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Original Research

Paleoneuropsychology of Spiritual Experience

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Abstract: This scientific article delves into the evolution of spirituality in ancient hominids, exploring its origins from anthropological and psychological perspectives. The study postulates that spirituality had its roots in perceptions of nature and celestial observation, influencing the development of religious and cultural beliefs throughout human evolution. Beginning with Australopithecus, ancestral humans exhibited spiritual motivation, leading to the emergence of symbolic psychology, animism, and the development of rituals and beliefs. The research also highlights the role of symbolic experiences, cave art, and the transition to written language and mathematics in shaping modern human spirituality. Drawing from various scientific disciplines, including paleopsychology, paleoanthropology, and psychology of religion, this study presents a comprehensive framework for understanding the phylogenesis of human spirituality. It acknowledges the complexities of interdisciplinary research involving fossils and emphasizes the importance of integrating multiple perspectives to achieve a holistic understanding of spiritual evolution. In the contemporary knowledge society, belief systems from diverse cultures and fields merge through syncretism, providing modern humans with a rich tapestry of mystical knowledge. This article contributes to the broader discussion on the origins of spirituality, providing valuable insights into the development of the human psyche and its enduring connection to the sacred throughout history. However, it is important to note that these interpretations are based on inferences, and the role of spirituality in human evolution remains a matter of debate.

Keywords: *Hominid Brain, Numinous Behavior, Religious Sense, Evaluation and Therapy, Evolutionary Psychology, Philosophy of Mind, Philosophy of Religion*

Introduction

It is postulated that archaic hominids had experiences of a spiritual nature because they had a constant sense of unity, and this relational character has been linked to the integral development of consciousness (e.g., Walsh 1996) and to spiritual awakening (Wilber 2018). The term hominid distinguishes the great apes, and within this group, modern humans are also included.

Scientifically, the hominid group has been phylogenetically studied to establish the origin of *Homo sapiens* and the conditions that led to their appearance on Earth. In this regard, archaeology has gathered evidence, albeit subject to controversy, which has allowed us to map the development of the human being not as a finished product in a day but as a result (of the Earth) that emerges after millions of years of a process.

Spirituality is a psycho-affective variable present in the behavioral repertoire of individuals that can manifest as part of religion or independently from it (Zinnbauer and Pargament 2005). While spirituality is defined as the subjective experience of the Sacred (Vaughan 1991), *religion* refers to "a system of beliefs in a divine or superhuman power, and practices of worship or other rituals directed towards such a power" (Argyle and Beit-Hallahmi 1975, 1). Spirituality was one of the earliest states of consciousness articulated in the human ancestor that allowed hominids to explore reality through physiological-perceptual and later cognitive processes, which have since been configured as neuropsychological algorithms (see Luria and Tvétkova 1981), and these in turn as a complex neural field (Grinberg 1991).

Ancestors of humans were beings charged with sacredness (Eliade 1974), a sacredness that stems from the immanent life of the animal and which refers to the experience of self-transcendence (Chen, Ruttan, and Feinberg 2023), contrasting with the secular or profane (see Durkheim 1995). The contemporary Western human possesses this sacredness, even though they do not generally contemplate this dimension within themselves, and it is overlooked that spirituality is yet another realm of human psychological development (Papalia and Martorell 2021).

Various authors view spirituality as an individual quest for a deep understanding of one's connection with the cosmos, focusing on the exploration of the transcendental and the expansion of consciousness beyond the ego. It encompasses practices and experiences that nurture an intimate relationship with broader realities and the Divine. More than just universal harmony, spirituality entails a journey toward self-awareness, meaning, and transcendence, embodying a person's core values and commitments (Jakonen 2020).

Spirituality is understood as a psychological aspect that manifests an inherent motivation toward the understanding and experience of the transcendental, distinguishing itself from aspects of mental well-being and assessed through personal experiences and practices that promote connection with the meaningful, regardless of formal religion (Casaletti Braghetta et al. 2021).

The spiritual phenomenon is defined as an inherent, universal, and psychologically autonomous personality trait that drives behavior and provides a deep understanding of life beyond external cultural or religious influences. This trait acts as a fundamental motivation, exerting a direct and preeminent influence on an individual's well-being and behavior, and offering unique predictive value in the analysis of personality and human behavior (Piedmont 2024).

Linked to spirituality, the concept of the sacred is defined as the perception and experience of a mysterious force that determines human behavior and structures the fundamental reality of beings and things. It manifests in various forms, including religious practices, objects, and physical phenomena, and is present across different cultures and religions, demonstrating its universality. In various cultural and religious contexts, the

concept of the sacred is associated with essential principles and practices for achieving transcendence or spiritual harmony (see Bernal-Sarmiento 2022).

The experience of the sacred, from the Paleolithic era to our times, holds significant value for anthropology. This experience lays the foundation for the development of an anthropology of the homo religiosus (Ries 1995a). Régis Boyer argues that the homo religiosus experiences the sacred personally through an intimate connection with the Absolute, granting them profound conviction. Evidence from various religions suggests this experience is universal (Boyer 1995).

The sacred is understood as both a foundational energy of consciousness and a mode of existence, an essential component of the human condition. We are on the path that leads humans toward the divine. From this perspective, the symbol serves as a language that unveils to humans values that are both transpersonal and that transcend consciousness. Through the symbol, the cosmos communicates with humans, revealing truths that are not inherently obvious (Ries 1995b). The examination of different cultures indicates humans tend to seek meaning beyond a secularized environment, feeling the presence of a Mysterious Reality at the core of their existence. This quest manifests in diverse ways across history and cultures, but always as an effort to transcend immediate reality and the human condition (Ries 1995c).

