P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Fossil Time: oil, art and the body in the cosmopolitics of the Anthropocene

Mari Fraga
Universidade Federal do Rio de Janeiro – UFRJ, Rio de Janeiro/RJ, Brazil

ABSTRACT – Fossil Time: oil, art and the body in the cosmopolitics of the Anthropocene – An artistic and theoretical investigation on fossil fuels, industrial agencies in nature and their reflections on social structures and power systems. With the goal of inspecting the operation of the arts in the cosmopolitical battles of the present – especially in the new geological epoch called Anthropocene – the article analyses performance and sculpture as practices that could materialize crossings of temporalities and dimensions, reflecting on the encounter between the scales of the human and the planet. Bruno Latour's Actor-network theory is a departing point for conceptual speculations, developed with the freedom and experimentation that moves artistic research.
Keywords: **Body. Contemporary Art. Fossil Fuels. Anthropocene. Climate Change.**

RÉSUMÉ – Fossile Temporalité: pétrole, art et le corps sur les cosmopolitique de l'Anthropocène – Une étude artistique et théorique sur les combustibles fossiles, les assemblages industriels dans la nature et ses réflexes dans les structures sociales et les systèmes de pouvoir. Afin d'examiner le rôle des arts dans les conflits cosmopolitiques du présent – en particulier en ce qui concerne le nouvel âge géologique de l'anthropocène – l'article observe la performance et la sculpture comme des pratiques artistiques qui peuvent matérialiser les passages des temporalités et dimensions, en reflétant la rencontre entre les échelles l'humain et la planète. La théorie de l'acteur-réseau de Bruno Latour est le point de départ des articulations conceptuelles, dessinées avec la liberté et l'expérimentation caractéristiques de la recherche artistique.
Mots-clés: **Corps. Art Contemporain. Combustibles Fossiles. Anthropocène. Le Changement Climatique.**

RESUMO – Tempo Fóssil: petróleo, arte e corpo na cosmopolítica do Antropoceno – Uma investigação artística e teórica sobre os combustíveis fósseis, os agenciamentos industriais na natureza e seus reflexos nas estruturas sociais e sistemas de poder. Com o objetivo de examinar a atuação das artes nos embates cosmopolíticos do presente – especialmente diante da nova época geológica, Antropoceno – o artigo observa a performance e a escultura como práticas artísticas que podem materializar atravessamentos de temporalidades e dimensões, refletindo sobre o encontro entre as escalas do humano e do planeta. A teoria Ator-rede de Bruno Latour é ponto de partida para articulações conceituais, desenhadas com a liberdade e a experimentação características da pesquisa artística.
Palavras-chave: **Corpo. Arte Contemporânea. Combustíveis Fósseis. Antropoceno. Mudanças Climáticas.**

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Introduction

This text was originated in the artistic PhD dissertation *From the Fossil to the Humus: Art, Body and Earth in the Anthropocene,* held at the post-graduate program in Art and Contemporary Culture of the State University of Rio de Janeiro (PPGArtes UERJ) in 2016. With a practical and theoretical scope, the research articulated the relationship between the artistic work and the interdisciplinary and theoretical research related to it. Over the past few years, the trajectory of my artistic practice focused on materials and events related to the chemical element carbon – like India ink, graphite, coal and combustion. During the PhD, I elected as main focus the fossil fuels – a form of energy based on carbon, like oil and coal.

Fossil fuels served as material, topic and guide for this text, that combines historical, political and economic approach, as well as identifies some of the symbolic layers of the fossil fuels that were accumulated over time. Taking the fossil fuels as departing point, the text speculates on the *similarities between Body and Earth* - an analogy between the human body and the planet, proposed by the artistic and theoretical research. It also inquires, through performance and sculpture practices, about ways to imagine political assemblages that are more attuned to the new thermodynamic regime of the planet. The radical distance between the historical and geological times – *the collapse of scales between human and nature* – marks the challenge presented by climate change, especially in the current time, when humanity is considered to impact the geophysics of the planet, naming a new epoch, the Anthropocene[1]. It is important, therefore, to take a careful look at the *scale leap* of the industrial assemblages and its devastating role not only to ecosystems, but also to cultures.

The consideration here proposed starts with the artistic research and leads to the thinking about politics on the scale of the Cosmos – the politics of the human and the non-human, the climatic and environmental politics, in which the human agent has a major impact – a *cosmopolitics,* as suggested by Bruno Latour (2011, p. 3):

> In a very deep sense, politics has always been about things and matter. It has always been, to take up again the old and beautiful term rejuvenated by the Belgian philosopher Isabelle Stengers, a cosmopolitics, by which she means not an appeal to universality or to life in big metropoles, but a politics of the

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

> cosmos. Indeed, I think it is important here to strike the correct balance between those two Greek terms: 'cosmos' is what ensures that politics will never be just for the benefits of isolated humans, and 'politics' is what ensures that the cosmos is not naturalized and kept totally apart from what humans do to it.

The intertwining of the present text articulates researches by authors from different fields. In the first part, the conceptual constellation drawn around fossil fuels is based on different references, as the thought of Bruno Latour on networks and their assemblages (Latour, 2013), the historical analysis conducted by Timothy Mitchell (Mitchell, 2011), the geopolitical and economic analysis by George Caffentzis (Caffentzis, 2005), and the proposals for a *post-carbon* epoch by Martin McQuillan (McQuillan, 2012). A brief discussion of the Anthropocene epoch aims to reflect about the human agent and its intervention-interaction with nature in the context of a globalized and post-industrial world. Among the many authors participating in this fertile and current discussion, the text chose to be guided by the thought of Dipesh Chakrabarty, Peter Sloterdijk, Jean-Luc Nancy, Donna Haraway, Eduardo Viveiros de Castro and Déborah Danowski. It should be noted that the articulation here proposed aims to locate the artistic experience in relation to the issues and authors of other fields of knowledge, proposing an interdisciplinary approach, which also uses scientific references as a starting point for poetic speculation. In addition to the artistic work of the author, other artists and works are analyzed, among which we highlight the artists Dennis Oppenheim and Giuseppe Penone, as well as references related to the field of art, as the conceptualization of the *vibrating body* [*corpo vibrátil*] and the otherness, as theorized by Suely Rolnik (Rolnik, 2006).

The Body is a Drawing

After hours of exposure to an intense summer sun, the solar energy, affecting the skin through a complex chain of biochemical reactions, is absorbed by melanin, an organic pigment produced at the basis of the epidermis (Herrling, 2007). In contact with the light, melanin turns dark and has its production accelerated, becoming the body's main defense mechanism against the solar radiation, absorbing ultraviolet radiation and creating a protective barrier around the nucleus of the cells. The process has as first

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

consequence the tanning, and, in extreme situations, inflammations that generate skin burns of first or second degree.

In 1970, the artist Dennis Oppenheim did the work *Reading Position for Second Degree Burn:* a performance in which he lay down naked on the sand, and, with an open book on his chest, was exposed to the sun for five hours. Oppenheim's action – made specially for the photographic record – was built as a performative action, using the photographic medium and the skin as a drawing surface. The result is strengthened by its details: the chosen book is red and has the title *Tactics*; the description of the work is technical and precise.

> READING POSITION FOR SECOND DEGREE BURN Stage I, Stage II. Book, solar energy. Exposure time: 5 hours. Jones Beach. 1970 (Oppenheim, 1970).

