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## ***The Hydromythology And The Legend From Natural Events***

### **Hidromitología y leyendas naturalistas**

### **Hidromitologia e Lendas Naturalistas**

**Aitana Martos García and Ana Bravo Gaviro \***

*We analyse the role of mythical narratives in relation to phenomena typical of the geology and hydrology, reviewing the scientific status of hydrology, its methods and scientific paradigms that would contribute to its definition. We delve into the role of myths as explanatory devices in application to hydrogeographic realities. In that sense, we compare some relevant cases involving caves and other karst landscapes, as well as oracles and various mythological characters and episodes related to water. The need for a holistic approach is advocated from a broad consideration of the nature of myth, applying perspectives such as Euhemerism and other hermeneutical currents.*

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**Key words:** *geomythology, hydromythology, naturalist legends, myths, hermeneutics*

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Se analiza el papel de las narrativas míticas en relación con fenómenos típicos de la geología y la hidrología, la revisión del estado de la hidrología científica, así como sus métodos y paradigmas científicos en relación con los intangibles. Se profundiza en el papel de los mitos como dispositivos explicativos en aplicación a las realidades hidrogeográficas. En ese sentido, se comparan algunos casos relevantes relativos a cuevas y otros paisajes cársticos, así como oráculos y diversos personajes mitológicos y episodios relacionados con el agua. La necesidad de un enfoque holístico se defiende desde una amplia consideración de la naturaleza del mito, aplicando perspectivas como el evemerismo y otras corrientes hermenéuticas.

**Palabras clave:** geomitología, hidromitología, leyendas naturalistas, mitos, hermenéutica

É analisado o papel das narrativas míticas em relação a fenómenos típicos da geologia e da hidrologia, a revisão do estado da hidrologia científica, bem como seus métodos e paradigmas científicos relacionados com os intangíveis. Aprofunda-se no papel dos mitos como dispositivos explicativos aplicados às realidades hidrogeográficas. Nesse sentido, foram comparados alguns casos relevantes relativos a cavernas e paisagens cársticas, bem como oráculos e diversas personagens mitológicas e episódios relacionados com a água. Defende-se a necessidade de uma abordagem holística com ampla consideração da natureza do mito, aplicando perspectivas como o evemerismo e outras correntes hermenéuticas.

**Palavras-chave:** geomitologia, hidromitologia, lendas naturalistas, mitos, hermenéutica

## Introduction: geology, hydrology and myths

First of all, it should be warned that the concerned topic is a complex one by several reasons. Firstly, scientific literature, as well as paradigms that have dealt with the myth, are very numerous (Masse, 2007), and they belong to different branches of study with humanities and social sciences. Secondly, there exists a preconception which opposes myth and science. That preconception compares myths to falseness or elements far away from reality which can even have toxic effect, such as the idea of superstition.

In contrast to this simplification, we understand myth as a narrative or traditional fiction developed and shared by a community. Following this concept, we can include within the same group classical myths, fairy tales, and legends or versions turned into literature (Aarne, 1961); though every subgenre possesses its own distinctive features, as we will explain. However, myths are not just aesthetic products but complex, cultural ones, because they provide fabled explanations about natural processes. This also occurs in cosmogonies or aetiological legends which explain the peculiarities of mounts and caves. Myths are developed by means of images and metaphors that allow the existence of typical stories which explain phenomena like rainbows in different cultures. Homer himself presents a good example by using an epic epithet about the Aurora: “rosy-fingered”. Personification is thus a process opposed to abstraction: the force of a stream personified as a numen or god, as well as geothermic phenomena could be related to activities of the netherworld (Valley of the Devil, Lardarello, Italy).

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Actually, belief and science are not antagonistic concepts if we gather them around an idea of worldview. Thus, it is possible to affirm that the myth is the science of those cultures which do not verify their truths according to the scientific paradigm of experimentation (Haviland, 1975). Furthermore, it is not just a speculation or inquiry about reality, but a practical truth with an established moral, society and axiology, as we observe within Greek myths. In this way, if we analyse any divinity related to water (i.e. Aqueloo), it is possible to notice that its representation as a rampant bull has a lot to do with a river's cycles of flood. Hence, in all these figures there exists an important effort both of observation and experience about natural events and, more concretely, about geophysical processes.

In this way, relevant information was transmitted generation by generation. A geological reading can shed light on the complex nature of the myth as it is part of numerous foundational, cosmogonic myths. For instance, Homer describes Poseidon by using the epithet “the earth-shaker”. In summary, the origins of myths are ancestral (Dundes, 1980), and they extend throughout popular, modern culture in several genres, such as science fiction or mythological fantasy.

