PODCAST 1: SERIES DRY EYES

BY: JORGE MENNA BARRETO

ARTIST AND HOST: JORGE MENNA BARRETO

[Vignette]

What is the relationship between the globe of the eye and the globe of the Earth? How does the climate crisis place the human eye in an intimate and unusual relationship with planet Earth?

Take a break. If you can, close your eyes. Allow yourself a moment of introspection. Focus only on the sounds around you.

In this resting state, a significant phenomenon occurs.

When we close our eyes, our eyelids contribute to the regeneration of the tear film that covers the eye. This tear film is what keeps our eyes lubricated. It protects, nourishes, and rehydrates the surface of our eyeballs.

In today's world a growing majority of us have practically lived in front of cell phones and computer screens. We stare for hours and hours, which leads us to blink less and less. This change of habit in the eye's mechanism is practically imperceptible, but it has major consequences.

We have been experiencing a silent pandemic: dry eye syndrome.

Dry eye affects millions of people worldwide. It occurs when our tears are no longer sufficient to keep our eyes hydrated.

Olho seco, episode 1, podcast series, 2025, by Jorge Menna Barreto developed with the support of a seed grant from the Office of Research of Universidade California, Santa Cruz and Instituto Mesa.

At the same time, our planet has also been suffering from water scarcity. Entire regions are facing unprecedented droughts.

Our eyes are like a microcosm of this crisis and just as a lack of moisture harms many ecosystems, it also compromises our vision.

The climate crisis has altered rainfall patterns. In some places, we're experiencing unprecedented flooding; in others, droughts are reaching record lengths and intensity, creating a vicious cycle: cracked ground, dehydrated forests, fires, smoke... and many of us are watching it all on our computer and cell phone screens, transfixed, unblinking.

Just as increasing water scarcity has reshaped the Earth's landscape, dry eye is compromising our vision, and thus weakening our ability to respond to the climate emergency.

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[Introduction]

Welcome to *Olho Seco* (Dry Eyes): a space that connects literature, art, and the climate crisis. I'm Jorge Menna Barreto, and in this episode, we'll investigate the dehydration processes of the eyeball and the Earth.

[Sophia Faustino reads an excerpt from João Cabral de Melo's poem "'Habitar o Tempo'*" (Inhabiting Time) translated by Richard Zenith]*[1]

viver seu tempo: para o que ir viver
num deserto literal ou de alpendres;
em ermos, que não distraiam de viver
a agulha de um só instante, plenamente.
Plenamente: vivendo-o de dentro dele;
habitá-lo na agulha de cada instante,

[1] João Cabral de Melo, "Inhabiting Time" in: *Education by Stone*, translated by Richard Zenith (New York: Archipelago, 2005) 189.

em cada agulha instante: e habitar nele
tudo o que habitar cede ao habitante.

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Living his time: by going to live
in a literal desert or a desert of porches —
deserted places that wouldn't distract him
from living the needle of a single instant
to the full. Fully living it on the inside,
inhabiting it in the needle of each instant,
in each needle-instant, and inhabiting it
with all that inhabiting offers the inhabitant.

You just listened to an excerpt from the poem 'Habitar o Tempo' ('Inhabiting Time'), included in the collection *Education by Stone*, by João Cabral de Melo Neto and translated to English by Richard Zenith. The reader was Sophia Faustino, poet and research assistant on this project.

I'm someone who's suffered from dry eye. My brother, Carlos, an ophthalmologist, diagnosed the condition. Because of this project, I decided to reach out to him.

[WhatsApp sound effect]

[Jorge Menna Barreto leaves a message for his brother Carlos]

Carlos, how are you?
I wanted to ask you if you know anyone who specializes in dry eye [syndrome] who could do an interview with us.
Is there anyone you could recommend who is an expert in this area? Let me know. Ok, thanks, Carlão. Hugs

[WhatsApp sound effect]

[Carlos Menna Barreto leaves a message for Jorge]

Hi Jorge! [Yes,] let me tell you a little about tears. You know, the important thing about dry eye is that it's also about tear quality.

