

Institut Veolia Environnement

## **Water: symbolism and culture**

**Mohamed Larbi Bouguerra**

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Mohamed Larbi BOUGUERRA

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## Introduction

Most religions, faiths, philosophies and visions of the world value water, describing it as baptismal, lustral, holy, vital, purifying...

In India, one of Shiva's five manifestations is in water because this great God of Hinduism -alongside Brahma and Vishnu- is a symbol of the forces of destruction, but also of regeneration. Water and its representations are ambivalent. It follows that water is sacred in India and the divine nature of its rivers greatly respected. In periods of drought, wrote David Annoussamy, Honorary Chief Justice of the Madras High Court: *"The people still like to invoke the God of rain. Even the authorities in certain States tell all the temples to organise prayers. The people prepare sacrifices and continue to perform the most unusual rites until water finally falls from the heavens"*.

The same author goes on to say that, as a result, engineering plans to connect the overflowing rivers of northern India to the chronically drought-ridden rivers in the south through a gigantic network of canals, satisfies the religious sentiments of Indians who consider that as a result all the divinities of the Indian pantheon could be united so that they would have ready to hand both the waters of the Ganges and those of the Cavery.

As we shall see, mankind is reluctant to dissociate the physical sphere from the technical and the metaphysical sphere from the sacred. This is clear throughout human history, in India and elsewhere, with water revealing many forms of human prejudice, preconception and social organisation.

Concepts attaching importance to water have travelled down the centuries. In the Louvre, we can admire the statue of the God Horus pouring water on the Pharaoh during a purification ceremony, but we may also wonder at the near full-page photograph displayed by the Financial Times (October 30-31, 2004) of the former king of Cambodia, Norodom Sihanouk, sprinkling holy water on the new king, his son Norodom Sihamoni, at his coronation.

This thousand year legacy continues to dictate to many of our contemporaries their attitude, or more precisely their reverence and veneration for this element. In May, 1999 the Catholic bishops of California signed a pastoral letter calling for respect for the Columbia river which is *"a driving force of the spiritual life of the region... and should not be treated simply as the workhorse of the economy"* (Los Angeles Times, May 8th, 1999). Along the same lines, reporting recently on the book *"The Nile"*, by Robert Collins, Robert Rotberg, Harvard University, Boston, entitles his review in the

Christian Science Monitor: *"The Nile is not just a river"*, highlighting the vital role of the river for so many brilliant civilisations. The same could be said of the Ganges, the Indus, the Jordan and many more.

This historical resonance needs to be highlighted and accentuated in the world of today to encourage mutual sympathy and avoid disputes, misunderstandings and conflicts over water with their sad sequel of victims, refugees, suffering and tragedy that recent events illustrate, alas, most abundantly.

The same symbolism is also to be found in traditional lore and customs the world over, Morocco, Nepal, or the Andean plateaux. It conditions our environment and continues an unending dialogue between history and myth in our everyday lives. It is written into our history, our architecture, in the towns and toponymy of northern France, as shown for example in the works of André Guillerme *"Les temps de l'eau. La cité, l'eau et les techniques"* (Champ Vallon, Seyssel, 1983), who studied Beauvais, Auxerre, Rouen, Soissons and other towns and wrote *"Out of the four elements that structure our social imagination, water is probably the most fundamental -the origin of all things and the ultimate equalizer. The history of techniques and, more precisely, the history of western urbanisation, is clearly signposted by the multiple problems related to water management. In this respect, myths and history, both physical and social, mingle their reflections in the mirror of the urban hydrographic system"*, as verified by Campbell's postulate that myths help us to perceive and elaborate our collective conscience as regards the construction of speech and the contributions of experience. In fact, myth and symbol are fundamental needs of human beings through which they express both their imaginary world and their symbolic thought. They help us to face up to the major issues of Life, Death, Afterlife, to the sacred and the mundane, to what is forbidden and what is allowed. Water is often the vector or even the interpreter of thought.

If truth be told, water is at the source of almost all faiths -those of ancient Egypt, the Animists and Islam- even of those, like Buddhism, that evade cosmogonic issues. We shall consider briefly its various aspects in the following study because although water is the alpha and omega of life, the bridge between "the material and the spiritual" proposed by the philosopher Henri Bergson, it is still true that its religious and symbolic meanings are innumerable, sometimes ambiguous, but more often than not coherent. This is a vast field of research and reflection, including the links, connections and relationships that the various human faiths and ideologies interweave one with the other around the subject of water.

There are many examples to show that even if certain metaphysical considerations are left aside, there are almost no forms of experience, activity or ideology where water (or its magic) is not omnipresent.

The natural sciences seem to echo the central importance of water in faiths and religions. Is not hydrogen - "*maker of water*" in Greek and one of the two components of a molecule of water\* - the prime constituent of modern cosmology? Some authors see hydrogen as the scientific counterpart of Nu, the Divine Spirit of Ancient Egypt.

No doubt, Science has erred at times on the question of water. For example, the phlogiston theories -which dominated chemistry between 1730 and 1760- held that humidity and vapour were the source of nature's transformations, but that water was the "*prima materia*". *"It is water which forms the earth, as is confirmed by the experiments of Van Helmont, Boyle and later Hamel: plant a bush in a pot; it grows by the simple addition of pure water, which means that in the course of a few years, this water is transformed and becomes vegetable matter that distillation reduces to salts. So all solids, earth included, are generated by water through the action of seeds and ferments; even gasses are only a form of water, vapour."* (André Guillerme, op. cit, p. 178). Even the great Newton was mistaken about water, probably as a legacy of his alchemic convictions. But fortunately Antoine-Laurent Lavoisier was soon to bring some order into this hotchpotch of ideas, first by discovering the composition of water (1783) and then with the publication of his fundamental work "*Traité élémentaire de chimie*" (1789).

Nevertheless, water opens up for the researcher another domain for reflection regarding the relationships between the first cosmogonies which served to explain the Universe and its inscrutable mysteries to mankind.

Gaston Bachelard wrote in "*L'eau et les rêves*": *"I see in water, not infinity but profundity"*.

On a much more modest scale, we shall try to explore some of this profundity since, like Primo Levi, we believe that *"Water is ever close to mankind, or rather to life, by the bonds of age-old familiarity and ever-present necessity so that its uniqueness is concealed under the guise of the habitual"* (in "*The Periodic Table*").

As we progress, we shall observe that symbolism creates a water culture which emerges -for anyone who cares to see- the world over and in all human civilisations.

\* A noteworthy detail: the best known chemical formula the world over is for water: H<sub>2</sub>O.



# Water: myths, cosmogonies, symbolism and culture

*"Symbols are part of the lexicon, but they represent more than words, vocabulary and concepts. They enable philosophical thought to reach or at least to aim for, the elusive: originality and finality, the absolute derived from the relative, God and the devil..."*

Henri Lefebvre

*"The past is past, we say, but that is not true, the past is always present"*

Maurice Maeterlinck

Pre-Socratic philosophers and the Ionian school, considering the creation of the world, proposed an *arche*, and Thales claimed water as the first principle because everything comes from water and returns to it. Thales taught that our Universe is no more than a bubble of air within a mass of liquid. The philosophy of the ancient Egyptians was very similar; they believed the source of all life to be the primary mass of water personified as Nu, the origin of the two sacred rivers: the Nile which is the giver of life and the Sky upon which sails Ra, the sun. In the boundless depths of this primordial liquid float the germs of all things as the Egyptian priests related in the papyrus scrolls that have come down to us.

## Water: the "materia prima" of all ideologies

For Thales, these germs and animalcules are of a fundamentally aqueous nature. To explain all, there is no need to resort to mysteries. It is enough to observe this "*materia prima*" of all ideologies, the most common, the most banal and the most familiar, albeit the most vital substance: water. *"Reality is attainable, at least if a rational method, based on observation and experience, is used: such is the rationalism of Thales,*

*who must now be seen to belong by right to the world of philosophy as well as the world of science<sup>1</sup>".*

With cosmogonies, however, rationalism is far from universal and seems to have mainly penetrated around the Mediterranean, in Greece particularly. In the various traditions which relate the religion and myths of China, the Five Sacred Peaks (*wuyue*) and the Four Rivers (*sidu*) are omnipresent. These renowned partners, Mountain and River, are at the core of all Chinese founding legends. For the Chinese, the functioning of the perpetually moving universe can be explained by the interaction of well known fundamental principles: the yin and the yang and the five instruments: wood, fire, earth, metal and water.

A specialist in Chinese folklore presents a syncretist view of the creation of the world:

*"The legend of the creator of the world, Pangu, exists in an official version of the Han mythology and in several variations among the minorities of South-West China. A number of versions state that the giant Pangu took eighteen thousand years, and not seven days, to create the world and that when he died, his body was metamorphosed. His eyes became the moon and the sun and his blood filled the rivers and seas. In the tales told by the Yao and Miao minorities, Nüwa -half woman and half serpent who gave life to the first human beings- and Fuxi, one of the three sovereigns of the Han mythology, were the two sole survivors of a deluge which submerged the world... Although the Deluge theme is treated differently, it is to be found in both Han folklore and the folklore of the minorities. Chinese folklore provides the details of major meteorological and cosmic disasters in human experience<sup>2</sup>."*

The versions of Creation given by other cultures, however far away in geographic and linguistic terms from the Middle Kingdom, all to some extent follow the same lines and present similarities, a proof of their common humanity, and testify to the need all men have of understanding their origins and explaining their environment. They are also proof of the prominent role played by water, the world over in every culture.

In a number of civilisations, as above in China, the Deluge theme is present. For the Jews, water is the element chosen by the Almighty to punish those who have been at fault, hence the Deluge. A notable exception, ancient Egypt does not refer to the Deluge: the annual Nile floods brought, together with silt, hopes of an abundant harvest and the fertile silt was held in such high esteem that the robe of Anubis, the jackal-headed god of embalming (and therefore of resurrection) is of the same dark colour. Moreover, the Nile is so vast -Paul Claudel speaks of the "Nile's dual containment"- that it has always been able to buffer major meteorological disturbances.

<sup>1</sup> Marcel Conche, *"L'eau et les philosophes"*, Sciences au Sud, Spécial 2003.

<sup>2</sup> Guillaume Olive, *"Les contes des peuples chinois"*, Hémisphères, n° 26, September-October-November 2004, p. 10

Michel Serres sees a particular significance in the Deluge—an example of universal eschatology, perhaps? *"The primitive scene of the Deluge, for example, so frequent in many religions, which perhaps describes some form of physical marine transgression, is too much concerned with peace, doves and olive branches to be anything but a warning, almost consciously, that our human rivalries may endanger the planet and life itself, as evidenced by the universal rising of the waters and the gathering of the animals in the Arc. Though there is no mention of culpability or moral prohibition, these scenes seem to warn that a collective and global destruction is in our power: the seas rise<sup>3</sup>."*

## Myths and symbols are fundamental needs

But let us first consider this human need for myths and symbols.

It is true that myths and symbols are fundamentally necessary to human beings and through them are expressed man's imagination and symbolism. They enable man to face the key issues of life, death, and afterlife and questions of what is profane or sacred, forbidden or permitted. Water is often their vector and interpreter through innumerable approaches such as religious perception, by way of beliefs, spiritual calendars, rites and prayers. Marcel Mauss recommended an appreciation of any reality through its cultural and religious entirety in order to understand its complexity. This is also the case for the liquid element because technicalities and exploitation of the resource may interfere with symbolism and sanctity, as is demonstrated through two historically remote, but equally significant examples: when water was brought to the Roman Capitol via the aqueducts, several Senators were displeased and referred to the prophecies in the Sibylline Books according to which water from parts foreign to Latium<sup>4</sup> should not be brought to the Capitoline hill, home of Jupiter's temple; in Tunisia, in the 19th century, Sheikh Mahmoud Mohsen, grand Maliki imam of the Great Zitouna mosque, Tunis, protested when water from Zaghouan was brought to Tunis. He claimed the water was tainted for ablution since the conduit had been used upstream by others<sup>5</sup>.

Indeed, throughout history, mankind does not dissociate to any great degree the physical from the technical sphere, nor the metaphysical sphere from the sacred. Fountains, wells and springs are never purely functional. They are inhabited by both material culture and deep-rooted spiritual values<sup>6</sup>. Constructions relate to both the

<sup>3</sup> Michel Serres, *"Retour au Contrat naturel"*, Presentation at the Bibliothèque Nationale de France, Bibliothèque Nationale de France, Paris, 2000. For a long time, the Deluge was seen as a supreme punishment inflicted by the Heavens on men guilty of bad deeds and sins: in France in 1680, it was thought that the return of Halley's comet would bring the deluge in its wake.

<sup>4</sup> Michel Camdessus, Bertrand Badré, Ivan Chéret et Pierre-Frédéric Ténrière-Buchot, *"Eau"*, Robert Laffont, Paris, 2004.

<sup>5</sup> Jacques Berque, *"L'intérieur du Maghreb. XV – XIX e siècle"*, NRF - Gallimard, Paris, 1978.

<sup>6</sup> In Morocco, Muslims and Jews continue to venerate some springs despite condemnation by both imams and rabbis. (Patricia Hidiroglou, *"Leau divine et sa symbolique"*, Albin Michel, Paris, 1994).

cultural domain and to hydraulic necessities. The archaeological site El Guettar, in southern Tunisia, probably revealed the oldest religious building in the world: a "Mousterian" monument (45,000 years BC) constructed to protect a spring and mark the site's sacred nature. In the same way, Hadrian's aqueduct, 132 km in length, erected around 120 or 130 AD to supply Carthage with water, included an imposing temple dedicated to the gods of water, the remains of which are still visible, at the foot of the Zaghuan mountain, at the source.

At first, man's relationship to water was seen as a divine gift so that a frequent interpretation is water as a symbol of the source of life. But one must be wary of oversimplification since so many events in this domain are sometimes the cause and sometimes the effect, due to a constant quest for equilibrium where water's ambivalence is frequently prominent.

Most mythologies integrate pre-existent traditions which sometimes date far back into man's history, or even pre-historical times, as we shall consider below.

Rather enigmatically, but with constant consistency, water is associated with life, death, birth, reproduction, power or even resurrection, as demonstrated for example by Christian baptism. In India, at the time of the Hindu Ganesha Festival in Bombay, a statue of the elephant god is immersed in the river. Statuettes of a myriad gods and goddesses are fashioned in clay and water. After worshiping them, the faithful consign them to the river or the lake since "*what began with water ends as water*". The practice must be universal since fertility statuettes have been found in a river at Châtillon-sur-Seine!

The primordial gods frequently take on human forms, thoughts and sentiments<sup>7</sup> and borrow from the animal world. The play between these various factors forms the basis of many cosmogonies.

Amidst the four elements of the Greek materialists, water is, for Empedocles, just one of the elements, like fire, the ether (air) and earth. It no longer has the universal significance that Thales recognised; it is the one that best transmits powers and virtues.

Innumerable rites have been used by men to maintain these powers - positive at times, negative at others- to benefit from them and attempt to reconcile immensely destructive vital forces whilst making sure that "the essential natural cycles of the seasons and the rains are repeated, year after year, to feed springs and wells, fill cisterns and irrigate the land<sup>8</sup>."

<sup>7</sup> One example in a thousand to be found in Greek mythology which teems with Nereids, half woman, half fish: the river god Alpheus, having seen Arethusa, a nymph favoured by Artemis, bathing, fell in love with her and pursued her. The goddess changed the nymph into a fountain and Alpheus changed into a river to be united with his beloved. Heracles changes its course and that of the Peneus to clean the Augean stables. Alpheus is the river god of oblivion.

<sup>8</sup> Jean-Louis Oliver, "*Eau et diversité culturelle*", Cahiers de l'Université de l'eau, Créteil, 2004.

The case of the "Neolithic" Baruya community is an opportunity to see in action some of the practices which began with the dawn of history.

## Survival and permanence of cultural practices connected to the liquid element

The Baruya are a tribal society in New Guinea, discovered as late as 1951, when they were just emerging from the Neolithic age. Significantly, the boundary of the Baruya territory is a river. The Shaman women change into frogs at night<sup>9</sup>, to guard the river and prevent the spirits of sleeping children, women and old people from penetrating enemy territory, for fear they would not be able to return. They are the guardians of the cosmic passage between two worlds.

Maurice Godelier<sup>10</sup>, who spent a great deal of time with the tribe on frequent occasions, described their way of life, organisation, myths and cosmogony in a remarkable book.

Water is always and everywhere.

Godelier discovered that the men know about irrigation and how to construct drainage canals. Men alone can own land and natural resources linked to a territory. To explain the social and cosmic order, secret and sacred knowledge, the Baruya teach that the first woman, *Kouroumbingac*, came from deep in the forest and was accompanied by the dog *Djoue* with which, after many an incident, she had a boy child. To give birth, she entered the water and went to an island where she constructed a shelter for herself. However, she then thought that she should not give birth in a dry place but that she should be near water. In this myth, the dog finally changes into an eagle - a bird belonging to the sun- and then into a water fowl. He therefore unites water and sky and becomes a force that the Shaman women use secretly in the service of the Great Warriors and the hunters.

In fact, there used to be bands of wild dogs on the slopes of the Yelia mountain, a volcano which overlooks the Baruya territory.

And so we see that for the Baruya, and this is also true of the Berbers and the Quechuas, understanding the role of water can be part of a culture, "it amounts to shed-

<sup>9</sup> The legend of the "night washerwomen" in the Berry, Beauce and Perche regions of France, claims that mysterious washerwomen meet at night near ponds to wash the souls of children who die without baptism or those of the damned. In 1851, George Sand cleared up the mystery in "*Les visions de la nuit dans les campagnes*": the sound of washerwomen's paddles was produced by a frog, writes Christian Chenault in "*Leau et la vie. Enjeux, perspectives et visions interculturelles*", Dossier for debate n° 97, Editions Charles-Léopold Mayer, Paris, 1999.

<sup>10</sup> Maurice Godelier, "*La production des grands hommes. Pouvoir et domination masculine chez les Baruya de Nouvelle Calédonie*", Fayard, Paris, 1982.

