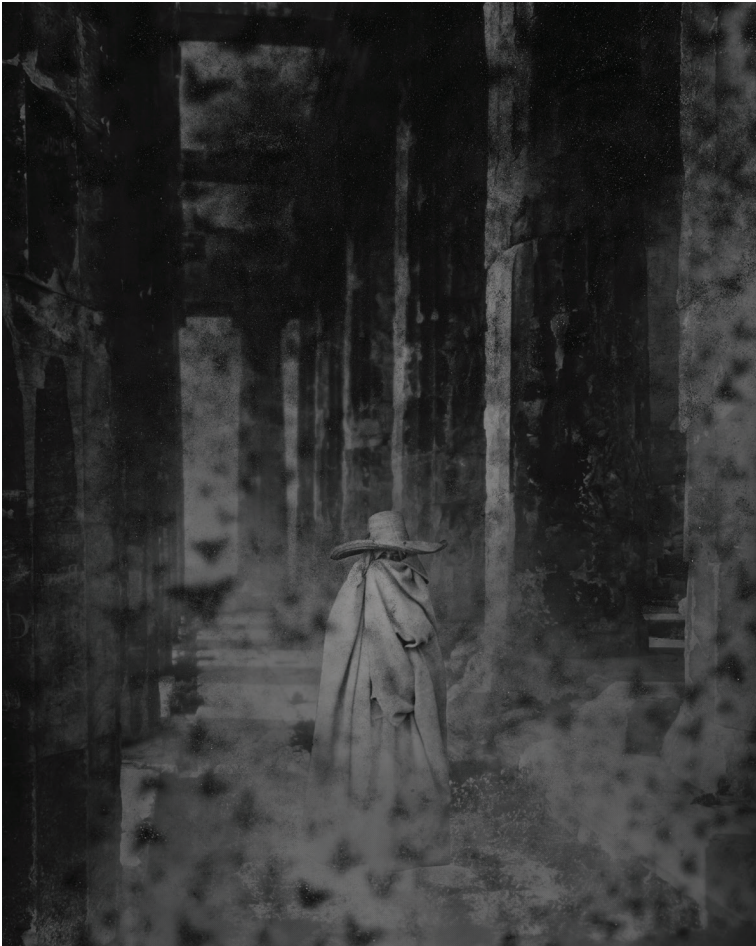
September 2025. Athens, having been incinerated by flames, is covered in melanic moths. The few residents who have not joined the Greek government's evacuation plans wander lonely through the deserted streets. They call themselves 'pilgrims' and wear long white robes to avoid being covered, like everything else, by the melanic moths. Because everything is black and indistinguishable, every sign obliterated, purged away by the fire, the haze and the moths's 'fur', the 'pilgrims' are only able to get their bearings because of the stories they sing aloud.

3 Monstrous Education of Attention

Both in antiquity and nowadays in popular culture, monsters respond – on different levels and with different results – to a warning function that often has to do with safeguarding physical, moral, or political boundaries. Etymology suggests that "'monster' derives from Latin *monstrum*, which is related to the verbs *monstrare* ('show' or 'reveal') and *monere* ('warn' or 'portend')" (Beal 2002, 6-7). The monster is a kind of omen indicating something ominous or threatening that populates one's world (Asma 2009, 13). In short, following the etymology, the monster shows us something and, by showing what we have not seen before, warns us. In this sense, the monster can be linked to a specific form of "education of attention" (Gibson 1986, 254) where an imaginary being is used to foreground dangers that lay ahead that remain invisible by many in a community.

To better focus on what is meant here by the 'education of attention' we need to place this notion within the broader framework of James Gibson's ecological psychology. To do so, I will refer to the way his teachings have been developed over the past few years within the philosophy of embodied mind by Erik Rietveld and colleagues or, on the side of anthropological studies, by Tim Ingold.

