WATERS OF LIFE
Aquatic Sacred Natural Sites

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Pre-existing and required for all known forms of life, water uncoincidentally symbolizes life cross-culturally. Called the universal solvent for its chemical properties, water also represents purification and the remission of sin in religions worldwide. Nineteenth and early twentieth-century social scientists sometimes dismissed religion as encoding folk science (inherited rationales explaining the existence and workings of the natural world and society). Today, we instead examine the folk science within religion as part of Traditional Ecological Knowledge. Religion can enshrine best practices for water use and subsistence within myth and ritual *so that* these will not be forgotten (see Lansing 2012; Ray 2020).

Occasionally, folk cosmogony relays understandings of the earth that scientists (today's priestly class) are now confirming through quite different methods. Ancient cosmogonies from the Andes to Hawaii and from North America to pre-Buddhist Korea, describe a world of water that precedes light and land. In the Abrahamic faiths, God's spirit moves across the waters and then light comes into being. In Ancient Egypt, Nun (a watery expanse) existed before the sun god Re, and the earliest of many ancient Greek deities named Eurynome danced on the waters before giving birth to the sun. Studies in geology and astrobiology of the last decade affirm these folk science understandings of the origins of our life-fostering blue world. The world *was* enveloped in oceans before the sun existed; some of that water survived the solar system's formation and is still with us today (Cleeves et al. 2014; Sarafian et al. 2014; Dong et al. 2021).

At least a portion of the earth's water predates the sun and reverence for fresh water sources likely dates to humanity's inception. Watery sites were perhaps the first sacred sites – the places selected for communication with the divine. Cultural designations of watery sites as sacred relates to environment and economics so that in different regions, swamps, marshes, bogs, fens, bayous or water holes might be as sacred as springs and rivers have been elsewhere, but water is sacred not merely in environments where it is abundant or where it is scarce – it is sacred everywhere. Depending on how people navigate salt waters and utilize marine life, they may venerate sacred seascapes dotted with powerful nodes such as eddies, whirlpools (where opposing currents meet), tidal pools, lagoons, estuaries, and swells near atolls. In the Pacific, coral reefs and fishing spots can be sacred sites and seas can be perceived as sentient spiritscapes (Calamia 2003; McNiven 2008). Wayfinding between places

in the sea, and from water paths to land, might engage various places of hierophany that need to be ritually recognized in travel, and water paths around islands can have a sacred direction (Sahlins 1987: 118). While sacred salty waterscapes need focused, comparative study internationally, this issue considers fresh water sources which are far rarer in nature, but the most common sacred waters around the globe.

Less than 3% of the earth's water is fresh, only 30% of that is liquid (not locked in ice caps and glaciers), and 97% of earth's liquid water flows beneath the land surface as groundwater, so that lakes, rivers and spring-fed ponds are a very small percentage of the water composing our blue planet (Shiklomanov 1993; Ball 2000). For those now accustomed to water derived from a tap, the comparative rarity of fresh, liquid surface water may have little impact on daily life. Yet, the spread of the genus Homo around the globe could be attributable to the search for fresh water springs as the human population grew and access to dependable water sources was protected and contested in a process that continues today (Finlayson 2014; Cuthbert et al. 2017).

Hydrolatry shaped many of the world's first sacred sites: the start of many monumentalized landscapes was with the veneration of a sacred spring. The first known sacred site on the palimpsest of ritual features across England's Salisbury Plain is the spring called Blick Mead where votive offerings attest to its sacrality in the Mesolithic era – perhaps five thousand years before the most famous henge monument acquired its iconic stones (Jacques et al. 2018). What is still the largest religious complex in the world, Ancient Egypt's Karnak was built beside a spring-fed lake thought to be the site of creation. Hagar's divinely-provided spring, Zam-Zam, made Mecca sacred before Abraham, by tradition, built the Ka'ba. Archaeologists assert that the largest monuments in the Americas, the pyramids of Teotihuacan, were water temples towering over a hydrological grid system that routed the waters of almost 80 springs through the city to an immense sunken plaza that possibly represented a watery underworld and served as a ceremonial center (Evans and Nichols 2015: 25–34).

