

**MAPPING EXPLOITATION / EMPOWERING KNOWLEDGE**  
Critical mapmaking and the work of Vladan Joler

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Maps visually represent parts of a place, an area, or a whole. They show the relative positions of elements, and their aim is to be accurate, clear, and effective. The most common maps are geographical, celestial, or meteorological. Today, if somebody were asked “what is the first map that comes to mind?” the answer would probably refer to one used to navigate via an online platform or application that provides multiple layers of information and services. Google, for instance, offers not only street maps, but also satellite imagery, aerial photography, panoramic street views, as well as landmarks for possible sites of interest enriched with users’ ratings, images, and comments. The use of these maps brings to the foreground issues similar to the ones of social networking sites. Online maps are part of most people’s daily routines, although their existence relies on complex processes and technological systems that are not to be seen, identified, or discussed, which follows the opacity of connectivity.

Maps, of course, have not always been digital, personalized, or shareable. As Jill K. Berry notes, different materials and techniques have been used throughout time for mapmaking, depending on demand and the availability of possible resources.<sup>1</sup> Whether carved, drawn, painted, or printed, maps have always demanded meticulous labour that involved observing, studying, and depicting what is to be mapped. The cartographer, therefore, has been undertaking the role of both “witness and actor,”<sup>2</sup> due to being involved in the production of meaning.<sup>3</sup> For this reason, maps can be understood as political objects, either for exercising power or for framing resistance. Specifically, maps have played their role in the history of colonialism and also of capitalism by setting “ownership, rights and social norms in their place,”<sup>4</sup> and they have also been used as a tool for knowledge and emancipation in the 20th century, especially for activists and artists.

In the history of contemporary mapping, the different terms that are used manifest the need to question issues of power and to work critically. Alexis Bhagat and Lize Mogel, who published the *Atlas of Radical Cartography*, write that *radical cartography* is “the practice of mapmaking that subverts conventional notions in order to actively promote social change.”<sup>5</sup> Meanwhile, *critical cartography*, according to Christine Schranz, emerged as “a means by which to resist authorities” back in the 1980s, and *countermapping* appeared in the 1990s in order to describe “alternative forms of mapping when compared to traditional plans” with a common desire “to reveal deeper power structures, to address the social dimension of a map, and to enable democratic access.”<sup>6</sup> Less often, and for more particular examples and occasions, the term *tactical mapping* has also been used to refer to more ephemeral interventions “in systems of control affecting spatial meaning and practice.”<sup>7</sup>

William Bunge is a known example of an unconventional radical geographer who paved the way for a different use for cartography, shedding light on how people live and struggle, and paying attention to the power and control exercised by the authorities.<sup>8</sup> As Dee Morris and Stephen Voyce note, back in 1968, after Guy Debord’s *Society of the Spectacle* appeared in print, Bunge produced “a series of experiments in radical cartography” and expanded the possibility of map-making. Bunge captured the power asymmetries found in cities between people of different origins, classes and incomes. Interestingly, his approach seems to have been influenced by the movements of Dada, Surrealism, and Situationism, as well as to have anticipated the “radical maptivism” of the 20th century.<sup>9</sup>

Artists’ interest in mapmaking laid in the potential to expose issues of power control in order to subvert the role of mapmaking present in the previous centuries and

the colonial era. Among the artists working in the field were Mark Lombardi and Hans Haacke who, back in the 1980s, discussed corruption and exposed real estate connections, and entanglements, respectively.<sup>10</sup> Later in the 1990s and 2000s, a scene of artists and activists worked as cartographers and introduced the role of technologies into this discussion. Some of the institutions and individuals involved include: Hackitectura, inspired by the movement of hacking and open source, created a number of projects on temporary spaces of resistance; Bureau d'Études produced a series of cartographies of political, social, and economic systems; the Institute for Applied Autonomy created city maps against CCTV surveillance; Heath Bunting mapped the links between legislation, commerce, and systems of control in relation to one's identity and the use of communication networks; and Trevor Paglen, who published a map revealing the CIA's secret flights that transferred prisoners during the period of 2001-2006. Later, Louise Druhle created what she called a "Critical Atlas of the Internet" (2015), exposing and discussing relations between users, networks, corporations, and states. In the decade that followed, the role of Artificial Intelligence (AI) in understanding changes in landscapes and territories was specifically addressed. For instance, Tega Brain, Julian Oliver, and Bengt Sjolen created *Asunder* (2019), a speculative piece that explored what would happen if an AI program was asked to reimagine and redesign geographical areas and restore their climates. Examples are numerous and diverse, but what they do have in common is the desire to render relations of power visible and to use mapmaking to empower knowledge sharing and critical reflection.

