Can We Still Remember Those Mountains?
Breaking the World into Pieces:
Art and Mining Landscapes
in Minas Gerais, Brazil

André Mintz
School of Fine Arts – UFMG
Belo Horizonte, Brazil
andregmintz@ufmg.br
Carlos Henrique Rezende Falci,
School of Fine Arts – UFMG
Belo Horizonte, Brazil
chfalci@gmail.com
Gabriel Aragão
School of Fine Arts – UFMG
Belo Horizonte, Brazil
thunderydusk@gmail.com
Lohuama Lisboa
School of Fine Arts – UFMG
Belo Horizonte, Brazil
lohuama588@gmail.com

Mining has been, for centuries, the main economic activity in the state of Minas Gerais, in Brazil. This paper focuses on artistic engagements with mining landscapes as situated manifestations of the Anthropocene and as sites where memory and identity intersect with sociotechnical inscriptions. A double approach is pursued. First, previous artistic experiences are presented and discussed with regards to landscape's relations with memory and identity. Second, initial considerations regarding mining's sociotechnical transformations of the landscape are discussed, followed by a brief presentation of ongoing experiments by the authors.


1. INTRODUCTION

Memória das coisas que ainda existem ("Memory of the things that still exist") was the title of the first exhibition, in 1974, of Brazilian artist Manfredo de Souzanetto (Souzanetto & Ribeiro, 2006). Among the works presented at the show was a project materialized in a sticker designed for car windows that, at the time, became widely spread in the city of Belo Horizonte, where the exhibition was held. Among those of us that lived here from the mid-1970’s until the early-1990’s, it is still memorable today. A thin dark-green stroke, forming the outline of a mountain, crossed the whole width of the otherwise mostly transparent sticker. Overlaid to it, in large capital letters, was read: “OLHE BEM AS MONTANHAS...” (“Take a good look at the mountains...”). While subtle, this work expressed a critique of mining that no one in Belo Horizonte (either then or now) could possibly miss. For this city – whose name (somewhat ironically) translates as “Beautiful Horizon” – sits in the middle of one of the world’s largest iron ore deposits and, thus, is neighbored by extensive mining complexes. For its inhabitants, therefore, mountains and horizons have been, quite literally, moving and disappearing. In this paper, we take this artwork as the starting point for approaching artistic responses, both actual and possible, to the complicated relationship between mining and landscapes.

In addressing this topic, we relate to the wider discussion about the Anthropocene, its associated terms (see Haraway, 2016), and art's engagement and possible contributions to this debate (see Haraway, 2017; Latour and Weibel, 2020). Yet, we write, of course, from a situated position, as does anyone (Haraway, 1988). Geographically, we write from the greater metropolitan area of Belo Horizonte, capital of the Brazilian state of Minas Gerais, and we thus have our existences, from smaller to greater degrees, affected by mining activity. The concept of landscape helps us to mediate between that larger debate and its situated manifestation. As suggested by Anna Tsing and her collaborators (Tsing et al., 2017, G5), landscapes can show us the way “[b]ig stories take their form from seemingly minor contingencies, asymmetrical encounters, and moments of indeterminacy”. Thus, the landscape is taken here as a nexus of various scales. Beyond that, as Souzanetto’s work suggests, it might also be a nexus of temporalities. Tsing et al. suggest that Anthropocene landscapes would be haunted by the ghosts of past ways of life (2017, G2). Souzanetto...
seems to imply that they would also be haunted by the ghosts of their own future. We thus seek in art possible ways of imagining and acting upon these circumstances.

This paper thus proposes to engage with the issue of mining landscapes through a double approach. On the one hand, we seek to briefly review and recollect some of the previous artworks that have addressed this topic of landscapes and mining activity. The intertwining of landscape, memory and identity is the main conceptual underpinning of this effort. On the other hand, we will also present some of our own initial explorations of this topic through art practices inspired by notions and methods of Science and Technology Studies (STS). This particular approach leads us to aesthetically inquire into the contemporary rendering of landscapes through sociotechnical inscriptions.

