Water: Religion, Mythology, Art and Beauty

Water: The Lecture, July 8, 2008
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Biofilm Centre
Water and the role of religion:

For at least 2-3 billion people on this planet, religion shows the way how to deal with water, not scientific knowledge!

The influence of religion and tradition on use and management of water is underestimated!
Unesco Water Portal Weekly Update 122 (Dec. 2005):

- Water plays a central role in many religions and beliefs around the world: Source of life, it represents (re)birth. Water cleans the body, and by extension purifies it, and these two main qualities confer a highly symbolic – even sacred - status to water.
- Water is therefore a key element in ceremonies and religious rites.
- Water is often perceived as a god, goddess or divine agency in religions.
- Rivers, rain, ponds, lakes, glaciers, hailstorms or snow are some of the forms water may take when interpreted and incorporated in cultural and religious spheres.
- Religious water is never neutral and passive. It is considered to have powers and capacities to transform this world, annihilate sins and create holiness.
- Water carries away pollution and purifies both in a physical and symbolical sense.
- Water is a living and spiritual matter, working as a mediator between humans and gods.
- Water often represents the border between this world and the other.
The symbolism of water

- Water unceasingly changes shapes and transforms itself.
- It is thus a model out of which everything can be born. Water, consequently, becomes a symbol of fertility that can be found in all the myths and all the religions.
- Beings and things are born of water.
- Water also possesses medicinal virtues.
- Some waters are recognized miraculous powers capable of healing the bodies.
- It is also a source of purification. Purification for the individual beings but also for the whole of mankind.
- The Flood is a founding episode in numerous civilisations.
- Among Australia’s Aborigenes, a giant frog is said to have swallowed the Earth’s water to release it only when the other animals, dying with thirst, made it burst out laughing.
- The Flood in a re-creation of the world. One emerges from water in order to be reborn
- The relationship to water of billions of humans is guided by tradition and religion rather than scientific knowledge
Flood myths:
- Mesopotamia, Persia
- India
- North- and South Amerika
- Southern seas
- Greece

No flood:
- Phenicia, Syria, Egypt
- China
- Japan
- Afrika
Christianity and Water

- The bible was written in a part of the world where water is scarce
- Water features significantly the lives of people
- Scarceness of water: drought, wrath of God: Jeremiah and Eliah predict drought as punishment
- Rainfall: Sign for God´s favour and goodness
- Water was associated with danger and death (see Great Flood)
- Polluted and undrinkable water was also very serious: one of the plagues of Egypt was turning the waters of Nile river to blood (probably an algal bloom)
- When the Israelites came to Marah they found the water bitter and complained to Moses. God allowed Moses to perform the miracle of making the water sweet and restored the faith into him
- New Testament: Water is connected with the gift of eternal life, spiritual blessing – *Jesus is described him as „living water“*
Lucas Cranach (1472 - 1553): John the Baptist and Jesus

Sometimes, it looks violent
Spiritual bath ■ "He poureth water into a basin, and began to wash the disciples' feet. 'Jesus' humble act, described in the Bible, inspires Christians in Knoxville, Tennessee. In cultures worldwide, water is a source of spiritual nourishment. Frequently used in rituals, it is endowed with a range of mythic and symbolic properties."
Holy water (and pathogens): „Poorly blessed are the immuno-suppressed!“

- Holy water is a potential source of cross-infection with various coliform bacteria, including *Aeromonas hydrophila*
  
  Jurado et al., 2002

- Patients with widespread burns and other debilitating skin lesions are at risk

- Sterile holy water is one solution to this concern

- **Expiry date for holy water required!**

Envir. Microbiol. 4, 617-620

Rees and Allan, 1996

J. Hosp. Infect. 32, 51-55

➢ In some communes: Salt is added to holy water in order to preserve it

### Summary

The holy water fonts from the churches of Seville, Spain have a strong bacterial contamination. Coliforms, *Enterobacteriaceae* and other pathogenic bacteria are widely represented in the fonts investigated. Thirty out of the 37 different species isolated from holy waters are known human pathogens. The high bacterial contamination is related to human skin transmission and, probably, to misuse of the water.

