

ATAFONA: RECORDS OF A WORLD IN RUINS¹

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ABSTRACT

Atafona is a beach located in Northern Rio de Janeiro, Brazil, to which the Paraíba do Sul River flows after traveling hundreds of kilometers and crossing three federal states. Over the 20th century, Atafona was a seaside resort for a regional elite, who built their summer houses there and lived the place, for more than four generations, as an environment for leisure, meetings, parties, and other social gatherings. In the second half of the 20th century, the sea water began to advance towards the built-up area of Atafona, “swallowing” its houses, streets, and blocks. The landscape was gradually transformed into an exhibition of ruins. This essay presents images of the Atafona ruins, taken at different moments of the 21st century, to tell a little of its history and landscape transformations.

KEYWORDS

Atafona;
Anthropocene; Ruins;
Social memory; Erosion

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FIGURE 1
October, 2005.
Source: Carlos
Abraão Moura
Valpassos.

INTRODUCTION

The beach of Atafona is located in the municipality of São João da Barra, Northern Rio de Janeiro. Atafona is currently marked by the presence of houses that either have been destroyed or are in the process of being destroyed by the Atlantic Ocean's water. Those who walk along the beach are forced to dodge rebars, tree trunks, tiles, beams, bricks, pipes, tiles, walls, or any other materials that were once part of houses that were or are being swallowed by the sea. It is, therefore, an unstable landscape: it is not the same as it was last summer and certainly will not remain the same until the following summer.

While it is true that instability is a common feature of many landscapes, what is striking about Atafona is the speed and scale at which the sea is advancing on places which were once known for their leisure and social activity. Old constructions, initially located hundreds of meters or even kilometers away from the sea, were getting closer and closer to the oceanic waters, eventually collapsing into them. Such encounter is what stands out at Atafona beach. We can think, following Anna Tsing (2019, 17), that "the landscape is a meeting point for human and non-human activities and an archive of human and non-human activities of the past;" thus, when we think of Atafona beach as a landscape archive of activities, we emphasize that the current scenario is the outcome of several interaction processes, which occurred in other times and even in other regions, and

resulted in a configuration different from the past ones and which will certainly be changed in a near future.

Therefore, our hiker will witness a day when the waters are far from the buildings – and then will notice that the sea has receded – or observe a day when the waters reach the buildings. In any case, the hypothetical observer will realize that they are in an ever-changing landscape. And simply walking along the beach can be enough to raise questions: since when did the sea advance over built-up areas? Who were the people who lived in those houses?



FIGURE 2
February 28th,
2015. Source:
Carlos Abraão
Moura Valpassos

In this essay we will briefly answer these questions. To do so, we will provide a historical overview of what established the landscape of ruins at Atafona beach, which will be treated as a multifaceted place, where elite families from the municipality of Campos dos Goytacazes built their holiday cottages throughout the 20th century. We will also discuss the confluence of the Paraíba do Sul River and the Atlantic Ocean, and finally, we will delve into the experiences of families who built their homes there and now struggle with the gradual process of sea-level rise.

The photographs selected here were taken at four different times (in the years 2004, 2005, 2006, 2009, 2015, and 2021) and are not arranged in chronological order. They do not depict people, but, by presenting the buildings in ruins, they highlight processes: the former uses of summer houses, the impacts of different human activities on the Paraíba do Sul

River, and the advance of seawater on the constructions of Atafona. These are not cause-and-effect relationships, but different connections that shape the landscape and link people, cities, the River and the sea. They are images from the Anthropocene era, photographs capturing a landscape in transformation, recording different moments of a feral phenomenon (Tsing 2019, 14).

THE HOLIDAY COTTAGES, THE RUINS, THE RIVER AND THE SEA

The authors of this essay have different connections with Atafona, but both relate to their childhoods. Carlos Abraão Moura Valpassos first visited the resort between the late 1980s and the early 1990s, taken there by his parents. They did not own a house in Atafona, but visited the place for leisure purposes, to see family friends, or to introduce visiting relatives to the beach. On these occasions, he would stroll along the beach and observe the changes in the landscape since his last visit. His father spoke of processes like silting and water diversion that reduced the flow of the Paraíba River and how this, associated with sea level rising, contributed to the advance of the sea over the houses of Atafona. For him, Atafona has always been an experience marked by the landscape and the attempts to comprehend it.



FIGURE 3
2004. Source:
Juliana Blasi
Cunha

Juliana Blasi Cunha, in turn, has a deeper connection with Atafona. Her family has been going to the resort since the first half of the 20th century

and, in 1947, her great-grandfather built the villa that would be used by her family every summer until today. As the sea advances, five generations of the family enjoyed their holidays at Atafona's house.