Dealing with its rank as a genre, it is true that not all the folktales belong to the same category: myths, tales and legends are heterogeneous genres and they are very different too. The main difference has to do with the truthful and etiological nature that legends possess, which makes Thompson to call them “local traditions”. Even though that feature is also shared by myths, these own a greater cosmological significance.

Myths are not wilful representations, but they are the science of cultures that do not verify the truth by means of experimentation. In fact, the sceptical concept which orthodox science presents towards myths compares them to regular ridiculous fables or fairy tales, and it also forgets the connexion between myths and legends, and reality.

Myths contain very relevant details about natural history and particularly about hydrological and geological events. However, within the Bible and other texts there appear a great amount of significant allusions about celestial and earthly phenomena, which have been defined as geomythology (Vitaliano, 1973). Then, the main challenge presented is the interpretation of hermeneutics of myths in relation to every single applicable reading, but bearing in mind that myths are texts consistent of coherence and full sense.

Thus, it is possible to find literal interpretations, which are typical of the first detractors of Darwin's theories, who took the texts from the Bible in a literal way. This vision has questioned their rationality, with instances such as the episode which involved Noah's Ark. In addition, during the Classical Age, myths such as those involving centaurs were also doubted. However, the existence of non-literal, subtler readings is possible too. In this group we can find those derived from different perspectives such as ecocriticism or geomythology. We should remember that myths are not just documents, but signs which must be deciphered within the signifier-signified dimension. Thus, within myths associated to the Oracle of Delphi, we are able to see not just metaphors or symbols but also significant metonymies. In this case, concrete parts (such as the Pythia, the Castalian Spring, etc.) are revealing a wider collateral reality, being in this case that sacredness must not be understood in relation to a single, separated-from-others piece, but to the place as a whole, an idea that then supports the study of Delphi and its surroundings.

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Clendenon has analysed several Greek myths, focusing on karst geology, and thus she has applied a multidisciplinary reflexion which involves geologists, hydrogeologists, karstologists, environmental scientists, ecotourists, mythologists and classicists (Clendenon, 2009). The main problem in relation to geomythology and hydromythology (Vitaliano, 1973) and dealing with the use of multidisciplinary references, has to do with interpretative aspects. Indeed, a preconception attributes a nonsensical reasoning to a naturalist myth, which firstly was the main target of refutations of the Catholic Church. That was the case of the Spanish Augustine friar Feijóo (XVIII c.) who satirized the popular beliefs about mermen and nereids in his *Teatro Crítico Universal*. In the same way, Enlightenment ridiculed all these beliefs and legends by considering them as superstitions or extravagant tales, although there existed a great amount of natural phenomena within them.

That is the reason why a wider consideration of the mythical thought has offered us the possibility of a different approach (Negrete, 2002). Thus, within the classics of Euhemerus and Palaephatos there is an alternative reading which seeks to rationalize its interpretation. For example, euhemerism (Bulfinch, 2012) proposes that beyond the literal sense of the myth there exists a real experience. Hence, lots of fabulations about gods would be remakes of stories about historical characters.

Actually, the main idea is that mythological or literary narrations can contain -and then communicate- scientifically relevant ideas (Negrete, 2002). The value of the myth as a full-sense universal heritage (quoting the classical scholars such as Freud, Campbell or Eliade) makes us think about those narrations as other legitimate cognitive models used to represent reality (Piccardi, 2007). Apart from their aesthetical or religious value, mythical stories are constructed starting from narratological schemas which doubtlessly have to do with knowledge and experience. Then, throughout an “anthropic” coating, we can describe relevant facts within a geological and hydrological level which must be appreciated for communication and education (Lanza, 2007).

### 1. Myths as explicative devices: the case of water sprites and oracles

Masse revises different paradigms which have been accumulating within the studies of myths (Masse; 2007). All those paradigms highlight that myths possess a complex nature and that they are not whimsical fabrications but “code languages”. Certainly, the codes possess psychological, sociological, structural or contextual character according to different schools of thought. However, the important point is not to perform a superficial reading which can lead us to more complex backgrounds, such as the environmental history of an area (Sieferle, 1999), the singularity of the landscape (Norberg-Schulz; 1995), or the variety of cognitive and social devices used to categorize reality. For instance, in opposition to the usual divinities of European folklore (rivers and springs full of undines and other creatures), there exist African-American archetypes such as Yemanyá, a spirit or mother of waters which possesses an universalistic character.

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There exist other notable cases in which literal readings are not enough, so we must go inside the symbolism and connections with thoughts in a wide sense. We find then the struggle between Heracles and the Lernaean Hydra, the multi-headed snake which had its lair in the lake of Lerna. The heads of the Hydra would be equivalent to the representation of the great amount of water streams which flowed into the lake, being Lerna a region full of springs. On the other hand, the fight with the monster should be a representation of the effort of the drainage of the place. In order to explain other details, such as the rock place on top of the immortal head, several euhemerist interpretations based on historical facts have been suggested, and this indicates that within the same myth there exist different levels of interpretation. The important point is that this labour of Heracles is doubtlessly an explicative device about historical realities –the struggle between Mycenaean and the previous Minoan civilization–, as well as a geohistorical description concerning the lake and its progressive desiccation.