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On a visit to Porto Alegre [city in the state of Rio Grande de Sul in the south of Brazil], where he lives and I grew up, I spoke with him about dry eye syndrome in ophthalmology and took the opportunity to test the hypothesis of the parallel between the Earth and the eyeball, one of the foundations of this project.

[Interview with Carlos Menna Barreto]

> So, in order for us to see, our eyes have to have what we call a tear film. This is an external transparent layer that covers the cornea. This tear film [is a complex fluid where surface tension and viscosity interact, lubricating and stabilizing the eye's surface. But, it is not permanently stable, so, when the film thins] it breaks apart which causes vision to become blurry. That's why we blink, [to restore our vision]. So, what's the important thing about tears? We need a quantity of tears, but these tears also have to be of good quality.

"Tear quality." Did you know that there are good quality tears and... let's say... not so good quality tears?

> Tears have an oily part and a watery part. So, often, a patient with poor-quality tears might have a visual disturbance because, as I mentioned, they have the quantity but not the quality.
> Let me give you another example, you won't say: "Oh, doctor, I have dry eyes," but rather "I am crying a lot." We know when we cry, our eyes get red. So, how is it that even though we have a lot of tears, our eyes still get red? Because they are liquefied tears. From a physiological perspective, these kinds of tears are less essential.

Just like the skin, the outer layer of the cornea, which we call the epithelium, requires constant renewal and, above all, hydration, and one of the layers responsible for eye health is tears.

If the tear film is intact, it protects and nourishes the cornea. But if something fails—if we blink less, or, for example, these tears don't have the proper composition, the epithelium begins to suffer. Small erosions can appear, blurring vision and compromising eye health.

Reflecting on the catastrophic rains that hit Porto Alegre in May 2024, Carlos drew an interesting parallel between poor-quality tears and flooding:

> You can draw a parallel, for example, between reflex tearing and flooding. [Reflex tearing as a result of some irritant.] Just as an excess of poor-quality tears [as a response to an irritant] is unwelcome, flooding is an unwelcome excess of water. So, a foreign body or corneal erosion that causes reflex tearing can be compared to a flood. Like an area where there's usually little rainfall and suddenly it rains a lot for some reason or other and then there are tragedies, floods, and so on.

This kind of eyeball imbalance is what has brought more and more people to Carlos's clinic.

> Today, one of the main reasons people visit my clinic is because of dry eyes. Symptoms are decreased or blurred vision, pain, erosion of the epithelium, and dehydration. The main cause is dry eye syndrome. Medications are often responsible. Our society is a sick society. A society that uses a lot of [medication]. We are [also] a hypersensitive society. We've never had so many allergy sufferers. Antihistamines dry out the eyes. There's never been so many people needing sleep-inducing medications that [also] dry out the eyes. [Then there's] antidepressants, and even stronger painkillers.

Carlos also explained to me that there's no cure for dry eye. A common sensation patients report is a burning sensation...

[sound of burning forests]

The modern world really doesn't make things easy for our eyes. Today, we live at a pace that challenges the natural functioning of our vision in many ways.

Many of us spend hours in front of screens, engaged in activities that require focused attention—whether it's reading, watching a movie, checking out the world news, or browsing social media.

This constant concentration causes us to blink less, which reduces the renewal of the tear film and compromises the hydration of the eyes.

Besides blinking less, the increased use of air conditioning, also due to global warming, reduces air humidity, further drying out the environment around us. The result? Less hydration and eyes more vulnerable to dryness.

What's more, our sleeping habits have changed radically. We stay up late into the night, extending our days far beyond what our eyes can handle.

As my brother Carlos reminds us, our eyes evolved to rest at night. But today, in many societies with 24-hour lighting, the pressure on the ocular system has only intensified.

This is what Carlos called a decrease in attention to the more subtle layers of the world around us, caused by the sensory overload of modernity.

> We see the world through screens. Screens, for the most part, are not three-dimensional. We don't see depth. Everyone may see, but few of us contemplate. So, I do think there's a scotoma – to use a medical term – which is this blind spot, this black hole in our vision, it is a limitation that is the consequence of dryness. So, [yes], I think we can draw a comparison between how water is as crucial for vision, as it is for human beings and the health of the Earth.