The human of the twenty-first century is the result of an extensive process of hominization. Their most remote ancestor, Australopithecus africanus, had a cranial capacity of between 400 and 500 cc (Bruner 2012) and possessed the anatomical capabilities that would lead to the organization of human societies millions of years later. *H. habilis* appeared in Africa approximately 2 million years ago (Martínez and Sala 2015).

Members of the emerging Oldowan culture seemingly represented the first group with minimal symbolic potential. During the Neolithic period, the first religions of *H. sapiens* emerged as systems of beliefs and practices, evolving from the proto-religions (naturalism-animism) of the lower Paleolithic, establishing a trajectory of the religious sense (Facchini 1995) over time. This presence of religion across cultures corroborates this evolutionary past (Brown 1991; Peoples, Duda, and Marlowe 2016).

The theoretical framework of this article addresses the relationship of various disciplines with the intention of explaining the emergence of psychism as a phenomenon linked to religious (spiritual) sense, the development of the psychic aspect in different hominid species, and how modern humans are interconnected with those layers of archaic psychology. There are several techniques for analyzing the religious sense: phenomenological, hermeneutical, philological, neuroimaging, statistical, comparative methods, evolutionary and molecular biology techniques, among others. This study adopts a hermeneutic-phenomenological methodology.

The main objective of this article is to explore spirituality in ancient hominids and analyze their origins from anthropological and psychological perspectives. The underlying hypothesis in this article postulates that spirituality in ancient hominids had an origin linked

to perception, nature, and observation of the celestial vault and that this spiritual motivation influenced the development of religious and cultural beliefs throughout human evolution. It is argued that this spiritual motivation began in the animal organism as an immanent experience and expanded into a more complex understanding of the external world, thus influencing spiritual beliefs and practices in both ancestral and contemporary cultures.

Paleoneurobiology

Fleagle's research, in 2013, indicates that humans belong to the order primates, which originated at the end of the Cretaceous period, approximately 65 million years ago. According to this author, primates are characterized by arboreal habits, a superior grasping potential, and good frontal visibility, initially associated with nocturnal behavior. Derived primates from this order are diurnal animals and possess a complex visual system with color vision, serving fruit recognition purposes (cited in Aboitiz 2018). Martin, in 2004, stated that primates constitute a highly diverse taxon comprised of 14 families and at least 350 existing species. Along the evolutionary line, they branched into three lineages leading to the current prosimians, tarsiers, and anthropoids (monkeys, apes, and humans) (cited in Kaas 2012).

Paleoneurobiology is focused "on the neurobiology of ancient humans and animals" (Appenzeller et al. 2000). This includes the study of brain evolution through the analysis of endocranial casts to establish brain features and endocranial volumes. This discipline is considered a subfield of neuroscience and adopts techniques from other fields of study such as paleontology and archaeology (Du 2022). The function of paleoneurobiology guides the method in studying endocranial casts of fossil hominids. Another approach to understanding the evolution of the human brain is to study and compare this organ with those of closely related extant relatives, such as the great apes, including chimpanzees, bonobos, gorillas, and orangutans (Bienvenu et al. 2011).

It is believed that brain tissues do not fossilize, at least not in hominids. Nevertheless, the endocranial cavity provides information regarding brain size, proportions, and patterns of sulci. In the past, these have been the most investigated paleoneurological characteristics (Bruner 2018). Ma et al. (2015) analyzed seven arthropod fossils dating back to 520 million years ago to find traces of ancient brains. Scientists found preserved brains in the form of flattened carbon films, with some fossils partially covered by tiny iron pyrite crystals.

During the evolution of hominids, a general trend was the increase in encephalization and intelligence. If one considers only brain size, it is not a good predictor of intelligence (Lee et al. 2019). It appears that the human brain is more lateralized than that of great apes, showing hemispheric specializations. Other studies have demonstrated that asymmetries are also present in the brains of great apes (Bienvenu et al. 2011).

Several researchers argue that brain size was the most crucial parameter in the evolution of hominid brains. In contrast, other researchers advocate that neurological reorganization

was the key aspect of brain development (Falk 2012). The current human skull takes on a globular shape, in contrast to extinct human species, which exhibit a flatter cranial box. Neanderthals and modern humans share a similar cranial potential, although humans show a general enlargement of the parietal lobes (Bruner 2018).

Primates have adapted to various environments, allowing for a 5,000-fold variation in size, from the 40 g mouse lemur to the male gorilla, which can weigh over 200 kg in certain cases. Although there is variability in total brain size and neocortex size, a characteristic pattern of organization of areas has been detected in all studied primates. The number of cortical areas, connection patterns, and structural and functional organization of these areas may vary. However, there is a set of cortical areas common to all primates, with some areas being specific to them (Kaas 2012).

The eyeball and prefrontal cortex are separated by a thin bony layer. In chimpanzees, the eye sockets are anterior to the cranial box, while in Neanderthals and modern humans they are inferior to the frontal lobes and occupy an intermediate position in archaic humans. In modern humans and Neanderthals, the frontal lobes are relatively wider. It is not known whether this morphological variation is associated with any functional changes. Both species have also shown changes in the parietal cortex, with this being more pronounced in modern humans (Bruner 2017).