2. TAKE A GOOD LOOK AT THE MOUNTAINS: LANDSCAPE AND MEMORY

The concept of the landscape takes on varied meanings in the work of different authors and theories. French philosopher Jean-Marc Besse (2014) proposes to map some of these approaches by describing five “doors” to the landscape concept: as a cultural representation; as an inhabited and historically fabricated territory; as a systemic complex that articulates nature and culture; as a phenomenological experience; or as a functionally designed space. Each of these perspectives share the idea that the landscape is relational, in the sense that it only exists once it has been experienced, produced, constructed or lived in. A landscape is therefore constituted by several interrelated layers that should not be reduced to their most visible aspects. It is not something to be simply contemplated as a “natural” or “untouched” scenery, since a location would only become a landscape as long as it is part of a culture – including when it is framed as an economic resource.

However, while all landscapes are fabricated and constructed, the forces that steer those processes are often violently imposed over those who actually live there. Thus, it might make sense to discuss an antagonistic relationship between mining and landscapes if we acknowledge, as we should, processes of alienation by which landscapes are taken away from their inhabitants. As discussed by Horacio Machado Aráoz (2020), mining could not be understood apart from this, especially given that the interrelation of mining and colonial violence is fundamental in the history of Latin America. While the actors involved and the forms of the process may have changed, this still holds largely true to this day. Local elites and multinational conglomerates may have taken the role of the colonial states but, as Kate Crawford (2021) has noted, while associating artificial intelligence and extractive industries, mining is still only viable as long as profits are detached and unaffected by the actual costs and consequences burdened upon affected communities.

This has been strongly felt in Minas Gerais, across history. The intricate relationship between landscape, mining, colonialism and identity is really impossible to disentangle in the region. At the very basic, the state’s name literally means “general mines”. Also, those of use who are born here are denoted as “mineiros”, which translates as “miners”. The exploitation of gold and diamonds was pivotal in the region’s colonization by the Portuguese and, more recently, the extraction of iron and other mineral commodities are among the state’s most significant economic activities. While environmental and social damages are part and parcel of mining, in recent years, two tailing dam collapses have become particularly emblematic of those consequences. In 2015, in the town of Mariana, the collapse buried a small town, murdering 19 people, and it also irreversibly contaminated the Doce River, all the way to the Atlantic Ocean. It is symbolic that Vale, the company that owned the mine (shared with BHP Billiton) was originally named after Doce River Valley, where it started its operation, in the 1940’s. In 2019, in the town of Brumadinho, another tailing dam owned by Vale collapsed, killing nearly three hundred people and severely polluting the Paraopeba basin. Despite mounting evidence of Vale’s responsibility for both crimes, victims have not been properly compensated, executives have not been held accountable, and the company remains operating and profitable for its shareholders, as one of the largest mining companies in the world. With the surge in iron prices, pushed by United Statesian and Chinese infrastructure development plans, there is current expectation of an increase of mining activity in the region – less so for serving local interests, than for attending foreign demand.

Thus, it seems important that an approach to the landscape as this relational concept, as pointed out by Besse, connecting people to their surroundings, should also account for the ways in which landscapes are expropriated. One way of approaching this is by understanding how colonization and globalization complicate the very notion of territory. Bruno Latour takes from Kenneth Pomeranz the notion of “ghost acreage” (Latour and Weibel, 2020, 15) for referring to territories that have been added to a central economy through the efforts and violence of colonization, while remaining somewhat remote and virtual (from the perspective of the colonizers, of course). Sitting on this massive iron ore deposit and watching mountains fade away into an ever distancing horizon, perhaps this ghostly quality could only be asserted to the fading memories of a landscape and of forms of living (Tsing et al., 2017) that no longer exist.
The writer and indigenous leader Ailton Krenak, whose nation sits at the Doce River Valley, indicates how, beyond forms of material expropriation, colonization also stresses the differences between the very conception of what landscapes mean to different cultures and cosmologies. He writes that, for the modern colonial mindset: “[t]his great continent of ours is [seen as] an anonymous platform awaiting occupation” (Krenak, 2015, 337). And it is only because this territory is conceived as this “anonymous platform”, or as “ghost acreage”, that the forms of extractive exploitation that we have seen and continue to see in these lands can be made possible. This emptying of the landscapes, made into mere mineral deposits, as Krenak stresses, has also pushed the extermination of peoples and cultures living here – a process that is both ancient and current. As part of the communities affected by the 2015 tailing dam collapse, Krenak has been a vocal critic of mining, framing it as another form of “recolonization”, through which, he describes, locals are pressed to earn their living in the present by selling away their future (see Krenak, 2019, 2020).