Thus, geophysical forces are those which are represented in these sprites or *daimones* placed by Homer across the Mediterranean Sea in *The Odyssey*. These *daimones* can be identified either as determined places (Scylla and Charybdis) or as more complex systems, such as the myth of the Oracle of Delphi, which encompasses Apollo, Pythia, the Castalian Spring, etc. Nevertheless, in the Amphiareion of Oropos we can notice that the sacred place (*temenos*) spreads out along a creek, including a sacred spring and a foundational myth in which the earth opens and gobbles the cart

of Amphiaraus, turning him into a chthonic hero. Indeed, many of these deities from the Underworld are considered a way to represent well known phenomena, like karst forms (Clendenon, 2009).

Dealing with wells, sinkholes, caves, passages and the entire set of karst landscapes, water-sprites are always described as evanescent creatures which appear and disappear, similarly to treasures (during the Spanish Baroque it was coined the idiom “treasures of goblins” meaning that something was able to vanish). The invisibility cloak is other of the motifs included in many legends, and treasures like those which appear in the Germanic sagas (Beowulf, the Nibelungs, etc.) are guarded in caves or rivers; not to mention the Provençal dragon –the Tarasque– which dwelt in the Rhône. Hence, the intermittences and fluctuations of streams or of “enchanted” waters which swallowed young people (apparently attracted by the beauty of these ladies) are considered as recurrent examples of “hydrophany” or manifestations of the sacredness of water. This can be confirmed not just by legends of shepherds, but by testimonies as old as toponymy: in fact, within the legendary toponymy of caves, rivers and springs, among others, appear all those imaginary creatures. As an example of this, the *Grotte aux Fées* or cave of the fairies (France) is located in the valley of the Rhône, and it possesses other associated microtoponyms (*Marmite du Diable*, *Pont du Diable*, *Styx*, *Grotte du Tartare*, *Galerie des Morts*) which demonstrate the connection between these places and the term “Hells”, where karst landscapes are located by antonomasia.

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In these landscapes is where the water-sprite reveals itself (like straining water) by means of a sound as repetitive as the gurgle of a spring, the murmur of a creek or the roar of the tides. The song of the sirens would be the folkloric translation starting from a natural fact, because the voice of a sprite (more than its aspect or appearance) would doubtlessly be that which singularizes many legends about wells or springs. It is not just that they are the meteors and manifestations of the voice of Earth (from a storm to a waterfall); they are an experience that, like the drum of a shaman, induces people into an altered state of conscience, into an ecstatic trance produced by the rhythmic repetition which decreases brain waves. Because of that, water streams are always related to all these legends of enchantment.

In short, oracles or prophetic “chants” have this function of expressing a spiritual truth. Actually, oracle means “place where someone speaks” and the earth “speaks” through the whispers of the forest and the voices of the water. The oracle practices in the classical world were linked to the Mother Goddess who represents the earth, in its broadest sense, both in its surface and in its interior or subsurface (*ctonos*). The oracle practices were also related in a special way to enclaves like caves or grottoes, as conduits for communicating with the dead (*Necromanteion*).

The oracle or “speech of the earth” would be related therefore to the natural sounds of water courses or of the hollows of the earth, so the dwellings of the nymphs (*nymphaea*) were associated with natural caves. Animals like birds or snakes (especially linked to moisture and therefore oracular animals par excellence) and even the trees and the wind also “talked”. We can relate all this to very ancient cults (even pre-Greek) linked to female proto-divinities, like the Etruscan Tesen (Gimbutas,

1989). These deities are the ones which often kidnap or assault youths, which is the same as the nymphs do in their most frenzied periods (Calasso, 2008) or the enchanted of the Mediterranean legends. The atavistic connection to the primordial water concerns the “depths” of the earth, as can be seen in the myths and icons of Black Madonnas, always found in deep places. The previous connection also concerns to the Occitan legend of Black Sara, linked to Mary Magdalene and the Holy Marys of the Sea (Colignon, 2001). Certainly, we cannot know if these women landed on the French beaches of Camargue, but we know that memory and rituals, in the form of pilgrimages and cults, have survived. Within this archaic symbolism, we find the Roman goddess Carmentia, which possesses attributes related to what we are exposing, as the gift of prophecy or being the water goddess and protector of births.