The two photographs, before and after the exposure to the sun, are almost identical, except for a few changes in the position of the light source, the artist´s hair and the absence of the book. The red book gives place to a white skin framed by the reddish skin, which was irritated by the intense action of the sun. In his *Tactics,* Oppenheim stretches the field of art by using the body of the artist as a plastic device – a practice known as *Body Art* – and experiments the work of art as an ephemeral event – a central approach inside the performance medium. The duration in time, which is an important issue for the performance, is absent in this photographic outcome. The visual emphasis is on the cause and the effect, while the duration is indicated only in the description. The reference to the *Tactics* bounds Oppenheim's conceptual proposition to the imaginary of the political tactics and revolutionary strategies, including the use of the red color, which refers directly to the left-wing political movements, still very strong at the beginning of the 1970s. Political action on a molecular scale?

Melanin is a generic name for one of the most heterogeneous, resistant and ancient pigments found in nature. It was found in dinosaur fossils and prehistoric birds (Solano, 2014), and is present in the human skin, as well as brain cells, eyes and other organs. In the animal world, melanin works like the chlorophyll in the plant world (Solis, 2007): it has the ability to absorb energy from sunlight and make it available for the use of the body.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

> Melanin collects energy from lower-energy radiation sources, kicks electrons into excited states, initiating a process that would end up producing chemical energy, similar to the way in which photosynthesis supplies energy to plants (Solis, 2007, p. 1).

Photosynthesis is a fundamental matrix for life: it is through it that the plant organism can capture, at the same time, the solar energy and the carbon from the atmosphere. In the very long-time scale of the geological ages, the photosynthesis practiced by the vegetal beings generated the fossil fuels that we use industrially. In the case of oil and natural gas, it was the algae (or phytoplanktons) that absorbed the solar energy, and, millions of years later, generated the fossil energy. These living beings are the basis of the entire food chain of the seas, lakes and rivers. In terrestrial environments, the remains of prehistoric forests, buried and compressed in specific conditions, generated the coal.

Solar energy is the first nourishment, and after photosynthesis' chemical reactions, it is transformed into another type of energy (glucose) to become food for other living beings. At the end of a long chain of energy transformations, we will have the fossil fuel. Life's remains become stone, oil, coal, gas; fossil materials and living materials are embedded in a network of relationships in which the organic and the inorganic are intimately connected.

The work *63 Perforations,* which is part of the artistic research, is a performance oriented to video. In this work, a world map was marked on my body by sunlight. After about twelve hours of sun exposure over three days, the drawing of continents and islands emerged on my skin. The goal was that the drawing pigment was the very skin pigment: the Earth's geographic reference is encrusted in the epidermis, so that body and drawing become one (Figure 1).

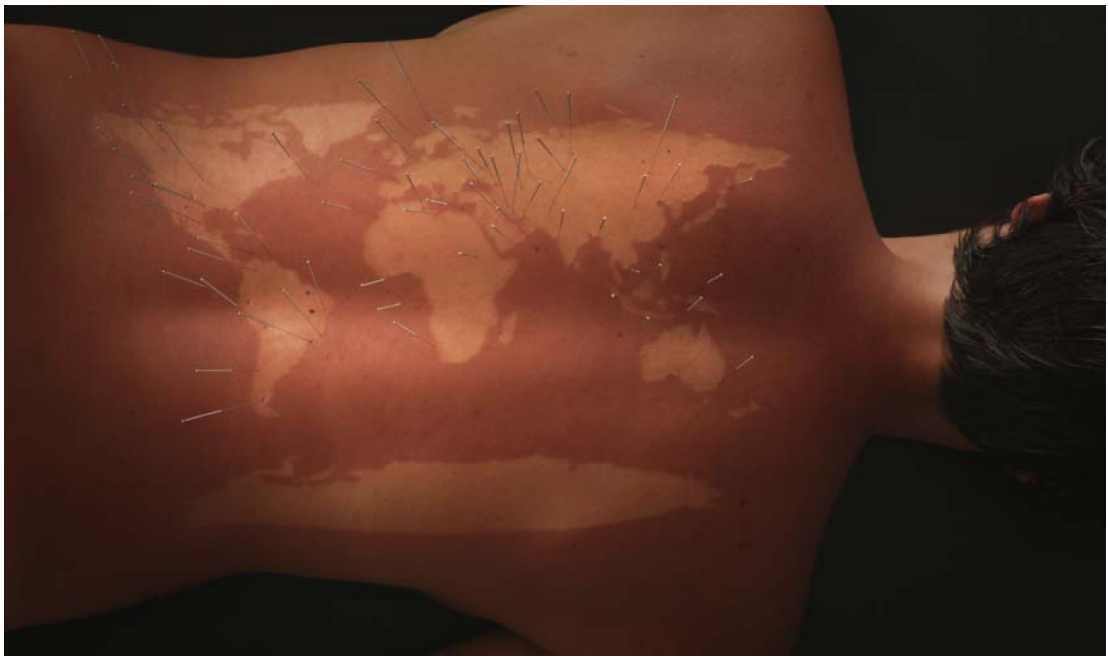
A drawing made with sun rays was especially interesting for the purpose, and worked as a materialization of the research on petroleum. The result was the effect of the biochemical reactions occurred in the skin while absorbing solar energy – chemical reactions that are similar to those processed by photosynthetic beings during millions of years, and which turned into the fossil fuels over time. It is over this first layer – the skin-map – that the actual performance takes place: on a single shot, the video follows an

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

acupuncture session in which the needles are placed in the locations related to major oil reserves around the world.

Perforations on the body and the Earth: For every acupuncture needle, hundreds of perforations seek the extraction of oil in the body of the planet. In this *collapse of scales,* the perforations in the body affect the order of the molecule, cell, tissue, organs, systems and individuals, while the drilling on the Earth affect the order of the molecule, cell, tissue, organs, systems, individuals, populations, communities, ecosystems and biomes - affections from the micro to the macro.

63 Perforations arises from the thought about how and with what interests we access the energy resources of the planet. In the case of the analogy between the perforations in the body and in the Earth, both put the energies to flow, but with different objectives. While the acupuncture perforation seeks to balance the body through the release of the retained energy, the oil drilling seeks to exploit the condensed energy of the planet, and end up causing an ecological and climatic imbalance.



P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

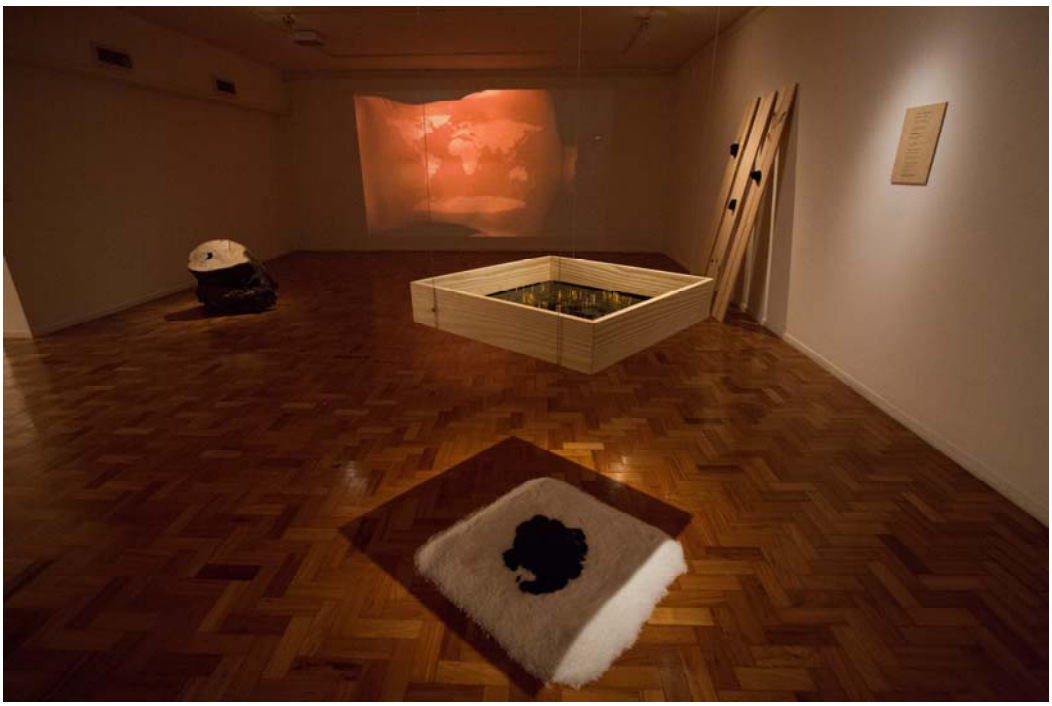


Image 1 – Still images from *63 Perforations* and its installation on the solo show *Fossil Time*, at Galeria Ibeu, Rio de Janeiro, in 2016.
Source: Performance oriented to video, made by the author. 25 min., 2015.