According to Gibson (1990), a practical measure to distinguish intelligence and predict the presence of cognitive skills equivalent to humans in hominid fossils is the total brain size. It was postulated that brain mass increased approximately threefold in the lineage leading from Australopithecus to modern *H. sapiens* (Falk 2012). Tool manufacturing is observed in monkeys and apes; however, fossil hominids surpassed other primate species by a significant margin. The manufacture of stone tools by modern humans relies on a network involving visual areas, the inferior parietal lobe, and ventral premotor areas (Aboitiz 2018).

What enabled early humans to learn increasingly complex vocal expressions was the emergence of a phonological loop, an auditory-vocal circuit involved in verbal working memory (Gibson 1990). This device positioned itself as a radical innovation in the origins of speech, as it expanded the capacity of short-term auditory-vocal memory (Aboitiz 2018). In a study conducted by García and colleagues in 2014, it was proposed that early human communication was multimodal, employing both vocalizations and gestures, much like today. With vocal learning skills, early humans attempted to mimic the sounds of animals, water, rivers, and other nearby elements, along with gestural pantomime (cited in Aboitiz 2018).

Spiritual Substrate in Primates

Margulis' symbiogenetic theory proposes that animal and plant cells arose due to symbiosis rather than the genetic mutation advocated by neodarwinism. During the 1990s, Maynard Smith and Szathmary extended Margulis' theory with the intention of understanding other important events in biological evolution, such as the origin of the first cells, multicellular organisms, social insect colonies, as well as the origin of life and cooperating molecular reactions (cited in Wilson 2011). A significant transition is promoted when selection among units guides selection within the units, and the tendency toward unity results in a functionally adaptive superorganism (Wilson 2011).

Transitions are rare events in life; after a significant transition occurs, new superorganisms become ecologically dominant and diversify into multiple species. One crucial aspect of the transition is that it remains incomplete; individual cells, multicellular organisms, and the paradigm of internally harmonious organisms would present a surprising number of elements that thrive at the expense of the organism (Wilson 2011).

One of the key evolutionary transitions emerged without prior advancement in cognitive capacity and was a prerequisite for the emergence of language, symbolic thought, and spirituality, which are advanced forms of human cognition. Cooperation enabled our ancestors to migrate to different parts of the Earth, especially Africa, Europe, and Asia, leading to the elimination of other hominids and numerous other species along the way. Due to cultural evolution, humans have diversified to inhabit all climatic zones and hundreds of ecological niches. Selection within the group still occurs but is largely overshadowed when compared to selection between groups (Wilson 2011).

This study suggests that the primary transition among hominid groups was psychospirituality activated in skillful humans. Rossano (2006) already postulated that some elements related to religion existed before the emergence of anatomically modern humans, and archaeological research supports this claim by considering *habilis* as possessors of an incipient symbolic life. It is now known that hominids related to humans possess communication and certain cognitive processes; chimpanzees and bonobos (Pan species) are organisms with which humans share a common ancestry dating back 7 million years (McGrew 2011).

Modern humans share more than 90 percent of their genome with chimpanzees. There are anatomical and ethological differences between these two species; the brain of modern humans is four times larger than that of a chimpanzee, which can have a brain volume ranging from 300 to 400 cc (Agustí, Bufill, and Mosquera 2012). Human eyes are undoubtedly a means of communication. The "cooperative eye" hypothesis was proposed, suggesting that humans are the only primate species with white sclera and other characteristics that provide information to their social interlocutors about the trajectory of their gaze and emotional state (Tomasello et al. 2005).

However, a chimpanzee (Pincer) with white sclera has been reported, even though the rest of its peers do not exhibit this particularity. This group of chimpanzees was studied in their natural habitat in Uganda, consisting of more than 150 chimpanzees, which puzzled researchers as groups observed up to that point were composed of communities of fifty or sixty primates. It appears that one of the chimpanzees in the group exhibited a sign of religious behavior; the animal, looking toward the sky, held a monkey it had hunted, seemingly contemplatively giving thanks for the food (Reed 2017).

The transition from Pan to Homo began with a single-point mutation in a gene called FOXP2, which enabled the emergence of human language. Also, according to these authors, if the FOXP2 gene mutates in modern humans, it can manifest as a language deficit known as developmental verbal dyspraxia (Savage-Rumbaugh and Fields 2011).

Genetically engineered mice containing a copy of the human FOXP2 gene have been designed and are found to be more vocal than normal mice. They also exhibit greater synaptic plasticity and dendrite length in basal ganglia, supporting the idea that the gene operates to increase the tendency to produce vocal noise. Whether this "noise" turns into language or not depends on several factors. In chimpanzees, the FOXP2 gene differs from the human version in only two amino acids. This small difference suggests that humans may have suddenly acquired fluent language (Savage-Rumbaugh and Fields 2011).

Symbolic Homo

Spirituality, in its early stages, is considered a fundamental emotional phenomenon. This motivation is thought to be inscribed in DNA and would have driven cognitive exploration (Bernal-Sarmiento 2018), leading to the creation of significant cultural achievements such as abstract poetry and advanced algorithms.