In India, Varanasi (or Banaras) has 60 sacred ponds and 31 sacred wells–the sheer number of sacred water sources may explain why this particular site was chosen along the Ganges for settlement and why it became Hinduism's most sacred city. In this issue, Rana Singh, Parvin Rana and Sarvesh Kumar explain the notion that "Water itself is life" as the basic metaphysical framework of ancient India. They examine the ritual waterscapes of the pilgrimage cities Varanasi and Ayodhya and offer a gazetteer of sacred water sources in each including Jnanavapi (the Well of Wisdom) where Shiva promised to abide. Before the Ganges River came into existence, when Ganga brought her salvific waters to earth to cleanse and release souls from rebirth, the Jnanavapi is thought to have already been sacred.

Deities and ancestors

Sources for our basic physical needs and for spiritual rebirth and absolution, springs, rivers, lakes and ponds are also axis-mundi-like mediators between the divine and

ancestral realms in every part of the globe. Sacred watery places are the most common access points for honoring and communing with supernatural beings and the dead. In Australia's Arnhem Land, Indigenous populations visit creator Ancestor Beings at freshwater sources that are considered totemic wells from which spirit children impregnate women; individuals originating from the same water hole are thought to be close kin and may hope to eventually be buried near the water source of their origination (Brady 2020). Nepal's Mātā Tirtha (actually a lake) in the foothills of Kathmandu Valley has become a regionally-known pilgrimage place where both Hindus and Buddhists go to honor their deceased mothers (Shimkhada 2019). For the North American Tewa of New Mexico, creation began under a spring (*Sipofene*) and all bodies of water (springs, rivers, lakes and arroyos) connect to that watery creation site and to the ancestors from whom the living may request assistance through water-navigating messenger beings (Ford 2020). Deemed routes to the Mayan underworld and the realm of ancestors, springs and water-filled sinkholes received sacrifices and were the landscape features to which monumental structures were often aligned (Brady and Ashmore 1999: 129; Scarborough 2003).

In the first state-level societies of ancient Mesopotamia, kings communed with ancestors and left gifts for the gods at the spring sources of the Tigris River (Harmanşah 2014: 150–154). In Mesopotamian cosmogonies, the earth was first a chaotic water world divided into fresh water (the god Apsu), and salt water (the goddess Tiamat). In a conflict over their offspring, Tiamat is dismembered so that her eyes (with her tears) become the Tigris and Euphrates rivers and her body become the earth (Lambert 2013: 100). In this issue, contributor Anna Perdibon examines the omnipresence of water in ancient Mesopotamian myths and rituals including the primeval source of all waters, the cosmic Apsû. She traces the cult of divine rivers from four thousand years ago to the loss of rivers' divine status around one thousand years later. In this period of fluvial worship, rivers had "other-than-human" personhood – mostly as deities with life-giving, healing and judicial roles. Some rivers had a fluid gender identity, for example, ritualistic incantations referred to a divine river as "Creatress of everything," but could give rivers male identities in the practice of the "river ordeal" (tossing accused persons into a river and determining their guilt or innocence by how they fared against the current). More commonly, ancient Mesopotamians seem to have envisioned rivers as mothers who dispelled evil, cleansed hearts and administered healing.