*ding light on the work of imagination within a culture: material imagination, or as Bachelard called it, "anthropocosmic" imagination, where humanity and the natural elemental order of the universe join together*", to quote the philosopher Yves Cusset.

Godelier studied in minute detail the making of potassium (not sodium) salt by the tribe, using the ashes of specific plants, because the result is a precious commodity to be exchanged between villages and for traditional gifts to relatives. This activity is the exclusive prerogative of the *tsaimayes* craftsmen who manufacture a filter using elongated gourds which are hollowed out and dried and placed together over a *pandanus* leaf. They are filled with ash over which pure water, generally collected from the river, is poured. The water is charged with salts as it percolates through the filter. The saline solution drips slowly onto the *pandanus* leaf and is collected in bamboo canes and then transported near the *tsaimaye* kiln which no one else is allowed to use. The saline solution is then poured into moulds made of fire-proof clay hollowed out of the oven wall itself. The *tsaimaye* watches over the fire and the evaporation of the salt solution until a bar of crystallised salt is formed. Throughout this process, the craftsman is separated from his wife with whom he cannot have sexual relations for fear the operation will fail. Women are strictly forbidden from coming near him while he works. This is a kind of primitive chemical process involving salt solutions on a par with those of the alchemists in the Middle Ages, involving hermetic practices, mysteries and cabalistic recipes. Pierre Laszlo describes these practices perfectly when he speaks of the Greek alchemist from Alexandria, Zosimos of Panopolis, who brings together Egyptian and Arab alchemy and who mingled the material and spiritual dimensions of alchemy to produce inspired writings, occult revelations and narratives of dreams... to arrive at the composition of water<sup>11</sup>!

For the Baruya, a man's status is heightened with the birth of each of his children and a special ceremony ensues. *"In the morning, the man goes to the river to wash his body and purify it of feminine pollution (langeureuka), the contamination of the feminine sex..."* writes Godelier. Since there is total separation of the sexes in this chauvinist society, certain streams are reserved for women. In India also, untouchables of both sexes use separate wells so that this caste can be separated from the rest of the population.

Throughout human history and in most cultures, water reveals many of the prejudices and preconceived ideas of mankind and its social organisation.

*"Baruya men have an almost hysterical attitude to menstrual blood"* reports Godelier. Blood is a dirty substance which weakens women and would destroy men's strength if it came into contact with their body. That is why women are confined and undergo

<sup>11</sup> Pierre Laszlo, *"Qu'est-ce que l'alchimie?"*, Hachette Littératures, Paris, 1996.

purification before returning to their husbands. However, for the Baruya blood also represents strength and life so that any letting of blood is viewed with fear and revulsion. The Baruya warrior kills his enemy and smears his blood over his own body, but he cannot go back to the village and normal life until he has washed and ritually purified his body from all trace of blood, this alien blood which was also a symbol of his victory. Apparently, for the Baruya and for Gaston Bachelard, "*blood is never propitious*". There is also an African saying to the effect that "*blood is not washed with blood, but with water*"<sup>12</sup>.

So we observe that a "Neolithic" community entertains almost the same beliefs about water as the revealed religions. Muslims, male and female, must undergo thorough purification after sexual relations. Muslim women are excluded from the mosque during menstruation which makes them "*impure*". A woman must be entirely purified at the end of menstruation so that she can "appear before Allah", in other words pray the mandatory five times a day. In the same way, Jewish women must also respect the ritual of the Torah which ordains that seven days after the end of menstruation and six weeks after giving birth<sup>13</sup>, they must conform to the dictates of the Tahara or purification and, when night falls, "*impure*" women must go discreetly to the "*mikveh*", the special baths which contain kosher water obtained by mixing tap water and "living water" that has never been touched by human hand, such as rain water<sup>14</sup>.

The theme of "*impure*" women is recurrent in many cultures: it is clear that the concept is very ancient since it has Neolithic roots... and is also present in monotheist religions! The *Sira* (Chronicles of the life of Muhammad) report that the inhabitants of Beersheba, whose well dried up when they expelled Abraham, implored the prophet to return because "*The water you drank and that we drank with you, has run dry*". So Abraham said to them: "*Take these seven ewes and place them near the well. The water will gush up again, abundant and pure as it was before. You may drink it. But the water must not be drawn by a woman in a state of impurity*"<sup>15</sup>.

<sup>12</sup> Joseph Ki – Zerbo, "*A quand l'Afrique?*" Meeting with René Holenstein, Edition de l'Aube, Paris, 2004.

<sup>13</sup> The length of time depends on the sex of the new born.

<sup>14</sup> Increasingly, this ritual is used to give spiritual significance to the important events in life: bar mitzvahs, promotions, graduations, treatment of cancer, etc. (Katie Zezima, "*A place for a ritual cleansing of all Jews*", New York Times, July 3, 2004).

The mikveh can be replaced by a lake or a stream. Water is fundamental for the observance of Jewish religious rites. Most Jewish villages in Ethiopia are near streams.

<sup>15</sup> Mahmoud Hussein, "*Al – Sira. Le Prophète de l'Islam raconté par ses compagnons*", Grasset, Paris, 2005.

## African water symbolism and its consequences

Water is a source of life, an element of regeneration and purification. It is also the origin of the world. There are innumerable symbolic meanings attached to water in the traditions and cultures of the black continent.

Water can cure, rejuvenate or even kill since it can "*bring life out of death and bring death to life*". As proof of its power it is sufficient to consider the water that is used by healers, witchdoctors or those who cast spells. As a vehicle of sanctity, water is used in various divinatory techniques such as hydromancy.

The great poet Birago Diop wrote: "*Those who are dead never left.../They are in the trickling of water,/They are in sleeping water./The dead are not dead/Hear more often/The murmur of things, not people/Hear the voice of water*"<sup>16</sup>.

But do the African poet and the Greek and French philosophers speak of the same death?

According to Gaston Bachelard, for Heraclitus of Ephesus, death is water: "*It is death for the soul to become water*"<sup>17</sup>. And Bachelard adds, "*a death that sweeps us away with the current, like the current*".

Iba Ndiaye Diadji<sup>18</sup> ventures into ontology when he speaks of "*the aquatic nature of the African being*".

Joseph Ki-Zerbo, the great African sage, provides valuable hints for an understanding of the symbolism of water: "*In my native language, the saying goes that there is more in water than crocodiles.*" *What is meant is that reality is complex, not just because thousands of beasts less spectacular than the crocodile are present in water, but also because it touches upon what is not visible, life for example. In the origin myths, in Africa and elsewhere, water is always present. Remember the 'God of Water' of the Dogon: 'The vital force of the earth is water. God moulded the earth with water; he made blood with water. Even the stones contain that force'. The origin myths of people are frequently associated with water: rivers, lakes and wells. In ancient Ghana, the Ougadougou legend speaks of a totem-ancestor of the royal family, the Serpent God, to whom sacrifices were made and who was the guardian of the well and the protector of fecundity. Were he to be exterminated, drought would follow. The early episodes of the life of a people are marked by the crossing of rivers by miraculous means... The Baule migrated*

<sup>16</sup> For Eluard, "*l'eau est un néant substantiel*" says Bachelard quoting these two sublime verses: "*J'étais comme un bateau coulant dans l'eau fermée, Comme un mort je n'avais qu'un unique élément.*"

<sup>17</sup> Gaston Bachelard, "*L'eau et les rêves*", Librairie José Corti, Paris, 1942

<sup>18</sup> Iba Ndiaye Diadji, "*From 'water-life' to 'water-death' or the foundations of African artistic creation, yesterday to tomorrow*" consulted on March 28, 2004 at <http://www.olats.org>

from Ashanti (Ghana) to their present home (Côte d'Ivoire) by crossing the Comoé. The first kings of Ségou owe their name (Couloubaly) to being stopped by a river as they fled from their enemies, and were only able to escape when a giant catfish spread itself like a living bridge from one bank of the river to the other, so that the fugitives were able to cross the river without a canoe ("Couloubaly" in the Bambara language). In Africa, these legends reflect actual facts as 'saharisation' or the absence of water underline its importance. Water is part of the balance of ecological, economic, social and political forces since it acts in three realms (mineral, vegetable, animal) creating time spaces which are models, or even structural templates of historical development. For example, where aridity takes the upper hand, camels will be introduced and act as the gateway to an original social and historical system. Sutton described the 'aquatic civilisations' of eastern Africa's prehistoric period, but the dynamics of water can lead to regression".

A more detailed examination reveals that the Bambara<sup>19</sup> believe that the creation of the world began when a heavy mass, Pemba, swirled to the ground, thus giving birth to earth; at the same time a portion of spiritual force arose so that Faro constructed the sky. It then falls to earth, in the form of water and brings life there, aquatic animals in particular. Man was aquatic in the beginning, and gave birth to the Bozo fishermen who were the first humans.

In the cosmogony of the Mali Dogons, water is seed of divine origin and green in colour. It fertilises the earth to produce extraordinary green twins, half man and half serpent.

Just like the Bambara, *"the Dogon assimilate water, the fecundating seed, to light and speech and to the Word, the generator. Dry water and dry speech express thought, that is human and divine potentiality. They attribute the genesis of the world to the supreme Ouranian god Amma, when he created his double Nommo"*, writes Camille Talkeu Tounounga<sup>20</sup>. Nommo is a spirit endowed with mysterious and extraordinary powers, some of them rather frightening. He is the object of absolute human veneration, since he can decide if the rains will come and ensure prosperity or he can bring about drought and suffering, if men unwisely neglect him.

In the 1930s, a Dogon sage explained to the ethnologist Marcel Griaule, a specialist on Mali, that *"behind what looked like chance happenings, there was a single ordered structure, a concept of the world which is the origin of all things"*: when God, Nommo, couples with the Earth, *"he spills his seed which is none other than water. This universal vital force takes on the form of a humidity which impregnates every part of the physical world. Women"*, adds the Dogon sage, *"are our aqueduct. Without them, water would*

<sup>19</sup> Joseph Ki-Zerbo, *"Compagnons du Soleil"*, La Découverte/UNESCO, Paris, 1992.

<sup>20</sup> Jean-Paul Gandin (Summary by), *"La conquête de l'eau"*, Dossier for debate n° 44, Fondation pour le progrès de l'homme, Paris, 1995.

*never get to the village. It is therefore logical to find that the words for water and woman are linked. On the high plateaux of Bandiagra, in Mali, the whole corpus of myths, beliefs, perceptions of the sacred, social behaviours and division of work give to women the task of making sure that water -in the final analysis: life- is provided to the whole community<sup>21</sup>."*

For the Masai of Kenya, people of the rains, Engai Narok, black god of rain, is benevolent, but Engai Nanyoke, red god, is cruel, because rain can be either beneficial or destructive. The Red God often takes on the appearance of Vitichua, a particularly fierce lion with a magnificent mane. The Warrior among Warriors alone is capable of killing him and returning to the village with his superb mane: rain then falls in abundance and life resumes.

The devotion of the Masai to Engai, the god of rain, leads them to respect every form of life. For this reason, they breed cattle and do not force the earth by cultivating it, which is reminiscent of the Indian doctrine of non-violence (ahimsa) and the Bishnoi practices in the Rajasthan desert, whose religion dating back to the 15th century sanctifies the environment - "*show people the light*" (*Jamsagar*)- by insistence on the numerous links between animals, plants and the environment. As they scrupulously respect these ecological principles, the Bishnoi live without major hardship in a torrid climate where temperatures often reach 50° C and rainfall is less than 60 cms a year. They survived the terrible droughts of the 80s that were so harmful to other ethnic groups of Rajasthan<sup>22</sup>. In 1988, the Indian federal government officially gave them a certificate recognising their action in favour of the environment.

## The role of faiths in the protection of the environment

So we see that myths, faiths and symbols seem to serve another essential cause for the survival of communities: protection of the environment. We shall encounter other examples of the didactic function.

Bara folklore grants the altruistic cloud a privileged position. The god Ndriyanahari is ailing and finds that none of his sons -the sun, the moon, nor the stars- are ready to have their throats cut to save his life, as the magician Tahyu who is tending him, demands. Only the cloud is ready to do so and the god rewards him with the magnificent gift of regeneration: "*Cloud, you were ready to die for me. You may hide even the*

<sup>21</sup> Domenico Luciani, "*Des mythes à la réalité*", *Manière de voir* n° 65, September – October 2002, p. 24 – 27. As noted by Jacques Berque "*In the Mandingo culture, men are in charge of dry cropping and their wives have the more burdensome task of irrigated farming.*" ("*L'Orient second*", Gallimard, Paris, 1970)

<sup>22</sup> Michel Tobias, "*Desert survival by the book*", *New Scientist*, 17 December, 1988, p. 29 – 31.

*sun, the stars, the evening star, if you so wish and they will disappear. You shall give life and resuscitate the dead."*

For the Diola, animists from Basse Casamance in West Africa (also called the Mandingo), the following myth explains the creation of clouds: in the beginning, there was Montogari, god of rain and Amontong, god of aridity. They owned great herds and lived together in harmony. But they quarrelled and came to blows. While they fought, Amontong's wives sent their children away with dried pelts tied to ropes. As the skins were dragged away they raised a great deal of dust. This is how clouds were born. The sound of pelts scraping against the ground was the origin of thunder. So Montogari's children took the dust that was left and made it into rain, and this rain is essential for the Diola who grow rice using extremely technical methods, with dykes and sluice gates to remove excess salt<sup>23</sup>.

The Bara and Diola folklore is very wise to give clouds, and therefore water, such distinguished attributes. What would be the fate of the oases, the rice paddies or the shepherds without them? It is a fact that cattle-rearing in the Sahel or East Africa owes nothing to chance. Livestock farming became the norm in areas where erratic rainfall plays havoc with agriculture: yields are too uncertain. However, the short rainy season is sufficient to regenerate grazing grounds and the growth of grass in areas where there is enough sunshine for rapid photosynthesis. Cattle then become an obvious option: they supply milk, meat, leather and dung for fuel, so that areas which would otherwise be unproductive or even completely inhospitable can be used profitably. When he visited southern Tunisia in 1891, Abbé Bauron was enthusiastic and delighted by what he termed the "*magic of the oasis*": "*A drop of water is worth its weight in gold*". *This Arab proverb applies in the desert sands. The desert, like an ocean, extends interminably well beyond the limits of the horizon. But, as soon as it rains or a spring wells up, the arid sands turn into fertile soil. Water is the magician of oases and turns a desert into a lovely garden*<sup>24</sup>.

In Africa, every kind of water has a special name and, more importantly, a special meaning: rain water, spring water, river water, backwater, water from lakes or collected in the hollow of a baobab trunk...

In the Diola language, the word *forabà* means, according to the historian Joseph Ki-Zerbo from Burkina-Faso, the African notion of the "commonwealth" (*res publica*) which proves in his opinion that the management of public good existed in Africa and that this management included, very obviously, water<sup>25</sup>. He adds: "... *There are esoteric and religious components to earth which is seen as a spirit. As the earth recei-*

<sup>23</sup> Jacques Berque, "*L'Orient second*", Gallimard, Paris, 1970. The author emphasises that the rice was grown solely for food and for ritual purposes and that, as late as 1942, some Diolas traditionally refused to sell their rice.

<sup>24</sup> Abbé Bauron, "*De Carthage au Sahara*", Mame et Fils, Tours, 1893.

<sup>25</sup> Ref. 12

*ved seeds, it was thought that the earth itself had powers of reproduction. Therefore the land was not merchandise that could be handled indiscriminately. In the same way... the right to water was guaranteed. Portuguese authors tell us that when they arrived in the Congo, between the sea and the royal capital, at intervals there were water containers that were set out by the king for the travellers. This meant that the king undertook the responsibility of providing water for his official guests. Rivers and lakes were the depositories of occult forces. The tradition in Africa of pouring a little water or dolo (traditional kind of beer) on the ground before drinking shows that the earth was seen as an entity that must be served first. It contained forces that linked us to higher authorities."*

## Water is always and everywhere

For Africans, water is energy, vigour, strength and resilience. It never dies, is never worn, deteriorated or unfit to be used. It is the "water of life" when it purifies; it can also be "water of death" when it corrupts, but it is never dead water. Iba Ndiaye Diadji sums this up: "...Water is always and everywhere full of the spiritual. It is the only being that can change its powers to suit circumstances... While the lion is not only the king of the forest but also the totem of the Ndiayae family, water is the only force that is not dual."

That is probably the reason why when rains or river floods bring devastation, men are designated as the only cause of disasters. When the Senegal<sup>26</sup> river flooded in 1999 and at the same time torrential rains devastated the region, it was said that men had offended Mame Coumba Bang, the genius of the river to whom people brought offerings of curdled milk thrown into the waters.

*"Thus, to those exposed to the vagaries of the Niger river's floods and falls, the Ghimbala cult provides a source of protection within their community."* (Jean-Marie Gibbal, *"Les génies du fleuve. Voyage sur le Niger"*, Presses de la Renaissance, Paris, 1988).

Similarly, in Cotonou, Benin, the sacred nature of water is still recognised: the people present offerings to lakes and rivers to plead for their favour and to thank them for giving life to nourishing crops.

In Abidjan, Côte d'Ivoire, the waters of the Ebrié lagoon and its fauna are "protected" during part of the year, probably to allow the spawning season to proceed without human interference or depredation. To this end, with great pomp an imaginary whale is introduced into the lagoon. From that moment on, fishing is forbidden to avoid disrespect to the whale. After several months, during another celebration, the whale is ceremoniously led back to the sea and fishing is allowed.

<sup>26</sup> In the Wolof language, the term "sunu gal means" "our pirogue".

The Maori follow similar customs and in their language "*kaitiakitanga*" means to take care of earth and water. They also have a special dance "*to make the clouds weep*" when drought afflicts New Zealand<sup>27</sup>. They also practice a certain form of ecology when they declare certain pieces of land, springs and rivers "*sacred*" so that it is forbidden to over-exploit them.