The *religious homo* was and is the organism that experiences the sacred (Eliade 1974). This construct (the sacred) is an a priori condition that allowed archaic humans and allows modern humans to embrace the divine. This predisposition is at the genesis of introspective religion and the revelation of a higher power in history (Ries 2016). Religion is composed of three substructures: the symbol, the myth, and the ritual, which are a constant of the sacred (Bernal-Sarmiento 2022). In all tribes and societies, indications of sacredness have been discovered. There is a universal tendency toward proto-religion in prehistoric and historical humans.

For depth psychologies, symbols acquire a character: archetypal, cultural, and individual. The symbol is a structure composed of the sign, which is the explicit or objective component of an image or language, and the symbol itself, which is the enigmatic mechanism of an image or object (Ries 1995a). The symbols obey a cognitive-constructivist cultivation that has its roots in the dawn of the psychological experiences of primitive hominids. From this perspective, humans are religious beings because symbols are the first psychic exchange with

the external world, connecting humans, retying them to the celestial vault and nature (Bernal-Sarmiento 2020).

In modern humans, emotions link cognitive states with somatic ones, enabling a bodily appreciation of multiple cognitive states. According to Damasio (1994), feelings form the basis of what humans have described for thousands of years as the soul or spirit. In archaic homo religiosus, it can similarly be assumed that emotions were responsible for connecting the physical with initial psychological forms.

Two major scientific lines have concerned themselves with the nature of the process that led to the emergence of symbolic psychology, which we define as the discipline focused on the study of symbolic thought. Symbolic psychology, therefore, is concerned with examining the human ability to think about events and objects outside of an individual's immediate context (American Psychological Association 2024).

For the Darwinian perspective, it is seen as a consequence of the work of natural selection, which is the gradual appearance of cognitive potential in humans. On the other hand, another school of thought perceives it as an evolutionary event in which natural selection does not play a role, suggesting that this natural potential burst onto the hominid evolutionary stage. If symbolic phenomena obey natural selection, three material cultural traces would allow us to grasp this reality: technology, the culture of death, and art. Opponents of natural selection also use these three traces to argue in favor of their position (Martínez Mendizabal 2003).

For De Barros Camargo and Hernandez Fernández (2016), the symbolic function gives rise to two types of tools: symbols and signs. Symbols, which bear some resemblance or connection to what they represent, can be individually crafted, with children's initial symbolic play serving as examples of these personal creations, although this does not preclude the possibility of later collective symbolisms. On the other hand, signs are conventional or arbitrary and, by their nature, must be adopted collectively. Children learn signs through imitation of external models, subsequently adapting them in their own unique ways (De Barros Camargo and Hernandez Fernández 2016).

The origin of symbolism is a very complex issue, and the intentional character and meaning of burials prior to 30 ka are indicative that by this time, language had acquired a structure and organization very similar to that of modern humans. This capacity, in turn, predisposed the emergence of primitive culture (D'Errico and Henshilwood 2011). It is now known that hominid evolution was not linear, gradual, and progressive; it was a much more complex process. Different brain areas of *Homo* during its development have specialized in specific functions, even though cognitive processing involves the integration of several neural networks, meaning the brain functions as a whole (Bruner 2012).

The evolution from Australopithecus to *H. habilis* began 3 million years ago, continuing with *H. ergaster*. Lordkipanidze and colleagues suggested that early African *Homos* known as *H. habilis*, *H. rudolfensis*, and *H. erectus* were indeed the same; the variations among them

would only indicate diversity (Dorado et al. 2018). *H. habilis* had a height ranging from 1.40 to 1.50 meters and a brain volume ranging from 600 to 800 cc (Bruner 2012). They seemed to produce sounds, indicating that the Broca and Wernicke areas began developing in the brain and that these areas were proportionally wider in Neanderthals and modern humans. The brain volume in the case of the former was 1,300, and 1,500 cc is the brain volume that corresponds to modern humans (Bruner 2012).

The Contemplation of the Celestial Vault

For Ries (2016), the use of the hand and thumb allowed *H. habilis* to manipulate objects from nature and create stone technologies. This visuo-motor interaction with the environment was mediated by the parietal lobes, which would stimulate the emergence of imagery. The upright posture of the body enabled *H. habilis* to direct their visual perception to the horizon and the surrounding environment, which motivated discovery. The mobility of the head, thanks to the cervical vertebrae, led them to contemplate the sky (Ries 2016) with all its symbolic richness related to celestial bodies (shooting stars, stars, constellations, etc.).

In *H. habilis*, the breaking of the gestalt began, gradually establishing a figure against a background. This rupture facilitated an interface between worlds (outside-inside-inside-outside), thereby generating a virtual space that gave rise to primary and simplest cognitive experiments. The phenomenological contact between the visual sense (especially), the night sky, and nature led to the emergence of symbols and images in archaic humans. This elementary symbolic psychology, in turn, began to project symbols and later beliefs and mythologies (Bernal-Sarmiento 2020). In addition to this, there is the action of different *Homo* species that transformed physical reality, leading to the evolution of cultures and societies.

This contemplative interaction between the subject and the firmament led hominids to create the first universal image, the celestial vault. According to Eliade, the celestial vault symbolizes transcendence, power, immutability, greatness, and sacredness (Eliade 1974).

Paleoanthropological discoveries in Africa have scientifically supported the idea that archaic humans discovered transcendence through observing the sky. This concept, positioning the upright human as a bridge between heaven and earth, in contrast to animals directed toward the ground, has been acknowledged since ancient times in various cultures, including Greek philosophy, Latin literature, and Christian thought, as well as in the far East (Ries 1995a).

