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Introductory Note by the Editors-in-Chief

Sten Hagberg | Professor of Cultural Anthropology, Uppsala University
Jörgen Hellman | Professor of Social Anthropology, University of Gothenburg

The second issue of *kritisk etnografi – Swedish Journal of Anthropology* in 2021 is geared toward the anthropological analysis of waters. Entitled “The Social Life of Water”, coordinated by guest editors Professor Karsten Paerregaard and Professor Paula Uimonen, the issue is a strong case for demonstrating the power of ethnography in unfolding apparently unproblematic categories such as, in this case, water. With anthropology’s knowledge of the human condition in different places and at different times, anthropology has the potential to deepen our common knowledge of what water is all about. In so doing, the issue presents ethnographic stretches over large parts of the world: from a comparative piece on water serpent deities and Swahili dwellers’ relation to the Ocean on the coast of Tanzania, via scuba waste divers in Stockholm, to rural communities in the Peruvian Andes and a Mapuche island community in Chile. The articles of this issue contribute to an anthropology of water that seeks to understand how water frames ethnographic thinking and research, as well as, the very nature of water and the way it shapes and culture. In addition, the authors make skilful use of colourful photos from the field, that is, oceans, springs, mountains, trash under water, water taps, *chicha*, water serpent deities, ritual offerings, etc.

The inaugural issue of *kritisk etnografi – Swedish Journal of Anthropology* focused on “The Public Presence of Anthropology” (Vol 1, No 1, 2018). The second issue was themed “Comparative Municipal Ethnographies” (Vol 2, No 1-2, 2019). The first issue of 2020 inquired into “The Anthropology of Wellbeing in Troubled Times” (Vol 3, No 1, 2020). The next issue brought “Putting Swedish Anthropology to Work” (Vol 3, No 2, 2020) to the fore. The first issue of 2021 was a *Varia* (Vol 4, No 1, 2021), that is, an open issue to any original anthropological research paper. And, the current issue thus focuses on “The Social Life of Water” (Vol 4, No 2, 2021).

*kritisk etnografi – Swedish Journal of Anthropology* publishes two issues per year, in the form of thematic issues or *Varia* issues. In every issue of the journal, however, there is always space for original research papers. Hence, as Editors-in-Chief of *kritisk etnografi – Swedish Journal of Anthropology* we welcome suggestions, thematic issue proposals, papers, and shorter pieces from colleagues at Swedish universities and beyond.

Spread the word! Aux plumes! Fatta pennan!
The Social Life of Water
Water: An Anthropological Contribution

Karsten Paerregaard | Professor of Social Anthropology, University of Gothenburg
Paula Uimonen | Professor of Social Anthropology, Stockholm University

At a time when humanity is facing an environmental crisis that threatens the very existence of our planet, a growing number of anthropologists are using their knowledge and skills to identify more sustainable forms of human coexistence with nature, not least water. Water is clearly essential for life on earth, from the seawater that covers over 70 per cent of the earth’s surface, to the freshwater that sustains all forms of life even though it makes up less than three per cent of the earth’s water. In recent years, water has received more attention in public debate as well as scholarly research. With its vast knowledge of the human condition in different places and at different times, anthropology is well placed to deepen our knowledge of what water is all about.

Up through the twentieth century, anthropologists focused their writings on theoretical and methodological questions related to anthropology and published most of their work in anthropological journals. It was a time when disciplinary gatekeeping and policing of inter-disciplinary boundaries were common in the scholarly world and when small and young subjects felt a need to develop their own disciplines. Belonging to the smaller and less visible subjects within the social sciences (or in some of the universities – the humanities) anthropologists were particularly keen on profiling their discipline within the scholarly community, on the one hand, by highlighting the importance of anthropology’s holistic approach and, on the other, by theorising its subfields (kinship and marriage systems, material culture, socio-environmental relations, rituals and religion, gift giving and relations of exchange, etc.) through publications in journals associated with their professional associations and institutions.

In the past 50 years, anthropology has grown from a small to a middle sized discipline in many universities and as the subject has gained scholarly recognition and leverage, researchers from not only neighbouring disciplines within the social sciences and the humanities, but also more hard-core disciplines such as medicine have taken interest in the subject’s methodology and its alternative approach to social problems and cultural issues. At the same time, anthropologists have moved out of their disciplinary comfort zone and engaged in cross-disciplinary and applied research. Likewise, the growing number of students graduating from anthropological departments in both the Global North and Global South are making an important difference as they find employment outside the academia in both the public and the private sector.

