

SYMBOLISM OF GEODIVERSITY IN AFRO-BRAZILIAN RELIGIONS

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Abstract

If, throughout evolutionary history, an analogy is made between humans and nature using elements of geodiversity, symbolic processes will emerge for human beings. They construct a sacralized nature revealed in their worship, practices, and beliefs, where nature becomes a symbolic element imbued with meaning. These elements of geodiversity are found in various religious traditions, with notable examples being Indigenous/Shamanic practices, Umbanda, Candomblé, Buddhism, Hinduism, and Christianity, among others. As a result, this article focuses on African rituals which represent their original matrix and a tradition primarily marked by orality (in contrast to the main Western monotheistic religions that have sacred texts) and direct religious learning through daily practice in the “ferreiro” (the place of worship). The analysis of geodiversity and its use in these religious manifestations leads to the reflection that it is still necessary to recognize and disseminate geodiversity and its various uses more extensively, as it assists us in appreciating understanding and interpreting religions from a different perspective, providing more consistency and authenticity.

Keywords: Afro-Brazilian Religions; Geodiversity; Symbolism.

Resumo / Resumen

SIMBOLISMO DA GEODIVERSIDADE NAS RELIGIÕES AFRO-BRASILEIRAS

Caso seja feita, ao longo da história evolutiva, uma analogia homem/natureza com os elementos da geodiversidade, surgirão daí processos de ordem simbólica ao ser humano, onde ele constrói uma natureza sacralizada que é revelada em seus cultos, práticas e crenças, onde a natureza torna-se elemento simbólico carregado de significados. Esses elementos da geodiversidade são encontrados em diversos cultos, destacando-se os Indígenas/Xamânicos, a Umbanda, Candomblé, Budismo, Hinduísmo, Cristianismo, entre outros. Em função disso esse artigo foca nos ritos africanos, que representam sua matriz de origem e uma tradição marcada essencialmente pela oralidade (ao contrário das principais religiões monoteístas ocidentais que possuem livros sagrados) e pelo aprendizado religioso direto e por meio da prática cotidiana da religião no terreiro. A análise da geodiversidade e seu uso nessas manifestações religiosas, leva à reflexão de que ainda é necessário reconhecer e divulgar mais intensamente a geodiversidade e seus diversos usos, pois ela nos auxilia e nos oferece uma apreciação, compreensão e interpretação das religiões em uma outra perspectiva, dando mais consistência e autenticidade.

Palavras-chave: Religiões Afro-Brasileiras; Geodiversidade; Simbolismo.

SIMBOLISMO DE LA GEODIVERSIDAD EN LAS RELIGIONES AFROBRASILEÑAS

Si a lo largo de la historia evolutiva se hace una analogía hombre/naturaleza con los elementos de la geodiversidad, surgirán procesos de orden simbólico para el ser humano, donde construye una naturaleza sagrada que se revela en sus cultos, prácticas y creencias, donde el la naturaleza se convierte en un elemento simbólico cargado de significados. Estos elementos de geodiversidad se encuentran en varios cultos, en particular Indígena/Chamánico, Umbanda, Candomblé, Budismo, Hinduismo, Cristianismo, entre otros. En consecuencia, este artículo se centra en los ritos africanos, que representan su matriz de origen y una tradición marcada esencialmente por la oralidad (a diferencia de las principales religiones monoteístas occidentales que cuentan con libros sagrados) y por el aprendizaje religioso directo y a través de la práctica diaria de la religión en el terreno. El análisis de la geodiversidad y su uso en estas manifestaciones religiosas lleva a la reflexión de que aún es necesario reconocer y difundir más intensamente la geodiversidad y sus diversos usos, ya que nos ayuda y nos ofrece una apreciación, comprensión e interpretación de las religiones desde otra perspectiva, dando más consistencia y autenticidad.

Palabras-clave: Religiones Afrobrasileñas; Geodiversidad; Simbolismo.



INTRODUCTION

Throughout history, the struggle for survival has prevailed in all phases among societies and the natural environment. Although biological elements mostly represent the natural environment, they can be understood from two related perspectives: Biodiversity and Geodiversity. Biodiversity corresponds to the diversity of living nature, while Geodiversity corresponds to the variety of structures and materials that constitute the natural physical substrate, which supports Biodiversity (MACHADO & AZEVEDO, 2015).

The use of elements of Geodiversity becomes increasingly important for the development of societies. Since the emergence of the first hominids, mineral resources have always been a focus of attention and are essential for improving the quality of life. Velho (2006) lists five historical moments he defines as Geosocial, in which people resort to the geological heritage of millions of years: metal (Copper, Bronze, and Iron Ages used as material); Gold (as currency); Coal (as energy); Oil (as energy); and Radioactive minerals (as energy). These five identified moments are temporally arranged in geometric progression, similar to the evolution of mineral resource consumption and population growth. The increasing human impact on natural processes has been recognized and documented throughout the history of civilization (RUCHKYS et al., 2020).

The relationship between humans and nature and the elements of Geodiversity gave rise to subjective symbolic processes for humans, leading them to construct a sacred image of nature. These natural processes necessary for human survival were initially understood as grace, as true divine gifts (NAVES & BERNARDES, 2014). Later, these different elements, environments, landscapes, and their respective uses became imbued with symbolism and meanings, making the human/nature relationship the pillar for the foundation of many religious beliefs.