He goes further:

> You know, perhaps modern life, where we say that you can't blink because you'll miss out, means that we don't stop to see the consequences of the drying out of the desert, of what we are doing to the planet Earth.
>
> And we don't have time to think about the consequences. To think long-term. When you look at things closely, the lens of your eye, at least until you're 40, adapts to seeing things up close. Sometimes, if you look [at things] up close for too long, when you look away, you don't relax.

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> This results in a kind of muscle spasm. [So], I think we could say that, maybe the world, [indeed] humanity, is having a spasm in relation to [this dryness]. The spasm generates induced myopia and induced myopia takes away your distance vision. It's interesting isn't it?

Maybe now we need a few seconds to catch our breath and let these ideas sink in. And if you haven't been following along with your eyes closed until now, remember to blink!

[Sound of a blade cutting]

Today, I live in the United States and am a professor in the Department of Visual Arts at the University of California, Santa Cruz, near San Francisco.

The reason I'm there is because of a pioneering master's degree in environmental art and social practice. Being here has been an opportunity to explore the intersections of art, environment, and society.

Since my undergraduate years, back in the 1990s, I have been interested in the concept of site-specific art, which in short, means: art that is conceived in response to the specificities of a given place.

But over time, my vision expanded. The idea of place gained new layers and became more complex. I became interested in environmental issues and the collective processes that impact the landscape, such as agriculture.

Today, I understand our digestive system as a sculptural tool: what we eat as a society shapes the planetary landscape and, incidentally, the planet's climate. We know that modern agriculture, with its monocultures, intensive pesticide use, deforestation, and heavy machinery, are among the main drivers of the environmental crisis.

[sound montage of engines, pesticide spraying and chainsaws]

In Brazil, more than 70% of our carbon emissions come from land use via deforestation and agriculture.

[sound of burning forests]

Here in California, it was the question of dehydrated landscapes that caught my attention, especially because the aridification processes are closely linked to the predatory use of water by agribusiness.

California is the world's fifth-largest economy, larger than nation-states like France and Brazil itself. Its wealth depends largely on agriculture which relies heavily on extremely vulnerable water sources.

Today we know that industrial agriculture has its environmental cost. A huge cost. It is this agriculture that has been contributing, although somewhat stealthily and murkily, to a process that is nevertheless happening on a large scale: aridification.

Instigated by this fact, and also by the ways in which predatory land uses are made invisible, I began to investigate this phenomenon.

California, with its large-scale agriculture geared toward progress and economic development, faces a constant battle against drought. And the word "battle" here was chosen intentionally: it's a warlike relationship.

In attempting to manage this drought, much of California relies on water transport systems from elsewhere, such as the Colorado River.

[sound of water springs]

This river originates in the Rocky Mountains and is then diverted to support crops in other regions further south.

About 80% of the water that flows through the Colorado [River] goes to crops and livestock.

But what really intrigued me was realizing that this dehydrated landscape, this battle for water, reminded me of another place: the northeastern *sertão* [semiarid] region of Brazil.[2]

Surprisingly, the droughts in both regions, although distant from each other, are nevertheless affected by the same phenomenon: a close relationship with the temperature of the Pacific Ocean. In climatology, this type of relationship between two seemingly distinct places is called teleconnection. This kind of non-geographical proximity opened up a new perspective for me.

As Caribbean environmental engineer Malcolm Ferdinand points out, climate catastrophe is inseparable from a colonial model of habitation. The transformation of territories into extraction zones, whether in the Caribbean, the *sertão*, or California, reflects a system that hierarchizes and decimates lives and ecosystems in the name of profit. This colonial logic reconfigured the relationship with the *caatinga*[3] an exclusively Brazilian, semiarid biome in the Northeast of the country, characterized by a long dry season and a unique, hardy vegetation adapted to arid conditions.

Now, if your eyes are still open, close them for a moment. Let them rehydrate.