The maturation of anthropology as a subject and the dissemination of its concepts and tools among scholars from other disciplines have repercussions for the way anthropologists create their professional networks, choose topics for their teaching and research, and
communicate the results of their work. Today a growing number of anthropologists participate in inter-disciplinary research projects and educational programs, and in some countries they have even become known figures in the public as communicators, commentators, op-ed contributors, etc. In a similar vein, many anthropologists now address research questions and investigate social issues that until a few decades ago were considered unimportant or irrelevant for anthropology.

One such topic is water – a physical substance which gave rise to scientific disciplines such as hydrology, oceanography, limnology, and glaciology in the twentieth century, but which evaded the attention of anthropologists for many years. Unlike soils, plants, animals, and other natural elements that have been central to anthropological studies since their inception, water was never a theme of importance to anthropology even though the “theory machine” of seawater had a critical impact on the thinking of classical anthropologists such as Bronislaw Malinowski, as Stefan Helmreich (2011) points out and even though irrigation and water management were issues of research by several renowned anthropologists (Geertz 1973; Kelly 1983). However, in recent years water has become an established field of research within the social sciences that not only complements the received wisdom of the natural sciences with studies of the social and cultural context in which water flows, but also questions their conception of the hydrological cycle as natural phenomenon and directs our attention to the way humans manipulate its circulation and ascribe social and cultural meaning to it. A growing number of anthropologists have taken up this challenge and a body of literature which investigates water as an anthropological subfield, is now emerging (Ballestero 2019; Hastrup and Hastrup 2015; Orlove and Caton 2010; Strang 2015).

This special issue of *kritisk etnografi* – Swedish Journal of Anthropology contributes to this new wave of water studies with a collection of articles that examine ethnographically how water shapes and acquires life, socially as well as culturally, in a variety of historical and geographical settings. The six articles all deal with water as a liquid substance (unlike water’s other physical forms: ice and steam). However, due to their different perspectives on not only how water assumes social importance and is attributed cultural meaning but also the way it flows (hydrological cycles, sea tides, etc.) and changes chemical composition (from fresh water to seawater and back again) and material appearances (transparency, temperatures, etc.), their analytical focal points differ, which is reflected in the issue’s organisation and the articles’ order. Starting with a review of how humans throughout history have imagined water as a symbol of life and power, we move first to East Africa and then Scandinavia to explore the unseen in water as a spiritual force or material waste, and lastly to South America where we read about the multiple ways freshwater fashions indigenous people’s worldview and struggle to cope with both existential and socio-political challenges.

In the issue’s first article, Veronica Strang scrutinises water as a universal condition for human life and as a matter that circulates in all forms of societies. In the search for water’s existential serpent deities and the elemental and generative powers they symbolise and engage in, Strang explores water’s ‘conviviality’ which she argues has helped maintain highly sustainable lifeways, based on a comprehensive reading of historical, archaeological, and theological literature of water. Strang also suggests that this conviviality survives in contemporary indigenous and activist communities which are making use of traditional images and objects representing water beings and which use the meanings that these hold to critique the exploitative environmental practices imposed on their homelands by colonial
societies. The central questions of Strang’s research are: what happens to water serpent deities and beliefs in nature beings when societies develop more instrumental technologies, such as shifting into agricultural modes of engagement? And can alternate worldviews assist societies in developing less anthropocentric ways of thinking about and engaging with the non-human world? Strang’s point is that sacred water serpent beings provide a way of conceptualising the hydrological movements of water and its annual cycles so that societies can work with these and the material environment to maintain social and economic stability.

At par with Strang’s work on water’s social and metaphysical attributes, Paula Uimonen and Masimbi Hussein enquire into the spiritual relationality of the ocean. Reflecting on their preparatory fieldwork in a fishing community on the Swahili coast of Tanzania that has a long history of transoceanic connections, they explore the ocean’s spiritual importance for the local population, examining how the spirits in the sea, especially around islands, rocks, and coral reefs, influence their daily activities and maritime perception. Similarly, they scrutinise how people’s spirituality shapes rituals that revolve around prayers at low tide to get rid of something and at high tide to bring something back and which symbolically configures the ocean as a cleansing as well as protecting force. To conceptualise Swahili ocean worlds, Uimonen and Hussein employ what they call a pluriversal approach which implies studying “multiple worldings in an emergent world of many worlds” and which aims to go beyond the focus on materiality and sociality that prevails in other works of the anthropology of water, to interrogate the spirituality of the ocean in terms of spiritual beings as well as becomings. The pluriversality of Uimonen and Hussein’s study opens a door to understand the spirituality of Swahili coastal communities, which constitutes a waterworld shared by both human and non-human beings and that links local people to not only faraway places but also the very power of divine creation.