This symbolism is a representative element (visible reality) that stands in place of something (invisible reality) and can be an object or idea. Thus, various elements of Geodiversity are imbued with symbolic meaning in different religious traditions. To exemplify, we can mention Indigenous/Shamanic practices, Umbanda, Candomblé, Omolocô, Buddhism, Hinduism, Islamism, and Christianity, among others. Although some symbols are recognized internationally, others are only understood within a particular group or religious context.

According to Sales (2010), the path for propagating religious and cultural values can be transmitted differently. The three major monotheistic religions - Christianity, Judaism, and Islam - have sacred texts (Christian Bible, Torah, and Quran). Unlike these religions, Afro-Brazilian religions do not have a written tradition marked by a sacred book. The religions discussed in this article have a common origin in African rites, representing their original matrix and a tradition primarily marked by orality and direct religious learning through daily practice in the terreiro. For this reason, to discuss the representativeness of Afro-Brazilian religions, various bibliographic references were used to perpetuate their precepts, teachings, practices, myths, and rituals. Hence, the importance of analyzing the meanings and uses these religions present for Geodiversity also leads us to discuss their preservationist character.

AFRO-BRAZILIAN RELIGIONS

Reconstructing the historical formation process of Afro-Brazilian religions is difficult due to various factors. Being a religion originated from marginalized segments in our society (such as blacks, Indigenous people, and low-income individuals in general) and persecuted for a long time, there are few documents or records about them. Having doctrinal practices established and transmitted orally, they do not have sacred books (like the Bible or the Spiritism codification works) that record their doctrine in a unified way or their history (SILVA, 2005; CARNEIRO, 2014). History has thus been made almost anonymously, without written records within the numerous places of worship (terreiros) founded over time.

Afro-Brazilian practices that worship orixás and other deities began in Brazil in the mid-16th century by enslaved Africans during the colonization process. The black ethnicities, victims of the enslavement process, sought to reconstruct in the New World the ancient systems of social relations, as well as re-elaborate their social and religious identity under adverse conditions of slavery and later

social abandonment, using their religious matrices as reference. In Brazilian lands, African peoples created an Afro-Brazilian world as a reinterpretation and recreation of varied values, adaptations of religiosity, and resistance to the perpetuation of their culture (FERREIRA FILHO, 2008). Religious recreations happened over time, with the cultures of Bantu and Sudanese peoples leaving their marks in our history and, to a lesser extent, the Malê peoples.

Ramos (1943) states that the Bantu corresponds to most Western peoples, currently corresponding to the countries of Angola, Zambia, Namibia, Botswana, South Africa, Lesotho, Congo, Malawi, Zimbabwe, Mozambique, and southern Tanzania. They spread throughout the Brazilian coast but remained in greater numbers in Minas Gerais and Goiás. Their arrival began at the end of the 16th century and lasted until the end of the 19th century, making them the first to arrive. The Sudanese tribes comprise the peoples that today correspond to the regions of southern Egypt, Chad, Sudan, Ethiopia, Uganda, Nigeria, Cameroon, Ghana, Togo, Benin, and from Kenya to northern Tanzania. They arrived in Brazil in the mid-18th century until the mid-19th century. Today, they are popularly known as Yorubas or Jejes-nagô (due to the mixture of their religious cultures). They are subdivided into ethnic groups: Ijexá, Egbá, the Jejes (Ewe and Fon), and the Fanti-Ashantis (SILVA, 1994; PRANDI, 2000). According to Silveira (2010), the Malês are a generic denomination attributed to various African ethnic groups, especially from the northern part of the continent, who arrived in Brazil as enslaved people, adherents of Islamic precepts, with the Haussas and the Mandingas being particularly noteworthy.