Gibson's proposal revolves around the controversial and complex notion of 'affordance' which is meant the invitation the environment provides the animal with in order to act (Gibson 1986, 18-19). In an attempt to account for the rich landscape of possibilities that characterizes the human niche, philosophers Erik Rietveld and Julian Kiverstein provide an expanded version according to which an affordance is a relationship between an aspect of the sociomaterial environment and of the abilities available in a form of life (Rietveld, Kiverstein 2014). Affordances in this way are not relegated to the simple sensorimotor dimension but refer to the very rich repertoire of abilities we can acquire in our form of life.

Our contact with the sociomaterial environment occurs within the framework of practices in which we are educated. Such practices select for us aspects of the environment relevant to our interests and leave others ignored. In this sense we can speak of 'education of attention' (Gibson 1986; Ingold 2000). Anthropologist Tim Ingold, in developing this definition, offers an effective example in which he tells of a novice hunter who learns by being led into the woods by more experienced hands. The novice who finds himself/herself moving among undifferentiated foliage is led to develop a sensitivity to the qualities of surface texture, that is, a perceptual awareness of the properties of his surroundings and the possibilities for action they offer (Ingold 2000, 37). Based on 'education of attention' occurring within a determined practice each individual becomes skilled and thus selectively open to the rich landscape of affordances available to a form of life (Bruineberg, Rietveld 2014).

Even the so-called 'higher' cognitive capacities – such as imagination, memory, or reflection – can be understood as "skilful activities in practices and in terms of the material resources exploited in those practices" (Rietveld, Kiverstein 2014, 346). The skilled agent will be able to successfully engage not only with affordances that unfold over a short timespan but also with those indeterminate ones – like those related to the imaginative processes – that are enacted over long timescales (Van Dijk, Rietveld 2020). This means that imagination can be understood as a way of acting on an indeterminate invitation we coordinate with over a long time. Such coordination is actively enacted, and thus imaginative processes should not be understood as an idiosyncratic process, a fantasy that distances us from the real, but as an exploration of the sociomaterial environment that develops based on tangible invitations.

As Ingold states, considering imagination as something that happens in reality results in a more generous conception of both imagination and reality:

> A more generous understanding of reality would admit to a world that is not already precipitated out, into fixed and final objects, but launched in ever- flowing currents of formation; a more generous understanding of imagination would allow it continually to overspill the limits of conceptualisation and representation, into unmapped realms of conscience and feeling. (Ingold 2022, 4)

To engage an imaginative process, with an artistic artefact for example, both in the position of activator of an artistic practice and of the one who continues its development as a user, means "setting existence loose amidst the flux of creation" (4).

Through an artwork presenting imaginary scenarios, I aim here to develop a monstrous education of attention that shows (*monstrare*) real though as yet unrealized threats in their full horrific potential (*monere*). Such education, as it will become clear in the last section, comes through the imaginative invitation to repopulate commonly used maps with a climatic monster so that our relationship to our surroundings and our usual orientation in space is deeply challenged.

Traditionally there have been two geographical principles that have determined the regions inhabited by monsters: the idea that monsters are the product of climate, and the idea that they are located at the ends of the Earth where it has an end (Van Duzer 2013). Through this contribution, I try to populate geographical space with monsters that are the product of climate change and that embody the possible end of the Earth, understood not as a spatial extremity but as the ultimate ending, the extinction, of its and our existence.

4 Globes, Maps, and Zombies

The most widely used tools today to orient ourselves in space are provided by the American multinational technology company Google, which offers online services and is involved in artificial intelligence, Internet advertising, and search engine technology; these are Google Earth and Google Maps, launched in 2005. Google Earth is a three-dimensional virtual globe that enacts a visual representation consisting of different types of images: "Indexical: satellite images. Iconic: road maps. Symbolic: nation-state boundaries" (Helmreich 2011, 1222). Google Maps is designed with a primarily practical purpose: it is an interactive map that gives us directions on road routes and provides details on the function of buildings. With the Street View functionality, portions of space can be explored through a more immersive experience. Google, to make this experience possible, uses a fleet of cars outfitted with a pole with 9 cameras at its top, which photograph their surroundings. Both Google Earth and Google Maps's Street View make use of a technique known as 'stitching', which, through the manipulation and montage of different types of images, generates an effect of continuity.