<table>
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<tr>
<th>Specimen</th>
<th>Total viable count (cfu/L)</th>
<th>Organism</th>
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<tr>
<td>1</td>
<td>$1.3 \times 10^5$</td>
<td><em>Candida parapsilosis</em></td>
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<td></td>
<td><em>Candida famata</em></td>
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<td><em>Candida humicola</em></td>
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<tr>
<td>5</td>
<td>$6.0 \times 10^3$</td>
<td><em>Candida glabrata</em></td>
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Christianity and cleanliness

- St. Benedict: „Those who are well, and especially to the young, bathing shall seldom be permitted“
- St. Agnes an early Christian martyr in Rome, died unwashed with 13
- St. Jerome rebuked his followers for keeping themselves too clean
- St. Francis of Assisi listed dirtiness amongst the virtues of holiness

- Cleanliness became a virtue after cholera claimed 30,000 souls in Victorian England (14,000 alone in 1849 in London)
- Rev. Charles Kingsley promoted the water closet as new saviour for health and hygiene
- Rev. Henry Moule: „Cleanliness is next to Godliness“ and invented the earth closet, the first in-door toilet

Christianity and Cleanliness

The bathing house in medivial times: a source of joy (and a sink of sin)

Significant improvement in morals!
An exception: The Cistercians

High technology in Medivian Ages

- Cistercians settled in wet areas
- Drainage of swamps, creation of arable land
- Water wheel as major technological performance in medivian age
- Collection and treatment of wastewater
- Problem today: humidity in buildings: painted glass corroded by fungi

http://www.waterhistory.org/histories/waterwheels/waterwheel2.jpg
Water miracles - particularly popular:

Transforming water into wine
The art of walking on water

Not always successful

St. Peter saved from drowning
``Cleanliness is half of faith´´
“It is He who sends down water upon you from the sky with which to purify you,” (Quran 8:11)

The abulition ``wudu´´
“Believers, when you prepare for prayer wash your face and your hands up to the elbows, and wipe your heads and wash your feet up to the ankles,” (Quran 5:6)

Water in Islam

- The Prophet Mohammad very sensibly forbade urination in proximity of water,
- and advised to guard against three practices, "evacuating one's bowels near water sources, by the roadside and in the shade" (Al-Sheikh 1996).
- Fecal material is “najassa”, impure, and contact has to be limited
Mecca: the holy stone (kaaba) and the holy fountain (Zamzam) – a real challenge!

- The washing process of the Holy Kaaba involves the inside only.
- It is washed with water from the Zamzam Well that is mixed with rose water or flower perfume.
- Special cloths are soaked with the perfumed mixture to be used for the washing process.
- The washing includes the four interior walls and the floor of the Holy Kaaba.
- The inside is then dried with an incense prepared specially for the occasion.

Particular issue: Hygienic quality of Zamzam water
The Zam-Zam well (ctd.)

- Muslims believe that the Zamzam well was revealed to Hagar, wife of Abraham and mother of Ishmael.
- She was desperately seeking water for her infant son, but could find none. Mecca is located in a hot dry valley with few other sources of water.
- Muslim traditions say that Hagar ran seven times back and forth in the scorching heat between the two hills of Safa and Marwah, looking for water.
- God then sent the angel Gabriel, who scraped the ground, causing the spring to appear.
- On finding the spring, Hagar confined the pool of water with sand and stones.
- The Zamzam well is 30 meters deep. Depth to water is 3.23 meters.
- There are some springs contributing to the well at approximately 13 meters below surface.
- A pumping test at 8000 liters/second for more than a 24 hour period showed a drop in water level from 3.23 meters below surface to 12.72 meters and then to 13.39 meters, after which the water level stopped to recede.
- Water level recovered to 3.9 meters below surface just 11 minutes after pumping had stopped. The aquifer feeding the well seems to recharge from rock fractures in neighboring mountains around Mecca.
Exodus of the Chosen People of Israel

- Israelites escape from the Egypt army because the sea was parting
- While the Israelites could walk safely to the dry land, the Egyptians drowned as the sea came together again
- Water here is an instrument of God for punishment (for the Egyptians) and blessing (for the Israelites).
Noah

➢ In the bible, Noah and his family are mentioned as the sole human survivors of the Great Flood.

➢ Noah was of the tenth generation after Adam, and all peoples of the world would descend from his sons Shem, Ham and Japheth.