Prescribed in the distant past and dictated by popular wisdom, probably the child of observation of nature, these ancient customs help to protect water and the hydrosphere and help to reconstitute species by protecting them during periods crucial for reproduction and/or development<sup>28</sup>.

In Classical Antiquity, offerings were brought to the Tiber in Rome and to the Scamander in Greece. Hesiod recommended: "*Never venture upon the waters of the rivers of eternity without first addressing a prayer to them, with your eyes fixed on their splendid currents and not before dipping your hands in their delightful and limpid waters*"<sup>29</sup>.

## Different climes, identical practices

In China, the Book of Documents (Shujing) compiled in the 6th century BC, mentions the sacrifices that the divine emperor Shun made to mountains and rivers.

Even now, in south east Asia, people affected by the catastrophic floods of July 2004 prayed for an end to the deluge that fell upon Bangladesh, India and Nepal. In Nepal, goats are ritually sacrificed on the altar of Indra, Hindu god of rain, in order to stop the rains and natural disasters<sup>30</sup>.

This reverence for and sanctification of water are echoed even in the western way of thinking. Mary Douglas, in the preface to the French edition of "*Purity and danger*"<sup>31</sup> mentions that she had long been "*convinced of the existence of a link between the pollution of rivers and taboo... For a long time, the relationship seemed based solely on an effect of language, as though the word "pollution" served two concepts: pollution of the environment and religious profanation". Mary Douglas demonstrates that 'the systems of contamination and profanation' are symbolisms that permit reality to be ordered, in particular because "the body... and its various parts can serve as symbols of other complex structures: society and also the cosmos.*"<sup>32</sup>

For many African populations, the rites of birthing are closely linked to water, the elixir of life. When the placenta is delivered, the newborn is sprinkled with a little fresh water

<sup>27</sup> Jennifer Dunning, "*A dance to make the clouds weep*", The New York Times, December 2004.

<sup>28</sup> During the entire time of pilgrimage to Mecca, pilgrims are forbidden from hunting, cutting down trees or flowers.

<sup>29</sup> Aïcha Bouroumi in "*Leau, patrimoine mondial commun*" (directed by Georges Thill and Jean-Pierre Ezin), Presses Universitaires de Namur and UNESCO, Namur, 1997.

<sup>30</sup> "*Nepalis sacrifice goats to stop floods in South Asia*", The New York Times, July 18, 2004

<sup>31</sup> Mary Douglas, "*De la souillure. Etudes sur la notion de pollution et de tabou*", Editions La Découverte, Paris, 1992

<sup>32</sup> Elvire Van Staëvel, "*Natures de la pollution*", Doctoral thesis, EHESS, Paris, 2003

so that he cries out: the offspring of man has officially received the right to speech. In Cameroon, when the Bamileke marry, at the wedding the father blesses his daughter with water containing plants symbolising gentleness, happiness and marital bliss.

In Africa, purification, for example, forms an integral part of the rites of initiation since it drives away the forces of evil and malevolent spirits, eliminates all stain and protects the initiated.

The Bambara of Mali live along the banks of the Niger and believe that the water and bush spirits are their ancestors. There are six initiation ceremonies in a lifetime to preserve the spiritual powers of the members of the community. Neophytes, at the end of initiation, are sprayed with water from the mouth of the chief of the Kore, the society of the initiates. They are then washed twice over, first within the Kore compound by an elder initiate with water drawn from the village's sacred pond and then at the sacred village well. "*On the first day of the Peul year, a communal ritual bath (lootori) is customary.*" (Amadou Hampâté Bâ, "*L'éclat de la grande étoile. Récits initiatiques peuls*", Armand Colin, Paris, 1974).

The Malagasy believe that rain water is "*God's water*". It is an essential part of life, and therefore of rice, since as the island proverb goes: "*like water and rice, inseparable in the paddy, inseparable in the pot*"; furthermore, to emphasise the role of water, rice growers say with common sense that "*Water is what makes the land fit for rice*". In Madagascar, they say poetically that a spring is "*the eye of water*" when it emerges from the ground and sees the sky<sup>33</sup>. In view of the importance of rice in the country, many ceremonies, beliefs and customs centre on this essential activity. For example, it is forbidden to work in the shallow waters of the paddy fields three days a week for fear that the Gods will send rain and hail that would destroy the rice. Similarly, geomancers preside over the siting of irrigation canals so that they are not unfavourable for the community. The layout is generally inspired by the route followed by... a zebu, since the beast chooses the path that it finds least tiring. Furthermore, the construction of canals is based on empirical notions and it was discovered that even in the 16th century, canals were sited where the ground has the best load-bearing capacity. "*The water share*" of a canal depends on the amount of work each person has done and it is inherited from ancestors and a way of asserting one's identity. To preserve it, water shares are not mingled. Generally, canals always proceed in straight lines except when they suddenly branch off to the plot of land to be irrigated. The geographer Hervé Rakoto from the University of Poitiers considers that the network of canals reproduces local "good manners" because when you go and see some one, the main subject of your visit is always brought up at the last minute<sup>34</sup>.

<sup>33</sup> In Arabic, the word *a'in* means both a spring and the eye.

<sup>34</sup> This information was noted at the excellent presentation made by M. Hervé Rakoto in Poitiers on March 23, 2005.

These examples of cosmogony, symbolism and African culture as regards water, show in action the agrarian content of the vision expressed by many gods in the black pantheon who wait upon the Supreme God: rain, water, hail, wind and cloud. Clearly, the observations of Pierre Erny, professor at the Faculty of Letters, Strasbourg, when studying the role of imagination as regards water in the West apply also to these African myths. He wrote: "*There are two kinds of water: the one that comes from above and the one which wells up from below. According to a very common thought structure, the sky and the earth form an embracing couple. The male sky fertilises the earth with rain so that their 'children', plants, can come forth. Water in this sense is a seminal liquid and has a male connotation. In contrast, spring water and well water are clearly feminine and maternal. They are the waters of birthing, blood and lymph of the earth, the rising sap*"<sup>35</sup>.

## Folklore and festivities: manifestations of the culture of water

In a certain fashion, many myths are repeated in public festivities and ceremonies; frequently they reveal the foundations of social order. The way the world functions, its creation, life, the origins of society, the way society was organised long ago and the general structure of the cosmos are all explained by myths to reply to the age-old questions that have always perplexed mankind<sup>36</sup>.

Folk tales, like the Chinese one related above, are a significant source of cultural, social, religious and every kind of information concerning the value attached to nature and its resources -water particularly- by the most diverse human communities. They are frequently educational and seek to teach respect for the environment, albeit sometimes in a rather elliptical or even esoteric manner. This is also true of certain festivals and ceremonies where water is the focus of attention.

In the Land of the Rising Sun, water is celebrated at a great many festivals. The most famous of them, officially listed as gems of national folklore, include the festival of the Izawa-no-miya sanctuary, or the Sumiyoshi Taisha in Osaka, all centre on the sacred rice fields and transplanting. In July, Japan traditionally celebrates the eradication in the 19th century of cholera, which is a water-borne disease. There is also the Miya water festival on October 5th when the temple of Nishimiya is celebrated to ensure that its well continues to provide water of the excellent quality required to make... sake! The 20th of July is the day when the Ocean and the Mogami river are

<sup>35</sup> Pierre Erny, "*L'imaginaire de l'eau*", *Dire, revue du conte et de l'oralité*, n° 13, winter 1991, p. 34 (quoted by Christian Chenault Ref. <sup>41</sup> below)

<sup>36</sup> Carlos Garcia Gual, "*Les mythes classiques*", *Pour la Science*, n° 167, September 1991, p. 70-80.

celebrated with songs and theatrical entertainment and as a token of blessings and love, children spray passers-by with water pistols. To give an idea of the profusion of such celebrations, the festival of the Abe river and the Omizutori ceremony in the temple of Todaiji must also be listed. This latter ceremony takes place in Unose, right in the middle of the Onniu river, the name of which is etymologically close to the word for elixir when water -symbol of eternity- is offered to the gods.

So despite the country's reputation for advanced technology and computerisation, the celebration of water is very much present in Japanese culture and imagination. In any society, myths are a need. Georges Dumézil writes: "*A people deprived of myths would die of cold.*"

In Vietnam, ancestors are believed to be the descendants of the dragon, an animal generally associated with water. The Mekong, which flows into its delta through nine mouths or "*nine dragon tails*", bears the Vietnamese name Cuu Long, which means the Nine Dragons. This mythical river is particularly venerated. It is born in the snows of Tibet where the Siamese Empire prospered, and ends a 4000 km course in Vietnam after bestowing on that country millions of tons of silt from China, Myanmar, Thailand, Laos and Cambodia. The Mekong regulates the lives of those who live on its banks by flooding when the time comes for tending the rice fields or for fishing. The people of Vietnam, many of whom live in floating houses, are grateful to the river for its three bounties: rice, fish and the multitude of fruit which give colour and character to the floating markets of Cai Rang, Phung Hiep, Can Tho, Chau Doc and many more.

Water plays a fundamental role in the imagination, the perceptions and the culture of Vietnam, both for the majority ethnic group and for the fifty or so minorities. The same can be said of the economy. The traditional festivals of the largest ethnic group are organised to include boat races, as in Hong Kong or Macao where these regattas are lavish and luxurious. They are even featured in advertisements as tourist attractions.

The Moi people in the Vietnamese mountains use "water chimes" which are set out near the rice paddies to charm the guardian spirits of the rice and ask for a good harvest... with the help of irrigation. This is an eloquent manifestation of the notion of ideology and of a system of mental representations to explain the world around us.

And since rice-growing -which requires a great deal of water- is characteristic of Vietnam, any festivity is a reason to celebrate water. In the Vietnamese pantheon, the spirit of agriculture and the goddess of water are never absent from any feast and are the object of popular worship.

In the Jewish religion, Succoth, (Feast of Tabernacles) is the feast of water (maim) or to be more precise, of rain. Pessah (Passover) celebrates dew (tal). These festivities "*are true anthologies of water*" writes Patricia Hidiroglou, since "*the rites of water which*

they express recall in summary or by allusion the heroic episodes in Israel's past and refer to its eschatological future: everything which is related to water and to its cycles in the Bible and scriptures is implied<sup>37</sup>" not forgetting that God made the first man by kneading water and earth.

When the Temple still existed in Jerusalem, the greatest joy and the most grandiose celebrations of the Succoth festival were the "water libations". It was said that "He who has not experienced the joy of water libation knows nothing of joy" because water is the terrestrial symbol of the divine word and water gives life individually and to the whole Jewish community. This symbolism is illustrated by the feast of Shavuot, the celebration of the gift of the Torah. On the day of the feast, in Jewish communities in Morocco, people spray each other with water and it seems this could be a survival of an ancient pagan practice in Babylon.

## Water festivals

Burmese also have a water festival.

Burma, like Egypt, has its own majestic river, the Irrawady, and another treasure, the Inle lake which is the lifeblood of a major part of the population. Hanging gardens are popular. Hence, water is omnipresent. In April (the Burmese lunar month Tagou), is held the most important festival, Thingyan (*Water Festival*) which marks the end and beginning of the Burmese year and lasts five days. On the first day, the children splash passers-by with water. During the next three days, adults throw water at each other. The last day is New Year's Day when spraying with water ceases and the people go to the monasteries to ceremoniously wash the statues of Buddha with perfumed water. Traditionally, people then throw water at each other using foliage which is a symbol of New Year good wishes. In modern times, the feast of water is celebrated with collective sprinkling and the more water a person receives, the more prosperous will be his year. Furthermore, to receive much water is a sign of respect. The origins of these practices are still present in the custom of young people washing the hair of the community's elderly. In May (Kason), at the full moon, the Buddha is celebrated with a major festival. On that occasion, the faithful pour water at the foot of the sacred banyan, *Nyaung bin*.

Similarly, in Jaipur, capital of Rajasthan in India, at the end of March the feast of Holi is celebrated. It resembles the Burmese Thingyan and there is copious splashing of water as a mark of respect and to gain the good graces of the fates. In Hindu temples, the faithful are regularly sprinkled with "*peace water*" which has been previously blessed by a priest.

<sup>37</sup> Patricia Hidirogrou, "*Leau divine et sa symbolique*", Albin Michel, Paris, 1994.

And so we see that water is the privileged vector of traditions and faiths. Sacred and profane water are mingled during festivities to express good wishes for the new year or to pay homage to the Buddha.

On another continent, in another festival, water again plays an important role. Eugène Fromentin described "*The festival of the Beans, Aïd El Fould*"<sup>38</sup> in 1877 in Algiers:

*"An annual festival celebrated by the black population which takes place... when the first beans are harvested... What is its religious significance? Why do they parade a bull swathed in fabrics and decorated with flowers before cutting its throat in a barbaric ceremony? Why the fountain, the lustral water and the blood of the bull with which the crowd is sprinkled as though it was sacred rain? The festival takes place by the sea..."*<sup>39</sup>

And so we find in a country that has been Muslim for over a thousand years, celebrations of water dating back to animist Africa that are still joyously observed by the black community in Algeria. Some authors believe that its origins are extremely ancient since there is a certain resemblance to scenes reproduced in the Tassili frescoes in the Sahara. Clearly, these are festivities originating in sub-Saharan Africa imported into white Africa by populations of former slaves.

In a story told in the Congo<sup>40</sup> which is part of a moving and sensitive collection by Victor Nimy, a mother's love for her children who were swept away by the river forces the river to return them to her. The mother speaks so long to the river and weeps so much on its banks that it finally relents. One can talk to the river and attempt to persuade it because it is like a member of the family. Water is a familiar element and is full of spirits ready to enter into a discussion as though they were in the shade of the palaver tree where ordinary business is conducted. In the Gulf of Guinea, in Ghana in particular, Jean Rouch mentions in one of his films that people speak of "*Mammy Water*" when they mean their mother the sea, the source of food, and in a colourful festival, the Chama, they offer cassava, gin and tobacco to the spirits of water and sacrifice a white ox to thank them and express their gratitude and respect.

Far and away from the Congo and the Gulf of Guinea, on the banks of the Manzanares, in Madrid, there is still veneration for the miraculous well in the retreat of San Isidoro Labrador (1172). The legend says that a child fell into the well but that the holy man pleaded with it. The waters rose rapidly and miraculously so that the child could be saved from certain death by drowning. In this case, it is not a mother's love that works a miracle but the power of a holy man capable of speaking to the water and convincing it. Saint Francis also humanised water when he spoke of "*sorella acqua*". In the Jewish religion, the "*tzadik, the righteous one, raises the waters in a well*". "*Water,*

<sup>38</sup> It should be spelt "foul" which translates the word bean (instead of "fould").

<sup>39</sup> Eugène Fromentin, "*Un été dans le Sahara*", Plon, 1879, Paris.

<sup>40</sup> Victor Nimy, "*Maa Mboyo, la mère aimante*", L'Harmattan, Paris, 2002.

the element of gentleness, is also the symbol of the pacific elements of rabbinic literature", writes Norbert Lipszyc<sup>41</sup>.

## Water and imaginary

Man's imagination displays an extraordinary permanence in the way water is personified and made familiar in climates, cultures and beliefs that have nothing in common except their humanity and their reverence for this singular element so close to us all.

*"Water is ever close to mankind, or rather to life, by the bonds of age-old familiarity and ever-present necessity so that its uniqueness is concealed under the guise of the habitual"* writes Primo Levi in *"The Periodic Table"*.

Jean Seran, an officer in the French camel corps, knew the Tunisian Sahara and the Merazigue tribe well. The tribe's witch doctor was particularly respected because he had planted his staff in the sand, in the middle of the desert, and a spring of clear water had immediately surged up<sup>42</sup>. The officer relates<sup>43</sup> an astonishing fact for which he gives an exact date, May 13th, 1947:

*"Two Merazigue shepherds<sup>44</sup> slowly made their way back from the south to the Garaa<sup>45</sup> of Bou Flidja. They were each driving a similar flock of ewes and travelled together. In a year of terrible drought, they had managed to save most of the animals in their care..."*

A camel driver they had met earlier had told them that there was water at a spot called Rass el Hachi.

*"This turned out to be true. There was water in the caves where the sun never shone; the two flocks, one after the other by half and half, were able to drink their fill. The two shepherds were pleased.*

*But before the sun had set on this happy event, forty-two ewes died all at once... in just a few minutes. This mysterious and sudden hecatomb was divided into two very equal numbers in each flock"* writes Seran.

What possible explanation for such a hecatomb?

<sup>41</sup> Marie-France Cais, Marie-José Del Rey and Jean-Pierre Ribaut, *"Leau et la vie. Enjeux, perspectives et visions culturelles"*, Dossier for debate n° 97, Editions Charles Léopold Mayer, Paris, 1999.

<sup>42</sup> Similarly, the witch doctor Sidi El Hraoui is said to have made the Ras El Aïn spring, which brings water to Oran, in Algeria, come out of the ground.

<sup>43</sup> Jean Seran, *"Parcours Marazig"*, Editions La Rapide, Tunis, 1948.

<sup>44</sup> Tribe of the Tunisian Sahara, south of Douz. *"Isolated at the time, the tribe was faithful to its traditions and ancient customs"*, says Jean Seran.

<sup>45</sup> "Garaa", marshland or swamp, in Tunisian dialectal Arabic.

Pollution of the water by dead animals, toxic algae<sup>46</sup>? Vengeance, jealousy or a vendetta?

Certainly not!

The narrator has the key to the mystery: *"The waterhole at Rass el Hachi is a sacred place. The Merazigue believe that it is a domain belonging to the "djnouns" (spirits)... When a herd must drink at the el Hachi rhedir<sup>47</sup>, before it enters into an intimate communion with the djnouns of the sacred water, the shepherd is absolutely required to... make a ritual sacrifice of one of the most handsome animals in the herd... so as to gain the protection of the djnouns... When news (of this disaster) was heard as far as Douz and in all the encampments, among all the people who had always believed in the manifestations of the supernatural because they had encountered them on several occasions during their nomadic wanderings, without exception they believed in the story absolutely and took it perfectly seriously."*

In fact, behind these extraordinary events, unexplained by logic, it is possible to perceive a form of initiation and education about water, a way of teaching future generations to behave responsibly as regards this element without which nomads cannot say their prayers five times a day, satisfy their needs and keep a flock which is usually their entire worldly possession. Jean Seran writes: *"Around the camp fires and far into the night, there are long palavers when questions related to waterholes, which are one of the constant concerns of nomads, are often discussed. They are the subject of legends teeming with wondrous events, to which the children listen tirelessly and learn without realising it to treat water with the respect it merits, as the most precious of resources for a nomad."*

Water, a nomad's most precious possession?