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[2] *Sertão* refers to the semiarid region in northeastern Brazil, comprising parts of the states of Alagoas, Bahia, Pernambuco, Paraíba, Rio Grande do Norte, Ceará, Maranhão, Piauí, Sergipe, and Minas Gerais. The word also refers in general to Brazil's hinterlands similar to the Australian outback.
[3] The *caatinga* is an exclusively Brazilian, semiarid biome in the Northeast of the country, characterized by a long dry season and a unique, hardy vegetation adapted to arid conditions. Its Tupi-Guarani name means "white forest," referring to the whitish appearance of its plants during the dry period when they lose their leaves. The *caatinga* is home to many endemic species, making it a significant center of biodiversity, but it faces threats from human activities and lacks sufficient legal protection.

[Interview with Ana Luiza Saraiva]

> That way of stereotyping our semiarid region has directly impacted the national imagination of what it means to be from the *sertão*, characteristics such as poverty, ugliness, dryness, need to be rewritten.
> Because our climate is seasonally dry. The *caatinga* is a tropical biome. It's not dry. It's seasonally dry.
> So this idea of seasonality, of using this word, is a way of saying that we have our own rhythm.

Who was just speaking is Ana Luiza Saraiva.

> I am a person with a disability. I am a geography professor at the State University of Rio Grande do Norte. But before that, I am a woman, a mother. I am an atypical mother. I have two children, Manu and José. I am a climatology professor and an activist, both for the rights of people with disabilities and for environmental causes.

Ana Luiza explained that the *sertão* is a part of a larger territory that is seasonally dry.

The seasonality of the climate is deeply intertwined with the lives of people living in the semiarid region. There's the dry season, which brings immense challenges, and the rainy season, which is abundant but also requires care.

Ana Luiza explains that, in the semiarid region, as we typically learn in school, the seasons don’t have four clearly defined periods: summer, spring, autumn, and winter. In the *sertão*, things are different:

> This definition of periods, of seasons, the ones you mentioned—spring, autumn—that we studied in educational books, presented in square diagrams. This is not something I use. Nature isn't square. It's cyclical. So I've replaced the square with a circle.

> That's why ancestral peoples, cultures, traditional peoples, indigenous peoples, quilombolas, catingueiros[4]—they observe and draw on concrete elements to predict whether it will be a good or bad year for rain, because [nature's] cyclical.

The climate cycle actually begins in December. It's not the rainy season, but the first rains start in this month. While they're not enough for planting, they are essential, as they increase humidity and awaken several species of *caatinga* plants.

Between December and January, there is a hot period with sporadic rainfall. The official rainy season begins in February and lasts until May. Then come the months of June to August, which are milder with sporadic rainfall.

September, October and November mark the period of intense heat, dryness and strong winds.

[Interview with Ana Luiza continued]

> This is usually how this climate behaves, but that's not how it's portrayed on TV, in soap operas, and in books. So, we fight to promote the understanding of seasonality.

Even though Ana Luíza outlines a cyclical pattern that seems very logical for the region, it doesn't always follow this pattern. Depending on the year, for example, there might be periods affected by the Pacific Ocean-borne climate phenomenon known as La Niña, with heavy rainfall, or El Niño, with water scarcity.

> These years of longer drought are marked by years with El Niño, so much so that even this is cyclical, okay? We can already see a pattern, like, every seven years.

[4] Quilombolas or marooners refer to individuals from quilombo (maroon) communities, founded by escaped and former slaves. Vested in the community, respectful land cultivation, ancestry, and Afrobrazilian and indigenous sociocultural traditions, quilombos continue to symbolize a counter resistance to capitalist colonialism. Catingueiros refers to individuals and communities that live in the biome of the *caatinga* in the northeast of Brazil and similarly suggests networks of solidarity and deep knowledge of the land.

These global connections determine the rhythm of rainfall in the semiarid region. Imagine an ocean, but not of water—an ocean of air.

This invisible veil that envelops us, filled with gases, water vapor, and particles, helps regulate the planet's temperature. It also distributes humidity and controls the amount of oxygen we breathe.