Healing and therapeutic waterscapes

Watery sites are often persistently sacred through different eras and the archaeological record can sometimes illuminate their repeated ritual use by disconnected populations (Ray 2014). The sacrality of water sources deemed curative (often due to mineral content) can have particular longevity, and healing waters are those most likely

to be appropriated and converted with the arrival of new faiths. As elsewhere, and as with proselytizers of other major faiths, Buddhist missionizers reimagined the local supernatural figures and sacred places they encountered in ways that supported their teachings. From the Tibetan Cultural Area to Japan, indigenous water deities became advocates of Buddhism and their roles changed from being the source of cures to serving as protectors of healing places (Moerman 2015: 75). India's least populous Himalayan state, Sikkim, borders Tibet and Tibetan Buddhism overlays many localized conceptions of sacred water there. While Sikkim's 150 lakes are all considered sacred, the curative and wish-fulfilling Khecheopalri Lake is the most revered (Jain et al. 2004: 291–292). With the arrival of Buddhism (through the travels and preachings of Guru Padmasambhava) the indigenous Lepcha population's understandings of the lake's sacrality was overwritten with the belief that the Goddess Tara Jestum Dolma, the mother of Lord Buddha, dwells there. The lake's shape is said to be that of her footprint and fishing and boating in its waters are forbidden (ibid.: 294–296).

Encompassing 84 glaciers, 227 wetlands and 104 rivers, Sikkim is often called a "water tower of India." In this issue, Marlene Erschbamer considers historical and medical texts, along with the genre of Tibetan Culture Area pilgrimage guides, to understand how hot springs became part of regional cultural memory in Sikkim. Examining the ways in which indigenous sacred topographies were rewritten by the travels of proselytizing Buddhists such as Rinpoche, she explains how gurus transformed Bon supernatural beings into exemplary proponents and defenders of Buddhist tenants. Credit for hot springs' curative powers, deemed "better than any doctor," transferred from the abiding genius loci to the blessings of travelling gurus.

Perspectives on how, why, when and what waters are healing are often derived from folk tradition, but contributor Evgenii Platonov examines how the curative and sacred attributes of Russian springs, once credited to God's grace, the intervention of saints or contact with wonder-working icons, became mediated by the state. In the eighteenth century, modernization efforts across Russia saw the merger of church and government structures, so that the Russian Orthodox Church acquired a new structure for liturgical rites and previous practices carried out at holy wells were even criminalized. Platonov considers three types of waters investigated by authorities in the nineteenth-century (official holy springs endorsed by the church, "unofficial" springs deemed holy by the people, and springs that became mineral spas). The differential status granted to each related to social class, economics and the suppression of "superstition" in favor of "scientific" cures.

Contributor Jeane Peracullo considers sacred watery venues associated with the *Virgen de Caysasay* in the Philippines including the Taal Lake, the Pansipit River and a sacred spring forming two holy wells dedicated to St. Lucia. A fisherman's discovery of a small statue of Mary in the Pansipit River in 1603 marked the beginning of Marian apparitions, miraculous cures, and the cult of Our Lady of Caysasay. Her statue repeatedly disappeared when "she" visited areas of the Batangas Province on the island of Luzon and the sites where the statue reappeared have remain curative places of pilgrimage today. Describing devotional practices at watery sites associated

with the *Virgen de Caysasay*, including poetry performances, dances, bathing and a fluvial procession, Peracullo also illuminates Caysasay sites as therapeutic waterscapes with curative flora that provide folk remedies for a variety of ailments and which may have contributed to the shape of local devotions. She points out that Local Ecological Knowledge about medicinal uses of flora around these watery sites is not commonly known today and that these waterscapes are now poorly-stewarded, vulnerable repositories of cultural memory.