Vladan Joler has been working on maps in the last two decades in an attempt to render visible the complexity of today's different digital communication systems. Some of his earlier maps were created

alongside Kristian Lukic. As part of their Eastwood Group, Joler and Lukic created modifications of Sid Meier's *Civilization* series as well as printed maps that exposed the military and capitalist tendencies of the online gaming worlds (2008, 2014). Later, as founder of the Research & Investigation Share Lab, alongside his colleagues, he worked on data-driven investigations and maps. They, for instance, produced an *Internet Map of Serbia* (2015), identifying "the main actors, companies (ISPs) that own and control the infrastructure, have a possibility to access, retain, analyze or sell user's metadata" in the country.<sup>11</sup> Their work, mostly based on data visualization, was inspired by the critical mappings of Mark Lombardi and the Bureau d'Études, among others. Every work presented online was followed by an extensive article stating the issue(s) at stake, the questions and aims, and the methodologies used to address and expose the forms of exploitation involved. After years of work, Joler himself stated that the main question for him was "not how those systems operate, but what are the relations and forms of power that they constitute."<sup>12</sup> Accordingly, the maps of Share Lab are to be read as "visualizations of exploitation process," either on a level of content production or on a level of behavioral data provision to the networks. Referring to their work as 'forensic' – a term usually associated with crimes – Joler and his other members have been investigating the sort of crime happening in social networks "against personal privacy or nature."<sup>13</sup>

In a period of a decade, Joler produced different maps exposing processes and forms of exploitation with regard to today's communication systems. The *Facebook Algorithmic Factory* produced in 2016, was based on research that started in 2014 and focused on the main issues concerning the use of social media then: blackboxing and the immaterial digital labor involved. As the creators' state in the text

that accompanies the map, the aim was to address the many layers of opacity involved in terms of infrastructures, algorithmic processes, and data use. This was the era after the Snowden revelations, when surveillance operations became known and social network companies were characterized as more powerful than states. The Facebook Algorithmic Factory placed its emphasis on the new form of data profiling that emerged thanks to users' provision of information and the datafication of their interactions. The map specifically paid attention to the so-called social graph; the topology of the social network of Facebook in an attempt to break down its different parts and to analyze how the capturing of data happens in as much detail as possible. According to its creators, "this attempt to map the Facebook empire is similar to the ones of the ancient cartographers who traveled, observed and measured distances without any sophisticated tools or technologies whatsoever. The map of the algorithmic empire is similar in precision to some of the ancient maps of the world."<sup>14</sup> In other words, the fight to understand such a network even as a critical, curious, and diligent user can only be asymmetrical as the company itself has built its system based on advanced infrastructures and on the collaboration of a highly-qualified, specialized, interdisciplinary team of data and AI scientists.

Taking research on data extraction further, Joler created the *Anatomy of an AI System: The Amazon Echo as an anatomical map of human labor, data, and planetary resources* (2018) with Kate Crawford. The word "anatomy" perfectly describes the aim to carefully study and expose the different extractive processes behind AI systems. Taking a device like Alexa as a starting point, the aim was to explore how it expands into a computational, logistical and extractivist system, and what this means.<sup>15</sup> The map, as its creators emphasize, can be read both horizontally and vertically, offering different

layers of information starting either from the earth or from the human. The different starting points and directions intersect in the project's essay, written in 21 parts, in which a story of capitalism, materiality, and exploitation is told: What happens when the user is a resource, a worker, and a product at the same time? What other types of hidden or unseen work are involved when a device like Alexa hears and responds to users? Triangles are used to refer to the multiple and many stories of exploitation involved in this operation. Describing Karl Marx's dialectic of subject and object and the relations between labor of power (the means of production and product), triangles become parts of various bigger schemes and are accompanied by circles that imply the role of the human, but also the role of the planet.