There is an iconic image on Google Earth's homepage, namely that of the blue planet suspended in space, that perfectly embodies what Ingold, in an article in which he contrasts the role of the sphere with that of the globe in the representation of the Earth, calls the "modern conception of the environment" (2000, 209), that is, the idea of a world that is no longer our home. The image of planet Earth as a distant and well-controlled globe from a position of privilege represents "the culmination of a process of separation" (209), in which the subject's observational point is ideally shifted out of physical space. Ingold, in critiquing this illusory position and to account for our actual experience of exploring the lived world, which occurs gradually by successive steps, refers to the example of the fourteen spheres of the world, as drawn by Giovanni Camillo Maffei of Solofra in his *Scala Naturale* (Venice, 1564).

As Ingold suggests, what unfolds before the Count of Altavilla, ready under Maffei's guidance to enter a new dimension of knowledge, is a world of meaning that, through an education of attention, that is, a process of sensory coordination, is gradually revealed to him.

In contrast, the globe suspended in space that Google's platform presents to us stands on the assumption that "meaning does not lie in the relational context of the perceiver's involvement in the world" (Ingold 2000, 213). In this sense then, knowledge would be gained not by directly engaging, in a practical way, with the heterogeneous invitations of the rich sociomaterial environment – invitations not reducible to the simple physical conformation of the landscape – not through the active exploration of an inhabited world, but through the
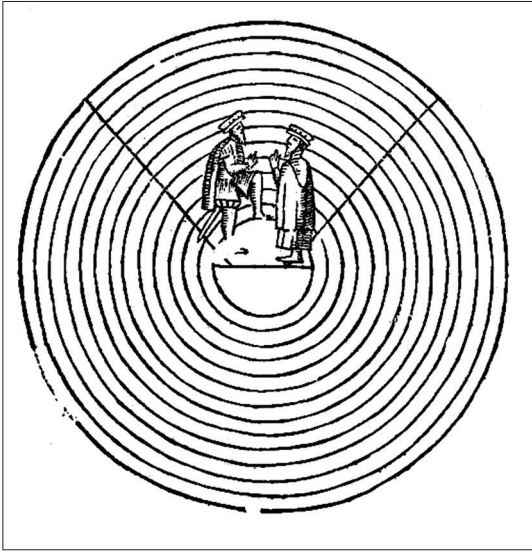
detached and disembodied observation of a world that is simply occupied and dominated from above.

Zooming into Google Maps we find ourselves moving through the space represented again according to the same principles. Even in this case, the tool provides us with a map available to be traversed as a flat surface or as an uninhabited scenery. If we drew on our lived experience of the world and how we explore it, then we could develop representations of the places we inhabit not in a merely spatial sense. Thus, following Ingold again, in this case, dealing with maps, "places do not have locations but histories" (219). This means that places are linked together by the itineraries enacted by their inhabitants. The places then "exist not in space but as nodes in a matrix of movement" (219). Orientation skills consist of "the ability to situate one's current position within the historical context of journeys previously made" (219). Ordinary orientation, therefore, more closely resembles the telling of a story than the use of a map.

The intention here is not to underdetermine the possibility of developing an understanding of space that transcends our current position. A vision that 'gathers' the manifold is allowed here as long as it is to be understood from not "everywhere-as-space" (227) that is, from a position that would contemplate the world from a point of view above and beyond, but from the "everywhere-as-region" (227) structured by narrative nodes. An 'everywhere' is therefore admissible as "a region concatenated by the place-to-place movements of humans, animals, spirits, winds, celestial bodies, and so on" (228), a relational 'everywhere' and not merely physical-spatial.