Fossil Networks

Given that art and culture in general are closely related to the historical and geopolitical moment they inhabit, it is important for us to reflect on the trajectory of the use of fossil fuels, and how it has transformed ways of life and cultures.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

The way humans have used the energy resources reflected in world geopolitics throughout history. In *Carbon Democracy - Political Power in The Age of Oil*, Timothy Mitchell (2011) outlines the relationship network of fossil fuels through a historical overview of energy use. Mitchell notes that, up to 200 years ago, the energy that was used came mostly from renewable sources, derived from vegetables, from animals that fed from them, from forest wood, and from water and wind energy, which moved mills and transportation facilities. Most of the world population remained living like this until the mid-twentieth century; however, around 1800, organic resources were gradually replaced by the very concentrated resources of buried solar energy.

Fossil fuels had been exploited since the Antiquity, but always on a limited scale. The conditions for large-scale extraction were so complex that the profit did not sustain the technological investment. Coal mines were flooded with groundwater and needed the strength of animals to pump it out of the deep mining galleries.

In 1712, in England, Thomas Newcomen developed the first functional steam engine. The machine started to be used in the coal mining, consuming the coal to produce steam and to pump out the water, which allowed the exploitation of deep galleries for a lower cost. In 1775, the *Boulton and Watt* company introduced a more effective engine model, perfected on the following decades until the invention of the high-pressure engines, which were to be used in factories and transportation.

The transition to an energy system based on the combination of coal and steam required iron for the construction of machines. The iron ore extraction, on the other hand, benefited from the use of the steam engine. The use of iron was also combined with coal on the railway system, with engines that were used to carry the coal and other materials to far away locations. From that moment on, the energy use grew exponentially. In the nineteenth century, the Western society had an exceptional technological advance, combining the exploitation of large areas of the Earth's surface (colonial domain) with the exploitation of coal and other underground reserves. As we know, the Industrial Revolution transformed the way of living and working in the world, and shaped the modern and urban societies.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

This revolution was also an aesthetic and artistic revolution, and it became increasingly urgent that the arts approached the new urban-industrial context and its impact on culture. The painter J. M. William Turner, for example, was a British artist who lived between 1775 and 1851. Especially in the final stage of his career, he portrayed foggy atmosphere scenes, with accidental fires and landscape modifications amid the emergence of the Industrial Revolution. The philosopher Michel Serres connects Turner's works to the new theories of the French physicist Nicolas Léonard Sadi Carnot, who in 1824 published *Reflections on the Motive Power of Fire and on Machines Fitted to Develop that Power,* considered to be the seminal book of Thermodynamics. Carnot addressed the passage from thermal (steam) to mechanical energy – the physical-chemical theoretical principle of the steam engine (Serres, 1982).

Serres notes that the Industrial Revolution is a revolution "operating on matter" (Serres, 1982, p. 56). Turner's images embody the boiling industrial atmosphere in which "[...] energy exceeds the form; it transforms. The geometry disintegrates, lines are erased; the flaming matter explodes" (Serres, 1982, p. 56). Turner translated the paradigm revolution that took place in science and in the landscape into an aesthetic change. For that, he received the title of precursor of the Impressionism, and shifted the observation from the form to the transformation.

The cosmos itself is thought to be like a steam engine. A new model of thinking about the world and energy emerges, more focused in processes than in the results. This new model is dazzled by the power of an energy whose scale transcends the human (and unaware of its long-term effects). It is interesting to note how a social and economic change is translated into a modification on the way we relate to nature and landscape: the accelerated growth of urban and industrial societies explodes in an atmosphere full of gases and fumes (that only later will be considered to be toxic).

Timothy Mitchell (2011) notes that the introduction of railways and the steam engine allowed, at the end of the nineteenth century, some countries to have rail networks that connected cities, seaports and industrial locations. Substantial amounts of energy flowed through narrow, delimited channels. Skilled workers were concentrated in terminals and stations, operating the equipment needed to move energy to their destination.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

According to the author, the concentration of these workers in strategic places created opportunities for the emergence of a new type of political power. An immense and valuable amount of energy depended directly on the workers to reach its destination. Miners and railway workers realized that working together they could slow down or even cut the power supply of cities and industries.

> The rise of the large industry had exposed populations to extraordinary forms of social insecurity, physical risk, overwork and destitution. But the concentration and movement of coal required to drive those industrial processes had created vulnerability. Workers were gradually connected not so much by the weak ties of a class culture, collective ideology or political organization, but by the increasing and highly concentrated quantities of carbon energy they mined, loaded, carried, stocked and put to work. The coordinated acts of interrupting, slowing down or diverting its movement created a decisive political machinery, a new form of collective capability built of coalmines, railways, power stations, and their operators. More than a mere social movement, this socio-technical agency was put to work for a series of democratic claims whose gradual implementation radically reduced the precariousness of life in industrial societies (Mitchell, 2011, p. 27).

Faced with this new situation, coal miners in Europe and in the United States ended up having a leadership role in the struggle for better working conditions from the 1880s on. Frequent strikes began to threaten governments and businessmen with the cut of the energy supplies. The general strikes in Europe and the United States paralyzed all stages of energy production and therefore the industries and cities that depended on it. The movements interconnected coal industries, railroads, ports and electric power transmission stations.

It is interesting how a technical and social agency, which arises in a given historical moment, can generate a change in the power structure of society. Coal condensed energy flow is the fundamental point on this agency. The general strikes – that began in the nineteenth century and intensified in the first half of the twentieth century – were political events closely related to the industrial society and the working class who have settled in this new socioeconomic system layout.

The first major strike to be recorded took place in England in 1846, incorporating more than five hundred thousand strikers, and eighty years later the 1926 General Strike, also in England, brought together one mil-

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

lion seven hundred thousand strikers, organized around a central union. The claims were mainly related to workers' rights, but also covered broader political issues. In the general strike of Belgium in 1902, miners led the struggle for the universal vote; in Russia the great strikes culminated in the deposition of the autocracy of the Tzars and in the Russian Revolution of 1917, which transformed the political-economic system into a socialist regime.

At the same time, the use of "sabotage" emerges as a political tactic (Mitchell, 2011, p. 22). When strikes proved to be ineffective, sabotage techniques prevented the system from working properly using deceleration, with false accidents and deliberate errors. What distinguishes sabotage and makes it so effective is the perception that a small malfunction or interruption, if introduced at a critical moment or place, can have disastrous consequences for the progress of the industrial system, since the large concentration of energy sometimes flow through a mechanism that depends on a single operator. Mitchell notes:

> What was missing was not consciousness, not a repertoire of demands, but an effective way of forcing the powerful to listen to those demands. The flow and concentration of energy made it possible to connect the demands of miners to those of others, and to give their arguments a technical force that could not easily be ignored. Strikes became effective, not because of mining's isolation, but on the contrary because of the flows of carbon that connected chambers beneath the ground to every factory, office, home or means of transportation that depend on steam or electric power. [...] The dispersed energy systems of solar radiation had never allowed groups of workers to assemble a political capability of this sort (Mitchell, 2011, p. 21-25).