In 2005, the authors were master's students in the Anthropology Graduate Program at the Fluminense Federal University, advised by Professor Marco Antonio da Silva Mello. They got to know each other during meetings at the Metropolitan Ethnography Laboratory (LeMetro-IFCS-UFRJ). Juliana Blasi had chosen the social activities of vacations of traditional families in Atafona as the theme of a research that would result, in 2007, in her master's thesis – and which would be turned into a book in 2020.

Meanwhile, Carlos Valpassos was interested in the fishermen of Lagoa Feia and the sanitation policies that transformed the topography of the Northern Fluminense region. Due to their shared interests, both focused on issues of the Northern Fluminense coast, they established a research partnership, initially at LeMetro-UFRJ and, since 2017, at the Atelier de Etnografias e Narrativas Antropolíticas (Atena-UFF).

It was in the context of this research partnership that the photographs were captured. These images record the transformations that took place on Atafona beach, where the sea, advancing and retreating, engulf the houses in a slow process of swallowing (Codeço 2021), and which, by exposing the beams and rebars, invite us to reflect on the houses, the River, the sea and the history of Atafona.



FIGURE 4
2006. Source:
Juliana Blasi
Cunha



FIGURE 5

July, 2021.

Source: Carlos
Abraão Moura
Valpassos

We can say that Atafona began to be visited by people from Campos dos Goytacazes for leisure purposes in the first half of the 20th century (Blasi Cunha 2020). Gradually, these people, who rented houses from fishermen, built their own holiday cottages there. The movement intensified in the second half of the 20th century, reflecting the economic rise of liberal professionals, owners, and workers of sugar cane mills in Campos dos Goytacazes. As a result, Atafona gained urban infrastructure, with planned streets and essential services such as supply of running water and electricity.

Juliana Blasi Cunha's book, "Atafona – Sociabilidade e memória em um balneário no norte do Estado do Rio de Janeiro", delves into the history of the families that chose Atafona as a beach resort and, over generations, enjoyed their periods of vacation and leisure there. Although the book does not shy away from discussing the advance of the sea, this is not its primary focus. It addresses, primarily, the social stories of these families in Atafona: the parties, lunches, crabs, dances, and other events that marked the social memory of the elite families from Campos dos Goytacazes. As the anthropologist notes:

Atafona is often perceived and treated by the press, Academia and new visitors as the city that is disappearing from the map. As for its former vacationers, Atafona holds the title of a unique place in the world not because it is the stage of

this socio-environmental phenomenon, but mainly because of the countless memories of the fantastic moments lived there. For the group of wealthy families of vacationers who have been there for 3 or 4 generations, Atafona is the scene of magical memories that involve living together during the vacation months in different periods over the course of their lives. (Blasi Cunha 2020, 15 and 16)



FIGURE 6
2006. Source:
Juliana Blasi
Cunha

When we talk about the advance of the sea and the destruction of the houses, we are addressing a difficult topic for people who lived important moments of their lives there. Because it is not just houses that are being threatened or torn apart by the sea, but artifacts of family history, stages of remarkable events or periods that were crucial to establish emotional ties between people and families. With each wall that collapses on the seashore, a piece of family history loses the material support that once held it together.



FIGURE 7
March 5th, 2009.
Source: Carlos
Abraão Moura
Valpassos



FIGURE 8
March 5th, 2009.
Source: Carlos
Abraão Moura
Valpassos

The beach in Atafona, like all others, is a liminal space (Turner 2005): it is located between the ocean and the continent, at the meeting point between water and land. Atafona's liminality, however, overreaches. It

links the past, the present, and the future, establishing a link between what it was, what it is and what it will be. And when the sea threatens or erodes these houses, they turn into ruins, highlighting the landscape's liminality.

The ruins are characterized, according to Simmel, by the opposition between the materiality erected by the human spirit and the forces of nature. According to the author (1911/1998, 137), “what constitutes the seduction of the ruin is that in it a human work is finally perceived as a product of nature”. It is in the opposition between human spirit and nature that the ruins gain their tragic aura, as they materialize a kind of movement of nature against human.

The fact that the violation of the work of human will, through the power of nature, can have an aesthetic effect has as a prerequisite the condition that the right of mere nature was never completely extinguished in this work, although it was formed by the spirit. With regard to its matter, its reality, it has always remained nature, and if this now returns to predominate, it thereby only exercises a right that until then had been in disuse, but which it never renounced. That is why ruin so often has a tragic effect—but not a sad one. This is because destruction is not something meaningless coming from outside, but the realization of a direction placed in the deepest stratum of existence of the destroyed. (Simmel 1911/1998, 140).