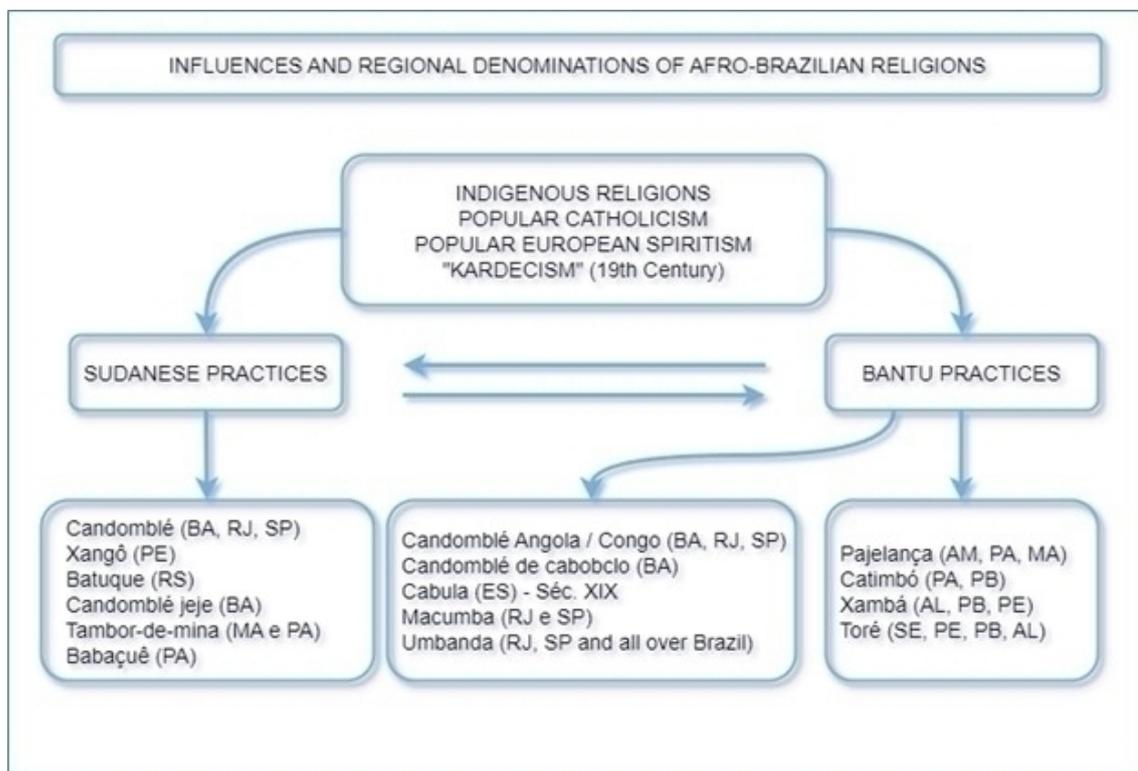


Figure 1 - Influences and regional denominations of Afro-Brazilian religions. Source: Adapted from Silva (2017).

Afro-Brazilian religions have different names depending on the location and the model of their terreiros. In Bahia, there is a large concentration of Candomblé practitioners; in Rio de Janeiro, Umbanda; in Amazonas, Babassuê and Batuque; in Maranhão, Terecô, Tambor de Mina, and Tambor de Nagô; in Pernambuco, Xangô; in Rio Grande do Sul, Batuque and Quimbanda, which evidence the African continuities and transformations in Afro-Brazilian religions (Figure 1). However, the most well-known are Umbanda and Candomblé, found throughout the national territory.

Candomblé is structured around the gathering of Africans of different origins, organized around the constitution of families of saints, whose central figure is the Father (Babalorixá) or mother

(Yalorixá) of a saint, sharing the same essential energy called axé (asé), emanating from the orixás, which emanate from their domains in nature to the children of the Earth. In each terreiro, orixá worship occurs, which at the same time are mythical ancestors, forces, and elements of nature, as well as energies that inhabit and compose the bodies of initiated religious followers. There is also a supreme God, Olodumare or Olorum, creator of the world, orixás, and all things.

Umbanda comprises Candomblé, Spiritism, Indigenous Mythologies, and Popular Catholicism. Despite contrary efforts, each tent presents diverse practices. In general, Umbandists believe in the existence of a single God called Olorum and in other orixás, often identified with Catholic saints; in spiritual guides (gipsies, old black men, caboclos, exus, pombagiras, etc.); in reincarnation; in the law of cause and effect related to actions on Earth and spiritual evolution.

Despite being Afro-Brazilian religions, Candomblé and Umbanda have similarities and differences, as in Table 1.

Similarities between Candomblé and Umbanda	Differences between Candomblé and Umbanda
<ul style="list-style-type: none"> ✓ They are primarily found in Brazil. ✓ Their followers believe in orixás, which resemble saints. ✓ They have syncretic elements, blending various cultures and religions. ✓ There is a noticeable influence of African religions in them. ✓ Compiling a comprehensive or codified view is nearly impossible because their ritualistic practices vary from temple to temple. ✓ They do not have officially written teachings; everything is transmitted orally and complemented by texts written by spiritual leaders. ✓ Due to the lack of official centralization, creating a universal model is difficult. ✓ Their rituals take place in temples called Ilê, Barracão, or Roça in Candomblé. In Umbanda, the usual designations are Terreiros, Tenda, Cabana, and Choupada, generally referred to as <i>terreiros</i>, which should recall the African temples. The ritual space serves the same function for both. ✓ During the rituals, altered states of consciousness can occur, such as incorporation (frequent in Umbanda) or a trance with the orixá (in Candomblé). ✓ White clothing or other attire linked to specific traditions is generally worn during the rituals. ✓ The ritual is marked by dance and music. São encontrados principalmente no Brasil; 	<ul style="list-style-type: none"> ✓ Candomblé is older and closer to African rituals. ✓ Although both religions are syncretic, Candomblé adheres more firmly and faithfully to its African traditions. ✓ Unlike Candomblé, Umbanda is not so much about the development of culture as it is about the absorption of elements. ✓ In Candomblé, the orixás manifests from within, meaning the energy of the orixás lives within each of us and manifests through visibility. ✓ In Umbanda, the spirit incarnates from outside inwards, meaning our body receives an external spirit that is not part of our original essence. ✓ The terreiro does not have an altar in Candomblé. ✓ In Candomblé, one way to communicate with the orixás is through a prophetic system called Merindilogum (“Jogo de Búzios”). ✓ Each has different names for their spiritual leaders. ✓ Umbanda has absorbed many elements from Candomblé. ✓ Umbanda is less influenced by African tradition, but a greater influence can be observed from other traditions (Spiritism, Christianity, and Eastern traditions).

Table 1- Differences and similarities between Candomblé and Umbanda. Source: Adapted from Saraiva (2010).

Another important piece of information that differentiates these two fronts concerns incorporation. In Candomblé, the divinities, the Orixás, are believed to be incorporated into mediums. In Umbanda, the ones who incorporate into mediums are Caboclos, Old Blacks, and Children, among others, who are the falangeiros of the Orixás, their representatives, and not the Orixás themselves (AZEVEDO, 2008). Regardless of the similarities or differences, Afro-Brazilian religions have a significant particularity: the representation of the world through the forces of nature.