[Interview with Ana Luiza continued]

> We are immersed in an ocean of air and the climatic characteristics of a place that are not necessarily defined by the climatic characteristics of the place [we are in].
> It's a rhythm. It's a dance. Throughout the year the weather generally follows patterns. But each year there will be a particular influence. This rhythm will be influenced by something. How will the oceans behave? Because they're all connected. It's a system. It's a land-ocean-atmosphere system. Ocean temperatures will impact...they will influence the behavior of the global and regional atmosphere.
> So, here in this part of Brazil, in the semiarid region, our rainfall is directly linked to the intertropical convergence zone.

We are immersed in an ocean of air... that flows into rivers. Rivers of wind, flying rivers... that carry rain, cold, heat. Sometimes they overflow, other times they dry up.

[sound of burning trees]

Now let's talk to Francis Lacerda. She's a climatologist and works at the Agronomic Institute of Pernambuco. Francis holds a PhD in Civil Engineering and a postgraduate degree in Philosophy.

[Interview with Francis Lacerda]

> I tell everyone here that we're clinging to an old paradigm. As long as it continues like this, we're heading towards the precipice. Because there's a whole industry, right? We call it the water industry. I don't call it the drought industry anymore [that term used to describe the political and economic exploitation of drought in the country's Northeast.] No, it's the water industry, right?

> So it's that thing: what does the semiarid region need? It needs water. We have a development model that's geared toward a region that doesn't get much rain, which, by the way, is a lie, it's semiarid. Yes, today...look...every text I read says "the adverse conditions of the semiarid region." What adverse conditions, my friend?
> Adverse to whom? To whom is it adverse? For those who want to go there and see what? An apple tree?
> My grandfather was a farmer, my great-grandfather was a farmer, my father was a farmer. I grew up in this environment, I grew up on farms.
> I'm not a city person. I became a city person. But I have these fond memories of my grandfather's [weather] forecasts. My grandfather forecasted rain. He was a rain prophet. My great-grandfather was a prophet too. So, that's my heritage. I have a sister who is a meteorologist. I have a cousin who is a meteorologist. So, when I went to study meteorology, my grandfather was the proudest person in the world.

Both Francis and Ana Luiza have a deep connection—both familial and emotional—with the places where they live. Their studies and work are directly connected to the *sertão*.

[White-winged dove (Asa-branca) birdsong[5]]

I'm going to bring Ana Luiza back now, because I asked both her and Francis to define what the *sertão* is. You'll hear their answers now.

[Interview with Ana Luiza]

> Generally speaking in Brazil, when people refer to the *sertão*, they are mostly talking about the northeastern *sertão*, which is a specific territorial area in the Northeast. But actually today, if we use the latest classifications of what defines a semiarid region, using those criteria, that is rainfall of less than 800 millimeters, the criterion of the aridity index, and the criterion of the period without rain, today this area encompasses all the states of the Northeast, the north of Minas Gerais, and some municipalities in

[5]A famous song by Brazilian musician from the *sertão* Luiz Gonzaga tells a story of drought and the return of the White-winged Dove, symbolizing hope and the coming of rain.

> Espírito Santo. So, today, there are more than 1,400 municipalities classified as semiarid.
> But being a *sertão* region is much more than that. It's not just a territorial definition, nor a question of merely climatic characteristics. Because these characteristics are directly related to several [other] criteria, to several dimensions of existence in this territory.

[Interview with Francis Lacerda]

> The *sertão* comprises [several] geographical areas. So, for example, here in Pernambuco [is such an area]. The Brazilian Institute of Geography and Statistics divides up the country into regions. So, you have the *sertão* region, the forest region, [the transitional zone between Atlantic forest and *sertão* which is known as] the agreste region, and the coastal region.
> The coast is that place that has everything: water, sea, and the wonderful Atlantic Forest that is [fast] disappearing. Then there's the *sertão*, which is the majority of the semiarid region of Brazil's Northeast. *Sertão* and semiarid are synonymous. Now, however, there are several *sertãos* within this *sertão*. For example, the *sertão* of Pernambuco is different from the *sertão* of Ceará in several aspects because Ceará is entirely semiarid. Pernambuco is 80% semiarid, but it's becoming more so. The *caatinga* is advancing toward the coast. Then there's Rio Grande do Norte, which is all semiarid. Then you have Bahia, it's crazy. What is the *sertão* of Bahia? Do you see what I mean?