What I want to point out with this proposal is that the technologies we use today, by enacting principles that rest on the "modern conception of environment" (Ingold 2000, 209) and having expurgated monsters and spirits, that is, some particularly powerful narrative nodes that transcend individual paths and histories, configure maps as preconstituted stages that pre-exist our traversal, thus giving us the illusion that there can be an environment to explore beyond our collective movement in it, beyond the shared practices that constitute it. Our maps enact preformed places that remain waiting to be picked up by already given individual will.

Consider the experience that each person may have daily when looking for a place to go in his or her city, but whose location is not well known. Most likely we will go to Google Maps to search for the address and, to gather additional clues and references, we will use the Street View function. I want to draw attention here to how we can access this function: we pick up a human-like silhouette lying inert in a box as if immersed in cryosleep and, by dragging it with the cursor, crucially, rain it down from above into the place in question. This action we enact is extremely significant. The dormant being that represents us is led by our preconstituted interest through desert cities that neither transform it nor are transformed by its passage. Such an experience resembles in some ways that represented in George Romero's 1979 film *Dawn of the Dead* in which zombies throng the escalators of shopping malls. This similarity rests on the fact that by using the Street View function, we drag a lifeless being through uninhabited places where activities and services are reported that relate first and foremost to our consumer dimension. The similarities do not end there. The word 'zombie' comes from the word *nzumbe*, which in the Kikongo language spoken in the Congo Basin means 'god' but also 'spirit' and 'fetish'. That word was brought in by black slaves deported across the Atlantic to work on Caribbean plantations. The Haitian zombie was a voodoo-animated corpse that, unable to think, mechanically obeyed its master's wishes. The figure of the zombie thus refers to one who, eradicated from his home and transported across the ocean, is catapulted into a completely foreign environment to act on behalf of someone else. The comparison between the zombie figure and exploration via Street View can take us even deeper into defining what such a representation of the environment conceals. The zombie, as an alienated slave, refers to the notion of the 'Plantationocene', which is a further name that has been given to the Anthropocene. The term 'Anthropocene' refers to the geological era characterized by the impact of human activities on the environment (Crutzer, Stroemer 2000; Crutzer 2002), which is made to begin, depending on the position, either with the appearance of agriculture in the Neolithic period, or with the beginning of the Industrial Revolution, or with the aftermath of World War II, or

with the explosion of the first atomic bomb. The 'Plantationocene' traces the beginning of profound anthropogenic transformation back to the time of plantations in which masses of alienated slaves were used to develop monocultures to which economic processes involving import-based trade systems, savage exploitation of the environment, and destruction of ecosystems and biodiversity were and still are linked (Haraway 2015; Haraway et al. 2016; Wolford 2021). 'Plantationocene' thus traces the true impact of humans on the environment to practices related to colonialism. This relates to the colonialist conception of the globe and the map referred to by Ingold (2000, 214) according to whom precisely a certain type of representation of the globe presents us with the idea of a "preformed surface *waiting to be occupied*" (214).

Ultimately, what I want to emphasize here is that the principles underlying the representation of globes and maps as offered by the Google platform and widely used today imply an alienated and zombified conception of the one who is called upon no longer to inhabit a place but merely to traverse its surface that is nothing more than a deeply foreign space to be occupied and exploited.

Through a philosophy that employs unorthodox means, I will introduce below *Biston betularia carbonaria* which, by presenting a map populated by monsters, embodies a paradoxical questioning of the map itself and thus of the principles that govern its "modern conception of the environment" (2000, 209).

Biston betularia carbonaria aims 1) to produce a warning for the consequences of behaviours that are harmful to our environment and 2) to question the media usually used to represent our environment that nurtures a certain distorted conception of it and an extractive relationship we have with it.

5 *Biston Betularia Carbonaria*: Experimenting with an Unorthodox Philosophy to 'Summon' Climate Monsters

Philosophers usually write texts without images. In this article, I aim to experiment precisely with images to enact an unorthodox philosophy (Rietveld 2022). In this way, I intend to produce invitations that are not only related to reading and writing but that activate additional skills through cross-fertilization between different fields of research: the academic and the artistic.