Furthermore, there are directly ecological virtues kept within the narratives of the Orixás, namely: 1) Afro-Brazilian religions were already ecological well before ecological movements, as the reverence for elements of nature embodied in the Orixás constitutes the core of their religious experience; 2) Afro-Brazilian religions are intrinsically preservationist since natural spaces (rivers, forests, waterfalls, and others) are sacred places of worship as important as temples (terreiros and roças); 3) the ecological perspective is one of the heritages of the African tradition preserved in these religions; 4) following the ecological wisdom of the ancestors, preserving natural elements related to an orixá; 5) acting with free will and virtue, educating for the sustainable use of natural resources. Thus, Afro-Brazilian religions

provide relevant services by witnessing and teaching moral and ecological virtues (MAÇANEIRO, 2011; SANTOS & GONÇALVES, 2011).

THE IMPORTANCE OF NATURE FOR AFRO-BRAZILIAN RELIGIONS

Afro-Brazilian religions are recognized as nature-based because the natural environment is important. For them, nature is a sacred space of communion between the spiritual and material worlds that must be respected and cared for. The Orixás, understood as forces of nature, are present in their sacred spaces and elements such as rivers (Oxum), seas (Iemanjá), forests (Oxóssi), wind (Iansã), quarries (Xangô), among others.

In understanding this importance, knowing their mythology based on the worship of deities is essential for understanding the rituals practised and their connection with nature. According to Verger (1981, p. 9), the religion of the Orixás is deeply connected to the notion of family, understood as a large group descended from a common ancestor, encompassing both the living and the dead. An Orixá is initially seen as a deified ancestor who, during their lifetime, established bonds that granted them control over certain forces of nature, such as thunder, wind, fresh and salt waters, or the ability to perform specific activities like hunting, metalworking, or acquiring knowledge of the properties and uses of plants. After their death, the Orixá, endowed with the power of axé, would have the ability to temporarily manifest in one of their descendants during a phenomenon of possession that they provoke.

Through Reginaldo Prandi (2005), it is perceived that the relationship between the Orixás and nature can be conceived from the perspective that most of these nature spirits began to be worshipped as deities who, being bearers of power over the natural world, manifested in phenomena such as thunder, lightning, and the fertility of the land. Other orixás are worshipped as protectors of mountains, watercourses, trees, and forests. Each river thus had its spirit with which it was identified, constructing on its banks places of worship, nothing more than the site where offerings were left. A river can calmly flow through plains or plunge into waterfalls and rapids, offer calm crossing at a ford, but also show full of treacherous traps without a benevolent fish supply, but equally drown those who bathe in its waters. These river attributes, making it both a provider and a destroyer, became those of its guardian deity (PRANDI, 2005, p. 102-103).

Thus, the Orixás are conceived as immanent entities – present in the different natural domains of which they are guardians – and express the attributes of a sacralized nature (Nascimento, 2020). From the moment the strength of each point of nature is known, a different vision is developed concerning the environment, as it is impossible to look at an ecosystem without praising the charms and diversity of deities present there. For example, Oxalá's air, Xangô's quarries, Iemanjá's blue sea, Oxum's rivers and waterfalls, and Iansã's rains, among others. The Orixás in the pantheon of Afro-Brazilian religions would be a reproduction of natural elements (PRANDI, 2001; BRAGA, SANTOS; Lopes, 2017; MARQUES, 2017).

ORIXÁS AND NATURE

At the dawn of their civilization, the African people, later known as Yoruba, called Nagô in Brazil and Lucumi in Cuba, believed that impersonal supernatural forces, spirits, or entities were present or embodied in objects and forces of nature. Fearing the dangers of nature that constantly threatened human life, dangers they could not control, these ancient Africans offered sacrifices to appease the fury of these forces, donating their food as a tribute that sealed a pact of submission and protection and cemented loyalty and affiliation between humans and nature spirits (PRANDI, 2005).

Over time, these spirits began to be worshipped as Orixás, which in free translation means the deity that inhabits the head (in Yoruba, ori is head while xá is king, divinity) (BARBOSA JÚNIOR, 2011), responsible for controlling and governing the natural world, such as thunder, lightning, and land fertility, while others were adored as guardians of mountains, watercourses, trees, and forests. Each natural element is linked to an Orixá through belonging sites with specific characteristics. A mystical

energy that, in turn, has a specific place to be worshipped and adored (MELO, 2007). The Yoruba and other related peoples revered several deities: the Orixás, nature deities [...] who, after their deification, were assimilated as ancestral founders of dynasties. They mediate between humans and the creator God (PRIORI & VENÂNCIO, 2004, p. 26).

Saraceni (2003) reports on the relationship between the Orixás and nature:

[...] from nature, we find the Orixás in the very generative processes created by God, which justifies the worship in natural sanctuaries (rivers, sea, quarry, weather, etc.). Everything visible in God's creation is the concretization or materialization of what we cannot see, as it exists in a dimension and reality before our material plane. [...] Iemanjá is not the seawater. But this is the concretization at the physical or material level of her generative factor energy, which triggers all genetic processes since only water has this power (SARACENI, 2003, p. 32-33).

This understanding and mentality were transported to Brazil and materialized specifically in terreiros that (re)live these experiences and phenomena from the reinterpretation of myths and rites that ensure the community's well-being. These references to nature occur in places that recall ancient connections, such as Iemanjá festivals by the sea, offerings made in running water, in the lagoon, in the forest, in the quarry, on the road, etc., according to the Orixá to which they are destined. It is in this sense that one should understand the relationship of terreiros with nature as a mythical-religious transcendental nature that is present in the composition of all men, as it can appear both in the form of phenomena and the form of an Orixá, after all, "the religion of the Orixás is the voice of nature" (MARTINS & MARINHO, 2002).