Certainly, but only as long as dignity and honour are safe. Sidi Merzoug, the ancestor from Tripolitania, wrote these verses which became a Commandment for his descendants:

*"I will lead my Sons far from the humid lands;  
Away from a Water that enslaves and brings indignity.  
Better Honour and an empty belly,  
Than satiation at the price of humiliation."*

<sup>46</sup> German researchers suspect that this kind of algae could be responsible for the death of a large number of fossilised mammals - dating back to 47 million years - discovered in the sediment of Lake Messel (Science, vol. 306, 26 November 2004)

<sup>47</sup> This is an incorrect pronunciation of the word "ghedir" which means in the Sahara a natural or man-made basin which collects rain or run-off water generally in hollows surrounded by rocks or in the bed of the oueds. Maps mention the larger ones, but most are known only to shepherds travelling through the region. There are wells, but there are also "tsmeds", a kind of rough well dug out by hand and supplied by water filtering down in varying quantities depending on the rainy seasons. As they have no permanent source, some tsmeds remain dry for several years, writes Jean Seran.

A thousand leagues from the Tunisian Sahara, in Maharashtra, India, a well is worshipped. It is the gift of a man to his fellow creatures in thanksgiving to the goddess of water, Avan of the Parsis, who do not bury their dead for fear of contaminating the earth and water, but expose their bodies to the vultures in "*the towers of silence*".

An urban legend about the well can be heard in the streets of Mumbai.

This most ancient well in Mumbai, and still in use, is probably the one on the Old Esplanade which is venerated by all Parsis. It was dug in 1725 and is the subject of a very moving legend. It was a gift from a poor man, Bhika Behramji, who became a philanthropist and, who wished to give thanks after a fearful misadventure. As he travelled in deepest poverty from Bombay to Bharuch in 1715 to find work, Bhika was captured by the Maratha who were at war with the sultan of Gujarat and believed him to be a Muslim. He managed to persuade them that he was really a Zoroastrian so that he was released from the sinister Pandegadh fortress. To thank the heavens for this miraculous escape and for the wealth which he later amassed, he constructed the well on the Old Esplanade. The water rapidly gained the reputation of curing a number of diseases and, as time went by, the Parsis turned the well into a place of pilgrimage all the more respected because although it is very close to the sea, its water always remains very sweet. The pilgrimage takes place in particular in the sacred month of Avan in the Zoroastrian calendar and this month is consecrated to the goddess of water who bears the same name<sup>48</sup>.

Most remarkable is that all the communities in the town have free access to the well, without any form of discrimination, men and women of all castes. Again water is seen to be also a factor for coming together and a catalyst for mutual understanding.

As we have already noted in the case of Japan, myths still live on in our hypermodern societies. They are still the faithful companions and the guide of man's mental projections and fantasies.

One of the most flourishing trades in Hawaii right now is the sale of desalinated water taken from the depths of the ocean. The Japanese delight in this water which is sold as a healthy dietary delicacy. They endow it with all kinds of virtues, such as reducing stress, promoting weight loss, improving digestion and the texture and freshness of the complexion<sup>49</sup>.

Myths, beliefs and symbols linked to water are evidence that it is the vector of cultures rooted in the perceptions and imagination of men the world over. A single symbolism would be difficult to prove but there is no denying that there are certain striking convergences. There is frequently ambivalence: the archetype of all rivers, the Nile, was associated with myths of death, resurrection and fertility.

<sup>48</sup> Meher Marfatia, "*Water way to say thank you*", The Times of India, 16/01/2004.

<sup>49</sup> *Chemical and Engineering News*, (Publication of the American Society of Chemists), September 20, 2004, p. 88.

This culture of water is also a vector of Universality, even though each culture has its own specific relationship with water, embedded in its particular history.

The symbolism of water has frequently been the basis for primitive social structuring.

Myths and symbols are an overriding necessity for the human soul, confronted for example with transcendence. They express man's imagination, dreams, fantasies and thoughts. Even in western societies, "*the anthropological dimension of the imagination, the need for myths are regaining ground*<sup>50</sup>" say the psychologists. Some go so far as to state that modern attitudes to water in some societies are linked to "*a deficit of symbolic investment.*"

But although "*life is perpetuated by instinct, inheritance requires design*", states Régis Debray, who adds in conclusion: "*Transmission is a duty, a mission, an obligation, in fact a culture. It passes on the corpus of knowledge from our yesterdays to the present time; it conveys values and skills that set the identity of a group after a multiplicity of successive exchanges*". Debray adds: "*To transmit successfully, transformation, or perhaps conversion, is needed.*"

We believe these reflections apply to water and its symbolism, to its culture, and can help to show the way forward in improving mankind's use of this unique and essential element, with respect for the history and identity of all, as it faces the threat of pollution and global scarcity.

<sup>50</sup> See on this subject, for example, an article by Jean-Claude Vernex, "*Géographies imaginaires du Léman*" in *Lémaniques*, n° 55, March 2005, p. 1-3 where in particular we can read: "*Sweet waters, dead waters peopled with marsh and water sprites, treacherous and tempestuous, mirrors where the imagination of man is reflected, the Lemman country is a multiple changing world expressing as many visions inducing the creation of a true symbolic heritage, both material and immaterial.*"

# Water in the Qur'an: symbolism and foundations of a water culture

*"Before designing His creation, God dwelt in a cloud in the midst of the air.*

*His Throne and placed it above the water".*

Hadith (authentic saying of the Prophet)

The Qur'an is the Book par excellence, *Al Kitab*, the word of God handed down to the Prophet Muhammad by the archangel Gabriel. It contains 114 sura or chapters of differing lengths. Each sura is made up of verses (*ayat*, or signs from God).

In the Qur'an, water is the key element in Creation and is referred to so frequently -63 times- that some even speak of the Holy Book's "obsession" or "bewitchment" with water.

In Arab culture, there is nothing surprising in the immense interest in water revealed in the sacred writings. In his famous essay on "*Water in Islamic thinking and Arab literature*", Professor Muhammad bin Abdulaziz writes: "*It will suffice to say that Arabs are so passionate about water and place so much hope in its coming that they have rightly come to be called "sons of the water of heaven". Among Arab Muslims, the best you can wish for someone from whom you are seeking a favour is "God give you water". Thinking of days when all is harmony and peace, when the soul finds serenity, they will describe such days as masqa Allah, "watered by God".*

Even those who, in the early days of Islam, dismissed Muhammad as an impostor challenged him to perform miracles that related to water.

*"We will never believe in you unless you cause a spring to gush forth from the earth for us, or have a garden full of date palms and grapevines and make rivers gush forth plentifully through the midst of them<sup>51</sup>" (Sura 17, The Children of Israel, ayat 92-95). This is clearly reminiscent of the Bible, when the Almighty says to Moses: "Go on before the people and take with thee the elders of Israel; and thy rod, wherewith thou smotest the river, take in thine hand and go. Behold, I will stand before thee there upon the rock in Horeb; and thou shalt smite the rock and there shall come water out of it, that the*

<sup>51</sup> We have used for the translation of the Qur'an into english that of T.B. Irving (Al-Hâjj Ta'lim 'Ali) Suhrawardi Research & Publication Center.

people may drink. And Moses did so in the sight of the elders of Israel." (Exodus, 17: 5 – 6). The Bible also makes frequent reference to water (Leviticus, Genesis I and II) in both its literal and metaphorical sense: water is "God's creation" and a "divine benefit" but its absence prevents the faithful from fulfilling their obligations and also brings in its wake drought and desolation.

## Water in the Qur'an

The Qur'an also makes reference to the Flood. In sura 69 The Reality, ayat 11, it says: *"When the water overflowed, we loaded you on the vessel"* and adds in sura 7 The Heights (ayat 64): *"So we saved him (Noe) and those who were along with him in the Ark. We let those who rejected Our signs drown"* and, finally, in sura 11 Hud (ayat 44): *"and it was said: "Earth, swallow your water, and: sky, clear up! So the water receded, the Command was accomplished, and she settled down on (Mt.) Judi."*

The Holy Book asserts that water is, by the will of God, the sole basis for the emergence of life: *"We have made every living thing out of water."* (Sura 21 The Prophets, ayat 30).

The Qur'anic account of the forming of the Cosmos places great emphasis on water, as demonstrated in other ayat in the preceding sura which on the one hand lists heaven, earth, the moon, the sun, night, day etc. as natural factors in the creation of the universe and, on the other, speaks of a single element that infuses life into the universe: water. The Qur'an immediately asserts, however, that water fills the entire inanimate universe with life: *"He is the One Who created Heaven and Earth in six days. His Throne rises over the water"*. For certain commentators<sup>52</sup>, this means in effect that water was the origin for both heaven and earth and that Allah drew from it the natural elements as well as all living creatures. Water is even present in the rocks and stones. Sura 2 The Cow (ayat 73-74) says: *"...for there are some stones which rivers gush out of and there are others which water comes forth from when they split open, and there are still others which collapse out of awe for God"*. The Qur'an also teaches that *"God has created every animal out of water; some of them walk on their belly, while others walk on two legs and still others walk on four. God creates anything He wishes; God is Able (to do) everything."* (Sura 24 The Light, ayat 45). Thus every life on earth owes its existence to the element of water: *"Among His signs He sends water down from the sky so He may revive the earth with it following its death."* (Sura 30 The Romans, ayat 24). The vivifying property of water is repeated in many ayat: *"He sends the winds to bring news so He may let you taste some of His mercy (sura 30, ayat 46)..."*

<sup>52</sup> See, for example, Radhouane Essaièd, *Bada'el* (Beirut), no. 2, Autumn 2004, p. 28-29.

*And any water God sends down from the sky with which to revive the earth following its death and to scatter every kind of animal throughout it. We give it in due measure as a sign to those who are wise<sup>53</sup> or again "We have sent down blessed water from the sky and We grow gardens with it as well as grain to be harvested and soaring palms which have compact clusters as sustenance for worshippers. We have revived a dead countryside with it; thus will (your) reappearance be".*

The Qur'anic account of the Creation is naturally crowned by the creation of man, as confirmed by ayat 54 of sura 25 The Criterion: *"He is the One Who created humanity out of water; and He has graced them blood ties as well as in-laws"*.

According to Dante Caponera, for the Qur'an: *"After humanity, water is the most precious of God's creations<sup>54</sup>"* and water, in the Holy Book, is in fact at the service of mankind: *"God is the One Who has created Heaven and Earth, and sends down water from the sky. He brings forth produce by means of it as sustenance for you. He has subjected ships to you so they may sail at sea by His command; and subjected rivers to you"*.

Thanks to water, God gives man plants: *"...(since he is the One) Who has laid out the earth as a carpet for you and has traced highways on it for you, and sent down water from the sky. We have brought forth every sort of plant with it, of various types."* (Sura 20 Taha, ayat 53) or again *"and produced its water and its pasturage from it"*. (Sura 79 Soul-snatchers, ayat 31).

Jacques Berque shows that sura 86 The Nightcomer -in which ayat 6 calls on man to show humility<sup>55</sup>: *"He was created from a fluid ejected"* - with its reference to the rain, in fact expresses the cyclical pattern of nature and resurrection, and he describes this as an *"admirable evocation completed by that of the annual return of the vegetation"* in ayat 12. This vegetation is, of course, vital to the survival of the Bedouin Arab's flocks and most especially of his camels.

Given its pre-eminent place in the Qur'an, water is therefore blessed, endowed with purifying powers by its role in the flourishing of all forms of life, and made sacred: *"...(II) Thus He caused drowsiness to overcome you as an assurance from Him, and sent down water from the sky on you to cleanse or with and to remove Satan's Blight from you, and to bind up your hearts and brace your feet with it<sup>56</sup>"* (Sura 8 The Booty, ayat 11)

<sup>53</sup> For Hamidullah, *"the wind is the harbinger of rain which, in a dry or arid land, is one of the most obvious manifestations of divine mercy."* Again, in sura 27 The Ant (ayat 63), there is a reference to wind: *"Celui qui envoie les vents comme une bonne annonce."* But since the wicked do not give thanks for divine bounty such as rain, Allah punishes them: *"Et si Nous envoyons un vent puis qu'ils voient tout jaunir, après cela, ils demeurent bien ingrats."* (Sura 30 The Romans, ayats1)

<sup>54</sup> *"Water management in Islam"*, edited by Naser Faruqi, Asit K. Biswas and Murad Bino, United Nations University Press, Tokyo, 2001.

<sup>55</sup> A further reminder of this type is found in sura 77 The Emissaries, ayat 20 and in sura 22 The Pilgrimage, ayat 5.

<sup>56</sup> For Hamidullah, the Qur'an is alluding here to the famous battle of Badr (in the year 2 AH, 623 AD), a decisive victory for the new faith, during which it rained. The Muslim army was drawn up on sand, which the rain hardened into a firm footing (and prevented dust from rising in the course of the battle), while the Quraishi enemy took its stand on clay soil that turned to heavy mud, hampering both infantry and cavalry.

or as repeated in sura 50 Qaf, ayat 9: *"We have sent down blessed water from the sky and We grow gardens with it as well as grain to be harvested, And soaring palms which have compact clusters, As sustenance for worshippers. We have revived a dead countryside with it"*.

Thus, for the Qur'an, water is the symbol of life. Its absence or scarcity is generally a death sentence. The Holy Book of Islam makes many references to such themes: *"God sends water down from the sky and revives the earth with it following its death"* (Sura 16 The Bee, ayat 65) or: *"You see the barren earth when We send water down upon it, stirring, sprouting and producing every sort of lovely species."* (Sura 22 The Pilgrimage, ayat 5).

Between life and death, water may not only bring prosperity, wealth and opulence, but may also bring misfortune should it be misused or mismanaged or should we fail to give thanks to God for his bounty, as sura 18 The Cave (ayat 40-41) warns: *"perhaps my Lord will still give me something better than your garden... or its water will sink down some morning and you will never manage to find it again"*, while sura 67 The Sovereignty (ayat 30) is still more explicit: *"Say: Have you considered who, if your water should sink into the ground, will bring you any water from a spring?"*.

The metaphor stems from the contrast between the water of a well disappearing into some crevasse and water springing forth from the very earth, a contrast often dramatically experienced by certain civilisations<sup>57</sup>. For Jacques Berque, this verse contains a possible allusion to the drought that fell upon Mecca immediately after the Hijra (16 July 622 AD) when the prophet was obliged to flee with the first of the faithful to Medina, in order to escape persecution and assassination.

In the text of the Qur'an, life is inconceivable without water because in addition to its vital functions, essential to plants, animals and human beings, God has surrounded us with natural beauty in the form of rivers, snow-capped mountains, the ocean and its shores and, as sura 13 The Thunder (ayat 3 and 17) explains: *"He is the One Who has spread the earth out and placed two pairs for every kind of fruit on it... He sends down water from the sky so that river valleys flow according to how much there is. The torrent carries along swelling foam"*.

Radhouane Essaïèd, professor of Islamic philosophy at the Université Libanaise points out that descriptions in the Qur'an of seas, rivers and stretches of water suggest no fear of desertification, water shortages or of life in an arid climate. Water is one of God's gifts. As a result, its scarcity can only be a sign of divine wrath, a conse-

<sup>57</sup> The term *ma'in* used in this verse and meaning *"spring forth from the earth"* reappears in the Berque translation of the Qur'an (Sura 23 The Believers, ayat 50). It is important to note here the unparalleled richness of Arabic in vocabulary relating to water, wells, clouds, etc. Palestinian poet Mahmoud Darwich has listed no fewer than 110 terms for "water" in Arabic (Mahmoud Darwich, *"Mémoire... pour l'oubli"*, Organisation arabe pour les études et l'édition, Beirut, 1990, p. 46 – 47). The Hebrew word for water, *maim*, takes the feminine plural.

quence of man's mismanagement of the precious gift or of his ill-conceived projects, since God created all things in due measure, without excess but also without parsimony: *"We send down water from the sky in due measure, and let it trickle into the Earth. We are even Able to make it disappear. We have produced date groves and vineyards on it for you; from which you have much fruit to eat..."* (sura 23 The Believers, ayat 18). Even today in Islamic countries -and among the Jews- prayers are said in the event of persistent drought and sometimes, as in the case of Tunisia or Algeria in recent years, it is the authorities themselves that take the initiative<sup>58</sup>. In pre-Islamic Arabia, during periods of drought, sacrifices were made in Mecca to the rain goddess Manât.

The Qur'an, says Essaièd, calls for proper governance of water and the equitable sharing of this vital resources when it says: *"Announce to them how water must be shared among them; each will have his own special time to drink"*<sup>59</sup> (sura 54 The Moon, ayat 28).

For the Qur'an, the supreme mark of divine favour in this earthly world is made manifest in the rain and river water. But God punishes the wicked *"their wells have been abandoned"* (sura 22, The Pilgrimage, ayat 45). The punishment is severe because water sources in the desert are few and far between and a shortage of water in this arid environment can often prove fatal.