FIGURE 9
February 2015.
Source: Carlos
Abraão Moura
Valpassos



In the opposition between human spirit, represented by the houses, and nature, represented by the sea, we find another liminal aspect of Atafona beach. However, Simmel's emphasis on the opposition between human spirit and nature may lead one to think that the ruins are the result of a conflict between the two agents, and that, by shattering the fruit of human ingenuity, the entity of nature takes its revenge. Thus, Simmel seems to attribute a certain human – perhaps typically human – intentionality to non-human beings.

We understand, based on bibliographical analysis and native and academic formulations, that there are different factors involved in the process of the advance of the sea over the Atafona resort. As Ribeiro et al (2004, 130) note:

The complexity in the analysis of the erosion phenomenon is based on the oceanographic, fluvial and meteorological forces that act on the north coast of Rio de Janeiro. The lack of continuous and accurate historical series of physical-environmental data hinders a safer and more careful scientific analysis of this event, which has a geological origin [...]. The factors that are causing erosion are still being discussed by the scientific community, the most important being the following: wind and wave regime; containment of sediments in dams along the Paraíba do Sul River; regularization of river flow and its discharge into the Atlantic Ocean; increasing siltation of the river in its lower course.

Thus, although the erosion process is influenced by different factors, anthropic activities along the course of the Paraíba do Sul River seem to play a significant role in accelerating the phenomenon. As the River is silted up, its slopes are degraded, its waters are diverted to supply the largest Brazilian metropolises (in Rio de Janeiro through the transposition of the Guandu River, and in São Paulo through the Sistema Cantareira), and its flow rate is reduced, influencing the process of advancing oceanic waters. Different interventions carried out by different actors along the more than a thousand kilometers of the Paraíba do Sul River affect the flow in the delta and influence the erosion process that characterizes Atafona as an Anthropocene landscape.



FIGURE 10
2006. Source:
Juliana Blasi
Cunha



FIGURE 11
February 2015.
Source: Carlos
Abraão Moura
Valpassos

ATAFONA: A LOCAL EXPRESSION OF THE ANTHROPOCENE



FIGURE 12
July 2021. Source:
Carlos Abraão
Moura Valpassos

The climate crisis constitutes one of the great challenges of contemporary times –perhaps the greatest. This problem is a global issue, permeating the melting of glaciers, floods in India or Europe, droughts in different regions of the African continent or in South America, out-of-season snow-fall in countries in the northern hemisphere, and many others “atypical” manifestations that denote changes in the climate.

This perception has not gone unnoticed by academics; thus, researchers from many different areas have intensified their interest in climate change and its impacts on life on Earth over the past two decades. This shift not only generated a transformation in the focus of researchers, but has also led to theoretical and methodological transformations within the academic disciplines.

The term “Anthropocene” (Steffen, Crutzen and McNeill 2007) gained wide repercussions in the first two decades of the 21st century as it sought to define a new geological era, in which the presence of humans started to have an impact on a global scale, with consequences on life and on Earth.

The idea of Earth as a living system has become a crucial aspect for thinking about the climate crisis and its relationships with the impacts of human actions. James E. Lovelock (1979/1987, 11) contributed to this



perception when he described Gaia as “a complex entity involving the Earth’s biosphere, atmosphere, oceans, and soil”. Thus, the perception of a planet characterized by the relationships between different agents, human and non-human, as well as living and non-living agents, establishes the bases for considering the impact of human activities on the planet. The Anthropocene, in this reflective context, emerges as a way of highlighting and recognizing that human activities directly interfere in this living system that is planet Earth.

The global scale to which the Anthropocene refers, however, covers up differences and may have the power to bring issues that already constitute challenges of everyday experience. Such an understanding led to criticism of the Anthropocene concept, understanding it as an approach that treats all populations as co-responsible for climate change, as if all humans had equally contributed to the environmental collapse. Thus arises the proposal of the Capitalocene, which highlights that a specific economic system constituted the representation of “nature” as a resource to be exploited in a systematic way. Capitalism, however, would not have been equally driven by all peoples, and not all peoples would equally suffer the consequences of the development of capitalist activities on the planet.

It seems, therefore, that there is a global economic system with consequences promoted and unevenly distributed among the world’s populations. The sustaining logic of this economic model, known as capitalism, views nature as a resource to be exploited in order to achieve accelerated growth (Eriksen 2018).