Popular devotions

Particularly at local and regionally-significant sites, ritual engagement with sacred waters may involve a set of prayers or movements performed in a prescribed order and the deposition of votive offerings. Such folk liturgical practices develop organically, are regularly-renegotiated, and are accepted as efficacious through generations of repetition rather than being set and sanctioned by a body of religious authorities. Folk liturgies have been actively suppressed by faiths that have a global reach. Holy well veneration, for example, was discouraged in much of Northwestern Europe with the arrival of Protestantism, yet Lutheran Denmark retained at least 650 into the mid-twentieth century, Methodist Wales has at least 1,179, and Presbyterian Scotland retained over 1000 (Glob 1971: 288; Ings 2012; Morris and Morris 1982). Many forms of Buddhism view the use of holy water as Brahmanic (Hindu) or Indigenous and therefore un-Buddhist, yet pouring "lustral" or mantra water (*nam mon*) is one of the most ubiquitous practices in East Asian Buddhism (Olson 1991: 75). Devotions at sacred waters endure as parallel practices for many populations deemed officially Islamic. At springs and waterfalls associated with ancestors or Sufi saints in the Muslim Kyrgyz Republic, the faithful may wash their faces, collect restorative and fertility-inducing waters to carry home, prayerfully tie rags on nearby bushes and trees, roll around on the ground beside the source and sacrifice sheep to the resident *e'e* – the powers or masters of the water (Bunn 2013: 131–132). While sometimes antithetical to the tenants of a dominant faith, water devotions endure through popular translation.

In this issue Oluwafunminiyi Raheem considers vernacular and localized ritual practices at holy wells among the Yoruba in southwest Nigeria. There, gendered deities preside over wells that garner individual and communal visitation and offerings at festivals which can last from one day to several weeks. While traditions are transgenerational they have often been renegotiated with regard to the arrival of Christianity, Islam, western education and colonial rule. Kings and priests may lead ritual activities on festival days, but Oluwafunminiyi argues that despite their hierarchical titles and ritual roles, these individuals are part of a heterarchical society in which Yoruban holy well practices are folk liturgies also employed in individual and familial worship.

Contributor Suzana Marjanić reviews the healing potential of Croatian sacred watery sites and their links to deep time ethnic lore including Slavic deities now recalled as fairies. She surveys scholarship on Croatian water traditions, recent revivals of ethnic traditions, and how both inform performance art and art installations about the contemporary neglect of water sources.

In the final essay, contributor Marijana Belaj describes the ways in which "the Bosnian Lourdes," Mrtvalj spring in Podmilačje, is a venue for non-institutional religiosity for those of Roman Catholic, Orthodox, Muslim and Roma identities. She examines how the site is both a part of a larger Catholic pilgrimage and a sacred place discrete from the Podmilačje pilgrimage with special management issues. While the spring's Croatian name means "dead" (because of a nearby graveyard), it is also known as St. John's Spring for the saint who baptized Jesus and set the model for Christians in Romans 6:3 to symbolically die to sin through baptism and be raised from the water in "newness of life." At Mrtvalj, the multiconfessional folk piety that Belaj observes does not require abandonment of one's own religious identity or the need to facilitate between faiths; instead she encounters heterarchical engagements with the spring in the shared belief that God's grace is available to all.

Aquatic Sacred Natural Sites

What can be learned from sacred water sites? The international Sacred Natural Sites initiative began in 2007 and the following year the ICUN (International Union for Conservation of Nature) and UNESCO published guidelines on the management of Sacred Natural Sites (SNS) to protect endangered sacred lands and waters of indigenous and traditional peoples as well as those of religious and monastic communities. Sacred Natural Sites are some of the best examples of Biocultural Diversity as defined by Luisa Maffi (2001). They are often biodiverse habitats because of cultural understandings of their inhabiting genii loci and the cultural practices that animistic beliefs perpetuate to protect the sites and their flora and fauna (Ray 2020b).

The protective management of Sacred Natural Sites, including the sensitive guardianship of sustainable pilgrimage and religious tourism has become a growing field of study (see Mallarach 2021; Griffiths and Wiltshier 2019; Verschuuren and Brown 2018; Salamanca et al. 2015; Shackley 2001). While some anthropologists have considered water's role in human society and the significance of water inequities (Strang 2004, 2009; Orlove and Caton 2010; Wagner 2013; Hastrup and Hastrup 2015), less attention has been paid to how the study of Aquatic Sacred Natural Sites and panhuman perceptions of water's sacrality can inform us about best practices and policies to enhance water security and equitable water futures. Noting the twenty-first-century need for an Integral Water Ethic, Elizabeth McAnally suggests we can draw on multiple religious traditions to find "Aquasattvas" leading us to better water care (2019: 129).