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## Water and Eternal Life

For the Qur'an there is, of course, life on earth, but there is also the life beyond. Here, too, water is God's supreme reward to the believers and to those who have done good works during the brief passage on this earth that is life for any follower of the Prophet. Time and time again the Qur'an repeats expressions such as *"paradises with rivers flowing below"* or *"living running waters"* promised to good Muslims under *"in the shade long-extended of the trees of paradise"*; sura 2 The Cow (ayat 25) reveals this instruction to the Prophet: *"Proclaim to those who believe and perform honourable deeds that they will have gardens through which rivers flow."* Almost exactly the same words are to be found in verse 85 of sura 5 The Table Spread: *"God will compensate them with gardens through which rivers flow to live in for ever because for what they have said."*

<sup>58</sup> In Istanbul – which suffered from an unprecedented drought in 1994 – a lively debate arose, however, between partisans of *"religious rain"* and those of *"scientific rain"*, the latter being triggered by seeding clouds with silver nitrate crystals. (Musa Akdemir, "Thirsty Istanbul implores the heavens", Libération, 11 July 1994, p. 15)

<sup>59</sup> Hamidullah's translation differs slightly from Berque's: *"Et informe-les que l'eau est à partager entre eux, oui, chacun son tour de boire."* The latter adds: *"In the Islamic tradition, each of the Twelve Tribes has its passage, as it has its own spring of water in the desert."*

For Hamidullah, a translator of the Qur'an, these graphic expressions seem designed to remind the Bedouin in the Arabian desert of the hillsides of Syria with their lush green orchards from which springs of water rose to form trickling streams: an idyllic setting, in essence, for those who lived in the arid wastes of Arabia. And, the translator adds, St. Luke's Gospel (Luke 20: 30) and the writings of St. Ephraim the Syrian (circa 365) also depict the indescribable pleasures of Paradise in earthly terms.

In Paradise, the fortunate drink "a cup of spring water" and "shall never want for (fresh water)." The Qur'anic text uses the Arabic term *ma'in* (see note 7) for "water running on the surface", a true delight, Hamidullah adds, for those who have known only the bitter water from deep wells in the desert, water that is often brackish or over-rich in iron or mineral salts. Furthermore, sura 37 Those Who Set the Ranks, (ayat 45 to 47) tells the fortunate that God will relieve them of "long journeys" to fetch this water from a distant waterhole under the burning desert sun. In Paradise, indeed, one spring goes by the name of *Salsabil*, a composite word made up of *salas* (easy walking) and *sabil*<sup>60</sup> (path), i.e. flowing pleasant water, and another by the name of *Tasnim*, which means spring of abundant water; one of the streams in Paradise is called *Khawthar* (nectar, in Arabic). In sura 20 Taha, ayat 119, God warns Adam against the wiles of Satan and assures him that in Paradise: "you will neither thirst there nor feel sunstruck".

It is to be noted that Paradise is watered by rivers and streams<sup>61</sup> and not by seas, because rivers are a symbol of life while the sea and the desert, according to Egyptian novelist Gamal Ghitany, "are infinite expanses and through this infinity take on a common significance and symbolism, in which land and sea are, for once, joined".

It is also to be noted that the Qur'an devotes sura 34 Saba to south-western Yemen. This region -Arabia Eudaimon or "Arabia the blessed", cited by Euripides' Dionysus as one of the many distant lands he has visited- greatly impressed the Bedouin with its lush green vegetation and its opulence, since irrigation was practised here long before the Christian era and not only were dykes built but also the famous Mareb "dam", which features in pre-Islamic Arabic literature. The flooding of the "dam" is mentioned in verse 16 of this sura: "They spurned (it), so We sent a torrent from the dam upon them, and We changed both their gardens for them into two gardens yielding bitter food, tamarisk and a very few hawthorns". The first destruction of the

<sup>60</sup> While performing the Hajj in 808, Zubaida, wife of the Abbassid Caliph Haroun Al-Rachid, was touched by the plight of pilgrims who had trouble finding water. She ordered the building, at her own expense, of a canal to bring the water of Ain Hanin to Mecca. It is interesting to note that in certain Muslim countries (Kuwait, Morocco, etc.), *sabil* also means a source of water provided by a pious benefactor for the benefit of passers-by. In Kuwait, these water sources are even chilled and feature the name of the donor (often a woman, in fact). In Morocco, they are richly decorated with *azulejos*. Offering water to the passer-by is a gesture highly valued throughout the Islamic world.

<sup>61</sup> Water is often associated with the representation of paradise. The land of Eden, the Garden of Delights -where Adam and Eve dwelt- is the source of four rivers: Pishon and Gihon (long considered to be the Ganges and the Nile), the Tigris and the Euphrates. Amer, the Japanese paradise, lies above the earth and is watered by the peaceful river of the Milky Way. For the ancient Egyptians, paradise was the Field of Reeds, an idealised vision of the familiar landscapes of the banks of the Nile.

"dam" would seem to have taken place around 750 BC and a second destruction occurred just prior to the appearance of Islam. The dam remained in service for some 1,500 years and provided irrigation for close on ten thousand hectares, enough to feed 50,000 people - a considerable number for the period<sup>62</sup> - which would explain the interest shown by the Qur'an in this water project, unique of its kind, in the Arabian peninsula.

Nothing is more pleasing to God than to offer water to one's fellow man, even if he be an enemy, and the *sharia* - a term which originally (and how instructive the etymology!) meant "water law" - instituted "*haq al shafa (shirb)*" or "*the right to quench one's thirst*" for man and beast. The great merit attributed to the giving of water to any living creature is reflected in this hadith<sup>63</sup> transmitted by Al Bukhari<sup>64</sup>: "*A prostitute was forgiven by Allah because, passing by a panting dog near a well and seeing that the dog was about to die of thirst, she took off her shoe, and tying it with her head-cover she drew out some water for it. So Allah forgave her because of that*".

The Qur'an also emphasises the ambivalence of water, which can also destroy - by means of torrential rains, hail or floods, for example - and thus serve to punish the wicked. Sura 6 The Cattle, ayat 70 announces to the Prophet: "*Stay away from those who take their religion as a sport and amusement. Those who let themselves act recklessly concerning what they have earned must drink boiling water and suffer painful torment because of how they have disbelieved*". Pagan Arabs of the time used boiling water as a form of torture. Similarly, sura 26 The Poets, ayat 173, recounts that God punished the wicked with catastrophic rains: "*We sent a rain down upon them. How evil was such a rain or those who had been warned!*" Muhammad's biographers relate that in 605 the Prophet, then aged 35, witnessed the destruction of the Kaaba by fire followed by torrential rain.

## A religion unable to dispense with water

Water plays an essential role in religious observance. One could go so far as to say that without water, the daily practice of Islam would be virtually impossible.

<sup>62</sup> Pierre Gentelle wrote on this heading: "*Since ancient times, Mareb has been the object of unanimous admiration, by virtue of the dyke built across the wadi and which is therefore sometimes called a dam... The remains, still visible today, represent such an ingenious solution for capturing the water that would otherwise run off uselessly into the desert, that they have never ceased to fascinate those who know of them. It is no accident that such a work is mentioned in the Qur'an, even though the Qur'an dates from after the final destruction of the dam.*" (in "*Traces d'eau. Un géographe chez les archéologues*", Belin, Paris, 2003).

<sup>63</sup> Information handed down by many chains of transmitters of the deeds and words of the Prophet. For Muslims, the authority of the hadith is second only to that of the Qur'an.

<sup>64</sup> Muhammad al-Bukhari (810-870), considered the greatest of the hadith scholars and venerated as a saint.

After sexual relations, a Muslim man or woman is required to wash from head to foot (*ghus'l*), generally at the hammam or public bath, a place of great conviviality where the Muslim community comes together around the purifying element of water; here, Qur'anic values and representations of water go hand in hand with various local practices from the Maghreb, the Middle East and, indeed, from all over the Islamic world. Women in particular are required to perform *ghus'l* after menstruation and also after giving birth. This head-to-toe washing is also required of both sexes before daily prayers, and in order to observe the mandatory fast over the month of Ramadan, and the rites of the minor pilgrimage (*omra*) and the great pilgrimage (*hajj*) to Mecca<sup>65</sup>. Man may not address God if his body is unclean and water is the purifying element above all others: purification by water -even metaphorical- is essential to communing with Allah. Before entering a mosque or performing the required five daily prayers, the Muslim must perform the ritual ablutions (*wudu*) laid down in sura 5 The Table Spread, ayat 6: "*You who believe, whenever you intend to pray, wash your faces and your hands up to the elbows, and wipe off your heads and (wash) your feet up to the ankles. If you are (ritually) soiled, then take a full bath. If you are ill or on a journey, or one of you has just come from the toilet or had contact with a women, and you do not find any water, then resort to wholesome soil and wipe your faces and hands off with some of it God does not want to place any inconvenience on you, but He does want to purify you and to complete His favour towards you, in order that you (all) may act grateful.*" Water is necessary for the purity of both body and spirit; in extreme cases, however, the believer must aspire at least to purity of spirit by showing humility and using clean dust or sand to perform *wudu*. Purity of soul and purity of body go hand in hand in Islam and mutually complement one another to ensure that the Muslim is in a state of psychological wellbeing and inner harmony favourable to communication with God. The moral function of ritual ablution is clearly expressed in the sacramental words spoken to God that complete the ritual of purification: "*Appoint me amongst those who repent well, and among those who purify themselves well. I seek Your forgiveness and I turn to You in repentance.*"

Scholars of the law and the Islamic Tradition have codified in minute detail all the points of these Qur'anic injunctions, based on how the Prophet lived his life. They have also described, in great detail, not only the manner of performing these ablutions but also the quality of the water to be used and virtually even the very quantities to be used.

<sup>65</sup> The ritual of the pilgrimage includes two stations, the hills of Safa and Marwa, a re-enactment of the search for water by Hagar, wife of the prophet Abraham, after she was driven into the desert by Sarah. The most important day of the Hajj is *wuquf* which ends after sunset with the "*Débordement des flots*" and the "*Déluge*", *Ifada* and *Tawaf*. The pre-Islamic rite of the *Ifada*, at the autumn equinox, was performed facing the direction of the sanctuary of the god Quzah, god of water, thunderstorms, rain showers, etc. (See Patricia Hidiroglou, "*Leau divine et sa symbolique*", Albin Michel, Paris, 1994). During the pilgrimage, as during the Ramadan fast, sexual relations are prohibited.

Al-Qayrawani<sup>66</sup>, the great 10th century Andalusian lawyer, recommends that the believer wash his hands three times before immersing his hands in the bowl containing the ablution water. He also recommends rinsing out the mouth three times, taking in water and expelling it through the nostrils three times, and rubbing water over the inner and outer parts of the ears.

What is the reason for this detailed attention to ablution in Islam?

Firstly, because the Prophet himself placed great importance on ablution, saying "*purification is half of faith*" and also that "*to be a Muslim is to be clean*" (according to Ibn Maja<sup>67</sup>). Next, because Al-Qayrawani in his famous Risala writes: "*The Prophète said (hâdith): "whoever performs ablution and performs it well, then lifts his eyes towards Heaven and professes the Muslim faith, shall see open before him the eight gates of Paradise and he shall enter by whichever gate he pleases"* and the law scholar goes on: "*He who prays confides the secrets of his heart to God. He must therefore prepare for this act by ablution or by bathing where this is required... The ablution must be performed solely with Allah the Most High in mind and in order to obey His commandments, in the hope of gaining His approval and reward and, by this practice, to be purified of all faults committed. The believer must be sincere in his intention that this is a preparation and an act of cleanliness designed to fit him to speak with God and humble himself before Him through bowing and prostration. He shall therefore perform this action in mindfulness of these things and with the greatest of care (to perform it scrupulously), for the perfection of any act is subordinate to the purity of the intention behind it*".

Water to be used for purification or for the ablutions must be pure and "*no mixed with anything the law defines as impure*". Its colour and odour were subjects of discussion by the law scholars<sup>68</sup>, as well as the size of the vessel in which it was held.

Nor did the question of how much water should be used in ablution and washing escape their vigilance.

Elsewhere, the Andalusian legal expert continues: "*It is recommended that water be*

<sup>66</sup> Ibn Abi Zayd al-Qayrawani, "*La Risala ou Epître sur les éléments du dogme et de la loi de l'Islam selon le rite malékite*", text in Arabic followed by a translation by Léon Bercher, Bibliothèque arabe-française, Algiers, 1951. Abdelhamid Slama "*Water issues in the ancient arab world from the origins to the end of the Xith C. AH/XVIIth C. AD. Editor: Dar El Gharb Al-Islami, Beyrouth, 2004*", (arabic language)

<sup>67</sup> "*Water and sanitation in Islam*", World Health Organization (WHO), Regional Office for the Eastern Mediterranean, Alexandria (Egypt), 1996.

<sup>68</sup> They even codified a correct way of drinking. In 1878 Eugène Fromentin, who travelled widely in the Algerian Sahara, described a "*diffa*" (formal dinner or reception) to which he was invited and from which he returned with the precept: "*The drinker must not breathe into the cup containing the drink, but must withdraw his lips to take breath; then he should resume drinking.*" (in "*Un été au Sahara*", Plon, Paris, 1879). This is very similar to words written by Ibn Maja, one of the greatest hadith scholars, according to a version given by legal scholar Al-Qayrawani (Ref. 16): "*When drinking, do not breathe into the vessel from which you drink, but remove it from your lips and resume drinking afterwards if you wish. Do not swallow the water in long draughts, but in small sips, savouring its taste.... It is forbidden to breathe over food or drink... and it is forbidden to drink from vessels of gold or silver.*"

used sparingly, while scrupulously performing the practices of purification by ablution. Using water prodigally is an excess and a practice contrary to the Sunnah. The Envoy of Allah... performed ablution using a mudd [half a litre of water]... and he performed the purification by ablution in a vessel of four mudds [two litres]". Not wasting water is in fact no more than the strict commandment of the Qur'anic text that says: "Children of Adam, eat and drink, yet do not overdo things; He does not love the extravagant" (Sura 7 The Heights, ayat 31). It could be argued that it is normal, given the water conditions prevailing in Arabia, for the new religion to call on its followers to be sparing with water since the archaeology shows, as at Petra, that even when the nomads became sedentary, "they did not lose their sense of water economy"<sup>69</sup>. Here, in fact, it is more of a matter of principle. The Prophet forbids wasting this precious resource even when it is available in abundance, since a hadith instructs Muslims: "Do not waste water, even if you perform your ablution on the banks of an abundantly-flowing river." In another hadith, transmitted by Abu Daoud, the Prophet says: "Guard against these three accursed things: relieving yourself near a spring, at the roadside or in the shade"<sup>70</sup>. It is on the strength of these recommendations that Islamic lawyers and decision-makers have consistently condemned and fined those responsible for wastage, pollution, damage or poor maintenance of water facilities. In many Muslim countries, modern legislation aimed at water pollution finds its roots and its justification in these injunctions<sup>71</sup>. The purifying role of water in Islam, for both body and soul, is also underlined by its recommendation that Muslims should perform ritual ablution in many different circumstances: when angry, before going to bed, before eating, when coming into contact with or transporting a corpse, when observing a lunar eclipse, when soaked with perspiration, after losing consciousness or fainting, when slaughtering an animal for food, when reciting the Qur'an or hadiths, when taking a course in religious science, when visiting a mosque or a cemetery. According to Ibn Muslim<sup>72</sup>, the Prophet also recommends bathing once a week even if there is no religious requirement to do so (in the absence of sexual relations or menstruation, for example).

When death occurs, washing the body of the deceased - a religious obligation - is always considered the greatest honour that can be paid to the soul of the departed; in many Muslim countries, pitchers of water are set out along the route of the funeral procession so that mourners as they drink from them may invoke blessings and mercy on the soul of the departed.

It is noteworthy that, in common with Islam, there are many Jewish rites designed to wash away impurity (such as the purifying immersion of tevila) and the Book of Levi-

<sup>69</sup> Pierre Gentelle, "Traces d'eau. Un géographe chez les archéologues", Belin, Paris, 2003.

<sup>70</sup> People seek the shade for rest and coolness.

<sup>71</sup> See in Ref. 4 the contribution by Naser Faruqi, "Islam and water management: Overview and principles".

<sup>72</sup> Ref. 4.

ticus in the Bible is given over to a detailed enumeration of the rules of purity and of sexual taboos. Water also plays an important symbolic role in Judaism, especially at the most solemn moment of the Jewish calendar, the ten days of repentance between the Jewish New Year, Rosh Hashanah (the head of the year), and Yom Kippur: all faults, sins, errors and doubts are cast away into water. This is the annual ceremony of Tashlikh (casting away) which is the basis for the rites of purity: standing on the bank of a river or the brink of a well, Jews turn out their pockets or shake their handkerchiefs to rid themselves of their sins.

## The culture of water and practical issues

Naturally, as we have seen, these precepts are echoed in everyday Muslim life and were the foundation for the Muslim culture of water. Power and religion, civilisation and water have forged strong links for many peoples over the course of history. Islam is no exception to these links. One hadith says: "*Muslims have common share in three things: pasture, water and firewood*"<sup>73</sup> and certain commentators suggest that in order to provide water for the followers of the new religion and avoid one person or one tribe having control over the precious resource, Muhammad encouraged Uthman<sup>74</sup> to buy the well of Ruma and establish it as waqf (or habous, which means for collective enjoyment or ownership for religious use and for the public benefit) for the perpetual use of the community and successive generations. Later, the two main branches of Islam -Sunni and Shia- adapted these general principles to local conditions and to the settlement of complex situations regarding the right to quench one's thirst, irrigation and the sale and transfer of water.

This document cannot claim to cover these questions in full, given the enormous body of theological and administrative references, and the accumulated case law of centuries regarding them. It will confine itself to indicating certain outlines for the non-Arab speaking reader.

Al-Qayrawani says: "*Surplus water [from a spring] must not be withheld to prevent people from coming to the pasture. Those who have dug wells for their flocks may take precedence in their use. They will thus use them first; after which, all others shall also be allowed to use them. [But] he who has a well or spring on his own property may forbid the use of it to another, unless his neighbour's well becomes unusable and that neigh-*

<sup>73</sup> Ref. 4. Note that the Syrian Minister for Water and Irrigation quoted this hadith against Turkey (without actually naming his target) in a statement reported in Cairo newspaper *El Ahrām* (06 May 1997) regarding the difficult negotiations over allocation of water from the Euphrates. This was somewhat surprising since the government in power in Damascus claims allegiance to the Ba'ath party, a secular party founded by a Christian, Michel Aflak, and while the majority of citizens of the Turkish Republic are Muslims, the country has been profoundly secular since its founding in 1923 by Mustapha Kemal Atatürk.