The common denominator of all these mythological beings is their tutelary role: guarding the place as guardians, as *genius loci*. In this way such eco-fiction (Martos, 2013) would serve to indicate certain relevant places for the community, by means of “visual-acoustic signals”, that is: magical signs, as ordeals themselves, which were so common in the Middle Ages. The important point is that these stories conform a cultural legacy able to define these memory locations especially linked to water, as it happens not just with natural places but also with other episodes associated to bridges, chapels, or temples on the bank, among others. These places are not always positive ones. They may be ambivalent, e.g. the classical sirens or the myths of Scylla and Charybdis. This is because the water-sprites are bifront, they can give gifts (healing, fertility or treasures), but also ruin and misfortune. The same has been happening in the interaction that humans have maintained with water throughout history.

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Thus, we see that the experience of the Earth in its broadest sense is assimilated (in the worldviews of ancient civilizations) to a religious and sometimes mystical experience that can only be understood in a holistic way, because it perceives water not only as a resource, a place, a flow or a particular belief, but it integrates everything into a single worldview, which is what we can call water culture of that place. For example, the perception of a specific number of unique places called “enchanted” landscapes (the rock formations that have occurred in *La Ciudad Encantada de Cuenca*), created or inhabited by mysterious beings as the ancient *daimones* mentioned in *The Odyssey*. In contrast to these excesses of imagination, the stories themselves contain elements of rationality (the *metys* or the guile of Ulysses in his journey in *The Odyssey*) which symbolize the human desire to control and predict natural forces beyond the envelope of mythical personifications. In fact, the stratagem of Ulysses to hear the song of the sirens has been given as an example of scientific attitude to explore and experience by oneself the inherited truths.

## **2. The anchorage of the myths and naturist legends within reality: Legends of caves as an example**

Certainly, there is not a more mythified landscape that better expresses the intersection between the fantastic and the mythic than the area of the subsoil which the Greeks called “chthonic”, where the underworld was located. According to Eliade,



the mythographic researches on the cult of the Mother Goddess reinforce the idea that the practices were directed not to heaven, but to everything that would connect with the so called underworld (Eliade, 1998). That is: natural cracks, craters, wells, and other holes in the ground as cavities or wells (*bothros*). These come to mean doorways or portals between the surface world and the underworld (*bothros*, *Necromanteion*).

From a perspective of culture or worldview of the Earth (in the most archaic phase) it is documented the continued existence of a number of cults around the Mother Goddess, which have a wide spread throughout Europe (Gimbutas, 1989), likewise assimilating underground places (chthonic), so there is a proliferation of infernal deities. For example, dragons, “crones” or witches who supposedly guard caves often inhabited by a terrible eater deity which is reconciled with offerings (like bread cakes), but also with deceptions to kill or frighten it off.

The “descent” to the well or cave is always considered as an initiatory experience where someone is expected to receive a gift from the water-sprite, in a sequence that appears perfectly described in *Frau Hölle*, the story of the brothers Grimm, and which is still preserved as an automatism in the rituals of wishing wells and fountains where people throw coins.

This phase of obsolescence of the myth is the one that illustrates the transition of the devouring and/or allied snake (giver of gifts, fertility, etc.) to the enemy snake (all the stories about dragon slayers). Montserrat, Covadonga and other European myths whose morphology has been altered over time (e.g. *Oratorio de la Santa Cueva de Cádiz*, a cave with an oracle, presumed sanctuary of Astarte) are examples of these traditional values and of the deity which depicts nature in its most sacred aspects. The Legends of Santa Margarita or of the Biscione of Milan, or the tales of the Allied Snake reveal the archaic pattern of the initiation monster that first devours or swallows the initiates and then “returns” them with gifts and powers.

On the other hand, the bull is another basic representation of nature, so it is also linked to caves and the representation of rivers (Achelous). The sacred is thus manifested in the depth of the earth and in connection with the water. In fact, the properties of karst or volcanic origin of these places of the underworld have generated phenomena and strange formations which are, undoubtedly, linked to all sorts of legends, such as the audible lamentations of a beautiful young woman (*Enchanted*).

Previously to the demythologizing provided by the scientific speleology during the XIX century, there existed testimonies from the classics (like Cervantes) which introduced the rationality. Thus, in the chapter of *La Cueva de Montesinos*, in *Don Quixote*, it is recreated the fable of the magic cave, which Cervantes fuses with the British matter. It is not an imaginary cave, but a real one; but all that happens is inseparable from certain books and themes of chivalry, so the perception of the cave, both as a natural place and as a dwelling of imaginary beings, takes a new sense which is left to the elucidation of the “discreet reader”, that is, of the critical judgment.