ORIXÁS AND GEODIVERSITY

As we saw in the previous topic, the association of the Orixás (Table 2 and Figure 2) with the elements of nature assumes significant importance when analyzed in an ecological context. As a consequence of this worldview, the natural space becomes sacred, filled with mystical powers, beliefs that surround it, myths, and legends that coat these spaces with an aura of mystery (LÉO NETO & ALVES, 2010). Each deity has its mark explicitly in colours, objects, songs, cuisine, and nature, receiving homage through songs, prayers, offerings, and seclusion. In this universe, both biotic and abiotic elements have their value and symbolism in both doctrine and the practice of various rituals.

Regarding religious values associated with Biodiversity, we can highlight forests, animals, trees, and medicinal plants used for sweeping, fumigation, sacrifices, baths, and rituals and offerings. Regarding Geodiversity, we can highlight several Points of strength for the Orixás.

Below, we discuss the most worshipped Orixás in Umbanda and Candomblé, with their peculiarities, besides highlighting natural elements with a greater emphasis on the characterization of Geodiversity and its interests.

Orixá	Description	Metals/Stones	Points of strength in nature
Ewá (Euá)	The deity of the river Yema, also known as Iva Wa, is considered the owner of the world and its horizons, which are connected to the waters and sometimes associated with fertility. She is the lady of the cosmos and the virgin forest.	The metals that can be magnetized with her energy are Copper, Gold, and Silver.	The point of strength governed by the Orixá is the horizon line, receiving offerings and sacrifices in rivers and lakes.
Exu	A highly controversial and difficult-to-understand Orixá, which certainly led to his identification with the Christian devil. He is responsible for transporting offerings to the Orixás and their communication, acting as their intermediary. Responsible for watching over and guarding passageways, he is the one who opens and closes paths. In Umbanda, Exu is not considered an Orixá but a spiritual entity.	Regarding metals, he reacts to iron. His precious stones are usually Garnet, Onyx, Black Tourmaline, and Ruby.	Exu's relationship with nature is directly associated with human nature, as humans are integral parts of the planet.
Ogum	The Orixá who gave humans the secrets of iron, forging, and agriculture. Due to his explosive temperament, he was always involved in wars and battles, bringing back rich spoils. Ogum emits positive vibrations and balances energies related to masculinity, paths, roads, and journeys, as well as matters related to productivity and things that must "move forward" and prosper.	Ogum is responsible for minerals, with iron, steel, and manganese being its main mystical components. The stones that receive his irradiations are Ruby, Garnet, and Sardius, often carved and polished to create protective charms and guides.	His strength points are open fields, especially those crossed by a path. According to various religious beliefs, Ogum also has spiritual dominion over roads, the centre of crossroads, and railways.
Oxóssi	The orixá of hunting is often called Odé Wawá, meaning "hunters from the sky." He is the deity of plenty, abundance, and prosperity. Within the cult, he is the hunter of axé, the one who seeks good things for a house of worship and hunts for good influences and positive energies. As a hunter, he teaches ecological balance rather than the predatory aspect of man's relationship with nature and the concentration, determination, and patience necessary for outdoor life. He rules over farming and agriculture.	The metals that can be magnetized with his energy are bronze and brass. The stones that receive his irradiations are amazonite, emerald, green calcite, jasper, and topaz.	His points of strength are the forests (Oxóssi inhabits the forests and prairies, places where hunting is possible and the game is abundant and healthy), and his altar is the groves.
Ossaim	Also known as Ossãe or Ossanha, in some terreiros/tendas, he is worshipped as Iobá (Female Orixá). The orixá of plants and leaves, present in the most diverse manifestations of the orixá worship, is fundamental along with Oxóssi, ruling over the forests and being the lord of medicinal and mystical secrets of the green. He represents the ancient pre-civilizational wisdom and the symbolic relationship of man with nature, especially with greenery.	The metals that can be magnetized with his energy are tin and brass. The stones that receive his irradiations are amazonite, emerald, morganite, and green and pink tourmaline.	His point of strength in nature is the forest clearings.

Table 2 (Part I) - Relationship of Orixás with natural elements, especially Geodiversity ones. Source: Compiled from Abimbola (1997); Azevedo (2010); Barbosa Júnior (2011); Martins (2014); Ferreira (2016); Trindade; Linhares; Costa (2018); Saraceni (2018).