<sup>74</sup> Third caliph, 644 to 656.

*bour has crops which might then perish. In which case, he cannot refuse his neighbour the surplus water. But is the neighbour required to pay the price of the water? The question is disputed".*

We are therefore faced with a particularly controversial issue since the sharia distinguishes between 3 types of water: running water (rivers, streams, etc.), water from a well made by the hand of man, and water from natural springs (sometimes improved by man). The nature of the water and its use have given rise, throughout history, to highly complex forms of legislation in which Qur'anic law and local custom and practice are often more or less closely associated.

The foggara water management system in Tunisia, for example, is similar to that of the Iranian qanat. The foggara makes it possible to create an oasis. The foggara is made by digging a deep tunnel in the earth of the foothills – i.e. at the foot of a fairly steep mountain range such as the Jebel Orbata. Water from the scarce rainfall in this virtually Saharan zone filters its way down into the foothills and the gallery acts as a drain. The foggara collector may be up to one or two kilometres in length. Families maintain the foggara and own the land it irrigates over a width of ten metres (reserved area) and of unlimited length as long as the gradient allows gravity to deliver water to the plot, as is shown by the work of Jean-Olivier Job and Jean Albergel on Tunisian oases.

In the case of the Muslim societies of black Africa, it is not easy to separate Islamic law and traditional law in the matter of water; in most cases, where traditional law does not openly conflict with the rules of sharia, it is incorporated by scholars into canon law. In Niger, for example, whoever controls the use of the water supply controls the neighbouring pastures, which is where the real wealth lies. In essence, water controls access to grazing land. In pastoral societies, access to vital water is never denied to passing men or herds, even if a limitation on transit time may be imposed. This reflects a clear application of an Islamic principle: the right to quench one's thirst (shirb), here extended to the herds that are practically the sole means of subsistence for whole communities. It is common practice among the Arabs, however, to prevent stray camels with no known owner from drinking from the community's water supply, according to many authorities including a very famous speech by the governor of Iraq, El Hajjaj Ibn Youssef (661-714).

These practices appear to conform to the Tradition that relates how the Amalik of Yemen, suffering from drought, went in search of water and fertile lands. On reaching a certain valley, they saw a bird which seemed to hang motionless in the sky and concluded that the creature was looking for water. Yet the place was known not to contain any water. A scout was sent out and discovered water – the well of Hagar and Ishmael. The Amalik asked permission to halt at the well. Hagar agreed, but not

without stipulating: "Yes, but you have no rights over the water"<sup>75</sup>. The Amalik agreed to this condition.

Even in the pre-Islamic period, it was common practice for the caravans of goods crossing Arabia to pay for water as they paid for fodder, notes Maxime Rodinson<sup>76</sup>.

In the Muslim tradition, however, the interests of the community take precedence over those of individuals or of small groups, as is generally the case in much Western legislation<sup>77</sup>. The community here is the *Umma*. As used in the Qur'an and in the writings of law scholars, this term refers to the Muslim community but modern usage tends to use the term "nation" imported from the West.

Speaking of current practices, Dante Caponera says: "For Islam, water resources lie in the public domain... While it is impossible in theory to tax water as such, since it is God's gift, it is perfectly legitimate to levy a tax on water services or to tax the supply of water for various purposes, with authorisation.... Islam places no restriction on trading in water. As a public good, water cannot be transferred, but the transfer of its use is permissible. So if a user, large or small, holds a concession or licence, he may exchange water with or sell water to another user, large or small, if the government, which is the curator of public water, agrees... The religious precepts of Islam are in no way an obstacle to the appropriate management of every aspect of water as a resource"<sup>78</sup>.

Addressing the question of water markets and water pricing in Iran -hence from the standpoint of Shia Islam- Kazem Sadr, of the faculty of Economics and Political Science of the Shahid Beheshti University in Teheran, states that Islamic jurisprudence (*fiqh*) and the consensus of the ulema, or legal scholars, teach that surface water as well as water from the aquifer are either public property or the property of the Imam, "the just and legitimate governor of the country" and that such water may therefore be exploited directly by the authorities or licensed to private operators. Sadr asserts that in the earliest days of the Muslim state, the construction of wells, dykes and other waterworks was paid for from the public coffers, *Baitulmal*. However, should someone invest in gaining access to water from a spring or river, that person acquires priority of access when it comes to making use of the water, but can in no way claim to possess the river or spring providing the water, which remains communal property. The rights of other users must be protected in all circumstances. In the ingenious system of qanats in Iran, for example, these underground canals that rely on gravity are the property of their builders, but the wells or springs supplying the water are not.

<sup>75</sup> Mahmoud Hussein, "Al-Sira. Le prophète de l'Islam raconté par ses compagnons", Grasset, Paris, 2005, p. 91.

<sup>76</sup> Maxime Rodinson, "Islam et Capitalisme", Le Seuil, Paris, 1966

<sup>77</sup> In a dispute over water rights, the Supreme Court of Hawaii found in favour of the community, and against the owner, in a decision handed down in August 2000.

<sup>78</sup> Ref. 4

Shia Islam apparently adheres to Garrett Hardin's theory that to allow free access to common property leads remorselessly to its destruction<sup>79</sup>.

This view is confirmed by Pierre Gentelle. Examining the issue of water in Iran's Lut desert, he writes: *"According to the Prophet, the ownership of a spring, canal, well or qanat involves the ownership of a neighbouring extent of land, known as harem, an area in which no one else is allowed to dig"* and concludes: *"The Persians did not fail to observe, from the outset, that the Arabs had been nomads before following the teachings of Muhammad and that their customs still contained traces that were not of divine origin. In the case of water rights in particular, conquered agricultural societies had had their own complex rules of water management centuries before the Prophet appeared. One thing common to Muslim and non-believer alike: when water is shared, upstream "drinks" before downstream, according to fiqh, and the upstream water in a canal may not be higher than ankle-height"*. Proof that, in this highly sensitive area, no one can wipe clean the slate of the past and of history, and that a culture, a civilisation, is made up of multiple contributions and successive accretions which join and merge to form a new entity through which to express the ingenuity of the human spirit and its continual adaptation.

Sadr, however, points out that the transfer and distribution of water may be carried out by the private sector and adds: *"If Islamic rules and values prevail in a market, we may expect the price set to be effective. This price will then serve as a reference for water supplied and sold by the public sector and it should cover all operating costs. In practice, no discrimination should be made when establishing the price. This proposition is in accordance with the rules of the Islamic legal system, and the management and distribution of water in Iran"*<sup>80</sup>.

Now to the Sunni version. Algeria is a Muslim country which suffers enormous problems of water supply. Minister for Water Abdelmalek Sellal admitted in an interview with newspaper *El Watan* (23 November 2004) that in the capital, *"...only the east of the city receives a 24-hour water supply; the central and western areas do not receive a regular supply. At present, they do receive water every day, but only for a very limited number of hours... We have already begun work on renovating the network in Algiers. Most of the work has been completed, but the situation is not improving"*.

This situation has existed for decades and, sadly, is not confined to the city of Algiers, or to this Arab Muslim country alone. Looking more specifically at the Arab world, Jean-Paul Bord writes: *"Medium term United Nations forecasts show that "countries likely to suffer water deficits or shortages in 2025 include a large proportion of states in the Arab world (with the exception of Mauritania, Sudan and Iraq). Globally, this part of*

<sup>79</sup> Garrett Hardin, *"The tragedy of the commons"*, Science, no. 162, 13 December 1968, p. 1243-1248.

<sup>80</sup> Ref. 4

*the world suffers most from water problems. And even if the pattern of change will differ from one country to another, by 2025 almost all the countries in the Arab world will be affected by water shortages*<sup>81</sup>."

What can be done? The Algerian minister, after pointing out that "*water is a common good*" announced the launch of an array of legal weapons such as: "*Water will no longer be an abstract product which has no value. Under the new water code, it will have a value to society and a market value.*"

Like the Bible, the Qur'an places unrivalled importance on water. In Paradise, water is the reward given to good Muslims and exists there in profusion; in the Garden of Eden, springs and rivers abound. Water, vital to the observance of religious rites, is the gift of God and a divine blessing. Water is the primal element and opens the way to the sacred and to transcendence. Its scarcity or lack is due either to the wickedness of man or to his failure to manage the resource adequately, since God gave everything in due measure. The Qur'an therefore requires Muslims to use water with moderation and condemns wastage. Moreover, it encourages proper governance of this vital resource, more particularly because the Arab world is, for example, "*an area dominated by desert and the search for water, except on its margins.*"

The various religious schools agree on many points regarding the management and exploitation of water for the benefit of the community while respecting the rights of whoever invests his labour, for example by tapping and channelling water and making it available.

<sup>81</sup> Jean-Paul Bord, "*Le monde arabe: des espaces géographiques aux représentations cartographiques*", doctoral thesis in geography, Université François Rabelais, Tours, December 1998.



# Water: culture and civilisation

*"Water is not just a resource.*

*It is a key issue of civilisation.*

*The gulf that the industrial era has created between us  
and this vital element must be bridged as a matter of urgency."*

Domenico Luciani  
President of Centre Internazionale Civiltà dell'Acqua  
(the international water civilisation centre)

*"In our contemporary world,  
water is remarkably invisible."*

Jean Darras  
Poet

Few elements have influenced the symbolic, ritual and metaphysical values of mankind as much as water. It is deeply rooted, in a highly emblematic manner, in our cultural traditions, for culture is nothing more than man's perception of his natural environment.

In reality, only close attention to this environment enables human ingenuity to create culture. And while Homer proclaimed that *"Water is the origin of all things"*, Greek philosophy taught that Nature (*Physis*) is the sole creative and generative force for all that is, for all that exists.

Yet Nature, as she reveals herself to us, is nonetheless engaged in a process of perpetual change.

*"You cannot step into the same river twice,"* asserted Heraclitus, for though a river may be nothing but water, it never carries the same water.

*"But water is not only a metaphor for change. It is also a source,"* says the philosopher Marcel Conche.

Obviously, to say -as is so often said- that water symbolises life or birth is to oversimplify. As the philosopher Alain so prosaically puts it, "*Rain is a curse for the tourist and a blessing for the farmer*".

In reality, water is the basis of and the substrate for water ecosystems and the variety of marine habitats, the matrices in which life first appeared and began to develop.

Echoing Homer, Renaissance engineer Leonardo da Vinci was of the opinion that "*Water is the driving force of all Nature*".

## The culture of water, yesterday and today

In Farsi, the first word in the dictionary is *ab*, water, and *abadan*<sup>82</sup> -derived from it- means civilised.

There is no civilisation, then, without water, which has presided over all of man's activities since time immemorial: in Afghanistan, a canal has been dated with certainty to the Bronze Age; Jericho, the world's most ancient city, founded in the Judean desert 8,000 years before Christ, owes its very existence to the freshwater springs that form tiny natural lakes in the vicinity of the Dead Sea; Knossos in Crete had running water and paved streets 3,500 years before Christ; Hammurabi, who reigned over the Akkadians, Babylonians and Sumerians, ordered the digging of canals and codified water laws as early as 1730 BC.

Houses in the Carthaginian period were systematically built with one or more water cisterns fed from the *impluvium* on their terraces. The insides of these cisterns were even lined with strong waterproof mortar. Carthaginian houses often had their own well, and underground water was captured to supply public water fountains, some of which were monumental in size, such as the so-called "*thousand amphora*" fountain discovered at the site of Carthage in 1919. At the Punic site of Kerkouane, on Tunisia's Cap Bon, all the houses feature remarkable bathrooms fitted with hip-baths<sup>83</sup>. Finally, excellent underground pipes have been discovered in the ruins of Kouriou in Cyprus, eloquent testimony to the sophistication of the irrigation system at the dawn of the Christian era.

<sup>82</sup> Philip Ball, "*H<sub>2</sub>O. A biography of water*", Phoenix, London, 2004. The author also points out that the English word "abode" is derived from the Farsi word, *abad*. It is noteworthy that in Chinese ideograms, the two characters representing Chinese and French both share the same key, that of water. Why the water key? The character which represents Chinese, pronounced *han*, was originally the name of a river. The character pronounced *fa* that was chosen to represent French means the law; in ancestral times, flowing water incarnated the natural law of life (François Cheng, "*Le dialogue*", Desclée de Brouwer, Paris, 2002, p.94). For Jacques Berque, the ideograms that translate legal concepts all begin with what is known as the "*water radical*" so much do all these concepts of social organisation presuppose waterworks" (L'Orient second, Gallimard, Paris, 1970).

<sup>83</sup> Ammar Mahjoubi and Hédi Slim, "*La maîtrise de l'eau à l'époque antique*", El Madar, review of the Cité des Sciences de Tunis, special edition, 1993.

Lastly, Aristotle in his *Meteorologia*, a treatise on earth sciences, drew a distinction between natural waters, *automata*, and those in which the hand of man was involved, *cheirometa*; for the Greek philosopher, there is a line between water from springs, rivers and seas and water which, in order to be captured, required "works of art and engineering" and gave rise to the flowering of Greco-Roman techniques of channelling water to create public baths, fountains, cisterns, aqueducts and temples, dedicated to gods of healing such as Mercury, Apollo, Diana or Hercules, especially in the vicinity of hot springs.

In reality, every human civilisation throughout history has been closely linked to and heavily dependent on water and water systems. Mother Nature cannot be dissociated from the liquid element, and the views that civilisations have taken of water have given rise to a rich symbolism to be found in every field, from religious beliefs to art and poetry, by way of urban design, architecture, the layout of roads and lines of communication.

The culture of water is not a concept to be relegated to the storehouse of history; far from it. "Water and culture are both fluids -one concrete, one immaterial- which bind the members of human society together" wrote Jean-Louis Oliver of the Académie de l'Eau, since water is a powerful cement in the organisation and social cohesion of human communities. This is why whenever any group has sought to destroy another people and bend them to its will, it has first attempted to wipe out<sup>84</sup> their water culture and its material infrastructure. Raised to the status of a touchstone value, water has always reflected three dimensions -sacred, social and economic- even though variations over time and space may be observed<sup>85</sup>.

This culture finds its place not only in Egyptology and Sinology; an attentive observer may spot it at work in today's world too, since the culture of water, whether we like it or not, forms our attitudes and our values. Do not these values make constant reference to future generations? To common goods? To the principle of sustainability? Does not water still capture our imagination, our feelings, our fears and our unspoken thoughts, otherwise how do we explain our enthusiasm for the possibility of water on Mars or other planets, our fascination with everything to do with the sinking of the *Titanic* or the lost expedition of La Pérouse? How are we to cast off the emotional gravity and weight of the element that makes up our very cells and our bodily fluids, and which saw us grow within the womb?

Advances in science and technology have made possible many things, including the production of hydroelectric power, industrial development, river navigation, irriga-

<sup>84</sup> a- Peter N. Spotts, "Watering Eden", Christian Science Monitor in Courrier International no. 649, 10-16 April 2003, p. 61

b- "Les experts au chevet des marais d'Irak", Le Figaro, 22 February 2005.

<sup>85</sup> a- Georges Vigarello, "Le propre et le sale. L'hygiène du corps depuis le Moyen Age", Editions du Seuil, Paris, 1985

b- Sabine Barles, "La ville délétère. Médecins et ingénieurs dans l'espace urbain", Editions Champ Vallon, Seyssel, 1999)

tion, water supply and waste water treatment for towns and vast urban metropolises, desalination of brackish and salt water; in turn, this has enabled a large proportion of mankind to enjoy a lifestyle and conditions of comfort, health and security scarcely ever seen before in history. Paris and London only arrived at populations of a million in the wake of Pasteur's revolutionary work, and when they acquired running water and a network of sewers. Yet repercussions of this kind may go far beyond sanitation and health. Erik Swyngedow, a town-planner and geographer based at the University of Oxford, demonstrated that the modernisation of the Spanish state went hand in hand with fundamental changes in the way water was used, and that water culture, water policy and water engineering played a key role in the formation of Spanish society. "*Little or nothing in the contemporary social, economic and ecological landscape of Spain can be understood without explicit reference to the evolving position of water as it appears before our eyes*"<sup>86</sup>, " he writes. Very few of our contemporaries truly appreciate our enormous dependence on water, which has become an "invisible" aspect of our way of life. Yet it takes 18 litres of water to produce a litre of petrol, and 1,300 litres to produce a microchip. To cite the example of France alone, the heat wave in the summer of 2003 affected the working of the country's nuclear power stations and the winter floods of December 2003 also created problems for the Cruas nuclear power station<sup>87</sup> in the Ardèche since the cooling water taken from the river contained too much debris from trees and vegetation. Even an industry at the cutting edge of modern technology like nuclear power is dependent on water.

We are a very long way from the paradigm of "*domination and mastery over Nature*", and how derisory seems the gesture of the Doge of Venice who ritually cast a ring into the sea each year as "*a symbol of real and perpetual rule*"!

Social, economic and cultural development and even political stability and continuity<sup>88</sup> are closely linked to the water supply available to the population. China's Prime Minister, Zhu Rongji, acknowledged in an interview with *Le Monde* (18 August 2001) that "*the shortage of water is a serious obstacle to China's economic and social development*". The obstacle is all the greater in that China's water culture has always held governments responsible for water management. In the past, when China suffered from natural disasters or the rivers flooded, it was seen as proof that the Emperor was no longer worthy of the position he held; many a dynasty was brought down by flooding<sup>89</sup>!

<sup>86</sup> Quoted by Pierre Cornut in his doctoral thesis in geography, Free University of Brussels, November 1999.

<sup>87</sup> The high temperatures led to a rise in river water temperatures, hence the temperature of cooling water discharged into the environment rose above the level considered likely to impact on local flora and fauna. A decree of 12 August 2003 allowed the authorised limits to be exceeded on an occasional and limited basis. No negative impact was observed.