[Interview with Ana Luiza]

> I'll start by telling you that the *sertão*, this *sertão* is such a broad term. The portion that we usually call the *sertão*, which is our semiarid region, is not uniform. It's not uniform. It has similar features, but it's not uniform. In fact, there are significant differences both in total rainfall and in seasonality.

Ana Luiza and Francis deconstruct the image of a dry *sertão*. By creating a less flattened out more complex image of the *sertão*, Ana Luiza and Francis rehydrate our vision and present us with a fundamental verb for understanding this region:

[Interview Ana Luiza]

> So, it's not just a lack of water. There's also a lack of routes and possibilities for that water to get here, because, in fact, our semiarid region is one of the rainiest in the world.
> We [recently met] to calculate rainfall totals, and we got measurements of a thousand millimeters, nine hundred millimeters. So, look, it's a very rainy semiarid region. Through specific strategies we manage to coexist here.

Coexist. That's the verb. Because the *sertão*, historically, was constructed as an "other" for the prosperous and intensely modernizing regions of the Brazilian coast. It's that image of the American Far West, the distant West, the Far West that escapes the civilizing processes that characterize the eastern coast, the point of arrival of colonization that remains attached to its gaze toward Europe. It is this vision of the *sertão* as "other" that often intersects with the idea of drought, scarcity, and lack. What makes this landscape arid, however, is not its intrinsic condition, but a certain perspective that comes from outside and dries everything out.

Cracked ground, a dried out ox head, the farmer with a bundle on his back... As Francis reminds us, these aren't universal truths.

[Interview Francis Lacerda continued]

> Of course, there are times when the rivers dry up. But, [in fact], all of our rivers are intermittent. Only the São Francisco River isn't. So, the rivers dry up. Now, has the climate changed? Yes, it has. But, it [has been like this for a long time]. So, why has there always been this mismatch of farmers expecting something that has never happened in their lives?
>
> Droughts are phenomena that have been around for thousands, maybe even for millions of years, I don't know, but [at least for] hundreds of thousands of years. They've been around a long time. So, how do we talk to farmers to remove this blindfold? These colonizer glasses? They look at the semiarid region and don't see the value in the *caatinga*. In fact, I think [this is true for] all Brazilians.

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What happens when we perceive the *sertão* in a different way, without colonizer glasses, as Francis says?

[Interview with Rondinelly Medeiros]

> So, let me introduce another term here, which is Brazil's dry *sertão*, because this term semiarid is [actually] open to question. If the term *sertão* conveys something diffuse, hazy, and without specific contours, the term semiarid rather speaks to a dispute between two fields: the scientific and governmental. Social movements have [also] appropriated this term as a social marker. So, the "semiarid" has taken on more institutional contours.
> In fact, the semiarid region is the only biome in Brazil that is demarcated by municipality. This is a bit crazy and it has to do with specific resources. For example, in 2021 there was a huge fight with the Superintendency for the Development of the Northeast, [the governmental organization] responsible for demarcating these territories.[6] In 2021, 50 municipalities were removed; in 2024, these 50 municipalities were included [again] together with another 30. The 50 municipalities that had been removed had gone to court to continue being part of the semiarid region.

This is Rondinelly Medeiros. He's a historian and holds a masters in literature, and in 2024, when we recorded this podcast, he was a PhD candidate in Philosophy at the Federal University of Paraná and a professor at the Federal Institute of Paraíba. Born in Paraíba, where he lives and works, Rondinelly weaves a complex image of the *sertão* and its many facets.

The *sertão* is diffuse. The dispute over the term "semiarid" shows us that the *sertão* is not a fixed concept, but something being constantly reinvented. With each redefinition, new layers are added to the term, like a land that is simultaneously "other" and part of us.