Thus, in this circumstance, landscapes are far from sites of willing construction and interaction between environment and culture. Rather, they are sites of conflict and, frequently, of alienation through forceful imposition. By acknowledging this, we can better understand the particular ways the landscape is conceived in Souzanetto’s work. The gaze it asks us to direct to the mountains reveals not what can be seen, but what could be foreseen in them. As David Lowenthal (2008) proposes, the landscape is a place of memory; a palimpsest that has been constructed upon previous and current experiences of its history. In Souzanetto’s work, that past and present is also a ground upon which to imagine the future, and this may also help us to understand how this only apparently simple act of looking could also be a form of resistance and insurrection.

In fact, as the artist discussed in an interview (Souzanetto and Ribeiro, 2006), his show Memória das coisas que ainda existem was threatened with censorship by a staff member of the exhibition venue, who also served at the political police of the dictatorship that ruled Brazil at the time. The event was being held at Instituto Cultural Brasil Estados Unidos (ICBEU), a cultural branch of the US diplomatic presence at the time. While censorship to the exhibition could be avoided, the artist recalls other difficulties faced in realizing his project. An intended part of his idea could not be accomplished, for instance, because local newspapers rejected selling him ad space for publishing the line: “Take a good look at the mountains...”. Besides producing the car sticker, which enabled him to spread his work, Souzanetto also resorted to projections of the sentence onto city buildings at night. Interestingly, this tactic of art activism has also been currently employed in Brazil, as the ghosts of past autocratic regimes seem to rise, once again, from their shallow graves.

Importantly, this perspective on the complicated constitution of landscapes under the pressure of mining had also had a fundamental antecedent in Brazilian poetry. Carlos Drummond de Andrade, one of the most celebrated Brazilian poets of the 20th century, is also a central reference both to Souzanetto and Krenak. He was born in the Doce River Valley, in Minas Gerais and, more specifically, in Itabira, the town where Vale established its first iron mine, in the 1940’s. Vale’s activities in that town have completely destroyed Cauê, a hill that was a distinguished landscape feature in the region. This destructive act was a central theme in Andrade’s work, including in newspaper op eds. Literature scholar José Miguel Wisnik (2018) recently proposed a broader review of Drummond de Andrade’s body of work under the light of this engagement with the issue. His analyses show how the subject matter of his poems frequently revolved around the material qualities of the stone (“pedra”) and the image of the “mundo” (Portuguese for “world”). For Wisnik, these are keys for understanding not only the relationship between his poetic work and mining but, also, his particular standing in Brazilian modernism. He argues that the stone and the world are, at once, each other’s contraries and equivalents: “[f]or, if the mundo is the inexpressible and unreachable threshold one cannot take hold of, certain objects appear as the very cipher of that impossibility” (Wisnik, 2018: 183). It is through this engagement with the particular that the unreachable image of a totality enters his poetry, in a condition of impossibility. As both Wisnik (2018) and Krenak (2015) highlight, Drummond de Andrade’s poetic work enmeshes the mineral landscapes of his hometown into the identity of its inhabitants, and also his own. In some of his most famous verses, this becomes clear as they also express a shift in the condition of the post-mining landscape, from a lived environment to a nostalgic image of a long lost past. In his poem “Confidências do Itabirano” (“Confidências do Itibirian”, in free translation), published in 1940, he wrote: “I have had gold, caddles, farms. / Today I am a public servant. / Itabira is just a photo on the wall. / But it hurts!” (Andrade, 2012, freely translated).

It is not by accident that this nostalgia for the landscape resonates so clearly with Souzanetto’s work, since one of the pieces in the artist’s 1974 show was a slide projection accompanied by an audio track with the reading of a 1967 poem by Drummond de Andrade (“O pico do Itabirito”). The verses in that poem lament the grinding and exporting of a hill while mentioning, by name,
several of the international mining companies and government departments involved in that process. In articulation with the poem, Souzanetto then builds his work in anticipation of future destruction and alienation from the landscape – a feeling that we, as fellow inhabitants of the Anthropocene, can certainly relate to. Souzanetto’s Memória das coisas que ainda existem thus appears as being able to capture and express a latent collective mourning, that we too share, today, for something that still is, but which, as we now acknowledge, is not going to remain so. In this resides much of the conflict and lament pertaining to mining landscapes and the Anthropocene.