The social-technical-political change caused by industrialization was a radical transformation power also in the cultural sphere, initially in Europe and, soon, on a global scale. In the field of art, modern vanguards and other pre-war and post-war movements were closely related to the trajectory narrated above. The influence of industrialization, industrial objects, tools and architectures, as well as the new urban way of life and the new political power of the workers, are evident in avant-garde artistic movements such as Russian Constructivism, Futurism and Dadaism, to mention only direct references. In the post-war context, formal and thematic influences were allied to an expansion in materials included in the artistic repertoire, and various movements began to use formal inspirations and industrial materials

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

on an even larger scale, such as steel, iron and lead sculptures in the Minimalism, and the waste, garbage and other leftovers from the consumer industry which were incorporated in New Realism and *Arte Povera*.

The post-war context triggered a new social transformation, as well as a shift in the political structures developed by coal workers. After World War II, the oil industry was already in activity when producing countries of fossil fuels sought to reorganize this "political machinery" (Mitchell, 2011, p. 27). Oil workers were already organizing strikes when the United States launched the Marshall Plan for the recovery of Europe. One of the changes was the adoption of productivity wage measures, with a strong presence of supervisors in the factories, inhibiting the sabotage. However, the main measure was the incentive to replace the coal energy system of Europe by oil. The aim was to weaken the political power of the miners and their unions, which were very important in the democratic development process and the formation of the welfare state. The transformation of the energy system was a key measure to implement the North American liberal model in Western Europe (Mitchell, 2011).

The United States subsidized the development of the automotive industry (dependent on petroleum-derived fuels) and financed the construction of new refineries and pipelines around the world. The oil came mainly from Saudi Arabia, and the construction of a pipeline through the Mediterranean allowed the rapid adoption of the new energy system. The Marshall Plan also set global prices for the purchase and sale of oil and natural gas, protecting the North American, British and large international companies, and setting up the dollar as the official currency for the oil market.

Timothy Mitchell analyzes how, in the oil exploitation, the new energy flow system began to use pipelines and disarticulated the workers, who were previously in direct contact in the connections between the various stages of production and transportation. A new network was formed, far longer and technological, in which the extraction workers had nationalities and labor laws that were different from the workers of the pipelines and refineries.

Oil and natural gas also escape from the ground under pressure, requiring a much smaller work force in the extraction stage. The workers were in the surface, closer to the supervisors. Being liquid and light, the transportation by pipeline required fewer workers, and barrels carried by

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

ships assured greater flexibility, since they did not need to operate in predetermined routes as the railroads. This new system turned the fossil fuels market into an intercontinental market and allowed businessmen to take advantage of gaps in the labor and commercial regulations through transoceanic operations.

For decades, the workers' political power weakened. Since the 1980s, we have seen neoliberal capitalism – increasingly daring – crumble the labor achievements that supported the welfare state in Western Europe and North America. Added to this, the central countries and their giant corporations continued to apply geopolitical pressures – with equal or greater intensity – on peripheral countries producers of commodities and energy. More extensive and heterogeneous networks, which separated the stages of production, workers and consumers, have become useful mechanisms for exploitation, profit and lack of control of industrial systems. Fragmented flows and distant bodies: the oil's socio-technical network was built to strengthen social inequalities and undermine the collective movements.

Timothy Mitchell's analysis is tuned with the thinking of Bruno Latour and his Actor-Network Theory (Latour, 2013). In the book *An Inquiry into Modes of Existence (AIME)*, Bruno Latour launches into a philosophical and anthropological endeavor to detail the "domains, networks and movements" in relation to what he calls "Modes of the existence" – a conceptual effort to think about the complexity of the world from his actor-network methodology (Latour, 2013, p. 19). It will not be possible on this text to enter the complex theory developed by Latour, which has a specific vocabulary, but it is worth noting that the networks developed for the production of an "entity" articulate the human and the non-human agents, and involve physical events, and political, financial, social, cultural and fictional issues, among others. According to the author, the "entities" produced may be physical or conceptual, such as a scientific fact, for example (Latour, 201 3, p. 28). The industrialization, the modernization and the development of capitalism, promoted by the ideal of modern progress, have made the networks increasingly inaccessible and obscure.

The oil production networks were built in order to arrange power in the hands of specific agents. For that purpose, it was necessary to undo the political articulation of the proletariat, as well as to weaken the States and

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

their means of labor control. A new method of sabotage was engendered by the industry, which began to use interruptions and drop the oil extraction to constraint the flow of energy and control the market and the price of the barrel, in order to favor giant corporations and dominant countries. Timothy Mitchell puts this new form of corporate sabotage as a "machinery for the production of scarcity" (Mitchell, 2011, p. 40), which is linked to the development of lifestyles based on the consumption of extraordinary amounts of energy.

The author points out that the transition from coal to oil reorganized the networks to modify the mechanisms of democracy, and that this new production system created ways of life increasingly dependent on fossil energy. The range of industrial networks has such a large proportion that their social, economic and ecological effects are difficult to control: they are "long distance machineries" that transcend the individual scale and challenge the collective organization (Mitchell, 2011, p. 40). Technological machines themselves are giant extensions of the human body, which expand through space and whose effect can last in time, exceed life, generations and even outlast the human species.

Timothy Mitchell notes that the amount of concentrated energy we have been using since the industrial revolution is of such magnitude that it troubles our notions of time and space:

> [Before the exploitation of fossil fuels], the time scale of energy production was dependent on the rate of photosynthesis in crops, the lifespan of the animals, and the time taken to replenish grazing lands and stands of timber. In contrast, fossil fuels are forms of energy in which great quantities of space and time, as it were, have been compressed into a concentrated form. One way of envisioning this compression is to consider that a single liter of petrol used today needed about twenty-five metric tons of ancient marine life as a precursor material, or that organic matter equivalent to all of the plant and animal life produced over the entire earth for four hundred years was required to produce the fossil fuels we burn today in a single year (Mitchell, 2011, p. 15).

The research on oil that generated the artwork *63 Perforations* also focused on its materiality: the physical characteristics of the material and its symbolic stimulations. In order to associate the body, the planet and their energy flows, it is important to analyze the differences of timescale between human and geological. The crossing between such distant timescales takes a part on the political – or, rather, cosmopolitical – agency that we have in

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

the world. In this sense, performance is a significant art form to think about the intersection of different time frames, since the time of the scene is not limited to its execution, but keeps happening afterwards, in the mind of the observer, through records and memories. An artwork, in this sense, is like an archaeological piece – always being revisited, revised and reinterpreted in the new experiences of its future time. On the other hand, when thinking about the fossil fuel timescale, we face the immeasurableness of the geological experience, of a time that is not human. Although the geological history does not belong to us, the temporalities have intersected since the incorporation of the fossil energies and materials into society.

The bitumen – or asphalt, the final residue of petroleum – is an example of these materials whose scale challenges our perception. In an experiment, which turned out to be one of the longest in the history of science, physicists researched the bitumen to find out if it was a liquid or a solid material. The experiment started in 1944 in Trinity College Dublin's School of Physics, when scientists put a bitumen portion in a funnel to check the viscosity of the material (Johnston, 2013)[2]. The pure bitumen appeared to be in a solid state, however, after 69 years of verification, it was demonstrated that the material flows, although at an extremely slow speed.

The record of the event was extremely difficult, since the bitumen drop took seven to thirteen years to form itself, but it fell in a split of a second. Finally, in July 2013, with the help of a digital camera, the scientists at Trinity College were able to record the fall of bitumen drop. According to the calculations of the researchers, the bitumen has proved to be two million times more viscous than honey and twenty billion times more viscous than water (Johnston, 2013).