There exists another emblematic case: the Cave of the Fairies (*Grotte aux Fées*) in Switzerland is a prototypical case of cave that goes through various ups and downs, including a speleological investigation which is discovering new galleries; the fact is that, since 1865, it is visited and renamed according to current features, that is: with an environmentalist bias –including a visit to the lake and the waterfall– more in accordance with the modern mentality; hence the circulation of legends supporting the name of the set, which only results in the aforementioned patterns of the wishing well.

From a geohistorical point of view, Romanticism will conduct a fading-out reading of the landscape. Roma proposes a very detailed deconstruction of the concept of the landscape in relation to the Catalan historical and cultural context, and he warns that these representations are a construct, an “invention” or discovery, in the etymological sense, ranging from the utilitarian (economic, moral) relationship of the old society to the romantic or ecologist recreation of Modernity, from the XIX century, thanks to walkers, hikers and clerics who evaluate, for example, the mountain and the sources of Hydrotherapy (Roma, 2003).

The semantic evolution and the earliest records clearly reveal that a notion as “mountain” in the Middle Ages referred more to the rustic, jungle appearance than to height or topography. However, hierophanic and thaumaturgical aspect of the mountain still existed and its ancestral connection to the water: it was the “cursed” place inhabited by deities which was convenient to avoid. The “mountaineering” of the XIX century is a consequence of a more naturalistic and different look. That is why it has been said that botanists that travel across the Alps and the Pyrenees are, in a certain way, the inventors of the mountain in the current sense. In that sense, the “re-enchantment” of nature that eco-criticism advocates had already precedent in this age, e.g. the British Lake Poets. What is of interest is to arouse that broader, holistic look that goes from the imagination and the delight of the traveller, to what is part of the scientific principle of observation.

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### **Conclusions: enchanted waters and the communicative, educative perspective**

Naturalist legends and, generally, myths of geological and hydrological content cannot be considered just picturesque anecdotes, local stories or tourist curiosities, but must be understood as fabled material susceptible of reflection and work in the field of science and also in the fields of communication and education.

Comparative mythology teaches the parallelisms between these myths; but at the same time, the ethnographic and contextual approach emphasizes how each community should not only use these stories for their own cultural identity, but for different purposes. In some cases, water is the source of healing, and an entire cultural event (Hydrotherapy) is generated and has been documented since the age of the Romans. In other cases, water and their guardian sprites have generated *patronus* or local protectors, like sirens, undines and other creatures, whose ritual use has also been documented in classical sources. For example, about the boats we have not only the figureheads that the poet Pablo Neruda collected during his lifetime;

it was also common to paint two sacred eyes (*oftalmoi*) on the prow of the Greek ships (Novak, 2006).

Then, the important point is understanding and rescuing the function of these myths. The necessity of applying more holistic and creative approaches, borrowed from poststructuralism and deconstruction, can bring new readings (Gough, 1993). In the case of sirens, Medusa, or the enchanted, what is seen and what is heard are key issues, not in the sense of a logical articulate speech, but in the same enigmatic dimension of the oracles: the song of the sirens or the visionary appearances of ladies of the water require to be interpreted by those who face this experience (definitely initiatory).

Apparently, the location and appearance of mythological beings is fragmented into many motifs and variants (Thompson, 1989), and, as in the myth of the Garden of the Hesperides or in the myth of Medusa, we find several *mythemes* which are actually intimately connected: the officiant or wizard, the water-sprite in its various aspects (animal, monster, snake, nymph, etc.), the place and its approaches or thresholds, and the gift that is to be exchanged (knowledge, healing or other faculty). The offering is always something of value that is devoted precisely because of the covenant, and that accredits it to the representations of the gift.

The Greeks had no modern concept of treasure. For them the treasure (*agalma*) was the recipient of the offerings, and these offerings themselves. So the word *agalma* has such a polysemic meaning: the treasure of the legends is the same as the one we find in karst landscapes, that is: unique and singular objects. All this is then vulgarized in conventional representations, and it is reduced to gold, precious metals, precious stones, etc. But life lies at the origin of water and, therefore, the representation of the Mother Goddess, including the simplest and aniconic forms (a simple torso, a stone, etc.) or the votive statues of the goddesses.

They are also considered as *agalma* ornaments or objects imbued with sacredness, as pitchers and sacred vessels, the Golden Fleece, etc. Saying that the dragon keeps them is a tautology: the treasure, the dragon, the nymph, the place and its entrance is all the same, and only the fabulation mechanisms explain the (false) antagonisms created (Žižek, 2011). In *Frau Hölle* both the good girl and the bad girl jump into the well to get the gift of the goddess of water, and in both cases there exist the offering and the performance of tasks before a message.