From many sides within the philosophy of the embodied mind, it is argued that an alliance should be forged with visual artists to investigate «in a nonverbal way how we might live differently and perhaps better» (Rietveld 2022, 500). I suggest that such an approach would allow us to avoid the mistake that Victor Frankenstein makes

in exemplary fashion, namely, the mistake – further evidenced by his monster's readings devoted to poetry and literature – of locking oneself away in the isolation of one's study by engaging exclusively in one's sectorial research that results in a rigidly moving robotic creature. The alliance experimented with here then constitutes an attempt to move away from the academic ivory tower and try to develop invitations that can tangibly reverberate to the practices in which we are engaged in everyday life.

The artwork *Biston betularia carbonaria*, presented below, is thus intended as a concrete model that aims to activate a monstrous process of attention of education directed at an embodied mind situated in a rich landscape of affordances. Through it we attempt to set a possible pro-environmental social change by imaginatively manipulating a widely used tool, the maps provided by the Google platform. This proposal tries to enact a shift in research practice and thus in the conception of the researcher "from a passive observer to an active and passionate designer" (Kaaronen, Rietveld 2021,1417). One of the questions we try to answer through *Biston betularia carbonaria* is: how do we, as a society and culture, as individuals part of the academic world afford sustainability? With *Biston betularia carbonaria*, an attempt is made to argue – not discursively but through visual means – that the disappearance of monsters, sprites, or ghosts from our lives has impoverished our experience of the world around us. Our culture, and our maps specifically, lack monsters understood as crossroads of meanings not reducible to the enactment of our individual paths. Here, through artwork that imaginatively proposes a monstrous repopulation of maps, it is certainly not intended to appeal to supernatural forces. Rather, it is intended to bring out the possibility of meaning-rich exploratory processes that can foster dynamic coordination with the environment and thus not reduce it to an inert matter.

Biston betularia carbonaria is a mixed-media artwork that through the form of eco-dystopia tells of a possible climate threat. It does so by narrating a near future in which violent fires will hit the city of Athens, Greece.

Eco-dystopia is a way to imagine the immediate or extreme consequences of our current relationship with the environment (Stock 2019, 2). Dystopia is a word composed of the Ancient Greek terms δυς-(dys) which means bad, abnormal, and τόπος (topos) which stands for place. The first recorded use dates back to 1868 and is found in a parliamentary speech by John Stuart Mill, in which he proposed a term to define a perspective opposed to that of utopia. Utopia was usually understood as too beautiful to be practicable so dystopia was too ugly to be practicable (Claeys 2010, 107). Dystopia presents a future in which some aspects of our society found in the present have developed in extreme and undesirable ways. This places the storyteller

on a plane of temporal continuity with the society of the future – unlike the post-apocalyptic narrative in which the future is told based on a sharp break, a catastrophic event that has thrown humanity into a state of nature. Eco-dystopia, joining the predictive process of dystopia, reflects on a catastrophic event, climate change, caused by the daily behaviour of contemporary societies. In practice, through an eco-dystopia traits related to climate change present in our societies are exaggerated and thus allowed to emerge as relevant, that is, as solicitations for action, to refocus our attention on the prodromes of the horror that 'awaits' us.

Climate change, whose temporal and geographical scope is beyond our usual conceptual grasp, is determined by a concatenation of mostly invisible phenomena whose causal links are indiscernible and obscure except to a few experts. This makes climate change radically unrepresentable, that is, invisible to our eyes. It is possible to detect its extremely elusive face in heterogeneous phenomena that make their appearance in the form, in the case narrated here, of catastrophic fires, piles of ash, and swarms of moths.