Such a dialectic (internal-external) is a complex epistemic process of psychological and cultural construction that continues to this day. The flow of anatomical-physiological articulations of the nervous system, specifically the brain, allows for symbolic relations between two different objects, a capacity present in animals. It is worth recalling Pavlov's experimentation with dogs, which laid the foundations for classical conditioning principles. In the case of adult *H. sapiens*, these symbolic articulations have no limits (Durand 2000).

In famous ethological research on wild geese and the green lizard, images-stimuli that trigger dominant reflexes have been detected. In this way, the mentioned vertebrates enjoy innate basic symbolic relationships that regulate the vital behaviors of the species. In contrast, environmentally and historically shaped symbolic articulations are a neuropsychological characteristic of humans (Durand 2000).

Fire in the Hominid Environment

There is debate about whether the use of fire actually occurred 1.7 million years ago by *H. ergaster*. What is generally accepted is that the discovery of fire was made by *H. erectus* 500,000 years ago. This discovery allowed them to cook food, and this element also served a very important spiritual-religious symbolic function. Fire may have been related to the earliest form of worship (Argyle 2000). It also enabled archaic humans to coalesce into groups. Species like *H. erectus* and *H. heidelbergensis* had brains ranging from 1,000 to 1,200 cc (Bruner 2012).

An investigation carried out in the Chasm of the Atapuerca Mountain Range Bones indicates that the early Neanderthals were burying their dead 700,000 years ago. Noonan and his team, in 2006, claimed that modern humans diverged from the Neanderthal subspecies 370,000 years ago, sharing a common ancestor that existed 706,000 years ago (cited in Dorado et al. 2018). Several authors have suggested that humans interbred with Denisovans and Neanderthals. Archaeobiology, supported by molecular biology through DNA amplification and sequencing, especially with third-generation sequencing, has recently discovered ancestral genetic mixing between Denisovans and Neanderthals (Dorado et al. 2018).

Around 30,000 years ago, the closest ancestor to modern humans emerged. Animistic and totemic visions of archaic collective psychology influenced prototypical societies (Lee et al. 2018). According to traditional archaeological research, the first civilizations that emerged and shaped what we now understand as city-states appeared more than 5,000 years ago in the Near East.

In their neuropsychological development, hominids initially responded to environmental stimuli, and in a second stage, the information coming from their surroundings underwent processing. In the early stages of this capacity, such processing was simple, but it later became more complex. Through this psychological development, primates (humans) formed an archaic subconscious. This subconscious is filled with symbols, images, archetypes, and profound human experiences. It acts as a kind of "loom" that connects all individuals of the present with their recent and distant ancestors, as well as with their descendants.

Culture and Knowledge

When *H. sapiens* emerged, the relationship between cultural and biological evolution underwent a profound change. The complexity and speed of modification in human

sociocultural systems increased by many orders of magnitude. Natural selection and organic evolution are at the foundation of culture; now, once the potential for culture fully developed, a large number of cultural differences and similarities sprouted and faded away entirely independently of changes in genotypes (Harris 2001).

For Hofstede (2011), culture is a collective programming of the mind, which manifests through visible and invisible elements. Among the invisible elements are values, which become evident in behavior, symbols, heroes, and rituals of each human collective. According to UNESCO, culture is a vast system of traits that encompass spiritual, material, intellectual, and emotional elements (Castillo Palacio 2016).

For Harris (2001), within the context of theoretical explanations about culture is cultural relativism, according to which every cultural pattern is inherently deserving of respect just like any other. Several anthropologists have formed ethical judgments about the value of different cultural patterns. While enculturation refers to the transmission of cultural traits through generational pathways, diffusion designates the transfer of cultural traits from one culture and society to a different one. This process is so common that it can be asserted that most traits found in any society have originated in another. For example, the Judeo-Christian tradition originated in the Middle East (Harris 2001).

According to D'Errico and Henshilwood (2011), a fundamental change in human behavior occurred when symbolism became internalized in material culture. This allowed for the storage and transmission of encoded information within and between groups. This enabled the development, maintenance, and transmission of social agreements, beliefs, and identities that characterize any human society. Several authors believe that symbolic material culture began in Europe around 40 million years ago and gradually emerged in Africa, in parallel with the origin of the human species. Others highlight the use of symbolic artifacts by Neanderthals, as well as their thanatological practices, challenging the hypothesis that symbolic behavior is unique to humans (D'Errico and Henshilwood 2011).

In this era, the knowledge framework (whose foundations are ancestral) is located in two sources. The first one is human (and biological) organisms, and the second one is the infrastructure that supports the internet. Libraries also serve as reservoirs of knowledge, and all these sources are interconnected. Thus, culture is a knowledge builder, and it constitutes a broad category inhabited by various chains of information and meanings from different facets of the human experience (Wilber 2001).

At a systemic level, culture is a macro-system that exhibits homeostasis and morphogenesis in its dynamics. It seems that cultural mutations in the contemporary era are more noticeable than in other epochs of human spirit. Globalization is a sociological phenomenon that has instilled in the human psyche a cultural eclecticism (Wilber 2001) and a diversity of belief systems, including Judeo-Christian, Brahmanic, and far eastern metaphysics, Andean (Amerindian) metaphysics, Western philosophy, science, art, and sports.