In the *figuring* of the encounter between human time and geological time, the slow drip of bitumen is like an hourglass. As in Climate Change, the speed of geological transformations is not regular. Sudden events intercept slow and gradual changes. Earthquakes, floods and eruptions cross material layers and fragment the linearity of time. The drop that takes years to form itself, falls in less than one second. The balance built by the biomass of the planet during millions of years can be broken in a few centuries.

From these considerations emerged the sculpture *Fossil Time (bitumen hourglass)*, an hourglass containing bitumen inside, the densest part of the

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

oil (Figure 2). By putting the bitumen in movement, the categories like liquid and solid, static and fluid are stressed. Its viscosity offers us another experience of time. On this issue, we could think about the similarities between sculpture and performance, since, as noted by Rosalind Krauss in *Passages in Modern Sculpture*, especially after the modern art movements, the sculpture is considered to be not only a spatial experience, but also a work that develops itself in time (Krauss, 2007). The sculpture, as an organism in space-time, pushes the body of the observer into movement, encouraging going around the work and having a more complex understanding of the form and its multiple viewpoints. In *Fossil Time*, the viewer is confronted with his own experience of time, since a less attentive observation can perceive the sculpture as static, when in reality, it flows in another rhythm, the rhythm of a geological scale. The bitumen hourglass is designed to evoke an experience that transcends the human scale.

Image 2 – *Tempo Fóssil (Ampulheta de Betume) / Fossil Time (Bitumen Hourglass)*. Source: artwork made by the author in collaboration with Pedro Urano. Sculpture (wood, glass and bitumen), 22 x 40 cm, 2016. This artwork was done during the PhD visiting period at Konstfack University of Arts, Crafts and Design, in Stockholm, Sweden, with the Capes PDSE Fellowship. Special thanks to the technicians and professors at Konstfack's wood and glass workshops.

63 Perforations and *Fossil Time* are artworks that were carried out during the research and they meet in the difficulty of reunion of human and nature scales – a delicate point in the analysis of humanity's ecological impact. Mapping and measuring are some of the methods historically used in science to relate the dimensions of the body and the Earth. From the point

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

of view of the arts, the body itself is the first human measure for the relationship with the world – the hand, the foot – and it is taking the body as starting point that we can experiment the recognition of the external space. The perception of the dimensions and scales is directly related to the way we use our senses. An example is that if we blindfold and block the hegemony of vision, it becomes necessary to sharpen our other senses to examine the objects and surroundings. Invariably, when blindfold the body assumes the role as central reference: it is from the body that we measure the volume, the weight, the texture and temperature. To observe, therefore, becomes a body exercise – the blindfold observer gropes, engages his body in the motion of inspecting another body.

During this process, the attention turns into the very way we put our body into action: how we move, how we feel, how we manipulate and are manipulated by what is outside. Without the distance that the perspective vision allows us, the boundaries between what is our body and what is not are blurred. The organism membrane is stimulated as surface of contact and exchange – a surface of vulnerability for the otherness.

This idea of vulnerability is especially intimate to the practice and thinking of the arts, particularly in the performance field, which sometimes puts the body as a vulnerable surface, a surface susceptible to the affect of other bodies and surroundings. In the text *Geopolítica da Cafetinagem*, Suely Rolnik wrote that one of the pursuits of artistic practices is "overcoming the anesthesia of the vulnerability towards the other" (Rolnik, 2006, p. 2). The author points out this issue due to the context of a capitalist society that tends to sedate the affects that otherness can produce on the body of an individual. Subjectivity would, therefore, arise in the clash between a crystallized and stable identity and the "vibrating body" who constantly suffers the affects of an external "force field" (Rolnik, 2006, p. 2). Suely Rolnik (2006, p. 2) writes:

> It is that vulnerability is the condition for the other to cease being simply object of projection for preset images and can become a living presence, with which we build our territories of existence and the changing contours of our subjectivity.

By shutting the vision up and experiencing body observation, we move away from the preconceived, enter the vulnerable investigation, and the continuous exchange relationship between the inner and the outer be-

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

comes explicit. Giuseppe Penone is an artist who took part on the Italian art movement *Arte Povera*. He has been producing, over the past six decades, a work of great contribution to the thinking about gesture and sculpture as artistic practices that evoke the body as materiality and physical presence that endures in time. In his works and writings, Giuseppe Penone acted directly in the landscape, as well as worked with the human body as a landscape in itself, proposing a poetic link between the human agent and the outer space. In his writings, body and nature relate as plastic materials that are molded and interfere on each other, and transform themselves over time.

In 1970, Penone created mirrored contact lenses and put them in his own eyes. With the lenses on, the artist could not see anything and, at the same time, had in his eyes the reflection of the images that he would see. *Rovesciare i propri ochi* (reversing one's own eyes) challenges dual concepts between inner and outer, subject and object. The artist's body becomes the sculpture in itself – a privileged media for his investigations and reflections in art.

The links between the sculpture and the presence of the body, as performative proposition, are raised by Penone in his thought about the artistic practice. The artist proposes an experience with the body when thinking about sculpture:

> To make a sculpture, the sculptor must settle down on the ground, letting himself slip down slowly and little by little. Then, stretched out, he can concentrate his attention and the forces upon his body which, pressed against the earth, allows him to see and feel earthy things; then he can stretch out his arms to delight fully in the coolness of the ground and achieve a degree of calm required to produce sculpture. At this point, the immobility becomes the more evident and active condition; every movement, every thought, every desire for movement is superfluous and undesirable in this state of calm and slow sinking, without tiring convulsions and words and artificial movements that only provoke shock, removing him from the condition fortunately achieved.
>
> The sculptor penetrates… and the line of the horizon comes nearer to him. When, finally, he feels literally light-headed, the cold of the earth cuts him in half and enables him to see quite clearly and precisely the point which divides the part of his body which belongs to the emptiness of the sky and the part which belongs to the fullness of the earth. This is when sculpture comes into being (Penone, 2009, p. 56).

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

In the work *Soffio di Foglie*, made in 1979, Penone exercises an embodiment that is close to the meditation above: in the exhibition opening, the artist lies on a pile of dry leaves, and stay still continually breathing, so that, when he gets out of the position, a silhouette of the body and the breathing is marked in low relief. Gesture and sculpture connect on this artwork, constructed as the material memory of a body that is revealed by its absence.

Another artwork which is also a reference to think about performance and sculpture, and that relates to the *collapse of scales between the human and the planet* evoked in this text, is *Atlas* by Cildo Meireles. In an operation that crosses the scales of time and space humorously, Cildo Meireles builts his own body as sculpture – or considers the planet as a performance object. It is a kind of work-fold over *Socle du Monde*, made by the Italian artist Piero Manzoni in 1961, consisting of an iron cube with the title *pedestal of the world* written upside down. The small cube figures the basis that supports the entire planet: a conceptual articulation that we could describe as cosmopolitics, since it considers the earth and all nature that it includes as a work of art. In 2007, Cildo Meireles made a new conceptual operation over the work: balanced upside down on the sculpture, Meireles photographed his performance and called *Atlas,* in reference to the Greek mythology's Titan, sentenced to carry the weight of the world forever. The performative body of the artist is inserted evoking gravity, both physical and symbolic. The human scale and the scale of the planet encounter in the myth and in the improbable figurations of art.