The *Anatomy of an AI system* was soon followed by *Nooscope* (2020), a map created by Joler and political philosopher and media theorist, Matteo Pasquinelli. Just like with the previous maps, the scope of this project is captured in its title, which highlights the urge for "an instrument to see and navigate the space of knowledge."<sup>16</sup> This is a map that turned inwards in order to address the expectations and fears of AI. "Nooscope" is meant to map how processes of machine learning operate and to illustrate how machines learn and fail, thereby depicting the different phases and challenging ideas about their so-called autonomy. The work of Pasquinelli is reflected on the map as it focuses on how a machine becomes an instrument of knowledge based on the use of a training dataset, a learning algorithm, and, finally, a statistical model. Addressing the usual question concerning whether a machine is able to think or be creative, Pasquinelli uses this map to answer it and to remind readers/viewers that it concerns a 'statistical model' supported by human labor.

The topics the aforementioned maps engage with are summarized, but also open up new directions for the map

*New Extractivism* created by Joler himself in 2020. Following the thread of the previous works, this map captures contemporary forms of exploitation related to connectivity and networked infrastructures. It consists of a map and a manual followed by footnotes that depict and describe different concepts that link old to new forms of colonialism. Using the word 'allegories', Joler decided to contextualize his work by bringing together notions and references from historical and contemporary writings that have influenced his work. Ideas, things, and people are presented on the map and discussed in the manual as an assemblage that expresses what extractivism today is and what it depends upon. Joler approaches allegories as nodes in a continuously-expanding decentralized network that allows connections to be built among them; as he himself argues, "All of these allegories and concepts together, joined in the form of an assemblage, create together a blueprint of a machine-like superstructure, or a super allegory."<sup>17</sup> They refer to the mining of data but also to natural resources and to the labor of both human and nonhuman agents, highlighting their interconnection. The work pays special attention to earth labor and geological processes that power the engines of new extractivism, and also presents the impact of continuous data accumulation on the planet.

Joler believes that the term extractivism perfectly describes how exploitation happens in the era of connectivity and surveillance capitalism.<sup>18</sup> This comes in accordance with Felix Stalder who reminds us that "extraction is the concrete act of forcefully taking resources at the expense of the local human and non-human environment from which resource is separated."<sup>19</sup> Extractivism, after all, describes the relations between "different forms of extractive operations" that the AI industry enhances with regard to earth resources, human labor, and data capture.<sup>20</sup>

Just like it happens with map-making, the maps discussed above represent the beliefs of their creator(s) as well as of the writings of critical thinkers who have inspired their creation. Every one of these maps is an attempt to visualize processes that have been carefully studied along with relations of communication or infrastructural power involved in today's use of networks. The maps capture the era in which they were designed as well as the main topics addressed; they capture the need to address the complexity and opacity of algorithmic systems. They are tools of knowledge and artistic gestures at the same time. They are shareable and accompanied by further information and explanation. Joler comments that the maps are "hand drawn" and explains that their production demanded a lot of time.<sup>21</sup> Similarly, and possibly purposely, they demand time to be read and to be understood. All maps are black and white; minimal in design but rich in information.

Interestingly, his latest map is more poetic, expressive, and symbolic. Some of the shapes and motives are repeated from map to map, implying some continuity between projects although the focus and scale differ. Triangles, faces, and figurines repeatedly appear, but connotations of forms of exploitation and injustice are stronger. The biggest vertical image is the one of a drill – a drill that also implies violence against planetary time. The map, therefore, becomes a tool for understanding how digital life affects the past and the present, and it can remain a tool of knowledge for generations to come.



## Footnotes

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