Preliminary ideas arising in the context of this research propose that after World War II, the US became a "model" for the Western world (Europe and, logically, Central and South America). During this historical period, cultural syncretism expanded and was influenced, around 1950, by various factors, including the pop-rock music revolution with its diverse styles and new concepts of artistic performance in this industry, cinema, chemical and medical research involving drugs and entheogens, developments in transpersonal psychology and cognitive psychology, the activism of the hippie counterculture protesting against the war, feminism, emerging postmodern thought, space exploration, and scientific and technological advancement.

Several texts considered sacred were translated into different languages, the development of art, human mobility from one distant place to another through aeronautical engineering allowed other cultures to be known by tourists and researchers worldwide, and the development of communication networks were events that contributed to spiritual and cultural syncretism (Wilber 2001). This convergence of belief systems is a psychological, sociological, and historical phenomenon that corresponds to the morphogenesis of contemporary societies, which are opening up to various epistemologies.

Culture can be conceived as a personality that manifests itself from the imagination of peoples in the anthropological-behavioral traits of different collectives, and these traits are woven into the immediate present of ethnicities, although the meta-anthropological elements that are the threads of the cultural fabric are timeless and therefore unconscious (Saavedra-Quezada and Bernal-Sarmiento 2023). Institutions, and all the different non-governmental sacred and profane sites, become architectural spaces (with a historical character) that, together with the ecosystem and other conditioning factors such as imaginaries of politics, economy, science, technology, and folklore, are the drivers that objectified culture and society (Wilber 2001).

Culture, Ritual, and Entheogens

The cognitive-constructivist processes of twenty-first-century humans acquire great complexity, as does social interaction decisively influenced by technological applications. In this global scenario, a reality emerges composed of several perspectives, all of them converging to a certain extent because the norms dictate that *Homo sapiens* operate as a social entity.

Precisely this historical-evolutionary progress was and is a spiritual manifestation in itself. Culture is an emergent property of this biological and anthropological manifestation, in which the symbols, rituals, and myths of ancestral societies that form the basis of the extensive behavioral repertoire of the West are expressed (Wilber 2018). Naturally, these behaviors take on different forms in this era. Consider, for example, the concerts performed in 1973 by the band Led Zeppelin at Madison Square Garden, attended by hundreds of people, or the Indian

Spirit festival held in Eldena, Germany, which also attracts a large number of individuals. These human circumstances, to some extent, are indicative of ritual.

These urban rituals take place in secularized and "pagan" contexts where the concept of God is not necessary. In general, people are connected through collective trance. Through music—lyrics, harmony, rhythm, lights, movement, and performing arts—the group or individuals can enter states linked to a timeless ancestral psychology. The use of entheogens is also incorporated into the previously described human experiences (Winkelman 2015; Papadimitropoulos 2009). The environments that bring together these types of cultures are desacralized, although not necessarily, in this sense, the mystical experience predisposed by these substances is disrupted by the aforementioned factor. In this realm, the boundaries between the sacred and the profane blend.

Since ancient times, various cultures have used natural psychotropics to access metaphysical, surreal, and hyperreal worlds. The ingestion of these master plants occurred in controlled religious or initiation settings, although they enjoyed the flexibility of ritual. The earliest societies used these molecules (alkaloids) in spiritual-religious processes (Escohotado 1998).

Mescaline, psilocybin, and dimethyltryptamine have been and are used in shamanic rituals (healing) or for psychoexploration in South American countries, including Ecuador, Peru, Colombia, and Brazil. These substances, along with others of synthetic nature such as LSD-25, are being investigated by contemporary medicine and psychology (Tartakowsky 2014).

Numinous Behavior

Entering the murky realm of religion and spirituality is a chapter that psychological science has stopped postponing. Religion is a complex symbolic-mythological world, theoretically shaping the archaic unconscious structure. Behaviors of a spiritual-religious nature are the subject of analysis by the psychology of religion and spirituality. In addition to finding application within the field itself, these behaviors are also studied by Health Psychology, as well as by Palliative Care. They are also the subject of study in Religious Anthropology.

Belief systems (BS) form a vast network of knowledge content of various kinds: scientific, philosophical, folkloric, traditional. Religious–spiritual BS are manifestations with a long history that began thousands of years ago. These manifestations are shaped by geographic, cultural, social, and historical factors (Bernal-Sarmiento 2020). These systems have evolved from naturalistic-animistic thought to systems of pantheistic, polytheistic, monotheistic, and materialistic thought. The earlier systems have not disappeared but have merged with various analogous systems and others through syncretism and diffusion.

BS are cognitive entities that psychologically establish themselves at an unconscious level. They are also resistant to change. According to Abelson, BS have several characteristics, one of which is that these systems refer to the existence of certain entities that fall within

fundamental categories around which the BS is woven, e.g., matter, atoms, God, space, other worlds, genes, witches (Gutiérrez Goncet 2007). BS are susceptible to change due to various factors: scientific, educational, familial, cultural, religious, experiential, historical.

There are elementary categories that serve as the foundation for decision-making in BS and knowledge systems. In the case of religious–spiritual BS, practically all elementary categories are involved, specifically referring to life as a basic category, which is integrated with beliefs about creation, spontaneity, evolution, and emergence. Other elementary categories include matter, time, space, relationships, qualities, value judgments, consciousness, and freedom (Gutiérrez-Goncet 2007).