➢ According to Legend Noah was told by God to build an Arc to save himself and his family from the flood that would destroy all mankind.

➢ He brought two of every kind of animal with him in the Arc, one male and one female.

➢ After one hundred and fifty days the water receded, and the Arc washed onto the mountains of Ararat.

➢ Noah built an altar there, and afterwards continued his life. It is said he lived to become 900 years old, and therewith was the last of the ancient peoples that were immensely long-lived.
Rainbow

- After the flood: "I set My rainbow in the cloud, and it shall be for the sign of the covenant between Me and the earth... ... the waters shall never again become a flood to destroy all flesh." Gen 9:13,15

- Practically all cultures have rainbow myths
The Mikveh: a ritual bath

- A mikveh is a Jewish ritual bath used for cleansing after contact with a dead body or after menstruation.
- It can also be used for immersing vessels and as part of the initiation ceremony for converts.
- Only water that has not previously been drawn into a container can be used, and there must be no leakages.
- The mikveh has its origins in Ancient times when people had to be purified in a mikveh before they could enter the Temple area. Water in this case is important for its cleansing properties.

Judensbad, Mikvah (or mikveh) (Hebrew: מִקְוָה Tiberian Miqwāh, Standard Hebrew Miqva) (plural, mikvaot) in Speyer, first mentioned in the year 1128. The bath was forgotten and built over, and only recently re-discovered and made accessible to the public. This is one of the best preserved medieval mikvaot.
Hinduism

- Main goal in Hinduism: attain purity and avoid pollution
- Water has spiritually cleansing power
- Cremations are performed at river banks
- Morning cleansing with water is a basic obligation.
- *Tarpana* is the point at which the worshipper makes a cup with his hands and pours the water back into the river reciting mantras.
Water in Hinduism

The sacred rivers of Hinduism:
- Ganges,
- Godavari,
- Kaveri,
- Narmanda,
- Sarasvati,
- Sindhu
- and Yamuna

Bali Hindu Water Temple

Too much water: Flooded Hindu temple in Ambattur, Tamil Nadu, 2007

http://hinduism.iskcon.com/img/practice/holyplaces2.jpg
Hindu religion and water

- God Shiva made Ganges
- Ganges flows from his head down into the world below.
- It has power to elevate the dead soul towards heaven

Water is used in different steps (16) for worshipping god such as
- Inviting god
- Washing feet and hands
- For rinsing his mouth
- For bathing god etc.
Budhanilakantha: A Hindu god in water

- People offer rice, fruits, colored powder
- These things finally go to water

Rupa Devkota, MSc
Water Science
Holy water in Hinduism

- Pilgrimage is very important, and holy places are usually located at the banks of rivers, coasts and seashores.

- Kumbhmela is a pilgrimage of Hindus and held every year at four different places in turn: Hardwar, Nasik, Prayaga and Ujjain.

- These places are believed to be where drops of *amrta* – the nectar of immortality – fell to earth during a heavenly conflict.

- The Ganges river is the most important of the sacred rivers: those who bathe there and those who leave some part of themselves (hair, bone, etc.) on the left bank will attain *Svarga* (the paradise of Indra).

Putting holy Ganges water into vessels – doubtful hygienic quality.
The largest human gathering ever has been photographed from space by a high resolution imaging satellite.

Over 70 million people are expected to attend a Hindu spiritual event in northern India called the Maha Kumbh Mela.

The pilgrims gather at a sacred location on the Ganges River, 15 kilometres from Allahabad, for more than a month of bathing rituals.

The activities are intended to wash away their sins and hasten the Hindu people's progress toward nirvana.

The one-metre resolution image was collected by Space Imaging's IKONOS satellite, travelling at over 6 km s\(^{-1}\), 677 kilometres above the Earth.

It shows red-robed bathers at the confluence of the Ganges, Yamuna and mythical Saraswati rivers.
Kumbh Mela

The sadhus are coming
Buddhism

- For Buddhists symbolism and ritual is pointless because they seek spiritual enlightenment that comes from seeing the reality of unreality.

- Water does however feature in Buddhist funerals where water is poured into a bowl placed before the monks and the dead body.

- As it fills and pours over the edge, the monks recite "As the rains fill the rivers and overflow into the ocean, so likewise may what is given here reach the departed."
Water is essential to especially Dai peoples' life in Xishuangbanna.