Some anthropologists have responded to increased understanding of environmental issues in the Anthropocene and developments in international policy with New Animism and studies of "other-than-human" personhood (Naveh and Bird-David 2014); to this we could add Cultural Hydrology. Most of the world's chiefdoms and earliest states recognized the personhood, and often divinity, of rivers, as Perdibon describes in her article for this issue. In the last half decade, courts around the world have considered legal actions to grant protective legal personhood to rivers from New Zealand's Whanganui to India's Ganges and Yamuna and North America's Colorado (O'Donnell 2018). Yet, Doris Schweitzer questions whether Posthumanist Earth Jurisprudence truly decenters humankind to be a part of nature (which has inalienable rights), or if granting legal personhood merely transforms rather than displaces anthropocentrism since legal arguments have so far focused on protecting human connections to rivers and on human interests (2021). Stepping aside from conservation ethics, John Studley argues that Sacred Natural Sites are already under "spiritual governance" and that the numina enspiriting these places are "juristic persons" with whom locals experience culturally-specific "legal" relationships predicated on reciprocity (2018). This is an interesting moment to reconsider what origin stories, folk liturgies and Traditional Ecological Knowledge about curative waters might teach us about water stewardship and socioecological resiliency.

REFERENCES

Ball, Philip. 2001. *Life's Matrix. A Biography of Water*. Berkeley: University of California Press.

Bowman, Glenn. 2019. "Shared Shrines and the Discourse of Clashing Civilisations". *Entangled Religions* 99: 108–138. https://doi.org/10.46586/er.v9.2019.108-138

Brady, James E. and Wendy Ashmore. 1999. "Mountain, Caves, Water. Ideational Landscapes of the Ancient Maya". In *Archaeologies of Landscape. Contemporary Perspectives*. Wendy Ashmore and A. Bernard Knapp, eds. Oxford: Blackwell, 124–148.

Brady, Liam M. 2020. "Freshwater Sources and their Relational Contexts in Indigenous Australia". In *Sacred Waters. A Cross-Cultural Compendium of Hallowed Springs and Holy Wells*. Celeste Ray, ed. London: Routledge, 97–109. https://doi.org/10.4324/9781003010142-11

Bunn, Stephanie. 2013. "Water as a Vital Substance in Post-Socialist Kyrgyzstan". *Worldviews*. 17/2: 125–137. https://doi.org/10.1163/15685357-01702004

Calamia, Mark. 2003. "Expressions of Customary Marine Tenure and Environmental Entitlements". Ph.D. Dissertation. University of Colorado.

Cleeves, L. Ilsedore, Edwin A. Bergin, Conel Alexander, Fujun Du, Dwan Graninger, Karin Oberg and Tim Harries. 2014. "The Ancient Heritage of Water Ice in the Solar System". *Science* 345/6204: 1590–93. https://doi.org/10.1126/science.1258055

Cuthbert, Mark O., Tom Gleeson, Sally C. Reynolds, Matthew R. Bennett, Adrian C. Newton, Cormac J. McCormack, and Gail M. Ashley. 2017. "Modelling the Role of Groundwater Hydro-refugia in East African Hominin Evolution and Dispersal". *Nature Communications* 8: 15696. https://doi.org/10.1038/ncomms15696

Dong, Junjie, Rebecca A. Fischer, Lars P. Stixrude and Carolina R. Lithgow-Bertelloni. 2021. "Constraining the Volume of Earth's Early Oceans with a Temperature-Dependent Mantle Water Storage Capacity Model". *AGU Advances* 2, e2020AV000323. https://doi.org/10.1029/2020AV000323

Evans, Susan and Deborah Nichols. 2015. "Water Temples and Civil Engineering at Teotihuacan, Mexico". In *Human Adaptation in Ancient Mesoamerica*. Nancy Gonlin and Kirk D. French, eds. Boulder: University Press of Colorado, 25–51. https://doi.org/10.5876/9781607323921.c002

Finlayson, Clive. 2014. *The Improbably Primate: How Water Shaped Human Evolution*. Oxford: Oxford University Press.