[6] A federal agency responsible for promoting economic, social, and environmental development in the Northeast region of Brazil.

Rondinelly reflects on the semiarid region, its boundaries, and how it reflects the history of the *sertão* itself. The search for an institutional definition of the semiarid region raises an essential question: who decides what constitutes the *sertão*?

The state of Alagoas portrayed in [the book] *Vidas Secas*. Cordisburgo in [the book] *Grande sertão: veredas*.[7] The interior of Goiás and the Paraíba Valley.

The origin of the word "sertão" is uncertain. Since the 15th century, Portuguese colonizers used the term to describe vast territories and deep interiors, as opposed to the coastal regions of the colonies.

In this context, the *sertão* was seen as a void, an inhospitable place, associated with a lack of modernity and progress. The various regions known as *sertão* were seen as spaces that needed to be explored, extracted, and transformed in the name of so-called "modernization."

[Interview with Rondinelly Medeiros]

> We were raised to see our region through the lens of Globo Reporter, a national TV news program. We looked at ourselves as if we were outsiders. So, how does everyone see the Northeast? They see the Northeast through Globo Reporter.

But do we truly see what's there? And do the people who live in the *sertão* have a say in defining the place they inhabit? Or have they also been colonized by a vision that makes them view themselves through the lens of scarcity?

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[7] First published in 1938, *Vidas Secas* by the author Graciliano Ramos, translated into English as *Barren Lives*, is a classic novel that follows migrant workers struggling in the arid northeast. João Guimarães Rosa's *Grande sertão: veredas,* translated into English as *The Devil in the Backlands* and more recently as *Bedeviled in the Backlands* was published in 1956 and quickly became a classic of Brazilian modernism lauded for is rich and inventive language and evocative portrayal of the Brazilian *sertão*. These books' influence on art, literature and culture in Brazil and the understanding of the *sertão* region are fundamental to this research and will be explored more fully in the second episode of the podcast series.

But who calls the definitions of the *sertão* anyway?

To explore these issues, I'll once again call on Francis and Ana Luiza, who share Rondinelly's perspective. They share their insights into the region and the dire consequences of such distorted perspectives.

[Interview with Francis Lacerda]

> My students send me messages: “Miss, did you see? They're clearing forests to erect solar panels.” And they do it... Then there’s the wind turbines. They are destroying people's lives here.

[Interview Ana Luiza]

> Both wind and even worse, solar energy. Solar energy, and I am referring to massive solar farms, not to solar panels on the roofs of houses or buildings. I'm talking about these p.v [solar farm] complexes that have been built here because of the potential we have for intense radiation all year round, which is wonderful, but, in fact, they destroy the *caatinga*, gigantic areas of caatinga, to later sell carbon credits for clean energy production.
> You see how contradictory this is? Today, Rio Grande do Norte is one of the Brazilian states that produces the most solar and wind energy, claiming clean energy is one of the solutions to reduce oil consumption in the context of climate change, but it has been expropriating land, evicting residents, and devastating the caatinga. *Caatinga* land is cheaper than areas already devoid of vegetation. Because there's no shortage of deforested land here in the semiarid region. Historically, this land was already being used 500 years ago for cattle ranching and farming.

[Interview with Rondinelly Medeiros]

> There are hundreds of hectares of suppressed forest, violently suppressed forest. They level all the watercourses and springs because the land has to be completely uniform and without any slopes. Then they give this land a herbicide bath, because no plant can grow under the solar panels.

> There are four or five research projects being developed here at the University of Patos, investigating whether the groundwater table has been contaminated. But, as yet, we have no proof. According to these companies, they've been mapping this and their maps show that the herbicide they're spraying doesn't run into the water sources. But we think this is impossible. We live in a valley. Where I live is a valley. All the water will run downhill. It'll rain and bring this herbicide downhill with it.
> Besides, passing through, my God, it looks like a scene from the *Lord of the Rings* [...] You know that [barren wasteland of the] Orcs? It's just a gray sea of solar panels. It's horrible, horrible, horrible.