Epigenetics states that it is the environment and not the DNA in the nucleus that conditions cell actions. It has been said that the cell membrane is a semiconductor crystal with entrances and channels, and the same terms can also be used to define a computer chip. In this way, both computers and cells are programmable. This means that the programmers of the neural field are thoughts and beliefs (Lipton 2007).

Experience X

The emergence of consciousness as a psychological phenomenon, linked to the symbolic world, required a body (animal organism). In this sense, the body precedes psychology; however, when the organism becomes psychological, arriving at this conclusion becomes challenging. From an anthropo-philosophical perspective, we can state that the animal's own body constructed a level of awareness of its own body, which acquired psychological and spiritual value throughout the phylogenetic evolution of the Homo species.

Religious experience as a human phenomenon is an X experience. This psychophysical experience can emerge in theistic or non-theistic contexts; it is subject to these conceptualizations but not dependent on them. The X experience itself is the transcendence of the self, reaching the emptiness of one's self (Fromm 2011).

Bion's metapsychological conception regarding mystical experience indicates that union with God allows man to recover the primitive and chaotic self-perception of his own existence; the point—O, the primitive personal situation, is where the capacities of being originate and where being returns (Font 1999). Existence itself is transferred through a process of identification to a perception of existence referring to the Other, in an integrative but differentiated and non-confusive manner; Bion referred to this Other as the unknown and inaccessible (Font 1999). In our understanding, the immanent and religious aspect is part of thinking hominid biology, inherited from our ancestors. This structure (the numinous) needs to be further investigated through empirical research.

Experience X is a product of religious–spiritual heritage; in this sense, spiritual sensitivity is experienced through levels of mysticism. Mysticism allows for intuitive and ecstatic phenomenological knowledge of a transcendent reality. Spirituality is not expressed solely

through mystical experiences; it is also present in daily life to a lesser or greater extent. For example, when a person marvels at the beginning of a sunset or on a summer night in a place without artificial light; when people engage in prayer, they are also activating spiritual sensitivity. Similarly, the practice of certain sports disciplines may predispose one to this sensitivity, as does the act of being charitable (altruistically).

The Birth of God in Contemporary Human Psychology

According to the deep psychology of the Freudian tradition, God is the substitute for the biological father, while in the Jungian tradition, the biological father is the substitute for God. Very young children are immersed in a cosmic or oceanic consciousness that is open to fears of fantastical monsters. This magical thinking is present in the child's cognitive development (Piaget 1960). Defenses are organized in response to these anxieties. From the perspective of object relations, there are external objects that speak of God: words, tradition, education, etc. At the level of the self, a split-off suborganization of the ego originates, which turns out to be an internal mental object, in other words, God. This psychological object is, to some extent, a projection of the ego itself, linking to an external object and becoming an internal object (Font 1999).

In the brains of our ancestors, something similar occurred at the intrapsychic level. A split-off suborganization of spiritual motivation (drive) originated, paving the way for the unconscious state to be established phylogenetically in the human species. Gradually, humanity "awakened" to an encounter with the cosmos and its mysteries, emotional states of fear of fantastical creatures arose from these experiences linked to sacred space, and subjectively, a very complex universe was constructed: religious, cultural, sociological, scientific.

In this way, the spiritual-religious sense has traversed a path that began with a phenomenology of the sacred of great intensity in the hominid organism. This later focused on nature, which was the first transcendental sacred agent. With animism, the ancestors' imagination came to have a notion that various external elements possessed a spirit. Much later, this unknown world acquired a mythological translation in various archaic cultures.

Through comparative methodological approaches, various religious mythologies have been analyzed in terms of their differences and similarities. Analogies have been established between several myths, for example, the myth narrating the origins of the universe and humanity. Rock art engravings are symbols that led upper Paleolithic humans to depict symbols in external space that communicated an objective and hidden reality, especially in the realm of religious engravings.

All these signs migrated to a writing system. The construction of alphabetic and numeric signs has enabled other mental operations of a scientific nature, such as the theoretical equations of physics or the binary language used in computer programming. In the

imagination of contemporary Western man, Christianity has historically influenced its psychospiritual structure. This religious school has implanted a linear conception of time in people's psychology, meaning that it starts from a single cause that moves forward (Bernal-Sarmiento 2022).

For monotheistic religions, God is presented as the great creator of history and of man, and communicates with him, thus establishing a covenant. Naturalism and animism take on a different character in modern humans because they are strongly influenced by Judeo-Christian epistemologies and urban life. In the Western world, different types of religions are assumed, as thousands of people have become interested in eastern metaphysics distinct from Christianity or in various religions. People from other religions have also turned their attention to Christianity. Understanding this fact is complex because there are various aspects to analyze.

Practical Applications of Spirituality in Contemporary Settings

The analysis of spirituality as a complex linked to the ancestral world establishes a historical continuity with postmodern humans. This connection of phylogenetic and ontogenetic spiritual motivations is not merely linear, thereby opening the doors to a range of possibilities for intervention in the health sciences and education.

One of the fields of action of spirituality finds application in contemporary clinical practice (Miquel Diego, Ciccorossi, and Ferrer-Svoboda 2022; Esperandio et al. 2021; Gijsberts et al. 2019; Richardson 2014). Spiritual traits and motivations are the subject of study in the most modern currents of health research. Spiritual practices in the field of clinical psychology can be recognized in third-generation therapies, among them Mindfulness (Lazaridou and Pentaris 2016) and Acceptance and Commitment Therapy (Kaplaner 2019), or in Existential Therapy (Eliason et al. 2010), among others.