<sup>88</sup> To cite just one example, Joseph Ki – Zerbo reports that "*in February 1974, the Parliament (of Burkina-Faso) was dissolved, political activities banned and the Constitution abrogated in the wake of a military coup d'état. The country was prey to political tension driven by the drought raging for years in the Sahel*" in "*A quand l'Afrique? Entretiens avec René Holenstein*", Editions de l'Aube, Paris, 2004). It is noteworthy, too, that Algeria's Islamic Salvation Front (FIS) was founded in the wake of water riots in 1988 (Hugues Le Masson, "*Le marché de l'eau dans les PVD*", *Revue des Ingénieurs (Mines)*, no. 386, June 2000, p. 21-22).

<sup>89</sup> Marie-France Cais, Marie-José Del Rey and Jean-Pierre Ribaut, "*L'eau et la vie. Enjeux, perspectives et visions culturelles*", Editions Charles-Léopold Mayer, Paris, 1999.

## Water, the environment and society

The natural heritage of water indelibly stamps the identity of peoples just as it leaves its mark on their land. For proof, look no farther than the communities that live along the Ganges, the Orinoco or the Volga; even today, can the natives of Bern deny the influence of the Aar<sup>90</sup>. Could the city of Nantes (France) cease to admire itself in the Loire or Heidelberg (Germany) in the Neckar so beloved of the romantics?

The culture of water relates first and foremost to a multiple and global approach to the environmental, social, human, ethical, religious and economic dimensions of aquatic ecosystems<sup>91</sup>. A study carried out by the World Bank of 64 villages in Rajasthan, in India, showed that the conservation, maintenance and management of catchment areas are far more efficient in villages with high levels of trust, informal networks and solidarity than in those where there is little social capital<sup>92</sup>. In Malawi, on the other hand, people reject water from the mains and its pipes, believing that the authorities treat it with chlorine in order to reduce the birth rate and halt the spread of the AIDS epidemic<sup>93</sup>. In New York, some Jews refuse to drink tap water, despite that fact that it has been "*considered a byword for cleanliness for a century*" because it contains copepods<sup>94</sup> (microscopic shellfish) and is therefore not kosher.

Since the Earth was formed some four and a half billion years ago, its water content has changed hardly at all. It is water that makes it the Blue Planet, as astronauts contemplating it from space are fond of describing it. Water has made its mark on our environment: mountain ranges and forests, moraines, gulfs, deserts, glaciers, fairy chimneys, valleys and canyons, all bear the ancient mark of the slow and constant working of an element which, with its extraordinary physical and chemical properties, dictates the very conditions of our life, since soil and water are but the two sides of the same coin.

Understanding water culture is essential in order to manage the resource properly and respect the roots of those who benefit from it - roots which, as has already been said, are deeply entwined in the facts of their geography, history and religion.

François Cheng shows with exemplary clarity how these facts have worked in synergy, profoundly shaping the ideology and power of ancient China, when he writes: "*For geographical reasons -the ocean to the east, the chain of the Himalaya to*

<sup>90</sup> Read the excellent article on the Aar by Adrien Bron in "*La Tribune de Genève*", 30 August 2004, p.9

<sup>91</sup> Robert Costanza et al., "*The value of the world's ecosystem services and natural capital*", *Nature*, 15 May 1997, p. 254 – 260 and Kate Selincourt, "*Can you cost the Earth?*", *New Scientist*, 15 April 1995, p. 44-45

<sup>92</sup> "*State of the world 2004*", Worldwatch Institute, Washington D.C., 2004, p. 172 translated into French by Mohamed Larbi Bouguerra, "*La consommation assassine*", Editions Charles – Léopold Mayer, Paris, 2005, p. 250.

<sup>93</sup> World Water Forum (Kyoto) site consulted on 15 April 2005.

<sup>94</sup> Michael Brick, "*There's something in the water and it may not be strictly kosher*", *New York Times – Le Monde* 13-14 June 2004.

*the south west, the desert regions to the north west- the slow gestation of ancient China was long confined within its natural boundaries. Yet within that vast territory, crossed from west to east by rivers running parallel, what conflicts of authority arose, and what ideological quarrels between kingdoms and schools of thought! In the end, there emerged two main currents, the origins of which may be positioned in relation to two great rivers: Confucianism in the central plain of the north, watered by the Yellow River, and Taoism in the central southern region, in the Yangtze basin. While Confucianism, promoting man's engagement in the universe and in society and driven by ethical principles, was adopted by the authorities as state doctrine (and hence fossilised and diminished by that very adoption), Taoism never ceased to stand in unavowed opposition to it by advocating the ideal of the freedom of the human spirit and total communion with nature<sup>95</sup>".*

Similarly, the rules of polite society in Africa make the offering of the welcome gift of water a key element in the water culture of its peoples, a custom that has its origins in the very organisation of the society and, indeed, of its conception of private property. The historian Joseph Ki – Zerbo explains: *"Water, for example, was not sold at market price. It happened on many occasions out in the brush in Burkina Faso, when I had broken down, that a young girl would come up to me offering water. No one had asked her for water, but it is an established right for strangers and there is a popular saying that "The stranger is water". In the African system, property has always been kept to a minimum. For much longer than elsewhere, production remained confined to family or clan level, in a context where there was no shortage of land. The result was that the race for ownership in production relationships has never been one of the driving forces for the process of economic development in Africa. Moreover, the system had even taken precautions to prevent certain individuals from taking control of the capital in the form of land. In the basic model for this organisation, both the community and individuals had rights to the land. There were eminent owners, i.e. the family, the village or the community of the traditional system of chiefs. And real property was in reality a life interest. It was not ownership in the Roman sense of "usus, fructus, abusus", i.e. use, enjoyment and ownership assigned to a single individual even up to the point of misuse<sup>96</sup>".*

Serious misunderstandings may occur if cultural data of this sort are not taken into consideration in the management and development of natural resources.

Archaeology shows that around 3800 BC it was advances in irrigation that allowed for the rapid demographic growth seen in the Near East<sup>97</sup>.

<sup>95</sup> François Cheng, *"Le dialogue"*, Desclée de Brouwer- Presses littéraires et artistiques de Shangai, Paris, 2002.

<sup>96</sup> Joseph Ki – Zerbo, *"A quand l'Afrique? Entretiens avec René Holenstein"*, Editions de l'Aube, Paris, 2004.

<sup>97</sup> Pierre Gentelle, *"Traces d'eau. Un géographe chez les archéologues"*, Belin, Paris, 2003.

The controlled flooding of the Nile, both river and deity, dates back to the reign of the Pharaoh Menes in around 3200 BC. By around 3000 BC, the distribution of the Nile floodwaters required the keeping of land registry records and the development of a nilometer to measure the height of the river at Memphis; this enabled the Pharaoh to determine the rate of taxation to be levied on the harvest since, obviously, the higher the floodwaters, the better the harvest and the yield.

For certain historians, the annual flooding of the Nile acted as a catalyst or at least paved the way for the emergence of writing, geometry and arithmetic. *"Writing, like geometry in Ancient Egypt, came into being when the population settled. While people dwelt in the Sahara, no one took the trouble to note down anything; there was space enough and to spare. But when the process of desertification began, people flocked to the Nile Valley. Population density increased and organisation was required to keep track of who was living where. Demarcation introduced the idea of computation, writing and drawing in order to keep records of ownership"*<sup>98</sup>.

## Water control is a collective challenge

In fact, all four of the most ancient of the great civilisations – Egypt, China, Mesopotamia and Harrapa – came into being on the banks of rivers and in their rich alluvial plains. They were also frequently and lastingly to establish *"hydraulic societies"*<sup>99</sup> - because the control of water was a collective affair- using their power to control the economy, their allocation of water and the relationship with the deities and the sacred element. This is true of the Mesopotamian civilisation - *"between two rivers"*, an Arabic expression referring to Iraq- which flourished in the region bounded by the Tigris and Euphrates. This region was the birthplace of agriculture -freeing man from the laws of his environment- but was also the cradle of irrigation and home to the famous Hanging Gardens of Babylon and, finally, encompassed the *"Fertile Crescent"* of Phoenicia, Assyria and Babylon.

The same is true of the Harrapan culture (named after one of the most ancient cities on earth, Harrapa in the Punjab, founded over 5,000 years ago) which grew up along the valley of the Indus (today's Pakistan, *"gift of the Indus"*<sup>100</sup>) which reached its apogee towards the end of the 3rd millennium BC. Like Egypt, the Harrapan civilisation emerged in an arid plain across which flowed a majestic river. To date, over a thousand Harrapan towns have been discovered. Living in a country subject by turns to the whims of the river and to terrible droughts, the inhabitants of these cities

<sup>98</sup> Réf. 15

<sup>99</sup> Karl Wittfogel; *"Le despotisme oriental"*, Editions de Minuit, Paris, 1964.

<sup>100</sup> Recalling the model of the Nile and Egypt (Roger Brunet (under the direction of), *"Géographie universelle"*, Belin – Reclus, Paris, 1995).

demonstrated extraordinary ingenuity, diverting the flow of the river and conserving precious water for the hottest parts of the year. The great city of Mohenjo Daro, in Sind, stood on the banks of the great river and, in addition to a water drainage system, possessed a public bath-house of imposing dimensions. Its inhabitants venerated well-water -drawn from the entrails of the earth- as reflecting the heavens and capturing the forces of earth. The monsoon floods were seen as "*the gift of heaven*". Under the Persians, water extraction techniques were perfected and wells with water wheels for drawing up water became commonplace: agriculture and husbandry prospered. In the 17th century a sultan from Afghanistan, Ali Mardan Khan, designed the famous gardens of Shalimar in Lahore, whose unheard-of refinement bore testimony to a high degree of skill in water management. Pakistan's hydraulic system today irrigates 14 million hectares – "*irrigation both necessary and vital*" according to geographer Franck Auriac who adds: "*Hydraulic development is a matter of state.... Across steppes and desert there has been a succession of landscapes in a regular network that is a model for reference, in a space ordered and organised by water*"<sup>101</sup>...

China owes much of its ancient civilisation to the great Yangtze and Yellow rivers that flow down from the Tibetan plateau. The *Zhouli* is a Chinese manual of hydraulics and hydrology dating from around 1200 BC.

In reality, the Chinese both venerate and fear water: after all, theirs is a land of drought and flooding. It was for this reason that the Middle Empire deified Li Bing, in 250 BC the governor of what is now Sichuan province, and a hydraulics genius who built the first dam on the Minjiang River, a tributary of the Yangtze. He devised a network of canals: open canals for irrigation, closed canals for flood control. Li Bing placed three male statues in the river as a means of monitoring its waters. If the feet of the statues were visible, it meant drought and so the sluice-gates on the dam were opened. If their shoulders were covered in water, flooding threatened and the sluice-gates were closed. From that time on, the Chinese made constant progress in water management, introducing sophisticated networks of bamboo pipes to irrigate the fields and bring water into the cities, as early as 1089 in Hangzhou and 1096 in Guangdong. In ancient China, the central authority was divided into six ministries and the *Xingbu* was responsible for public works, building and water. The Chinese even built hydraulic clocks reproducing the movement of the "*three luminaries*" - the sun, the moon and certain stars- which were of great importance in drawing up the calendar and in astrological divination<sup>102</sup>, two major attributes exclusive to the imperial power. The Arabs were later to excel at building clocks of this kind<sup>103</sup> and the gift

<sup>101</sup> Ref 15

<sup>102</sup> David S. Landes, "*L'heure qu'il est. Les horloges, la mesure du temps et la formation du monde moderne*", Gallimard, Paris, 1987.

<sup>103</sup> Donald R. Hill, "*Arabic water clocks*", Sources and studies in the history of Arabic-Islamic Science, History of technology series, no. 4, Aleppo University, Aleppo (Syria), 1981.

of such a clock to the Emperor Charlemagne by the Caliph Haroun el Rachid dazzled the Frankish court around 800 AD.

The Chinese were also grateful to water for enabling them to discover... salt. This essential substance was discovered in 6000 BC at Lake Yuncheng<sup>104</sup> and Chinese tradition maintains that water, salt and soya are sufficient to the sage to sustain life.

Water and mountains are fundamental to an understanding of Chinese civilisation, its culture, beliefs, painting, philosophy, lifestyle and warlike exploits<sup>105</sup>... Chinese painting, for example, depicts "*Celestial Mountains*", which in fact is nothing other than "*a quest for the sacred between shan (mountain) and shui (water), a meditation on the human condition between nature and the divine, between poet and painter, between Heaven and Earth*".

Thus Lan Ying, in the Ming period (1368 – 1644), painted an album whose every page shows gently flowing streams, metaphorical paintings expressing the artist's belief that man living in society must remain serene and let his existence flow as smoothly as the water that runs in the river.

The culture of the sage in China developed over the years as "*an awareness of the spiritual dimension of mountain and water, and of nature in general.*" Applying the principle of Guandao, the sage seeks to "*develop a philosophy of life akin to the law of water which flows silently, naturally, without ever turning back*"<sup>106</sup> .

In today's China, certain considerations devoid of any spirituality have come to the fore. When asked why the shrine in the family courtyard was no longer tended, one peasant farmer replied, "*We used to pray for rain, but now we have irrigation*"<sup>107</sup>.

This view must be qualified, however, since France's "Year of China" taught us, for example, that in Chongwu (Fujian province) all the schools organise a weekly gathering on the shore of the China Sea -perceived as a strong and binding link between the Chinese people- to pay homage to nature and to instil respect into the unconscious of young people. Similarly, in Yunnan, Hani sorcerers still gather today to allocate water equitably between the rice paddies.

Another example is the opposition to the Three Gorges Dam, which has its strongest roots in the fact that the waters created by the giant dam will submerge cemeteries and thus prevent the celebration of ancestor worship.

<sup>104</sup> Mark Kurlansky, "*Salt: a world history*", Princeton University Press, Princeton, 2002.

<sup>105</sup> Hagiographies of Mao Zedong (The Great Helmsman, yet another reference to water) report that during the Long March Mao and the Red Army crossed a total of 25 major rivers and 200 smaller rivers.

<sup>106</sup> "*Montagnes Célestes, Trésors des musées de Chine*", published by the Réunion des Musées Nationaux, Paris, 2004.

<sup>107</sup> Marie-France Cais, Marie-José Del Rey et Jean-Pierre Ribaut, "*Leau et la vie. Enjeux, perspectives et visions interculturelles*", Editions Charles-Léopold Mayer, Paris, 1999.

The situation calls to mind what Jacques Berque had to say of the construction of the Suez Canal: *"Technology is far from being ontologically neutral. We now know that, contrary to the assumptions of the positivists, far from eliminating metaphysical questionings, it both provokes and shapes them"*<sup>108</sup>.

## Customs and water culture

The culture of water has had many different manifestations that have evolved over the ages and expressed themselves in many different ways. It has been a vehicle for the dissemination of technology, behaviour, refinements of taste, and has provided the means for central power to manifest its authority.

Historian Georges Vigarello showed how *"the attitude to water"* altered in France around the 15th century, particularly in the wake of the great epidemics; there emerged the concept of *"hostile water"* which led to a rejection of *"the washing of bodies"* in water, to be replaced by simply *"wiping"* using little or even no water. The only custom that persisted was the washing of hands on rising in the morning and before meals, a *"purification rite"* that harks back to the sacred nature of the meal. Vigarello illustrates the new roles society attributed to water. Referring to the construction of the Château de Versailles, he speaks of the *"theatricalisation of the water fountains"* to the glory of the Sun King: *"the bathroom and marble bath installed in Versailles by Louis XIV as an ostentatious gesture... give way... to the apartments of the Comte de Toulouse... After passing through various avatars, the bath becomes... a garden pond. The object becomes part of another water circuit, developed solely for the eye... Water, so costly and whose machinery dictates the order of the gardens, is in the 17th century destined primarily for cascades and fountains. It must charm the eye. Its delicate ballet is a symbol of profusion and power. It is a sign of sovereign dominion over a largely capricious element"*<sup>109</sup>.

In India, the Mauryan Empire (300 to 400 years BC) developed along the middle course of the Ganges. The famous text known as the *Arthashastra* (Science of Wealth), possibly written by the Emperor, notably discusses tax exemptions on hydraulic works: *"For reservoirs and dykes newly built, a tax exemption is granted for five years; for the restoration of those in ruins or abandoned, exemption for four years; for the cleaning of those overgrown with weeds, three years... The owner has the right to sell or mortgage the installations. He may grant use of the water in return for a share in the profit from the fields, enclosures and gardens irrigated by his canals and ponds... Should anyone abandon a collective irrigation project, his workers... must nonetheless*

<sup>108</sup> Jacques Berque, *"L'intérieur du Maghreb"*, Gallimard, Paris, 1978, p. 528.

<sup>109</sup> Ref. 4

*finish the work and he shall share in the costs without sharing in the advantages...*". The text codifies the sale of water, imposes penalties on those who neglect the maintenance of irrigation systems and exempts from taxation those regions that provide extensive manpower for construction, of dykes in particular<sup>110</sup>.