The fact that the acoustic-visual signals are the basic description of these water-sprites confirms that hermeneutics is essential to decrypt these latent signs. Nature can be good or bad, gentle or cruel perceived in an anthropic way, but in any case it is necessary to interpret its meaning in a broader view, resulting in a modern reading that deviates from the stereotypical moralism of fairy tales. Nymphs are equally ambivalent. Calasso recalled their relationship with madness, shredding and, in short, with the excesses and dangers, making them far removed from the romantic stereotype prone to reasons such as the ruins, loneliness, nocturnal, or to feelings like melancholy (Calasso, 2008).

Indeed, the exploitative view of Nature and rivers is related to the absence of this broader reading, which we can observe in the legends of the ancient serpent, which is an initiatory snake. There exist legends like the particular one of Santa Margarita (I Pedros, 1986), who is swallowed by the dragon and she escapes out of her womb. Those legends can be interpreted in a maieutic way, that is: the disciple is “borne” by the teacher. As we see in the case of Ulysses and Circe, the cave (or initiation *antrum*) was considered in Greece a school of knowledge of nature, and that is something that many environmental or ecotourism currents still keep.

Thus, getting out of the bowels of the dragon is the same as when the Spanish folkloric character *Juan el Oso* wants to leave the pit where he has gone to rescue the princess or to search for a treasure, depending on the versions. The way to get “borne” into an initiatory “new life” may be anecdotal: being thrown up by the monster after a substance (the myth of Cronos regurgitating his children) or by means of a magical token, such as the ear of the Devil. The important thing is that this teaching needs to be made “in the depths” (in a cave, in a well, etc.), something which reveals its link to the chthonic deity and to water, personified as the underworld inhabited by the powers of Nature.

In addition, the dragon or serpent develops a connection with the mount, despite being simultaneously a sea monster. Its multiple habitat reinforces the nature of linking cosmic planes; it is especially interesting that water-mount-cave connection, which confirms what we see in legends: it lives in the water, the banks, caves or mountains without interruption, which are perimeter enclaves around the gate or the place that marks the access to the underworld. Traditionally, water serves as a border (*limes*) with Hades, as the medieval ocean. The dwelling located between these interconnected habitats is the usual, because the banks, for example, are the common territory that brings together these spaces and is adjacent to the river or lake, which is the access to the territory and, at the same time, to nearby caves or mountains. We appreciate that in many legends about enchanted. The essential thing is the amphibious behavior of the monster; thus, its lair is halfway between different levels; it can be a cave facing the river, a grotto in the mountains, etc.

Referring to the Treasures, the truth is that all the European Atlantic banks are full of traditions, not only in Ireland or in the Germanic or Nordic world. In northern Spain, the so called world of castros (fortresses) has been growing, fed by legends. In the village of Sigrás, stories about the secret passage that communicates with the *Pazo de Sobrecarreira* (to which it belongs) are well known. Other legends (as in Cambre) speak of bells lying in dark waters which toll when a great misfortune is about to happen.

But more than objects, the point which causes concern is the presence of natural forces, personified in benevolent or malevolent forces, according to the anthropic approach that attributes, for example, sulphurous vapours to fumes of hell (*Valle del Diavolo*, Larderello, Italy). The *Guaxa* of Asturias deserves a special mention: this witch who lives in the caves is the avatar of a classic lamia in its most destructive aspects. It seems to have its origins in the survival of an old Indo-European myth, as

it is described as a horribly ugly, very old, wrinkled woman, and also toothless except for one monumental tooth in the centre of the mouth, with which it sucks the blood of helpless humans, usually children or elderly people, gradually making them sick and even killing them for no apparent reason. The image of this horrible tooth also appears in *Frau Hölle*.

But the *Guaxa* is invisible, so its physical description is less interesting than its function or manifestation, which is performed through illness or death itself, since it weakens children and elderly people until their physical disappearance. It seems clear that it is an avatar of death, and this is supported by the persistence of some popular sayings such as *la Guaxacomíolu* or *Ilevólu la Guaxa*. One of its peculiarities is that it acts at night, which favours its invisibility as it sneaks through every crack, acting in complete treachery and freedom, and returning several nights to finish the job: usually the death of an unfortunate human. Its correspondence with the traditional bruxa determines that the ceremonial of the *conxuro* is very similar: the popular wisdom has created many amulets and *conxuros* against it, as the rite of “passing the water”, etc.

On the other hand, the snake causes *ofidiofobia* as in the past it was cause of ophiltropy (from the proto-Indo-European cosmology), and both aspects, positive and negative, certainly correspond to the ambivalent dimension of deity which Otto highlighted. If something is important in this case is the ubiquity and survival of hydro-ophidian myths and their avatars under the different scripts or sequences of mythemes. One of the best known is the battle with the dragon: a maximum god associated with light and fire entrusts another god (perhaps his son) with the task of killing the serpent (divine element, but opposite at the same time), and lends the weapons to do it. The slayer performs the deed, aided sometimes by his own cunning.