Thus, criticisms of the “Anthropocene”, thought of as a concept, have highlighted the heterogeneity of different human contributions to climate change and the way in which such changes unequally affect different parts of the planet. José Augusto Pádua (2022, 192) observes that:

From the point of view of historical analysis of the Anthropocene, however, talking of a great global transformation is not enough. Although it is possible to recognize the relevance of global analyses, important problems soon appear regarding 1) the concrete social scope of these analyses; 2) the validity of the proposed periodization for these global processes, and 3) the participation of different social actors — at the local, regional, national, and international levels — in the constitution of these same processes. Such problems give rise to the pressing need to localize the history of the Anthropocene. From a social science perspective, it is not enough to work with big numbers and global data. The main contribution of these sciences, in fact, could be to



make visible the political, social, ecological and territorial dynamisms that exist behind the large numbers, including the conflicts, sufferings and resistances that appear in the different societies and groups of each society.

Therefore, Anthropology can help us to think about the climatic problems of the present because, in a disciplinary history marked by concern with heterogeneity and complexity of social formations, anthropologists, in their field research, can highlight how different populations deal with the impacts they suffer from the climate crisis. The discipline's contribution helps to undo the abstract character of the Anthropocene, since it situates it in localized effects. We follow, therefore, the perception of Eriksen and Mendes (2022, 10) when they argue that:

Like other anthropologists contributing to the field, we recognize the global dimension of climate change, but we also mean to show in what ways climate change is also always local and has been understood as such, ecologically, socially, politically, culturally.

Therefore, when we deal with the advance of the sea on Atafona beach, we believe that we are highlighting a localized expression of climate change. The erosion of the coastline, with its streets and houses gradually swallowed by the sea, constitutes a feral phenomenon that reconstitutes the history of human activities. We can infer that several human activities promoted the currently observed phenomenon, some of them remote, such as those carried out in different parts of the planet and which caused ocean levels rising, but also others, carried out in the Southeastern Brazil – such as the metropolitan expansion and its impacts on the Paraíba do Sul River. What we want to highlight is that the erosion observed in Atafona is an interweaving of different activities that promoted environmental changes over time.



FIGURE 13
March 2009.
Source: Carlos
Abraão Moura
Valpassos

Atafona was the beach chosen as a resort by the elite of Campos dos Goytacazes, where the construction process of holiday cottages began in the first half of the 20th century. The transformation of Atafona into a seaside resort was driven by the riches obtained through the exploration of sugar cane in the North of Rio de Janeiro. The plantation system, in this case based on sugarcane monoculture and, for centuries, supported by the exploitation of the work of enslaved people, played a crucial role in the transformation of the biomes of the North of Rio de Janeiro. Throughout, primarily, the second half of the 20th century, sanitary engineering works systematically altered the dynamics of rivers and lakes in the



region through the construction of canals, the drainage of lakes and streams, and the rectification of rivers (Valpassos 2021). We thus perceive that human interventions in the North of Rio de Janeiro have temporal depth and are involved in the logic of an economic process of action on the environment

It is noteworthy that the periods of greater sumptuousness in buildings and leisure activities in Atafona reflect the heyday of the sugar-alcohol economy. At the same time, the decline of this economy coincides precisely with the advance of the sea and the destruction of the holiday cottages. Therefore, Atafona can be seen as a metaphor for the region and its economy. However, Atafona offers us more than this to think about.

The erosion process that constitutes the ruined landscape of Atafona beach has the contours of an issue that becomes more evident every day: the climate crisis. The beach landscape is composed of a complex network of events, in which human action in different stretches of the Paraíba do Sul River seems to accelerate a process that, in other places, has taken place at a slower pace. Therefore, Atafona is constituted as an Anthropocene landscape, enabling to observe the effects of rising oceans on a reduced scale, before it manifests in the same intensity on larger scales.

FINAL CONSIDERATIONS

The advance of the sea in Atafona created a scenario of destruction. Fishermen's houses and holiday cottages were swallowed by the waters. Some poorer families even lost more than one house throughout this process, and even today are at risk of losing the house they currently live in – with the prospect that the occupation of one more house on the beach will also be transitory, due to the continuous advance of the sea. The situation of these families – who migrate from house to house, leaving the houses that are being swallowed by the sea and occupying those that are abandoned because they are threatened by the waters – is an aspect of resilience of people who, by necessity, will, or both, insist and persist in Atafona. These are people who live and coexist with the erosion process, adapting their lives and homes to the locally experienced effects of the climate crisis. Meanwhile, we are facing a social phenomenon of adaptation and resilience. Donna Haraway (2016, 140) notes that:

Anna Tsing argues that the Holocene was a long period when refugia, places of refuge, still existed, and were even plentiful, underpinning the reshaping of rich cultural and biological diversity. Perhaps the indignation worthy of a name like Anthropocene is the destruction of space-times of refuge for



people and other beings. I, along with others, think that the Anthropocene is more of a threshold event than an epoch [...]. The Anthropocene marks serious discontinuities; what comes after will not be like what came before. I think our job is to make the Anthropocene as short and tenuous as possible, and to cultivate, with each other, in every conceivable way, epochs to come that can reconstitute havens. Right now, the earth is full of refugees, human and non-human, and without a refuge.