Claude Cahen, the great historian of Islam, writes on the issue of water in the classical period (up to the 11th century), emphasising Islam's contributions to hydraulic techniques and to agricultural irrigation, *"The problem of water was acute almost everywhere, and land was differentiated basically according to whether or not it needed to be artificially irrigated, and whether or not this was feasible. Thus, since ancient times, many types of machines for raising water were developed in the East, from the shaduf, a counterweighted pole or pulley raising a meagre bucket of water from the bottom of a well, to the waterwheel or noria which raised water from rivers and canals to the banks. It was Islam that introduced these devices to the West."* Karl Marx even went so far as to say: *"Channelling water was the secret behind the flourishing of industry in Spain and Sicily under Arab domination"*<sup>111</sup>. Cahen emphasises the wealth of treatises dealing with irrigation -which assumes *"a vigilant administration"*- that Muslims were to write for the use of conquered lands and which covered laying out the lines of the system, maintenance, water supply... stressing that *"the Umayyads and Abassids paid great attention to this in both Syria and Iraq, sometimes at the cost of complaints from the peasants drafted in to provide the labour."* The eminent historian adds: *"The lands of Central Asia... were especially reputed for the quality of their irrigation system; but as much could be said for many regions of Iran, Iraq and Mesopotamia, of Syria, Ifrikiya (Tunisia), of the huertas (gardens) of Andalusia. Both Iran and the Maghreb had underground canals to prevent water from evaporating, and Iran possibly had actual reservoir-dams."* Writing of the particular instance of Egypt with the periodic flooding of the Nile and the role of the famous nilometer at Fustat<sup>112</sup> which every year measured the height of the flood *"according to which the administration regulated the use of riverside basins, the planting of irrigated land and, naturally, the resulting taxes"*, Cahen shows that, wherever it went, Islam established *"simple but precise provisions for an equitable distribution of water quotas between those entitled to them"*. *"Naturally,"* he adds, *"maintaining an irrigation system supposes public order, since even local neglect can lead to disasters that take a long time to repair; all in all, there were no such disasters... and general opinion severely condemned any warriors who damaged this vital infrastructure... Water, along with the need for safety, explains why human dwellings were almost everywhere grouped together, rather than being scattered and close to their farm lands"*<sup>113</sup>. Jacques Berque, in his studies of the central Maghreb between the

<sup>110</sup> Marinette Dambuyant, *"Un Etat à haut commandement économique: l'Inde de Kautilya"*, La Pensée, no. 151, June 1970.

<sup>111</sup> Karl Marx, *"Le Capital"*, La Pléiade, Gallimard, Paris, 1963.

<sup>112</sup> Name given by the Arabs to Cairo on its founding.

<sup>113</sup> Claude Cahen, *"L'Islam. Des origines au début de l'Empire ottoman"*, Hachette Littérature, 1997, Paris.

15th and 20th century, notes that the cadis (judges) called upon to hear agricultural disputes condemned communities unable to repair the irrigation sluice-gates and writes: *"The construction and maintenance of infrastructure suppose a regular tax system and the maintenance of public order"*. The author further notes that in the event of a division of plots of land or of an inheritance, judges called upon to try such cases often left the well, reservoirs and cisterns undivided in order to *"preserve the existence of the orchard as a whole."*

Jean Weurlesse, working on the Al Ghutah oasis<sup>114</sup> near Damascus with its complex water cycles, describes all the contrivances deployed by society to capture the precious liquid: *"The appropriation of land and water has always aroused ambitions, passions and conflicts and sanctioned the dominance of one social class or another. The Huerta, like El Haouz in Marrakech or Al Ghutah in Damascus, bears witness to "the thousand scars left by individual passions...; each turn of a channel, each detour, each halting in the water that hesitates, flees, all but runs back upon itself, represents a personal desire, an ambition realised or an effort disappointed."*

The Arabs themselves, not being farmers, contributed little in technical terms to either irrigation or to agriculture; but the power structure they were to establish, once they became Muslims, was to spread the techniques of raising water and of irrigation – and also, notably, of mills floating on rivers to provide power for sugar or oil presses – and to establish in the lands they conquered a "hydraulic" authority and administration governed by the principles of the new faith that would assimilate the native knowledge of Iranians, Egyptians, Syrians, etc., from which would arise the Arab-Muslim civilisation of water. It remains the case that, in matters of law in Islam, all acts must be guided by the rules of sharia, which are commandments of divine origin interpreted by men.

Fernand Braudel demonstrates that this state of affairs persisted when he writes, stressing the role of Islam *"which surrounds the city with "oases" and "huertas": "From Damascus to Valencia, from the Yemen to Elche and Alicante, it is possible to follow, behind the similarity of irrigation techniques, the pathway of two traditions that govern the sharing of water and found two types of society, one aristocratic, the other more egalitarian. In one, the ownership of water, distinct from the ownership of land, ensures the power of those that own it and can sell the use of it, over the farmers. In the second, water is a free right for the owners of irrigated land, who come together in communities capable of ensuring the maintenance of the dams and canals and of settling their own disputes...."*<sup>115</sup>

<sup>114</sup> Oasis irrigated by the Barada River as it flows down from the Anti-Lebanon mountains.

<sup>115</sup> Fernand Braudel, *"La Méditerranée. L'espace et l'histoire"*, Champs Flammarion, Paris, 1985.

Thus in Central Morocco, even today, water is subject to ownership in the same way as a house or livestock. One heir may inherit a field but not its irrigation water, which is bequeathed to another. Land rights and water rights are dissociated. It is possible to hire water rights or even to borrow or lend the water belonging to a particular plot. A highly complex body of common law -despite the technical simplicity of the issue-governs every aspect of this ownership of water<sup>116</sup>.

Similar situations, with local variants, are also to be found in the oases of Algeria and in those of Tunisia's Jerid (Tozeur, Nefta, Degache, etc.): around 1890, after a lengthy study of the oasis of Tozeur, Abbé Bauron writes "*trunks of palm trees lying across the canals allow water to pass only through notches cut into them, and thus distribute the irrigation water automatically. A keeper is responsible for opening the notches or blocking them with clay according to whether it is necessary to fill the seguias [irrigation canals] or to halt the flow*". Nowadays, the work is done by motor pumps but the plots are often abandoned, especially since there is great demand for the water of the oasis from other users: hotels, industry, etc. And yet the words of the poet still ring in the oasis, calling for the fair distribution of its water:

*"...There is one thing you must  
Never steal, not even in your dreams,  
Nor even to save a man,  
And that is water, the sacred water of my springs,  
The water that the sages of the djemma<sup>117</sup>  
Distribute to each according to the number  
Of his palm trees and his beasts<sup>118</sup>".*

In any case, water scarcity in the Maghreb and in the Middle East is an undeniable fact. The rallying cry of Nasser's revolution in 1952, of "*Clean drinking water for all the people*" is, unfortunately, far from being a reality, either in Egypt or anywhere else in the region.

Yet in the past these societies employed an extraordinarily rich palette of hydraulic techniques for managing this resource, as well as a "*dazzling social virtuosity*" (Jean-Jacques Perennès). This was not necessarily on an egalitarian basis since, as a local adage has it, water is often "*the friend of the rich*" and the fellah was often obliged to put himself under the protection of the marabout (witch doctor) and of his zaouia (religious school). "*Water, in these regions,*" writes Bedoucha Albergoni, "*recounts the history of society.*" But as Jean-Jacques Perennès concludes, "*this older order has had its*

<sup>116</sup> "*La conquête de l'eau*", Clifford G. Geertz, Dossier for debate no. 44, Fondation pour le progrès de l'homme, Paris, 1995.

<sup>117</sup> Traditional assembly of the community.

<sup>118</sup> "*Paroles de Touaregs*", Texts presented by Maguy Vautier, Albin Michel, Paris, no date given, p.18-19.

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*day, crushed by the combined onslaught of the colonial and post-colonial periods. Everywhere in the Maghreb there now prevails a mining approach to water. It is now up to the state to establish the rules and set a price that will hasten awareness that water is a rare and precious resource that is under threat<sup>119</sup>."*

<sup>119</sup> Jean-Jacques Perennès, *"L'eau et les hommes au Maghreb. Contribution à une politique de l'eau en Méditerranée"*, Karthala, Paris, 1993

## Conclusion

Water is fundamental and simple; for the ancient Greeks, it was one of the four components of the Universe and the notion continued to be widespread throughout the pre-scientific era.

Water is the image of time flowing. China invented impressive hydraulic timepieces.

Water also represents the Chaos of the origins of time and announces resurrection and spiritual renewal.

Its symbolism is ambivalent: water is linked to both life and death (beneficent rainfall, drought, floods). Water is the Styx that Greek souls crossed with Charon the boatman, but also the delightful Khawthar (nectar) of the Muslim paradise... Water is home to the gods, the naiads and the elves but is also "the sightless ocean" that engulfs shipwrecked sailors in Victor Hugo's "nights of darkness".

In many cosmogonies (Sumer, ancient Egypt and Greece), Earth is surrounded by water and floats or is immersed in a primordial liquid substance. In Chinese cosmogony, water is a pledge of the spiritual dimensions of beings and emerges as the mystery of the universe by transfiguration as is illustrated by the action of Qu Yuan, "the first poet" of the Middle Kingdom, who threw himself into the river Milo to renew the alliance of Heaven and Earth.

And without water, Earth is sterile, said the Indian Shatapatha Brahmana.

Water presided over the creation of a multitude of civilisations, most of which gave it pride of place in their symbolism.

For the great African historian, Joseph Ki-Zerbo, water served the birth of writing, arithmetic and geometry -and even computation because once the Nile floods had erased all the markers, and the river returned to its bed, there was a need to find one's way along the banks and forecast the river's meanderings. A remarkable coincidence noted by Egyptian astronomers was that every year, on July 19, the day of the first "*waters of renewal*", that is the beginning of flooding, the star Sothis (Sirius or the Dog Star), incarnation of Isis the goddess, rose in the sky at the same time as the sun. How could there be any doubt of the river's divinity?

The Chinese venerate and fear water. Their land is of course subject to both drought and flooding. They even deified Li Bing, governor of Sichuan province around 250 BC, who constructed the first dam on the river Minjiang, a tributary of the Yangtze.

## Conclusion

In almost every culture, water was endowed with spirituality. It was considered sacred by prehistoric man as demonstrated by anthropological and archaeological research on the cult of springs -healing or thermal- and waterways.

The pantheon of ancient Greece also gave great prominence to the gods associated with water. Reverence for the sacredness of water is still much in the foreground for many communities as their rites and customs demonstrate, establishing a form of "ecological" management of the resource, as illustrated by the Mali Dogon for example.

Water is also a part of many initiatory ceremonies for the Hopi of the New World just as it is also for communities in black Africa or Oceania.

The three major monotheist religions, like many other faiths, consider that the purity of water is transmitted to man and cleanses him of contamination through the ablutions that are required of the faithful to "*present themselves before Allah*" (in other words, pray) either praying five times a day as must the Muslims, or through aspersion with water in the Christian baptism or again the ritual purification of women after giving birth in Jewish religious practices. The message could not be clearer: it is essential to preserve that purity, to make use of water with discernment and share it equitably.

The immense kaleidoscope of all the aspects of water are such that this element becomes a unique geometric space, bringing together religion, philosophy, poetry, music, painting and science (from the famous bath of Archimedes to the amazing properties of water that nanotechnology reveals today).

An examination of the Qur'an reveals the universal respect that is granted to water, a respect which dictates how men must behave as regards this vital element, the rules for its use, how it must be shared and the principles to observe to preserve its purity, all on a scale which reflects the importance of the symbols, the knowledge and the imaginary that the element commands.

It is the source of customs that have created a true water culture which, today, is the echo of a multiple and global approach to the environmental, social, human, ethical, religious and economic dimensions of water and ecosystems.

At a time when the resource is the focus of global attention and disquiet regarding our common future, the culture of water must be well understood so that its management and care can be efficient, productive and satisfy a vital need: saving what is becoming "*a rare, precious and threatened resource*".

## **Annexes**

### **Drought, the destroyer of cultures**

Without water, civilisations decline and die; even though the causes may be multiple in origin, as was so excellently demonstrated by Professor Jared Diamond of UCLA at a conference in Princeton in October 2002, water plays a key role in their disappearance, be it in Angkor, in the Indus valley, Easter Island or among the Maya. Professor Diamond has studied in minute detail the reasons for the extinction of the Anasazi Indian civilisation; the Anasazi once lived in Colorado, Utah, Arizona and New Mexico and their civilisation began to develop around 600 with the introduction of maize, Mexican squash and beans. The Anasazi were ingenious enough to survive in an environment of unpredictable rainfall and rather poor soil. They practised irrigated agriculture and the remains of impressive canals have been found. In Chaco Canyon and at Pueblo Benito, they demonstrated an ability to build six-storey "skyscrapers" big enough to contain up to six hundred rooms. Unfortunately, they destroyed their environment through excessive tree-felling. It is possible to track this process with great accuracy thanks either to radio-carbon dating or by dating the rings in the tree-trunks used as roof beams. They were forced to look farther and farther afield to meet their needs for building wood and firewood. Heavy rainfall gradually transformed their irrigation channels into arroyos<sup>120</sup> 10 metres deep, thereby ruling out irrigated agriculture, especially since no pumps existed at the time. Periods of drought followed, in 1040 then in 1090 and finally in 1117. Despite the prayers addressed to the gods in the village square or in the secrecy of the underground kiva, the rains failed to appear and the Anasazi civilisation disappeared. In explanation of this catastrophe, Jared Diamond writes: "*Thanks to the tree-rings, to their width, and thanks to our understanding of environmental impacts, we know the precise rainfall for each year and we can thus deduce the severity of the drought*".

On a more general note, Mark Maslin<sup>121</sup> of the Geography Department at University College London attributes the disappearance of many civilisations to climate change (the Helmand civilisation in Afghanistan, the Hongshan culture in China, etc.).

In the case of Central America during the mediaeval cold period, Maslin asserts that a succession of droughts brought about the collapse of the Mayan civilisation in the classical age. The author believes that if the Maya had foreseen their vulnerability to long periods of water shortages and had introduced "*new sources of water, new ways of storing it, and if they had drawn up a list of priorities for its use in periods of scarcity*", they would probably have survived.

There is much food for thought here as regards our own current attitudes to water.

<sup>120</sup> A channel or gully that is normally dry but that intermittently becomes a torrent after rain, in tropical countries (Le Petit Larousse illustré, 100th edition, 2005).

<sup>121</sup> Mark Maslin, "*Global warming*", Oxford University Press, Oxford, 2004.

### The permanence of water symbolism in Cambodia and Bali

In an article retracing the life and death of the hydrological city of Angkor, Jacques Nepote<sup>122</sup> highlights the "*great religious significance of this city*", "*a veritable rice factory*", and its relationship to pre-Indian cosmology, explaining that "*water flows down from the mountain of the gods to the world of men, enabling them to enjoy the fruits of the earth, before it rejoins the cosmic ocean.*" For this reason, the centre of the city is taken up by the "*temple-mountain*". The royal religion, in parallel with hydraulic efficiency, aimed at a microcosm of monumental architecture to ensure abundant harvests, but deforestation, technical problems, demography, etc. led to the ruin and abandonment of the city and prompted the author's conclusion of a "*wearing down of the symbolic/religious structure and hence of the political structure*" of Angkor.

This is perhaps true of this city based on and around water.

Yet the religious and political symbolism of water is still very much alive in Cambodia. The Financial Times of 31 October 2004 featured a large photograph of former King Norodom Sihanouk, in traditional costume, pouring holy water over the head of his son Norodom Sihamoni, a former dancing instructor in Paris, on the occasion of his coronation. To the east of Cambodia, in Bali, the most significant religious monuments are to be found in the region of irrigated rice-paddies. The *subak* is a thousand year-old institution which acts as "village council", "water council" and "irrigation society" all in one. In fact, it is a kind of village on the water, a "wet village" as opposed to the "dry village" where the rice farmers live. The *subak*, or wet village, is divided into neighbourhoods, the *tempeks*, which are made up of *tenahs*, elementary units each containing the same volume of water. In the *subak*, there is only one major canal.

At the same time, however, the *subak* is also a religious unit and every agricultural task (sowing, planting out, harvesting, etc.) is performed with the assistance of the priest (*pemangku*) and as part of a specific celebration. Balinese irrigation relies on a complex system consisting of temples at each fork in the water distribution network. Thus there are little pillars for offerings at every sluice-gate (*chatu*), temples at the source of one or more *subaks* (*pura ulun sharik*) and sanctuaries where several *subaks* may pray (*pura penyungsungan subak*). Each phase in the growing cycle of the rice is accompanied by the appropriate rituals. The calendar of such rituals within a catchment area makes it possible to stagger the supply of water throughout the growing period.

The *subak* is, in essence, a religious, social and agrarian organisation.

The main ecological effect of the *subak* consists in stabilising demand for water over the farming year instead of allowing demand to fluctuate dangerously. The result is that when the crops are being harvested higher up the mountain, lower down the farmers are celebrating the yellowing of the plants.

Finally, it is important to note that the *subak* has nothing in common with the collective farm in which peasant farmers are regimented, Chinese-style. All farmers participate in the decisions made and each landowner has a voice, regardless of the size of his farm<sup>123,124</sup>.

<sup>122</sup> "La conquête de l'eau" (under the direction of Jean-Paul Gandin), Dossier for debate no. 44, Fondation pour le progrès de l'homme, Paris, 1995.

<sup>123</sup> Jean Chesnaux, "Où en est la discussion sur le mode de production asiatique?", La Pensée, no. 129, October 1966, p. 33-46.

<sup>124</sup> Clifford G. Geertz, "Bali: le subak, une organisation sociale et religieuse vouée à la culture irriguée" in "La conquête de l'eau", Dossier for debate no. 44, Fondation Charles-Léopold Mayer, Paris, 1995.

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**Abstract:**

Most religions, faiths, philosophies and visions of the world value water, describing it as baptismal, lustral, holy, vital, purifying...

Moreover, water reveals many forms of human prejudice, preconception and social organisation.

Concepts attaching importance to water have travelled down the centuries...

This thousand year legacy continues to dictate to many of our contemporaries their attitude, or more precisely their reverence and veneration for this element.

This historical resonance needs to be highlighted and accentuated in the world of today to encourage mutual sympathy and avoid disputes, misunderstandings and conflicts over water with their sad sequel of victims, refugees, suffering and tragedy that recent events illustrate, alas, most abundantly.

If truth be told, water is at the source of almost all faiths -those of ancient Egypt, the Animists and Islam- even of those, like Buddhism, that evade cosmogonic issues. We shall consider briefly its various aspects in the following study because although water is the alpha and omega of life, the bridge between "the material and the spiritual" proposed by the philosopher Henri Bergson, it is still true that its religious and symbolic meanings are innumerable, sometimes ambiguous, but more often than not coherent. This is a vast field of research and reflection, including the links, connections and relationships that the various human faiths and ideologies interweave one with the other around the subject of water.

There are many examples to show that even if certain metaphysical considerations are left aside, there are almost no forms of experience, activity or ideology where water (or its magic) is not omnipresent.