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However, we have put the emphasis on the other two patterns: the predatory snake -where struggling “as equals” does not exist- is the serpent which kidnaps, devours and swallows. This pattern is linked together to the previous one, sometimes in stories or pious legends rather than mythological legends themselves. So, Santa Margarita is swallowed and resplendently leaves the belly of the dragon. The typical dragon slayer is the one who beheads or chains the beast, so it is not usual to include the motif of bright light (symbol of wisdom) at the end of this ritual death experience. What we do find are many heterogeneous legends about enchanted, virgins and stars, and snakes plaguing shires and assaulting not only princesses, but also the flocks of the shepherds. Therefore, in the water flowing, in the tide, in the river, in the serpent which sheds its skin, in Venus as morning and evening star and, in summary, in every single constellation of converging myths, what we observe is the duality which seeks for reconciliation.

In this way the snake, the death and the moon are concurrent and related symbols; that is why we can understand the astral dimension of the dragon and its relationship with the sky and the light, as well as with the underworld. We can also understand how it is passed from this animal shape –dragon–, which represented the powers of nature, to the human or semi-human form (hybrid), such as the *xanas* of the springs and the gods of death. In the springs and fountains are located the oracles, the contact with the ancestors, so we can differentiate between the waters of oblivion, in the rivers

bordering the underworld, and these waters where memories of the Manes, the souls of the deceased, end up. Not in vain, we have emphasized that the places of the enchanted were authentic *stupa*, funerary monuments, not of a person but of the community.

In a stricter interpretation (euhemeristic), we have tried to focus in aquatic deities (classical Tarasque) as causes of the rising waters, and in their antagonists as the ones who stop them (Anton & Mandianes, 1995). In summary, it is all about controlling a telluric or water power, which is precisely embodied by these theriomorphic figures.

On the other hand, we know that the sibyls are a myth of Greek origin, referring to Sybil as a long-lived elderly who dwelt in caves or grottoes in Asia Minor and performed prophecies; so we find that the pattern is repeated, although water is not the essential element. The Asturian legend of the *Guaxa*, conjured by the Virgin (same as the Tarasque by Santa Marta), confirms the same. Do not forget, in this respect, that the tradition of the Sibyl is deeply rooted in Mallorca. Therefore, the relationship would not be only with water, but with the underworld and divination, and would thus be the oldest and clearest exponent of sorcery in the classical sense, as defined by Caro Baroja (1991). Consequently, the narrative pattern should offer the following distinctions: a theriomorphic-infernal-lunar-psychopomp (conductor of souls, diviner) being versus a solar civilizer being.

All of this has to do with another very common ecotype, widespread in Spain: the magical caves, such as the one in Salamanca. They are places of knowledge, originally linked to a woman, the Sibyl. It can be said that there has been an amalgamation of myths. In any case, watercourses, of one or another nature, are always part of an eschatological and initiatory geography, with its variety of locations and accesses to the Ancestral World. If it is an insular town, the variety of locations of the Hereafter will be possibly larger (Karacic, 2006).

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Furthermore, the legends about enchanted differ structurally from the legends of predatory snakes or which fight against the hero, to the extent that in these we either find a maieutic myth (about a devouring and a subsequent delivery, normally obscured in the legends, except exceptional cases, such as the already mentioned of Santa Margarita) or *agonal* myths.

The legends about enchanted are oracular myths, including communication with the dead that are in fact a test, an ordeal, since the waters (that is: the enchanted) know how to discriminate between just and unjust people, as if the waters knew that they have to denounce and punish the affront. That is the core issue: the expiation of guilt, the legend of the scapegoat (Girard, 1972) as an individual who is sent to slaughter. The fabled way consists on doing a search, repairing damages or failures, but in the end it is a mediator of the community, linking violence and the sacred. Someone can only get the disenchantment by sacrifice. Within the snake pattern underlies collective, reciprocal violence. By contrast, the *jarraplás*, the *carantoñas* and other suspiciously theriomorphic forms assume the role of the Athenian *pharmakós*: a cripple or other unfortunate individual, who was paraded and to whom people threw all kinds of elements, that is: he was a scapegoat, target of wrath and mockeries.

Thus, from our point of view, the myth/ritual of the enchanted has a double specular form, that is: inverted; if it is presented as a figure who comes to the community in the form of the masks of the deceased who visit the town and are object of “offerings” - even in the form of objects that are thrown, since, with the shouting, teasing, laughter, etc.- it would be part of an apotropaic ritual. The symmetrical ritual is a villager who goes to the “place of the dead”, the enclave of the enchanted, and the ritual is reversed: he is the one who presents an offering and who, eventually, is persecuted, as many versions.