Consequently, their water wells are sacred and protected. Little mirrors around the ornately constructed wells and springs are shooing evil spirits away.

An elephant is guarding this well inside a Buddhist temple.

Two dragons take care of this drinking water well inside a Dai village.

Yunnan, China

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- An elephant is guarding this well inside a Buddhist temple.
Religions, traditions, cultures and waste water

- Water is an element in every religion. It has the ability to eliminate sins, carry holiness and changes the world: Water mediates the contact between humans and god, often it is the interface between both

- All religions and traditions anticipate the purity of rivers and wells – water is the icon of purity

- All originated from periods with much less population and, thus, much less waste water

- Treatment of waste water (neither re-use) is no issue in any religion

- Usually, waste water is considered impure

- Religion’s interest in waste water is the observation of rituals associated with purification (in the broadest sense of the word)

- Science’s interest in waste water stems from
  - disruption of fecal-oral circle
  - conservation of nutrients
  - protection of the environment

- Science tends to introduce new concepts and modifies behaviour

- Religion, however, preserves old beliefs and maintains traditions and requires obedience to rituals

- Usually, rituals are better followed than concepts
Conflict between religion and water treatment:

The Bagmati River in front of the Pashupatinath temple, Kathmandu, was so highly polluted before 2002 that it could not be used for religious purposes.

- This was a major problem for the devotees, and the solution was to build a cleaning station just above the temple which treated the sewage before it was channeled back into the river again.
- But then the problem was whether the water was holy or only clean since humans had interfered in the sacred river and created a „pure“ river by technological means.
- This caused huge debates among priests, laymen and holy men, but since then there were no real options it has been accepted somehow as holy water.

IWH discussion site, contribution of Terje Oestigaard (Jan. 2006)
Water and Mythology: Atlantis

- The Greek philosopher Plato first mentioned Atlantis as an island that once existed.
- He stated this island was a naval power that had conquered parts of Western Europe and Africa.
- Some 9,000 years before Plato’s time a natural disaster caused Atlantis to sink into the sea.
- It is thought to have been located in the middle of the Atlantic Ocean between Africa and America.
- Throughout the centuries the theory of Atlantis was mostly rejected, and often parodied.
- During the Middle Ages the theory was forgotten, but it was rediscovered in modern times.
- Modern theory sometimes states that some modern Islands are parts of Atlantis that rose from the ocean.
Water and Mythology: Nix

- The Neck (English) or the Nix (German) refer to shapeshifting water spirits who usually appear in human form.
- The spirit has appeared in the myths and legends of all Germanic peoples of Europe.
- Their sex, bynames and various animal-like transformations vary geographically.

Donauweibchen, Wien

Siegfried rhinemaidens (Arthur Rackham)
Mermaids and humans – a history of tragic encounters
Nymph – properly defined

- Any member of a large class of female nature entities, either bound to a particular location or landform or joining the retinue of a god, such as Dionysus, Hermes, or Pan, or a goddess, generally Artemis.

- Nymphs live in mountains and groves, by springs and rivers, and in valleys and cool grottoes.
The Sirens

- In Greek mythology **Sirens** were sea nymphs that lived on the island Sirenum scopuli - daughters of Ceto the sea monster and Phorcys the sea god.

- They drew sailors to the rocks by their enchanted singing, causing their ships to sink.

- It is uncertain how many sirens there would be, as different tales vary their number between two and five and were often depicted as women with the legs and wings of birds, playing a great variety of musical instruments.

- Some claim the sirens where playmates of young Persephone, daughter of Zeus and Demeter. As Persephone was abducted by Hades to become his queen of the Underworld, Demeter cursed the sirens to become monsters of lore.
Neptun

The horses of the waves which he reigns
Water and mythology: Charon the ferryman carries the deceased across the Styx into the kingdom of the dead
Charon the hellhound, Styx and Achilles

- Charon was a mythological old ferryman that ferried the dead into the Underworld, crossing the river Acheron (river of woe).
- He only took the soles of those buried properly with a coin in their mouths.
- The river was guarded by a hellhound that allowed no soles ever to leave the realm of the dead.
- In Greek mythology this was a three-headed dog by the name of Cerberus.
- Achilles, son of sea nymph Thetis, was dipped into Styx in order to become immortal.
- The only part not wet was the heel...
Triton – god of the sea and messenger of the deep, son of Poseidon and Amphrite

Messages transferred by the Triton horn

Often seen with mermaids

[Images of a conch shell, a Triton statue, and an illustration of a mermaid with Triton]
Monsters and legends

Among the images shared by everyone there are numerous aquatic creatures both fabulous and frightening.