Oil is Crisis

Advanced capitalism became increasingly hegemonic – especially after being free from the trials imposed by the existence of the Soviet Union's alternative. As noted by Fredric Jameson (2003, p. 1), with no competition from another model of society, "it is easier to imagine the end of the world than the end of capitalism". We could also mention that, despite numerous international conferences and unambiguous statements from the scientific community about the risks of climate change, it seems easier to imagine a world that is 4 degrees warmer than to imagine the end of the fossil fuels' exploitation.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Crisis, wars and oil were continuously associated in world history, in more or less explicit ways. George Caffentzis devotes extensive analyses on the subject in the book *The Blood of Oil*, which deals with various global disputes over the fossil fuels' domain – most of them with authoritarian outcomes, and on several occasions, with interventions by imperialist countries, in sabotages well-tied with large multinational companies (Caffentzis, 2005). It will not fit in this text the complex historical, social and economic network that builds the relationship between oil crisis and wars worldwide, but the links between armed conflicts and disputes over the control of oil and natural gas reserves are evident. Around the world, traditional populations resist against multinational oil companies that degrade the environment and drive the locals out of their lands - struggles manifested in the movement of the Zapatistas in Mexico, the guerrillas in the Nigerian Delta, and in the indigenous communities in Bolivia and Ecuador. Moreover, it is clear the US domination over Central and South America and the efforts to influence and control countries that contain oil, such as Venezuela and Brazil, the youngest – and perhaps most naive – player in this global arena.

According to Timothy Mitchell, when they are not directly involved in wars, multinational fossil fuels companies and imperialist countries, like the United States and England, have adopted the so-called "preference for the crisis" (Mitchell, 2011, p. 149). The control over the production rate and the ups and downs of the oil price, associated with the practice of trade restraints and withdrawal of investments, are some of the strategies to root economic crises in the target countries. The method involves "provoking a crisis and delaying its solution" (Mitchell, 2011, p. 150), which tends to generate political instability and may result in depositions, popular uprisings and coups.

Looking over the several examples analyzed by Timothy Mitchell, especially Iraq and Iran's history, it will not seem absurd to speculate about the relationship between the serious financial crisis in Brazil that started in 2015, the parliamentary coup disguised as impeachment in 2016, and the change in the partaking regulations of pre-salt's giant oil reserves, passed by the Congress shortly after. The change in the law removed the monopoly of the state company Petrobrás as main operator, a result of the persistent lobby by large oil multinationals in partnership with the Embassy of the United States – confirmed by confidential document leaks by

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

the group *Wikileaks*, that revealed the communications between Chevron executives, the US embassy and PSDB parliamentarians, the opposition party at the time, in 2010[3]. The operator role is key in oil drilling: it is the operating company who defines the rate of extraction, which is one of the main influences on the final price. In addition, the operating company is in a more favorable position to discover new oil reserves, and can hide important information, betraying public interests.

In 2017, an official telegram from the British government released by Greenpeace confirmed the lobbying of the British government to ease the operation rules and environmental licensing in the Brazilian pre-salt agreements. The documents demonstrate that the British trade minister pressured the Brazilian mines and energy minister in favor of oil giants BP and Shell, with concrete results in the changes in the Brazilian oil legislation passed by Congress in the same year[4].

Sometimes the trade agreements around oil take frightening outcomes, such as the trade arrangement between the British and Iraqi government in 1964, that systematically exchanged oil for weapons, making the production of fossil fuels and the militarization of society increasingly interdependent (Mitchell, 2011, p. 155-156).

Currently, wars and military coups are political strategies not so well accepted by the international community, especially with the threat of a nuclear war. The modernization of the imperialist methods turned conspiracy and sabotage into subtle and invisible practices. A current method is to educate and train young activists and finance social movements and political parties that will meet the obscure interests within their local democracies.

In his analysis, which is defined as "comparative crisisology", Caffentzis observes that capitalism is not only prone to crises, but it has a "crisis creative" practice: "[...] so whenever one sees a crisis one should not assume this is a problem for the capitalist class, even though it might be one for individual capitalists, for a crisis might end by putting the capitalist class as a whole in a more powerful position" (Caffentzis, 2008, p. 54). During the crisis, some banks and companies decree bankruptcy, governments take in exorbitant debts, investments disappear, and the population suffers with social benefit cuts and unemployment. At the end of the process, the nation

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

states tend to come out weak, extremely dependent on international loans and investments, while the capitalist system as a whole is strengthened, free of protectionist constrains and profiting from social inequality, abundant in cheap workforce and precarious labor rights.

Martin McQuillan observes that climate change and the necessary transformation to a "post-carbon" period have already started, making urgent the task of critically imagine a world "beyond the fractal distillation of oil" (McQuillan 2012, p. 270). But the author himself states that the idea of crisis is not good enough for this situation: "To name it as a crisis is to subject it to the temporality of 'the crisis', namely that it will one day come to an end and a state of normativity will be restored" (McQuillan, 2012, p. 275).

McQuillan related the "environmental catastrophe" and "financial crisis", suggesting that the two are always intimately connected in a "speculation structure" (McQuillan, 2012, p. 277). Therefore, the response to climate change will need to be larger than a purely scientific solution, which enables the maintenance and normativity of the current economic system.

> Oil trades in dollars have been the basis for American economic, cultural, and military hegemony since the 1970s, and the liquidity that ensures the development of the western-led global economy. A post-carbon economy presents a considerable challenge to the present geopolitical dispensation and, co-terminus to this, the current conditions of capital. [...] It is not that the nineteenth and twentieth-century thought is incapable of responding to the new crisis of climate change, but that climate change is a product of such thought as its latest episode and challenge (McQuillan, 2012, p. 280-282).

The challenge of climate change is, therefore, a challenge to the typical organization of modern society, with its methods of production of knowledge and technological development. Such a wide transformation would require a change in the global paradigm.

Art, in its many mediums, has repeatedly been linked to social changes, breaking patterns and pre-established behaviors, creating images, narratives and figurations that allow to envision different ways to be in the world. What will be the role of art in this decisive moment it is not yet clear, but many artists around the world are already thinking and working actively on these issues.

Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

The sculpture *Fossil Pit* (*Fosso Fóssil* - picture 3) was designed and carried out during the political crisis that culminated in the parliamentary coup in Brazil in 2016, consummated in the impeachment of President Dilma Rousseff. The artwork reverberates the above-mentioned research, that relates crisis and oil, and deepens the analogy between the body and the planet. A Latin America map was covered with bitumen – the densest part of oil, and gold acupuncture needles were placed at the sites corresponding to the major oil and natural gas reserves. The borders of Brazil are revealed *in depression* (in low relief), and a hole in the place matching Brasilia – the country's capital – drained down the bitumen, which trickled slowly during the exhibition period, falling over a thick layer of salt on the ground.

Like any artwork, *Fossil Pit* is open to multiple interpretations. Among the reasons that led me to this work was the desire to make visible the obscure oil layer that mobilizes the geopolitics, to reflect on its value – the *black gold* –, materialize the bleeding (*sangria* – in reference to the leaked audio of Senator Romero Jucá)[5], and at the same time, to suggest a flow practice and some kind of healing, as if treating the country as a body (coarse salt and acupuncture needles).

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Image 3 – *Fosso Fóssil* / *Fossil Pit*, sculpture (wood, bitumen, gold acupuncture needles and coarse salt). Source: *Tempo Fóssil* exhibition (Galeria Ibeu, Rio de Janeiro, 2016).

Anthropocene

Anthropocene is the proposed term by researchers Paul J. Crutzen and Eugene F. Stoermer, in 2000, for the new geological era, which now constitutes a later time to the Holocene, post-glacial geological epoch in which the

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Earth got a climate balance that allowed the development of human communities (Crutzen; Stoermer, 2000). One of the key milestones of the Anthropocene concept is that the human agent is causing geophysical changes of major proportions, through actions that modify the rocks, weather, underground, ecosystems, water, and therefore the future of the planet.

The historian Dipesh Chakrabarty reflects on this new geological epoch in the seminal text *The Climate of history: four theses*, published originally in 2009. According to the author, there is a change in the scientific perceptions of the relationship between the human agent and nature from an imminence of climate change: "[...] the notion that the climate, and consequently the whole environment, can sometimes reach a peak from which its slow background condition and seemingly timeless turns out with a such speed that can only be disastrous to humans" (Chakrabarty, 2013, p. 9).