Ford, Richard I. 2020. "Sacred Springs of the Tewa Pueblos, New Mexico". In *Sacred Waters. A Cross-Cultural Compendium of Hallowed Springs and Holy Wells*. Celeste Ray, ed. London: Routledge, 131–137. https://doi.org/10.4324/9781003010142-14

Glob, Peter Vilhelm. 1971. *Denmark. An Archaeological History from the Stone Age to the Vikings*. Ithaca, New York: Cornell University Press.

Griffiths, Maureen and Peter Wiltshier. 2019. *Managing Religious Tourism*. Boston: CABI. https://doi.org/10.1079/9781786393197.0000

Harmanşah, Ömür. 2014. "Event, Place, Performance. Rock Reliefs and Spring Monuments in Anatolia". In *Of Rocks and Water. Towards and Archaeology of Place*. Ömür Harmanşah, ed. Oxford: Oxbow, 140–168. https://doi.org/10.2307/j.ctvh1dt5x.13

Hastrup, Kirsten and Frida Hastrup, eds. 2015. *Waterworld.: Anthropology in Fluid Environments*. New York: Berghahn.

Ings, Mike. 2012. *Medieval and Early Post-Medieval Holy Wells. A Threat-Related Assessment*. Carmarthenshire: Dyfed Archaeological Trust for Cadw (Wales).

Jacques, David, Tom Phillips, and Tom Lyons. 2018. *Blick Mead. Explaining the "first place" in the Stonehenge Landscape*. Oxford: Peter Lang. https://doi.org/10.3726/b11044

Jain, Alka, H. Birkumar Singh, S.C. Rai and E. Sharma. 2004. "Folklores of Sacred Khecheopalri Lake in the Sikkim Himalaya of India: A Plea for Conservation". *Asian Folklore Studies*. 63/2: 291–302.

Lambert, Wilfred. J. 2013. *Babylonian Creation Myths*. Winona Lake, Indiana: Eisenbrauns. https://doi.org/10.1515/9781575068619

Lansing, J. Stephen. 2012. *Perfect Order. Recognizing Complexity in Bali*. Princeton: Princeton University Press.

McAnally, Elizabeth. 2019. *Loving Water Across Religions. Contributions to an Integral Water Ethic*. Maryknoll, New York: Orbis Books.

McNiven, Ian J. 2008. "Sentient Sea. Seascapes as Spiritscapes". In *Handbook of Landscape Archaeology*. Bruno David and Julian Thomas, eds. Walnut Creek: Left Coast Press, 149–157.

Maffi, Luisa, ed. 2001. *On Biocultural Diversity. Linking Language, Knowledge, and the Environment*. Washington, DC: Smithsonian Institution Press.

Mallarach, Josep-Maria, ed. 2021. *Spiritual Values of Protected Areas of Europe*. Bonn: Bundesamt für Naturschutz.

Moerman, D. Max. 2015. "The Buddha and the Bathwater. Defilement and Enlightenment in the Onsenji engi". *Japanese Journal of Religious Studies* 42/1: 71–87. https://doi.org/10.18874/jjrs.42.1.2015.71-87

Morris, Ruth and Frank Morris. 1982. *Scottish Healing Wells*. Sandy, Bedfordshire: Alethea Press.