Coexisting with the *caatinga* isn't about struggling against it, but about following its steps, understanding its strategies and movements. This biome offers lessons of resilience and adaptation that challenge the distant perspectives of science and public policy rooted in European colonial thinking.

For decades, the movement known as Coexistence with the Semiarid has been transforming communities' relationships with this unique ecosystem. Rondinelly, who worked for years in associations linked to the movement, explains:

> During this period, I worked almost exclusively with social movements in a prolific sector here in the Northeast, called Coexistence with the Semiarid. [This movement] brings together sectors transitioning into agroecological farming and food systems, agroecology [itself], and what we call the solidarity economy. [So, the movement] unites the popular solidarity economy and agroecology sectors and, of course, it is rooted in the struggle for land and territory, bringing together farm workers, quilombola, and indigenous communities.

During this experience, Rondinelly learned that this coexistence is built on three essential verbs: identify, negotiate and combat.

> So, living in a semiarid region means identifying patterns, negotiating with these realities, and combatting them. Combatting what? Combatting schemes of domination and what we call here the interruption of the intermittent flow.

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To identify is to observe the rhythms of the semiarid region—how the water flows, the sun shines, and the earth rests. To negotiate is to learn to dialogue with these elements, extracting what is necessary without disrupting the balance. And to combat? To combat not the *sertão*, but rather the systems that attempt to interrupt the natural flow of its vital cycle.

The Brazilian semiarid region is a space that challenges and teaches. Rondinelly reminds us that coexistence is not idyllic—it is a living strategy, built from listening to the territory and its dynamics.

> As I look out my bedroom window, I can see the cisterns on the farm nearby, reminding me of this [coexistence]. So, when you talk about people going thirsty, you can contrast this with the thousand and one ways people capture, manage, hold, and treat rainwater here. So you see these [severe conditions] have also been [the catalyst for invention].

And this way of seeing and living with dryness may not be essential only to the *sertão* and its inhabitants. As we record this podcast, about a quarter of the planet Earth is undergoing aridification. The technologies for coping with dryness invented by the *sertanejos,* the people who live in sertão*,* will soon be valuable to many societies around the world.

Rehydrating our eyes and our gaze is not just a physical gesture, but a political and ethical act that involves relearning how to see. It is an invitation to imagine forms of care and coexistence that repair the damage of colonial habitation and build a more just future for all beings, human and beyond.

But how can we cultivate a sense of hope in such an unprecedented context, marked by climate catastrophes that have disrupted rainfall cycles?

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What do we do when our eyes, dehydrated by screens and colonial ways of seeing, cloud our vision of what is happening around us?

This clouded vision contributes to the inertia we feel as a society in the face of the climate emergency. Our difficulty in understanding the problem in a complex way is deeply linked to our inability to act. When something isn't perceived, it's as if it doesn't exist.

With our eyes constantly open in front of screens, unblinking, without the veil of regenerative tears, we ignore our cycles—and the seasonality of our bodies and the landscape.

What is happening to the planet is similar. The rains in the *sertão* are the moment of "blinking." The blocking of the sun's intensity, the temporary closing of the eyes, which is necessary for the cycle of life to continue.

Most of us have been living with tired vision: dry eyes, distorted images, an inability to see. But the drying out of sight implies more than a physical loss: it can also mean withdrawal, shrinking, and curtailing the protagonism of vision in our relationship with the world.

So, our dry eyes don't necessarily need to be corrected with lyrical or photovoltaic eye drops. Occasional dryness, as in the *sertão*, can be an opportunity for invention. The supposed weakening of our sight can open up space for other senses—olfactory, tactile, auditory—and for other worldviews, cosmosonorities, cosmopalates.

In the next episode, we continue this journey of sculptural listening: shaping auditory images that emerge from dryness—not to combat it, but to inhabit it as a catalyst for other ways of perceiving, narrating, and inventing worlds. If the globes of your eyes have remained closed to the globe of the Earth, it's time to open them.

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Before we wrap up, one last note: complete transcripts of this episode in Portuguese and English are available on our website. The link is in this episode's description.

[closing soundtrack]

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