Figure 4 Valeria Scrilatti, *Biston betularia carbonaria*. 2023. Mixed Media Art project created by Antonio Ianniello and Valeria Scrilatti. Archival photos were later reworked in Photoshop. September 2025. The Acropolis of Athens is covered with swarms of melanic moths. The ancient stones pulsate with millions of quivers of wings. Everything is black, burned and flickering

In the summer of 2023 fires of varying sizes swept across Greece, destroying 378,381 hectares of land, burning thousands of animals,

and destroying civilian and industrial dwellings. In August, the fire in the northeastern region of Evros – the largest single fire ever recorded in the EU – killed 26 people. Fostered by strong winds, the flames burned numerous settlements to ashes, mostly cleared, until they besieged Athens, where nearly half of Greece's remaining relatively safe population is concentrated. The government, mindful of what had happened in the summer of 2018, prioritized evacuations of residents to avert the huge loss of life caused by the fires that devastated the seaside resort of Mati that summer, causing 100 deaths and dozens of injuries.

According to the Ministry of Climate Crisis and Local Civil Protection, the weather conditions in summer 2023 were the worst since data on fire risk in Greece has been analysed. Since the beginning of 2023, as many as 7 times the alert level had been reached.

The European Forest Fire Information System (EFFIS) categorizes Athens as a high fire risk area. The risk is mainly related to strong winds, heat waves, and drought. These extreme events will be increasingly violent and frequent and are directly related to climate change.

A huge scientific consensus (Steffen et al. 2019; TWI2050 2019) traces the causes of climate change to a heterogeneous set of practices responsible for raising CO2 in the atmosphere. Among them, coal, oil and gas combustion, deforestation, intensive livestock farming, and the use of nitrogen fertilizers have the greatest impact.

The 2023 Intergovernmental Panel on Climate Change (the United Nations Intergovernmental Panel on Climate Change), for the umpteenth time, highlighted that the world is on the brink of potential disaster and that drastic and immediate measures must be taken.
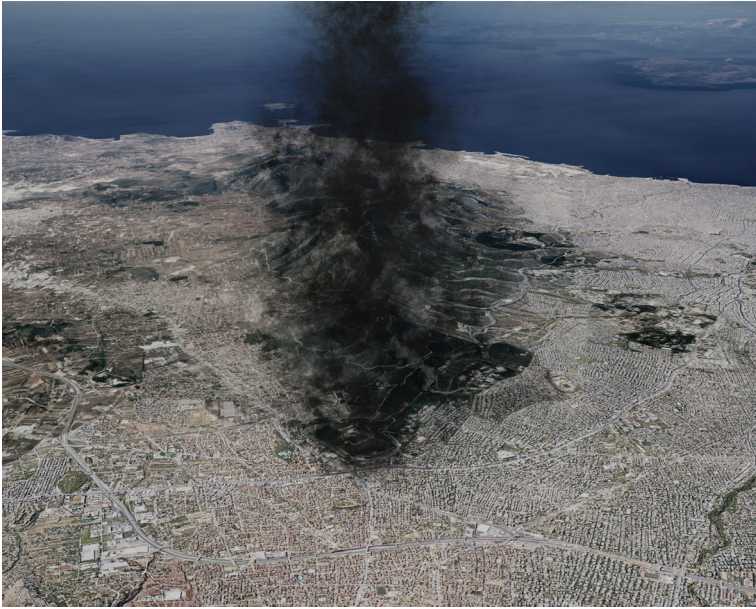
After a very long period of drought that affected all of Greece, violent fires occurred in August 2025, this time on a devastating scale for Athens. The already adopted strategy used by Greek Prime Minister Kyriakos Mitsotakis in 2023, which consisted of letting the flames devour everything to save the population first and foremost, led between July and August 2025 to a massive clearing of the city, which, beyond the few citizens who did not adhere to the government's order, was overrun by flames. This was a true climate exodus (Westra 2013) organized by government forces.

In the weeks following the fire, when Athens was now reduced to a pile of ashes, swarms of *Biston betularia carbonaria*, that is, swarms of dark specimens of what are commonly called peppered moths, began to appear. *Lepidoptera* do not usually move in swarms, but this is not the only aspect that scientific authorities would fail to explain.