Climate changes on the planet were, until then, analyzed from geological records that indicated an extended time scale, in which a significant change would only take effect in thousands or millions of years. Currently, climatologists note that the changes may reach extreme speed rates if certain ecological limits are exceeded, causing a cascade effect on a global scale, which can hardly be controlled. Melting glaciers and ocean acidification are just two of the most serious irreversible changes to the ecological balance of the planet (Silberg, 2016).

From "prisoners of time", the concept of the Anthropocene elevates the humans to the status of "creators of time" (Chakrabarty, 2013, p. 9) – a condition that can be viewed with optimism by those who believe in the redemptive power of technology as a solution to all problems. The situation is complex because technology itself, developed along the lines of the industrial revolution and capitalist society, contributed to the exacerbation of human impacts on climate and biodiversity. Reality suggests that the *creation* of the climate that has been engendered by the human agent in the last centuries will result in a much more dramatic and imprisoning condition than the previous.

In this scenario, nature takes on a different kind of role. It is no longer just a reality to be analyzed and have its laws discovered, but an uncontrollable and unpredictable force that calls into question the human capacity to

Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

react in time, whether in the sphere of science, engineering, culture or politics. Peter Sloterdijk defines this change as a shift in the human position in the cosmos, which he characterized as "backdrop ontology" using the performative scene metaphor (Sloterdijk, 2015, p. 334):

> In this ontology, the human being plays the dramatic animal on stage before the backdrop of a mountain of nature, which can never be anything other than the inoperative scenery behind human operations. The thinking anchored in this backdrop ontology remains virulent long after the Industrial Revolution, even though it is now seen as an integrated depot of resources and a universal dump.

Let's go back to the dawn of the Industrial Revolution, when both the concept and the work of this geoclimate-human force was being matured and put into action. Chakrabarty notes that the achievement of the transformation of nature took place at the same time as the quest for freedom, as in the Enlightenment thought. Both processes are closely related to the Industrial Revolution.

> The period mentioned, from 1750 until today, is also the time that humans have replaced wood and other renewable fuels by the use of fossil fuels on a large scale – first coal, then oil and gasoline. The mansion of modern freedoms rests on a base of fossil fuel use in permanent expansion. Most of our freedoms until today consumed large amounts of energy (Chakrabarty, 2013, p. 11).

During modernity, the battles between freedom and oppression – be it the oppression embodied in nature, in a dominant economical class or in imperialist countries – were connected with the industrial system development in different ways. But the industrial always imposed itself using justifications like modernization of the ways of life to achieve greater comfort and freedom, through the distribution of electricity, transportation, technological equipment and goods. Jean-Luc Nancy mentioned that the crucial factor for achieving this geoclimate-human force was the industrial revolution, which resulted in the intensive and extensive dissemination of technology.

> Where once we were able to aim for a mastery of nature directed at human well-being, we now find ourselves faced with an inverted mastery by human technique over the entirety of individual and social conditions of existence, and also over the group of conditions called 'natural' (relating to the animal and the cosmos) (Nancy, 2015, p. 88).

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Chakrabarty notes the need to locate the crisis of climate change in associations of intellectual formations that are already under stress, such as "[...] the planet and the global; the deep history and the recorded history; the understanding of the species and the criticism of the capital" (Chakrabarty, 2013, p. 15). Thus, a cosmopolitics action that encompasses the time scales of the human and the planet.

It is for the construction of a new creative repertoire that could help us deal with the uncertainties of the present that authors such as Donna Haraway, Isabelle Stengers, Bruno Latour, Michel Serres, Eduardo Viveiros de Castro and Déborah Danowski reach back to the myths and the arts in their various mediums. Danowski and Viveiros de Castro located in their research the pursuit for an "appropriate mythology to the present time" (Danowski; Viveiros de Castro, 2014, p. 17):

> The semiotic system of the myth, indifferent to truth or falsity of the empirical in its contents, sets in whenever the relationship between humans and its general conditions of existence is imposed as a problem for reason. [...] We are here before an essentially metaphysical problem, the end of the world formulated in strict terms of these supremely empirical sciences that are climatology, geophysics, oceanography, biochemistry, ecology. Perhaps, as Levi-Strauss noted repeatedly, the science, which began to separate itself from the myth about three thousand years ago, will end up meeting it again [...] (Danowski; Viveiros de Castro, 2014, p. 17).

Following in the same direction, Donna Haraway proposes the act of *figuring* as a crucial gesture in order to avoid succumbing into the paralysis of shock and to escape from a collective lethargy.

> Figuring is a way of thinking or cogitating or meditating or hanging out with ideas. I'm interested in how figures help us avoid the deadly fantasy of the literal. [...] Figures help us avoid the fantasy of 'the one true meaning'. They are simultaneously visual and narrative as well as mathematical. They are very sensual (Haraway, 2015, p. 257).

The investigation that has led me to create this text and the artistic works here presented is identified with this search for new figurations to deal with a present full of uncertainties. *Figuring* – and at this point we propose a broader perspective of the expression, which includes the experience of art in its different forms – visual, textual, sound, performance, sculptural, among many others – and that is not limited to the realistic rep-

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

resentation or figuration, but opens space for the imagination. An act of fiction that does not opposes or equals itself to the truth, but can alter reality.

Conclusion

This text analyzed some of the relations between art and cosmopolitics, especially considering Climate Change and the Anthropocene, choosing as starting point artistic practices linked to the body, either directly, as in the case of performance, or indirectly, through analogies between the body and the planet, materialized in sculpture. While we assume as consensus the geological force of human beings, it becomes urgent to investigate which are the crucial factors that made the human activity an engine of destruction, devastation and exclusion. The text took the fossil fuels networks and their impact on society and ecosystems as the first object of analysis to reflect on the relationship between the human agent and the planet.

I therefore situate an interesting position that the arts can play in the Anthropocene discussion: to *figure* a present time in a crisis state may indicate pathways and bifurcations that perhaps had not been imagined yet. It is as if, when facing an end – of modernity, of our species or of life –, we were placed again in a beginning, although without knowing if a positive future can prosper or if the human catastrophe is inevitable. To go forward into the darkness – a challenge that is shared both by the artistic experience and the scientific and philosophical speculation.

The arts of the body arise in this reflection as a cosmopolitical practice that challenges the collapse of scales between the human and the planet, and experience the crossing of temporalities. From the body of the individual to the collective body, from art to activism, it is in the presence – physical or virtual – that a new political network can be woven. It remains to be seen what kind of new *machineries* can be created, as the *political machinery* of coal networks examined by Timothy Mitchell. But instead of searching for machineries – anchored in the industrial model of modernity – it is up to us to create other forms of figuration, perhaps more organic and systemic, resilient and fertile, like living organisms.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Notes

[1] Proposed by researchers Paul J. Crutzen and Eugene F. Stoermer in 2000, the geological epoch called the Anthropocene is in analysis by the *International Commission on Stratigraphy* and the *International Union of Geological Sciences*. The Working Group on the Anthropocene, formed by experts in the area, voted for the formal indication of the epoch at the International Geological Congress in August 2016. The report is available at: <http://quaternary.stratigraphy.org/workinggroups/anthropocene/>. Accessed: 15 October 2016.

[2] The news of the *Tar Pitch Experiment* was published in the journal *Nature* on 18 July 2013. The article and the video that shows the falling drop can be accessed through the website <http://www.nature.com/news/world-s-slowest-moving-drop-caught-on-camera-at-last-1.13418>. Accessed: 20 March 2017.

[3] The documents are available on Wikileaks (2011).