The advance of the sea imposes on these families an adaptation to a problem that cannot be locally faced – nor changed. Therefore, it is up to them to search for permanence tactics. The families of the economic elite, in turn, although affected by the same phenomenon and in the same place, did not lose their main residence (usually located in other cities), but they feel the pain of losing homes that were constituted as places of affection, important scenarios of their memories. Thus, we can see that, although not in the same way, the environmental tragedy has a totalizing aspect, capable of reaching the most different social strata.

By observing Atafona today, we may be glimpsing a tragic possibility of what will be the future of countless coastal cities. The advance of the waters can be thought of as promoting the loss of houses and, with them, in addition to practical housing problems, the loss of places of memory, of topophilic spaces. Therefore, with the proposal of thinking of Atafona as an Anthropocene landscape, we end this essay with an excerpt from an interview conducted by Juliana Blasi Cunha (2020, 128 and 129) with Nídia Lyzandro Albernaz, belonging to one of the most distinguished families of Campos dos Goytacazes elite, who had her house, one of the most imposing in the resort, swallowed up by the sea: “you look back and cannot imagine that your roots, planted so deep, have come loose from the earth to go I don’t know where”.

TRANSLATION
Sandra Venancio
Kezen Buchaul



FIGURE 14
2006. Source:
Juliana Blasi
Cunha



FIGURE 15
July 2021.
Source: Carlos
Abraão Moura
Valpassos.

BIBLIOGRAPHIC REFERENCES

- Codeço, Fernando. 2021. Ecofagia: erosão como arte ambiental canibal. *Revista das Questões*, vol. 11, no. 1: 247-265.
- Blasi Cunha, Juliana. 2020. *Atafona: sociabilidade e memória em um balneário no Norte do Estado do Rio de Janeiro*. Rio de Janeiro: Autografia.
- Eriksen, Thomas Hylland. 2018. *Boomtown: runaway globalisation on the Queensland Coast*. London: Pluto.
- Eriksen, Thomas Hylland e Paulo Mendes. 2022. Introduction: scaling down in order to cool down. In *Cooling Down – Local responses to global change*, org. Susanna Hoffman, Thomas Hylland Eriksen e Paulo Mendes, 01-24. New York: Berghahn Books.
- Haraway, Donna. 2016. Antropoceno, capitaloceno, plantationceno, chtuluceno: fazendo parentes. *ClimaCom Cultura Científica: pesquisa, jornalismo e arte*, no. 5: 139-146.
- Lovelock, James. 1979/1987. *Gaia: a new look at life on earth*. Oxford: Oxford University Press.
- Pádua, José Augusto. 2022. Localizando a história do antropoceno: o caso do Brasil. In *Os mil nomes de gaia: do Antropoceno à idade da Terra*, org. Débora Danowski, Eduardo Viveiros de Castro e Rafael Saldanha, 187-217. Rio de Janeiro: Machado Editora.
- Ribeiro, Gilberto Pessanha. et al. 2004. Análise espaço-temporal no suporte à avaliação do processo de erosão costeira em Atafona, São João da Barra (RJ). *Revista Brasileira de Cartografia*, no. 56/02: 129-238.
- Simmel, George. 1911/1998. A ruína. In *Simmel e a modernidade*, Jessé Souza e Berthold Öelze. Brasília, DF: UnB.
- Steffen, Will, Paul Crutzen e John McNeill. 2007. The Anthropocene: are humans now overwhelming the great forces of nature? *Ambio*, vol. 36, no. 8: 614-621.
- Tsing, Anna Lowenhaupt. 2019. *Viver nas ruínas: paisagens multiespécies no Antropoceno*. Brasília, DF: IEB, Mil Folhas.
- Turner, Victor. 2005. Betwixt and between: o período liminar nos "ritos de passagem". In *Floresta de Símbolos*, Victor Turner, 137-158. Niterói: Eduff.
- Valpassos, Carlos Abraão Moura. 2021. *As insurreições dos pescadores da lagoa feia – ambiente, conflito e memória social no Norte do Estado do Rio de Janeiro*. Rio de Janeiro: Autografia.



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