Orixá	Description	Metals/Stones	Points of strength in nature
Oxumaré	The orixá symbol of wealth, continuity, and permanence. Oxumaré is the archetype of a patient and persevering individual who does not hesitate to sacrifice to achieve their goals. He strongly connected with geodiversity elements, as this orixá shaped valleys and rivers crawling worldwide.	The metal that can be magnetized with his energy is brass. His stones are agate, diamond, emerald, and topaz.	His point of strength in nature is located near waterfalls, and his connection with nature is through rain, water in its gaseous state, and the rainbow.
Obaluaê/Omolu	He is the lord of plagues and diseases, contagious or not. He is the king of the Earth, of the interior of the Earth, and he is the orixá who covers his face with a filá (made of straw) because humans are forbidden to see his face due to the deformities caused by disease and the respect we owe to this orixá. He greatly influences elements of pedological interest, as the decomposition of rocks forming soils (earth) is his field of action.	The metal he reacts to is lead. His precious stones are obsidian, cat's eye, and onyx.	His points of energy are cemeteries, and in nature, they are caves and beaches.
Naná	The oldest of the water ladies and, consequently, the most experienced and loving of the orixás. She is both prudent and uncompromising. She is also very protective and possessive, a quality she transmits to her followers. She has various points of energy connected to elements of geodiversity, as mud, swamps, and other areas with stagnant water are her fields of action. She is also responsible for the chemical weathering of rocks and all forms of clay found on the Earth's surface.	Regarding metals, she reacts to brass and nickel. Her precious stones are amethyst, cacoxenite, and tanzanite.	Her points of strength are cemeteries, and in nature, they are deep waters, mud, lakes, and swamps.
Logum Edé	She lives half the year in the waters (as a woman) and the other half in the forest (as a man). Prince of the orixás, she combines the cunning of hunters with the patience of fishermen.	Regarding metals, she reacts to brass and gold. Her precious stones are turquoise and topaz.	Her points of strength in nature include riverbanks, the edges of rivers, and the fine mist over ponds that spread through the forest on hot days. She fully experiences both realms, the waters and the forests.
Oxum	A female orixá of fertility associated with the Oxogbó River in Ojexá (Nigeria). She has a significant relationship with geodiversity, as she is the lady of the fresh waters of rivers, the still waters of non-swampy lakes, waterfalls, and, sometimes, the seashore.	Regarding metals, she reacts well to gold; her precious stones are blue and yellow topaz.	Her points of strength are rivers and waterfalls.

Table 2 (Part II) - Relationship of Orixás with natural elements, especially Geodiversity ones. Source: Compiled from Abimbola (1997); Azevedo (2010); Barbosa Júnior (2011); Martins (2014); Ferreira (2016); Trindade; Linhares; Costa (2018); Saraceni (2018).

Orixá	Description	Metals/Stones	Points of strength in nature
Obá	A warrior orixá, lady of the Obá River in Nigeria. In nature, Obá is connected to floods, river overflows, and inundations. She governs all these phenomena, whether natural or caused by human error. Her enchantment manifests this way when a river overflows, inundating everything.	She reacts well to copper; her precious stones are coral, emerald, ivory, and leopard's eye.	In nature, she rules the constant movements of fresh waters, especially rivers and turbulent waterfalls, and her strength points are in lagoons within forests.
Oyá/Iansã	A warrior orixá of winds, storms, thunder, and also of disembodied spirits, guiding them to other realms. She lives in the bamboo grove, where spirits hide, and her wind echoes among the dry husks falling from the bamboo. She bends the tall branches of the bamboo grove.	Her favourite precious stones are red coral, carnelian, garnet, ruby, and rose quartz; the metal she governs is copper.	In nature, she is present in atmospheric movements and lightning, with the wind being her primary area of influence, and her point of strength is the bamboo grove.
Xangô	He was one of the most popular orixás in Brazil, probably because he was the first deity to arrive on Brazilian lands with the enslaved people. Orixá of justice represents decision and justice (which should not be confused with revenge). Xangô is an articulator and politician who is present in public life. He has a great affinity with elements of geodiversity, as he is present in the consolidation of the lithosphere, with rock (stone) being his greatest symbol. He inhabits quarries, stone caves, natural refuges containing rocks and fire, and volcanoes.	His precious stones are jasper, meteorite, and pyrite. He reacts to the metals tin, copper, and molybdenum.	His offerings should be made at the foot of a mountain or quarry.
Iemanjá	She is associated with fresh water flowing into the sea through the African estuary. Iemanjá's relationship with the sea in Brazil is marked by her control over marine life and its complexity. Protector of fishermen and raft sailors, she has very popular festivals in the country, both Candomblé and Umbanda. She is the lady of various elements of geodiversity, including beaches, underwater caves, and the inlets of the bay.	Her most energetic precious stones are aquamarine, chalcedony, lapis lazuli, pearl, and turquoise. The metals that can be magnetized with her energy are platinum and silver.	Her offerings should be delivered on the beaches, in front of the sea.
Ibejis	Formed by two distinct entities, they indicate contradiction, the opposites that complement each other. Everything that begins is associated with the Ibejis, responsible for overseeing childbirth and childhood and promoting love and unity.	Their precious stone is rose quartz.	Their points of strength in nature are waterfalls, gardens, forests, and beaches.

Table 2 (Part III) - Relationship of Orixás with natural elements, especially Geodiversity ones. Source: Compiled from Abimbola (1997); Azevedo (2010); Barbosa Júnior (2011); Martins (2014); Ferreira (2016); Trindade; Linhares; Costa (2018); Saraceni (2018).