[4] The telegram was released in November 2007 with extensive discussion in the British media, as in The Guardian article: <https://www.theguardian.com/environment/2017/nov/19/uk-trade-minister-lobbied-brazil-on-behalf-of-oil-giants>. Accessed: 20 March 2017.

[5] In 2015 and 2016 it was revealed in the Brazilian press a series of audio recordings in the context of the anticorruption operation called *Lava Jato*, investigated by the Federal Police. In one of the conversations, Senator Romero Jucá dialogues with the former president of giant state oil company Transpetro, Sergio Machado, and notes that it was necessary to stop the operation in a 'great national agreement' and 'stop the bleeding', referring to the detentions and investigations of senators and other representatives involved in corruption schemes. The explicit content of the audio was emblematic since it showed the self-preservation and conspiracy of men who led the impeachment process against former President Dilma Rousseff. Many of the statesmen that were recorded and mentioned in the audios took over the power with the justification that the president had committed a fiscal responsibility crime.

References

CAFFENTZIS, George. **No Blood For Oil!** Energy, Class Struggle, and War, 1998-2004. S.l.: Radicalpolytics.org, 2005.

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

CAFFENTZIS, George. A Discourse On Prophetic Method - Oil Crises and Political Economy, Past and Future. **The Commoner**, United Kingdom, n. 13, s. p., 2008. Available at: <http://www.commoner.org.uk/>. Accessed on: 4 Oct. 2017.

CHAKRABARTY, Dipesh. O Clima da História: quatro teses. **Sopro**, Florianópolis, Editora Cultura e Barbárie, n. 91, p. 4-22, jul. 2013. Available at: <http://culturaebarbarie.org/sopro/n91.html>. Accessed on: 4 Oct. 2017.

CRUTZEN, Paul J.; STOERMER, Eugene F. The Anthropocene. **The International Geosphere–Biosphere Programme (IGBP) Global Change Newsletter**, Stockholm, IGBP, n. 41, p. 17-18, 2000.

DANOWSKI, Déborah; VIVEIROS DE CASTRO, Eduardo. **Há mundo por vir**?: ensaio sobre os medos e os fins. Florianópolis: Cultura e Barbárie; Instituto Socioambiental, 2014.

FREGA, Marina. **Do Fóssil ao Húmus**: arte, corpo e Terra no Antropoceno. 2016. Tese (Doutorado em Arte e Cultura Contemporânea) – Programa de Pós-Graduação em Artes, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, 2016.

HARAWAY, Donna. Anthropocene, Capitalocene, Chthulhucene: Donna Haraway in conversation with Martha Kenney. In: DAVIS, Heather; TURPIN, Etienne (Ed.). **Art in the Anthropocene -** Encounters Among Aesthetics, Politics, Environments and Epistemologies. London: Open Humanities Press, 2015. P. 255-270.

HERRLING, Thomas et al. The Important Role of Melanin. **SÖFW-Journal**, Berlin, n. 133, p. 26-32, 2007. Available at: <http://www.gematria-test-lab.com/pdf/theimportant[1].pdf>. Accessed on: 22 Mar. 2017.

JAMESON, Fredric. Future City. **New Left Review**, London, n. 21, 2003. Available at: <https://newleftreview.org/II/21/fredric-jameson-future-city>. Accessed on: 22 Mar. 2017.

JOHNSTON, Richard. World's slowest-moving drop caught on camera at last. **Nature News**, United Kingdom, Macmillan Publishers Limited, 18 jul. 2013. Available at: <http://www.nature.com/news/world-s-slowest-moving-drop-caught-on-camera-at-last-1.13418>. Accessed on: 22 Mar. 2017.

KRAUSS, Rosalind. **Caminhos da Escultura Moderna**. São Paulo: Martins Fontes, 2007.

E-ISSN 2237-2660

LATOUR, Bruno. Politics of Nature: East and West Perspectives. **Ethics & Global Politics**, United Kingdom, v. 4, n. 1, p. 1-10, 2011.

LATOUR, Bruno. **An Inquiry into Modes of Existence –** an anthropology of the moderns. Cambridge: Harvard University Press, 2013. Available at: <http://www.modesofexistence.org/>. Accessed on: 22 Mar. 2017.

MCQUILLAN, Martin. Notes Toward a Post-Carbon Philosophy. In: COHEN, Tom (Ed.). **Telemorphosis** – theory in the era of climate change, Vol 1. Michigan: Open Humanities Press, 2012. P. 270-292.

MITCHELL, Timothy. **Carbon Democracy**: political power in the age of oil. London: Verso, 2011.

NANCY, Jean-Luc. The Existence of the World Is Always Unexpected: Jean-Luc Nancy in conversation with John Paul Ricco. In: DAVIS, Heather; TURPIN, Etienne (Ed.). **Art in the Anthropocene -** Encounters Among Aesthetics, Politics, Environments and Epistemologies. London: Open Humanities Press, 2015. P. 85-92.

OPPENHEIM, Dennis. **Reading Position for Second Degree Burn**. Stage I, Stage II. Book, solar energy. Exposure time: 5 hours. Jones Beach. New York, 1970. (Performance).

PENONE, Giuseppe. **Writings 1968-2008**. Bologna: IKON / MAMbo, 2009.

ROLNIK, Suely. **Geopolítica da Cafetinagem**. São Paulo, 2006. Available at: <http://www4.pucsp.br/nucleodesubjetividade/Textos/SUELY/Geopolitica.pdf>. Accessed on: 22 Mar. 2017.

SERRES, Michel. **Hermes**. Baltimore: The John Hopkins University Press, 1982.

SILBERG, Bob. Why a half-degree temperature rise is a big deal. **Global Climate Change**: vital signs of the planet. United States: NASA's Jet Propulsion Laboratory, 2016. Available at: <https://climate.nasa.gov/news/2458/why-a-half-degree-temperature-rise-is-a-big-deal/>. Accessed on: 7 Oct. 2017.

SLOTERDIJK, Peter. The Anthropocene: a process-state at the edge of geohistory? In: DAVIS, Heather; TURPIN, Etienne (Ed.). **Art in the Anthropocene** – Encounters Among Aesthetics, Politics, Environments and Epistemologies. London: Open Humanities Press, 2015. P. 327-340.

SOLANO, Francisco. Melanins: Skin Pigments and Much More – Types, Structural Models, Biological Functions, and Formation Routes. **New Journal of**

P* Revista Brasileira de Estudos da Presença
Brazilian Journal on Presence Studies
E-ISSN 2237-2660

Science, Cairo, Hindawi Publishing Corporation, article ID 498276, 28 f., 2014.

SOLIS, Arturo et al. Photoelectrochemical properties of melanin. **Research Gate Nature Precedings**, s. l., v. hdl:10101/npre.2007.1312.1, Research Gate, 2007. Available at: <https://www.researchgate.net/publication/36789147_Photoelectrochemical_properties_of_melanin>. Accessed on: 22 Mar. 2017.

WIKILEAKS. **Brazil**: nos bastidores, o lobby pelo pré-sal. Suécia, 2011. Available at: <https://wikileaks.org/Nos-bastidores-o-lobby-pelo-pre.html>. Accessed on: 8 Oct. 2017.

Mari Fraga is an artist, researcher and professor. PhD in Arts in Institute of Arts at the Universidade do Estado do Rio de Janeiro (UERJ), with a visiting period at Konstfack University of Arts, Crafts and Design (Sweden). Currently working as professor in the School of Fine Arts of the Universidade Federal do Rio de Janeiro (UFRJ), she is editor of the *Carbono* journal: www.revistacarbono.com. Artistic website: www.cargocollective/marifraga
E-mail: marinafraga00@gmail.com

This unpublished text, translated by Thiago de Almeida, reviewed by Luis Carlos Csekö and proofread by Ananyr Porto Fajardo, is also published in Portuguese in the issue.

Received March 31, 2017
Accepted October 10, 2017