The Leviathan, a sea-monster appearing in the Bible, is reputed to have the power to destroy the world. It is the symbol of absolute evil and God only is able to smite it.

If some of these creatures, like the mermaids, are totally imaginary, others assume the dimension of monsters through an exaggeration of one their attributes, usually their size.

Thus, in Jules Verne’s novel Twenty Thousand Leagues Under the Sea, the Nautilus is attacked by a giant octopus.

But the aquatic monsters do not dwell only under the sea, they also inhabit lakes and water courses.

Every country is rich of its own legends: the Loch Ness monster in Scotland, the Vouivre in France, the Lake Témiscamingue monster in Canada…
Water as an element

Greek and Roman Tradition

- Water is **one of the four classical elements** in ancient Greek philosophy and science. It is considered to be both cold and wet; according to Plato, it is associated with the icosahedron. It is associated with the qualities of emotion and intuition.

- Water was **one of many archai** proposed by the Pre-socratics, most of whom tried to reduce all things to a single substance.

- However, Empedocles of Acragas (c. 495-c. 435 BCE) selected four archai for his four roots: air, fire, water, and earth. Empedocles’ roots became the four classical elements of Greek philosophy. Plato (427-347 BCE) took over the four elements of Empedocles.

- This makes **water the element with the greatest number of sides**, which Plato regarded as appropriate because water flows out of one’s hand when picked up, *as if it is made of tiny little balls*

- In ancient Greek medicine, each of the four humours became associated with an element. **Phlegm** was the humor **identified with water**, since both were cold and wet.
Lucas Cranach (1472 – 1553): The fountain of youth
Beauty from water: Botticelli (1445-1510): Venus
Water as home of sin:
Hieronymus Bosch (1450 - 1516):
„In the gardens of lust“
Leonardo da Vinci
(1452 – 1519)

Old Man with Water Studies (1513)

Machine for Raising Water

Machine for excavating canals
Hokusai (1760-1849): The Wave

Water and art

The wave forms a massive yin to the yang of the empty space under it.

Some details of this picture are interesting:
- In spite of the storm, the sun is shining.
- Fishermen are depicted, which are the lowest class and never painted.
- Perspective is not used in common Japanese art.
- Outdoors are ignored in common Japanese art.

Conclusion: Hokusai was inspired of Dutch painting and painted Japan through Dutch eyes.
Claude Monet uses the water surface as mirror
This is the depiction of a Japanese pond
Highlighting the variety and beauty of the play of light and colour
Impart an aura of calm, Monet´s debt to Japanese culture
Water and art: Music

- Nature has emerged as a source of musical inspiration with Romanticism. But it is Liszt who first contributed to introducing water in music.

- Water in all its forms (rain, springs, rivers, the sea…) was for Debussy a potent source of inspiration.

- It yielded to numerous „poèmes musicaux“ (Reflets dans l'eau, Jardins sous la pluie) and a symphonic essai: La mer.

- Out of this communion between water and music other masterpieces will stem: Haendel's Water Music or Maurice Ravel's Ondine and Jeux d'Eau

- Rock-music has also many references to water – Deep Purple song „Smoke on the Water“
Andrew Davidhazy
Professor, Imaging and Photographic Technology
Rochester Institute of Technology

Water and Beauty
Water and Beauty: Christo
Water and Beauty: Andy Goldsworthy
Water and Beauty: Andy Goldsworthy
Beauty from water: the pearls

Pearl: defense response of oyster to particles

Traditional symbol for beauty and luckiness
Water games in Barcelona
Great moments of trust for lighthouse keepers
Beauty in water

http://wallpaper.neonsight.com/img/blue_water1024.jpg
Beauty and bridges
Swimming pool with direct access to sky
Water and biofilms
Water and tranquility - meditation
...and this is where I come from: Beautiful Lake Constance
Water and eternity: Various types of Nirvana, This is where we are heading to - but not now!