Orixá	Description	Metals/Stones	Points of strength in nature
Iroko	In Nigeria, this orixá is worshipped in a tree of the same name, replaced in Brazil by the Gameleira-Branca, a tree with characteristics similar to the African Iroko. Iroko was the first tree planted through which all the orixás descended to earth.	-	He represents the dimension of time, as he does not have a specific energy point in nature. Thus, his energy is manifested in the cycle of days and nights that form time.
Onilé	The mistress of the Earth, the orixá that represents our planet as a whole, the world we live in. For many followers of Afro-Brazilian religions interested in restoring the orixá/nature relationship, the worship of Onilé represents a concern for the preservation of humanity itself and everything in its world.	-	Her settlement is made with elements of pedological interest, as it is done in a mound of red earth. She is believed to guard the planet and everything on it, protecting our world and making life possible.
Oxalá	He is the first orixá, created by Olorum. Oxalá is the archetype of calm and trustworthy people. Respectable and reserved individuals endowed with unbreakable willpower. When invoked, he emits vibrations related to the highest spiritual powers, which is why he is recommended for any issue, demand, or need.	His precious stones are white and milky, except for White Quartz (a symbol of natural purity) and Diamond, the hardest substance on the planet. His precious metal is gold.	He inhabits various elements of geodiversity, such as mountain tops. His preferred locations are characterized by calmness, where tranquility fills those who pass by, such as a deserted beach or an open hillside.

Table 2 (Part IV) - Relationship of Orixás with natural elements, especially Geodiversity ones. Source: Compiled from Abimbola (1997); Azevedo (2010); Barbosa Júnior (2011); Martins (2014); Ferreira (2016); Trindade; Linhares; Costa (2018); Saraceni (2018).



Figure 2 - Illustrations of the main Orixás worshipped in Afro-Brazilian religions. Source: Lana – CCXP 12 (2020).

This part of the work refers to the entities encompassed within Umbanda. In Umbanda, what is incorporated is the Falangeiro (a spiritual worker serving the Orixá), a being in the line of that Orixá. Some call them Enchanted, others Eguns-de-Santo (disembodied spirits serving the Orixás), and others recognize in them the strength of ancestral spirits. Traditionally, in Umbanda, they are called guides, and

spirits are responsible for Umbanda's spiritual and doctrinal guidance. They act under a specific line of work directly linked to an Orixá. These entities are disembodied ancestral spirits that can be incorporated by mediums during the rituals and can be described as popular types belonging to Brazilian social reality. These entities also receive and have their points of strength in elements of Biodiversity and Geodiversity, just like the Orixás that govern them.

Here are some entities most worshipped in Umbanda terreiros:

1- Old Blacks (Pretos-Velhos): Their vast wisdom is the most famous and always cited characteristic of Old Blacks. With simple and direct language, these spirits, archetypes of enslaved blacks, offer guidance and point the way for seemingly unsolvable situations.

2- Caboclos: Caboclos are spirits representing indigenous ancestors. Given their origin, these entities stand out as great counsellors for their strong connection with nature.

3- Baianos: Relaxed spirits endowed with great positive energy, Baianos are known for being good conversationalists and very sincere, representing the people of the sertão (backlands).

4- Cowboys (Boiadeiros): Unlike Baianos, Cowboys do not speak much but are kind, just, and very courageous. They symbolize the rural man, the interior dweller.

5- Malandros: One of the most popular entities in this line is Zé Pelintra, which is considered its chief spirit or superior. Malandros are the spirits of those marginalized by society. He is the patron of bars and nightlife.

6- Pombagira: Pombagiras are entities of women who, when alive, fought against oppression and suffering imposed on them. They are protector entities of women and represent non-submission to the masculine.

7- Sailors: Also called marujos, sailors are associated with waters and are responsible for complete cleansing: mental, spiritual, and physical, as well as discharge. Their work is characterized by high joy and relaxation.

8- Gipsies: These entities are spiritual guides who like to help people transform their lives through love, union, and fraternity, always with strength and joy. Despite the name, there is no direct connection with gipsy people worldwide, but rather an archetypal connection.

9- Erês: Spirits endowed with high purity, of children or not, but with manifestations in infantilized behaviour; therefore, one can expect some mischief from these entities occasionally. After all, they love to laugh and play. On a more serious note, they work by offering comfort and consolation to distressed mothers and fathers, and with their playfulness, they can dismantle spells.

10- Orientals: A very eclectic line, gathering spirits whose energetic vibration and doctrine correspond to various ethnicities and cultures, including Hindus, Tibetans, doctors, scientists, Muslims, etc. They mainly work on wisdom, self-knowledge, and emotional and psychological balance.

11- Cangaceiros: Recently incorporated into Umbanda terreiros, they represent men and women who fought for social justice and breaking the bonds of domination imposed by political forces in the vast Brazilian interior, especially the Northeast. Thus, they have a strong connection with the practice of justice.

To contextualize and exemplify the importance of nature for Afro-Brazilian religions, (Figure 3) shows the chosen points that emphasize contact with nature and its elements (quarries, watercourses, cavities) that provided the approach to the vibration of the Orixás and their Falangeiros. These works, firmnesses, and offerings reveal the religion's relationship with elements of Geodiversity, configuring themselves as intangible manifestations.

Analyzing the Orixás and having abiotic elements as a reference, the strong relationship of these with the Earth's formation and the domain of some elements linked to the planet's natural composition is perceptible. These places with strong vibratory fields seem simple. Still, the complexities inherent to this broad pantheon of Orixás, which throughout African and later Brazilian history underwent adaptations and amalgamations resulting from the miscegenation between various ethnic groups, cannot be forgotten. Due to the miscegenation between the diverse African peoples, mainly here in Brazil, there is no common sense regarding the exact number of deities forming the African pantheon of the Orixás (VERGER, 2002).