3. BREAKING THE WORLD INTO PIECES: SOCIOTECHNICAL INSCRIPTIONS ON THE LANDSCAPE

Also in dialog with Drummond de Andrade’s work, the artist Laura Vinci, from São Paulo, presents another form of poetic engagement with the themes of landscape and mining in the installation Máquina do mundo (“Machine of the World”, 2006). The work references a poem by Drummond de Andrade, from 1961, that bears the same title. In the installation, a conveyor belt reaches between two piles of marble powder, continuously moving small amounts of the material from one pile to the other. This configuration produces a moving landscape, in continuous construction, destruction and reconstruction. A landscape in flux. Whereas the marble powder takes us back to the traditional materiality of sculptures, the conveyor belt elicits sites of mining activity while producing a combined process of erosion, transportation, and accumulation. With this piece, we would like to introduce another element in our understanding of mining landscapes: its machinic quality.

In the title of the piece, we find once again the word “mundo” which, as we have discussed, based on Wisnik (2018), is a key sign in Andrade’s poetic work. But, whereas “mundo” suggests the image of an unreachable threshold, “máquina” introduces another kind of imponderability. For Wisnik (2018, 199), in Drummond de Andrade’s poem, the word máquina should not be read by its modern meaning but, rather, as a reference to the ancient use of the word. In that sense, the machine of the world would be the presentation of a cosmic engine in the form of an object. Specifically, in this case, the object would offer a glimpse of the world and its inner-workings, in its totality. Yet, bringing this notion to our own time, and placing it together with Laura Vinci’s installation, perhaps other images of this world-machine stand out. Andreas Broeckmann (2016), based on Félix Guattari (1995), relates the notion of the machinic with a form of autopoesis that is also a source of estrangement and uncanny. A machine, abstractly speaking, is a complex ensemble of forces that often produce an irrepressible motion. When combined with the understanding of landscapes as sites of conflict, as we have proposed, this idea helps to comprehend the sociotechnical reality of mining. Its seeming irrepressibility, therefore, is not due to a technical machine but, rather, to the heterogeneous complex that is also formed by international markets and geopolitics. Although affecting our location, as many others, it also has a source that, like “mundo”, is out of sight and out of reach.

If we are to then take this machine as an entity of mining landscapes, an important aspect to consider would be how to identify and characterize the traces of its intervention. For, in its activity, mines mark landscapes with particular forms of inscriptions. French sociologist Madeleine Akrich (1992) has proposed to study the political agency of technical objects by taking into account their inscriptions. In her approach, sociotechnical inscriptions serve as entry-points for understanding the intertwining of forms of knowledge and forms of political operation of a technical system. In order to operate, a system needs to describe the world and establish points of translation between such a world and its own operation. In Akrich’s terms, any technical object or sociotechnical system articulates forms of knowledge in their operation, by which: “the designer not only fixes the distribution of actors, [but] he or she also provides a ‘key’ that can be used to interpret all subsequent events” (Akrich, 1992, 216). When investigating mining landscapes, therefore, perhaps we are not simply engaging with landscapes affected by mining but, also, the landscapes of mining. That is: how mining, as a sociotechnical system, defines and interprets what constitutes a landscape.

Figure 1: Detail of a PLA printed model depicting the outline of Serra do Curral, in Belo Horizonte, from SRTM topographical data. It is part of an experiment by André Mintz, but which is here mainly for showing how contour lines are also constitutive of additive manufacturing layers, resembling the discrete staggered landscapes of mining.

If we move our gaze from the mountains that still stand to the cavities left by the mines, a difference immediately stands out. The mountain’s morphology has been sculpted in deep geological
time and, in Minas Gerais, it displays smooth rippling forms produced by different types of erosion throughout millennia. Mining, in contrast, leaves something like a discrete, staggered form in the landscape. While digging, what is left of the mountains is turned into a shape that, perhaps not coincidentally, resembles the contour lines by which that long-gone mountain was originally drawn onto a map. In a sense, it is as if mining’s long lasting inscription on the landscape would turn it into its own cartographic caricature. Of course, there are structural factors leading to this: the staggered shape helps in avoiding the collapse of the remaining mountain. Yet, in the chain of mediations that compose mining as a system (or, as a machine), it should not be dismissed that this is the form of sociotechnical inscriptions that enable

the knowledge, operation, and mobility of the mountain as an “immutable mobile” (Latour, 1986). Modern science and technology, as we know, operate best on measurable and discrete quantities that enable their tasks of projecting and calculating.