In hospitalization contexts, spirituality and religiosity give way to a series of BS and coping strategies that help combat stress related to illness and serve as means for personal, existential, and sacred signification (see Bernal-Sarmiento 2018, 2020). Understanding human behavior from an evolutionary spiritual perspective can enrich therapeutic approaches, offering new strategies for managing psychological processes. This may involve techniques integrating spiritual, bodily, or meditative practices tailored to individual and group needs.

In a doctoral thesis, significant differences were found in the Intrapersonal, Interpersonal, and Transpersonal spiritual domains among university students from Ecuador and Spain, suggesting the determining influence of cultural context on the expression and experience of spirituality. This underscores the importance of addressing spirituality in the educational field in a holistic and culturally informed manner, recognizing and respecting

the diversity of spiritual experiences among students to foster an inclusive and supportive educational environment (Bernal-Sarmiento 2024).

Spirituality is a moderating and mediating factor in the relationship between culture and quality of life of university students. This relationship highlights the multifaceted nature of students' experiences, recognizing that the spiritual factor plays an important role in behavioral and cognitive adaptation to this existential and age-related stage that university students go through. Therefore, pedagogical policies should be generated to promote the development of the spiritual sphere and overall quality of life (see Bernal-Sarmiento 2022, 2024).

The theory described in this study could be applied to develop curricula that promote a deeper understanding of human nature, incorporating the history of our spiritual motivations and their impact on behavior. This can foster a more holistic education that prepares students not only academically but also emotionally and spiritually.

Spirituality as a modulator of the organism and culture also finds application in contexts of business, sports, or political sciences (Bouckaert and Zsolnai 2012; Noh and Shahdan 2020; Crosson 2019). Therefore, efforts should be dedicated to ensuring that research in the Science of Spirituality in Ecuador and South America receives the necessary resources for its development and parallel and subsequent clinical, community, and social applications.

Conclusion

Scientific research must recover the spiritual tradition as a way that predisposes humans to relate positively to themselves and to their environment, with which they constantly construct meanings. Historically, the episteme of psychology finds its discursive roots in pure spirituality and philosophy, and the roots of these can be traced back to the biological aspects of the proto-psychology of ancestral peoples. Spiritual motivation unleashed an evolutionary journey that should not be understood as linear; its starting point was the complete immanence of being, which gradually expanded into an external world.

Roughly speaking, this journey began with Australopithecus and continues in contemporary humans. Once spiritual motivation was articulated, hominid naturalistic-animistic perception took on a cognitive tone (symbolic-images). The incipient ancestral organizations are the basis of current cultures, in which traces of ritualism can be detected in a series of behaviors maintained by their members.

The psychology of religion and spirituality focuses on understanding the functioning of the spiritual brain, taking into account the cultural, social, and historical context of human groups. Modern numinous behavior is comprised of spiritual-religious BS (emotions and behaviors). This behavior, which can acquire unconscious nuances, is rooted in the early psychospiritual experiences of ancestors. Currently, from a psychological perspective in the Western world, the sacred space has evolved into monotheistic forms. It seems that in the

ancestral human, a mystical experience manifested and was validated by their body. Once the being becomes psychological, this mystical experience became more complex.

Symbolic experiences, animism, fire rituals, and funeral rites allowed for the formation of a second state of consciousness (the first being the perception of the hominid body). Cave art indicates that psychologically, humans project from "inside to outside," a practice through which they communicate their phenomenology (internally). Some ancient paintings are highly abstract, suggesting religious–spiritual themes, and it is believed that they were created by early shamans based on their visionary experiences.

The ability to write and perform mathematics opened up a wide range of possibilities for modern humans. Currently, thought is in the technological phase. During this era in the knowledge society, BS from various cultures and fields of knowledge have merged through syncretism. For example, modern humans may have moderate to deep knowledge of various mystical schools: gnostic Christianity, Kabbalah, Sufism, Buddhism, Taoism, Shamanism, etc.

Paleoanthropological research is complex because its object of analysis is fossils. Nevertheless, this discipline and related disciplines have perfected their research methodologies with the intention of understanding the development of the brain and the hominid morpho-anatomy. Within this framework, the psychology of religion and spirituality associated with paleopsychology, along with other scientific branches, must integrate to achieve a holistic understanding of human spiritual phylogenesis. It is considered that the theoretical framework presented in this article contributes to this purpose.

The hermeneutic narrative of the text emphasizes the need for cautious interpretation of speculative associations, such as the relationship between brain size growth and spiritual experiences. Although readers are encouraged to consider these connections with healthy skepticism, this advice does not aim to undermine the research effort as a whole. Instead, it suggests maintaining a balanced perspective that recognizes the merit of the research while remaining critical of conclusions that may require more robust support. Future studies are encouraged to tackle these areas with a refined research design that can provide stronger and more conclusive evidence, thereby contributing to a richer and more nuanced understanding of these complex phenomena.

In summary, the concept of paleoneuropsychology and its attempt to explain the origin of spirituality is interesting and valuable in terms of generating ideas and exploring connections between biology, psychology, and culture. However, as with any interdisciplinary field, it is important to approach these ideas with a critical focus and an understanding of the limitations and potential diverse interpretations.

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Conflict of Interest

The author declares that there is no conflict of interest.

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