Smoke and ash covering the sun have thrown Athens into a state of permanent twilight. Black moths have covered every surface, and penetrated every space – now uninhabited dwellings, ruins of the ancient city, factories in the industrial district. Their bodies, like an endless carpet, cover every charred thing and coat its interior.

In times of climate monsters, the monster is no longer placed like the giants "at civilization's periphery" (Cohen 1999, 6) but at the very heart of that civilization with which we have identified over the centuries in the western hemisphere of this planet.

Figure 6
Valeria Scrilatti, *Biston betularia carbonaria*. 2023. Mixed Media Art project created by Antonio Ianniello and Valeria Scrilatti. Petrou Ralli 64, Athina 1777 78, Greece. Exports of Google Maps in Street View mode, later retouched in Photoshop. A swarm effect was added to the image provided by Google with different brushes, masks and a texture
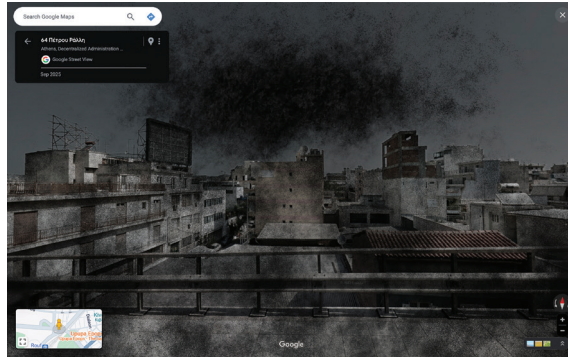
Biston betularia carbonaria is one of the best-known examples of evolution by natural selection. *Biston betularia* is a lepidopteran belonging to the family *Geometridae*, widespread in Eurasia and North America. It occurs in two main chromaticities: the white form (*typica*), which is the most common, and the melanic form (*carbonaria*), which has dark-colored wings instead.

The greater prevalence of *typica* is explained in terms of the conservation of the species as their white colour makes them invisible to predators on lichen-covered birch trunks. The situation is different for those that are the result of a natural genetic mutation, the so-called dark-coloured melanic moths, which instead are easy prey on the light-coloured lichen background. This made melanic moths less common than the lighter forms. This was the case until the nineteenth century when it began to be noticed that in cities it was the black form of the more common moth. Air pollution caused by industrialization had killed the lichens and darkened the trunks, effectively favouring the survival of the black form. Since the life span of the moth is very short, evolution by natural selection occurred extremely rapidly. In 1848 the first black peppered moth was recorded in Manchester. As early as 1895, 98 percent of the peppered moths in the city were black.

The presence of the melanic moth, so massive in Athens in the summer of 2025, is made to depend on a rapid evolution implemented based on the 2023 fires that had lapped the capital. In an environment devastated by the fires, the dark-colored moth was more likely to survive by camouflaging itself on charred logs.

A very large population of melanic moths was reproducing in the peripheries of the city, where the flames had come two summers earlier.

Soon after the 2025 fires from the outskirts of Athens, the peppered moth invaded the city.
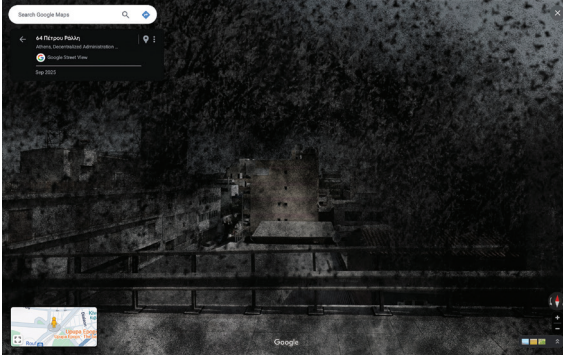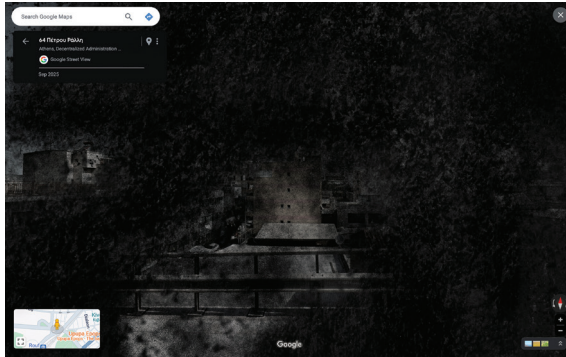