<p>PRAYER OF XANGÔ</p> <p><u>The stone rolled, Xangô</u></p> <p><u>There, in the quarry</u></p> <p><u>Hold the stone, my Father</u></p> <p><u>In the waterfall</u></p> <p>My body is protected</p> <p>Xangô is my protector</p> <p>Establish your point, my Father</p> <p>The head Father has arrived</p> <p><u>Xangô is the king of the quarry</u></p> <p><u>King of the quarry, he is the king of Umbanda</u></p> <p>Xangô, he is our Father</p> <p>And children of Xangô</p> <p>Waver but do not fall [...]</p> <p>[...] <u>The stone rolled for Xangô</u></p> <p><u>There, in the quarries</u></p> <p>Establish the point, my Father</p> <p><u>In the waterfall</u></p> <p>The stone rolled for Xangô</p> <p><u>There, in the quarries</u></p> <p>Establish the point, my Father</p> <p><u>In the waterfall</u></p>	<p>PRAYER OF IANSÃ</p> <p>[...] Iansã has a feather fan</p> <p>To fan on a hot day</p> <p>Iansã has a feather fan</p> <p>To fan on a hot day</p> <p><u>Iansã lives in the quarries</u></p> <p>I want to see my Father, Xangô</p> <p><u>Iansã lives in the quarries</u></p> <p>I want to see my Father Xangô [...]</p>	<p>PRAYER OF OXUM</p> <p><u>I saw Mother Oxum in the waterfalls</u></p> <p><u>Sitting by the riverbank</u></p> <p><u>I saw Mother Oxum in the waterfalls</u></p> <p><u>Sitting by the riverbank</u></p> <p>Gathering lilies, lilies here</p> <p>Gathering lilies, lilies there [...]</p> <p>[...] <u>She was on top of the quarries</u></p> <p><u>Looking at the waterfalls, the forests, and the sea</u></p> <p>Iemanjá was fixing her dress</p> <p>Xangô shouted at her</p> <p>Oxum will rise [...]</p> <p>[...] <u>At the waterfall, I saw, I saw,</u></p> <p><u>Queen of the waterfall, I saw, I saw</u></p> <p><u>Mother Oxum, blessing her children, there at the waterfall</u></p>
	<p>PRAYER OF IEMANJÁ</p> <p>[...] I went to the beach to greet Iemanjá</p> <p>And I saw mother mermaid at the bottom of the sea</p> <p>Beautiful, aruê, beautiful aruá</p> <p>Queen of the waves, mermaid of the sea</p> <p>Beautiful aruê, beautiful aruá</p> <p>Queen of the waves</p>	

Figure 3 - Pictures of the offerings of main Orixás worshipped in Afro-Brazilian religions. a) Firmeza de Xangô found in a natural cavity; b) Offering to Xangô in an outcrop; c) Ebô (Candomblé practice) dispatched in a stream; e) Point of firmness for the erês (child guides) with an offering of candies and lollipops containing an image of São Cosme e Damião; f) Umbanda celebrations held in watercourses; g-h-i) “pontos-riscados” are sacred symbols drawn on the ground or other surfaces, usually with pema powder (chalk) or other materials, during ceremonies and rituals. These points represent spiritual entities, requests for protection, invocations of orixás, and connections with the spiritual world. Source: Authors.

SYMBOLISM OF GEODIVERSITY IN THE CHANTS

Music plays a very important role in Afro-Brazilian religious rituals, having multiple functions. These rituals use in their practice the chants (“zuelas” or “curimbas”). The chants are musical verses accompanied by percussion instruments (especially *atabaques*; complementarily: *agogô*, *berimbau*, *pandeiro*). These songs synchronize the Orixá with its medium (BENISTE, 2002; SANTOS, 2014).

In these songs and invocative prayers to the Orixás sung in celebrations, this relationship with nature and the human supplication for it is noted. The songs depict their deeds, their passages on earth. Each Orixá and its entities have a specific song to be worshipped, and their powers and characteristics are invoked in each of them. As they are musical prayers that attract the forces of nature, they often have elements of Geodiversity exemplified in their lyrics, especially in the chants of Orixás that have a direct

relationship with these elements. Below are some chants highlighting elements of Geodiversity.

CONCLUSION

The apparent dichotomy between science and religion often places them at opposite poles, as if irreconcilable. It is not uncommon for them to seek to annul each other. However, although they maintain distinct meanings, these terms can be complementary. Although often perceived and discussed in a dichotomized manner, the academic interest in exploring the interactions between science and religion remains relevant and stimulating.

Even in the face of the apparent dichotomy between science and religion, promoting the clarification and deepening of studies that address these fields is imperative. A particularly fascinating example is the investigation of Afro-Brazilian religious rituals and their relationship with oral history and geodiversity. In the tradition of Afro-Brazilian religions, geodiversity plays a significant role, as abiotic nature elements are considered tangible manifestations of the sacred, revealing mysteries related to the Orixás and Entities revered. Places like quarries, valleys, waterfalls, rivers, and minerals are imbued with deep symbolism and meaning, integrating into the ritualistic universe. Through oral history, we can access ancestral narratives that provide a deeper understanding of the relationship between these geological elements and the spirituality of Afro-Brazilian religions. These narratives enrich our understanding of religious practices and highlight the interconnection between humans, nature, and deities.

The investigation of Geodiversity and its relationship with religious practices, as approached by Geotheology (FERREIRA et al., 2022), instigates reflection on the importance of recognizing and promoting Geodiversity and its multiple applications more broadly. Through this lens, we can appreciate, understand, and interpret religious expressions differently, providing greater solidity and authenticity. Geodiversity, considered the stage of divine revelation, offers a unique perspective that enriches our understanding of religions and their practices.

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