Figure 2: Rendering of an ongoing experiment by Lohuama Lisboa, who built this 3D model derived from a chemistry ternary diagram representing physical states of a compost of iron and silica. The experiment initiated from an interest on triangles as elementary sociotechnical inscriptions in computer graphics while also being a symbol of the flag of Minas Gerais. This later prompted the aesthetic exploration of further conceptual, symbolic and fortuitous associations of triangles with the investigated topic.

This thread has been leading our way in in-progress artistic experiments with this topic, while working in a diverse research group, composed of faculty and undergraduate students. Inspired in the method of critical making (Ratto and Hertz, 2019), we have sought to engage with the constituting elements of mining landscapes through modeling and printing 3D objects based upon heterogeneous mining data – including topographical data, but not exclusively. Such an approach has been requiring our involvement with several other forms of sociotechnical inscriptions originating from sources as diverse as remote sensing (Figures 1 and 3), public environmental databases, and even chemistry diagrams (Figure 2). We have been conceiving of these experiments as efforts to draw

the dispersed sociotechnical constitution of mining landscapes. For the sake of concision, brief descriptions of some of these experiments are presented in the caption of their respective figures.

In line with the proposal of critical making, our experiments are hands-on explorations of the research topic, through which several aspects of the form and constitution of mining landscapes were perceived and understood by us in the very process of modeling and printing. Among several insights provided by this process, we would highlight: the perception of the ubiquity of contour lines as sociotechnical inscriptions linking mining landscapes and our printed models (Figure 1); the various scales of mining that can be perceived through data sculpture experiments (Figure 2); the varying affordances of representation techniques in the translation of a familiar landscape to a digital 3D environment (Figure 3).

Figure 3: Rendering of an ongoing experiment by Gabriel Aragão, built from SRTM topographical data of a mine in the outskirts of João Monlevade, in Minas Gerais. The experiment focuses on aspects of computer graphics materiality as a form of abstraction from the actual represented landscape.

4. CLOSING REMARKS

As initial takeaways from these experiments and discussions, we have found that the sociotechnical rendering of landscapes by mining has also important consequences for the intricate relationship we have been discussing – among landscapes, memory, and identity. For the morphological discretization of the landscape is also the fragmentation of the relationships that compose it. It is as if mining activity produced a temporality that is faster than the communal times of the landscapes inhabitants and even faster than Earth itself, eliminating the delay that is so fundamental for producing memory. This flattening and discretization of the landscape we have identified are, perhaps, the concrete operations producing that which Ailton Krenak described as an “anonymous platform awaiting occupation” (Krenak, 2015, 337). Working hands-on with the sociotechnical inscriptions describing such
formations enable a more direct grasp into this aspect.

In many ways, the destruction of mountains and hills also moves the horizon away, which is not a trivial feature of landscapes. As Jean-Marc Besse (2014, 50) notes, the horizon relates “to the invisible part residing in any visibility, to this ceaseless folding of the world”, which constitutes the “overflowing potential” of the landscape. Discretized and monetized into finite calculable units, the mining landscape would thus be – or, at least, that seems to be the intent – devoid of such invisibility and, in a way, devoid of a proper future. To take a good look at the mountains, therefore, is to acknowledge and reflect upon this still existing mystery. Our hope is that by critically engaging with these sociotechnical mining landscapes we could also inject some sense of instability into such a totalizing frame.

5. REFERENCES


1 André Mintz’s research is supported by a grant from the Pro-Rectory of Research of Universidade Federal de Minas Gerais, through its program for recently admitted faculty (ADRC/PRPq/UFGM).

2 Gabriel Aragão has received a scientific initiation scholarship from the Pro-Rectory of Research of Universidade Federal de Minas Gerais.

3 Lohuama Lisboa took part through the volunteer scientific initiation program of the Pro-Rectory of Research of Universidade Federal de Minas Gerais.