With regard to the relationship of the enchanted with the classical Gorgons, we believe that the arguments and evidences, like the *Tiendas del Encantu* of Spanish legends from Las Hurdes, clearly demonstrate this relationship. Thus, the enchanted also comb their hair in front of a cave, river or rock, look piercingly to their visitors and cast spells on them. The difference between the two forms of the rite is that the former is collective: the *carantoñas* visit the village and receive a ritual of insults, such as the Athenian *pharmakós*; in the latter, the action is no longer collective but individual, and who appears is the one who visits the enchanted.

In our opinion, the difference lies in the different way of looking at the cult of the dead. The worship of ancestors in the Neolithic site of Çatalhöyük in Anatolia shows that they buried their dead within the village, because human remains have been found in pits under the beds and the floors of the rooms. This suggests that they used oneiromancy: they believed in the communication with the dead through the dreams, like the Berbers. Therefore, death does not interrupt the dialogue with the living and an expulsion to the periphery (necropolis) was not necessary. The people of the culture of El Argar also buried their dead in cists or tubs under the floor of their houses, or in huts, caves or natural cracks near them. All this reveals that the ancient rite of the incubatio (sleeping next to a sacred place) already appeared in oracles such as Amphiaraus, and it is an avatar of the hydromancy itself. What allows the water-sprite and the ecovisions “to emerge” is the contemplation of a calm lake, or a well to which something is thrown, or a spring. In fact, hydromancy was practiced in the temple of Demeter.

The grotesque features intended to scare people leave no room for doubt: the *carantoñas* are the collective reverse of the enchanted, or she is a “banished” replica of the *carantoñas*, representations or masks which, like the Gorgons, are endowed with a large magical power, so they are consequently linked to the constellation of myths already indicated: death-moon-snake-water.

In summary, what is significant about the enchanted waters is their relationship to the origin of water-courses; in fact, caves, grottos or springs have always been linked to the representations of the Mother Goddess, that is: to the symbols of the uterus. That is why the *nymphaea* (dwellings of nymphs) are assimilated both in cultured and popular tradition to those caves which are similar to the ones that sheltered mysteries and oracles.

On the other hand, the popular symbology that the caves and other places generate should not move away from a strict scientific consideration. When talking about the

wells and caverns as sources of knowledge which include episodes of initiatory trances, we cannot forget the role of entheogens and sacred drugs. The *pneumaenthusiastikon* (produced either by natural or artificial means) was what the Pithia inhaled to get into trance. Moreover, in shamanic practices, visionary trances were caused by entering in caves, and also with the aid of other botanical methods. These places were considered thresholds for accessing the underworld, or, neuropsychologically speaking, for reaching mental states that helped to perform the shamanic journey.

The rich and complex cultural history of water should encourage us to deepen in its holistic study and to investigate everything that myths can provide for the study of earth sciences. As an area of intersection of knowledge and paradigms, it is not easy that a code reading as proposed by the geom mythology and hydromythology always bears good fruit, but we must discard that the accumulated experience of mankind over thousands of years and history is only a heap of nonsense or fantasies in the most pejorative sense of the term.

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Many myths and legends have geologic origins. However, some geologic references are more fantastical and do not reflect a perceptive knowledge of natural phenomena. For example, the vertical cracksâ€” Vitaliano realized that oral traditions may contain genuine information of natural events, based on astute observation of physical evidence. Some geologic events such as cosmic impact events, volcanic eruptions, earthquakes, tsunamis, floods, and fossil discoveries have occurred in recent human history but are difficult to trace in the geologic record. In these cases, we can turn to geomythology and investigate local folklore to better understand geologic processes which occurred before modern scientific technology became available to record them. Vitaliano (1773) found that. Myths and Legends have always interested me from a young age, on this channel we discuss all kinds Mythology and fiction from all around the world.â€” A great piece of Arthurian lore that covers multiple themes from honesty, chivalry, temptation, seduction and human nature. If you have enjoyed this video, please leave a like as it helps a lot. â€”Join the channel and get access to exclusive perks: <https://www.youtube.com/channel/UCH4B> â€”CHECK OUT THE PODCAST â€” <https://podcasts.apple.com/podcast/my> â€”Listen on Spotify â€” <https://open.spotify.com/show/0lv0gj7> â€”Megaphone â€” <https://www.megaphone.fm/my> Among these, the dimension, materials and design of the canal and the penstock are given by the hydrology, topography and the geology of the project's area. This paper presents an attempt at standardization by using different heads and different installed flows. The case study is made on the Lukosi River from Tanzania, because there is a good hydrological database on power and energy calculation.â€” The BRC was completed in July 2007, and 28 precipitation events were monitored between October 2007 and June 2008. For each storm, inflow and outflow flow-weighted composite samples [Show full abstract] were collected and analyzed for suspended sediment, total nitrogen, and total phosphorus.