Naveh, Danny and Nurit Bird-David. 2014. "How Persons become Things. Economic and Epistemological Changes among Nayaja Hunter-gatherers". *Journal of the Royal Anthropological Institute* 20/1: 74–92. https://doi.org/10.1111/1467-9655.12080

O'Donnell, Erin. 2018. *Legal Rights for River. Competition, Collaboration and Water Governance*. London: Routledge. https://doi.org/10.4324/9780429469053

Olson, Grant A. 1991. "Cries over Spilled Holy Water. 'Complex' Response to a Traditional Thai Religious Practice". *Journal of Southeast Asian Studies* 22/1: 75–85. https://doi.org/10.1017/S0022463400005476

Orlove, Ben and Steven C. Caton. 2010. "Water Sustainability. Anthropological Approaches and Prospects". *Annual Review of Anthropology* 39: 401–415. https://doi.org/10.1146/annurev.anthro.012809.105045

Ray, Celeste. 2014. *The Origins of Ireland's Holy Wells*. Oxford: Archaeopress. https://doi.org/10.2307/j.ctvqc6kjg

Ray, Celeste. 2015. "Paying the Rounds at Ireland's Holy Wells". *Anthropos* 110: 415–432. https://doi.org/10.5771/0257-9774-2015-2-415

Ray, Celeste, ed. 2020. *Sacred Waters. A Cross-Cultural Compendium of Hallowed Springs and Holy Wells*. London: Routledge. https://doi.org/10.4324/9781003010142

Ray, Celeste. 2020b. "Flora, Fauna and Curative Waters. Ireland's Holy Wells as Sites of Biocultural Diversity". In *Sacred Waters. A Cross-Cultural Compendium of Hallowed Springs and Holy Wells*. Celeste Ray ed. London: Routledge, 378–390. https://doi.org/10.4324/9781003010142-46

Sahlins, Marshall. 1987. *Islands of History*. Chicago: University of Chicago Press. https://doi.org/10.7208/chicago/9780226162157.001.0001

Salamanca, Albert M., Agus Nugroho, Maria Osbeck, Sukaina Bharwani and Nina Dwisasanti. 2015. *Managing a Living Cultural Landscape. Bali's Subaks and the UNESCO World Heritage Site*. Stockholm: Stockholm Environment Institute.

Sarafian, Adam R., Sune G. Nielsen, Horst R. Marschall, Francis M. McCubbin and Brian D. Monteleone. 2014. "Early Accretion of Water in the Inner Solar System from a Carbonaceous Chondrite-like Source". *Science* 346/6209: 623–626. https://doi.org/10.1126/science.1256717

Scarborough, Vernon L. 2003. *The Flow of Powe. Ancient Water Systems and Landscapes*. Santa Fe: School for Advanced Research Press.

Schweitzer, Doris. 2021. "'Rights of Things'.A Posthumanist Approach to Law?". *Nature and Culture* 16/1: 28–46. https://doi.org/10.3167/nc.2020.160103

Shackley, Myra. 2001. *Managing Sacred Site. Service Provision and Visitor Experience*. London: Continuum.

Shiklomanov, Igor. 1993. "World Fresh Water Resources". In *Water in Crisis*. Peter Gleick, ed. Oxford: Oxford University Press, 13–24.

Shimkhada, Deepak. 2019. "Mata Tirtha. A Sacred Geography". *Journal of Dharma Studies* 2/1: 31–39. https://doi.org/10.1007/s42240-019-00031-4

Strang, Veronica. 2004. *The Meaning of Water*. Oxford: Berg.

Strang, Veronica. 2009. *Gardening the World. Agency, Identity and the Ownership of Water*. New York: Berghahn.

Studley, John. 2018. *Indigenous Sacred Natural Sites and Spiritual Governance. The Legal Case for Juristic Personhood*. London: Routledge. https://doi.org/10.4324/9780429455797

Verschuuren, Bas and Steve Brown, eds. 2018. *Cultural and Spiritual Significance of Nature in Protected Areas. Governance, Management and Policy*. London: Routledge. https://doi.org/10.4324/9781315108186

Wagner, John Richard, ed. 2013. *The Social Life of Water*. New York: Berghahn Books.