Figure 7
Valeria Scrilatti, *Biston betularia carbonaria.* 2023. Mixed Media Art project created by Antonio Ianniello and Valeria Scrilatti.
Petrou Ralli 64, Athina 1777 78, Greece.
Exports of Google Maps in Street View mode, later retouched in Photoshop.
A swarm effect was added to the image provided by Google with different brushes, masks and a texture

Around early October 2025, swarms of melanic moths began to be observed moving to places in the country where fires would soon break out. This was yet another completely unexplained behaviour. Scientists have been and still are trying to evaluate many hypotheses but have not yet been able to come to any plausible conclusion. The fact is that the presence in the air of the melanic moth is now an omen that invites anyone to leave their home, their possessions, their city to a new place that will never be safe again.

Figure 8
Valeria Scrilatti, *Biston betularia carbonaria*. 2023. Mixed Media Art project created by Antonio Ianniello and Valeria Scrilatti. Petrou Ralli 64, Athina 1777 78, Greece. Exports of Google Maps in Street View mode, later retouched in Photoshop. A swarm effect was added to the image provided by Google with different brushes, masks and a texture

In early November 2025, a few melanic moths settled on the cream-coloured plaster of apartment complexes built during the economic boom years in a southern Italian city.

Figure 9
Valeria Scrilatti, *Biston betularia carbonaria*. 2023. Mixed Media Art project created by Antonio Ianniello and Valeria Scrilatti. Viale degli Aranci, 7, Salerno, Italy. Exports of Google Maps in Street View mode retouched in Photoshop. A swarm effect was added to the image provided by Google with different brushes, masks and a texture
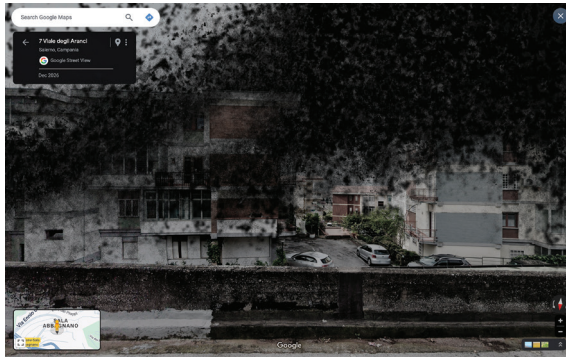
6 Globalgothic: All Roads are the Same

We've explored here a philosophy that unfolds through unorthodox means with the specific purpose of 'summoning' a situated monster thus inviting an embodied mind to act through concrete actions to cope with climatic change. The purpose, based on real events, was to invent a situated climate monster and not another specimen of the "Mcglobal-Mcgothic" (Byron 2013) monoculture that would be a monster with generic traits, usually a product of the cultural industry, that enacts a warning that remains so only on a theoretical and globally undifferentiated level. Yet as we imaginatively explored a southern Italian city through the Street View feature in search of one more place where the melanic moth might carry its warning, we came across streets identical to those in the suburbs of Athens and almost interchangeable. This is certainly nothing new for those concerned with urban settlements characteristic of contemporary times. What I am interested in emphasizing here is that the "globalgothic" (Byron 2013, 3) swarms, by showing us (*monstrare*) that the heterogeneous landscapes we find ourselves exploring are increasingly homogenized by anthropogenic intervention, prompt us to remap our itineraries (*monere*), to remake the roads of our collective existences, to repopulate the nodes and intersections of our routes with situated monsters, fellow travellers in our experience of the world where we do not rain down from above as zombified silhouettes but where precisely we are at home.

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