If the ocean contains a world of invisible spiritual forces on the Swahili coast, what is hidden underwater in Stockholm offers a disturbing view into the city’s environmental past, which has enticed young urbanites to use their diving skills to collect waste in the dark waters of lake Mälaren. In Rasmus Rodineliussen’s article, the author demonstrates how these trash divers use images and videos uploaded to social media accounts to make the general public see the waste from below Stockholm’s water and to create an awareness of the city’s benign neglect of what for many years was considered a public secret. Rodineliussen’s argument is that the divers’ images and videos produce what Chloe Ahmann has called a “moral punctuation”, that is a deliberate marking of time to highlight unaddressed sins of the past, to demand ethical action, and ultimately to force political action. In the article’s account Rodineliussen, who conducted fieldwork as a practicing diver, takes the readers on a thrilling trip below the surface into Stockholm’s murky waters in search of underwater waste, inviting them to share not only the divers’ moral and political quest to clean Stockholm’s maritime environment but also their embodied and sensorial encounter with the city’s deep waters where hearing and touching are more valid means of navigation than vision and smelling. As Rodineliussen points out: “Had I not been able to dive, I would not have grasped how the divers’ senses were rearranged in order to collect the trash”. What is the next frontier of ethnographic fieldwork?

Humans’ embodied interaction with water and in particular the way it is mediated by their sensorial engagement is also the topic of Malene Brandshaug’s article, which investigates how an indigenous community in Peru’s southern highlands relates to water
and environmental change in what the author coins “intimate ways”. It explores how the circulation of water connects people, soil, crops, and the nearby mountains that produce the meltwater the community relies on to irrigate their fields. Moreover, Brandshaug asks: what happens when the climate changes and there is less of the water that makes these human-non-human relations human relations? Inspired by the notion of water’s relationality and the concept of “bodies of water” that build on the idea that both human and non-human bodies are made up of water and linked by the circulation of water, the author argues that in Peru’s highland communities, water affects everything from language, emotions, and communal identity to economic and biophysical survival – a total social fact Brandshaug labels “aquasociality”. If we think relations as watery and follow the flow of water through different kinds of bodies, Brandshaug suggests, we understand humans’ worldly embeddedness through water and the way the human body is always more-than-human. Finally, Brandshaug proposes that the water scarcity following from climate change makes humans and non-humans a single suffering body.

Paerregaard’s study is not only situated in the same regional setting as Brandshaug’s field site, but it also deals with the same research question: how do Andean people manage the mountains’ meltwater and how does their fresh water supply become the central focal point of their cosmology? But while Brandshaug is preoccupied with her interlocutors’ personal relationship with water, Paerregaard’s concern is the offering ceremonies that Andean communities make to the mountain deities to ask them to release the flow of meltwater they are believed to control. Focusing on the material rather than the metaphysical aspects of the offering ceremony and drawing on the notion of water metabolism, the article scrutinises the ceremony’s temporal and spatial organisation and the social meaning of its offering items which, the author argues, Andean people perceive as a gift to the mountain deities and as essential ingredients in the metabolic process that produces the meltwater. Borrowing from Roy Rappaport’s study of the Kaiko ritual and the argument that culture plays an important role in environmental sustainability, Paerregaard suggests that at the heart of Andean offerings and their replica of water metabolism is a holistic worldview which perceives water as a substance that is enmeshed in human-non-human relations and therefore of vital importance for social life and the preservation of freshwater supplies anywhere in the world.

Martine Greek’s article takes us further south to the Chilean inland island of Isla Huapi that has been the site of the construction of the country’s largest off-grid solar power irrigation system. Like Brandshaug and Paerregaard, Greek’s article deals with indigenous people. The three authors also investigate the same research topic: freshwater. But while the former two examine this irrespective of its use, Greek’s focal point is the difference that water for irrigation and drinking water makes in the struggle the Mapuche inhabitants of Isla Huapi engage in to challenge the cultural prejudices they face in the Chilean society at large and which are reinforced by the lack of clean drinking water. For a long time, the island’s indigenous population have been asking the Chilean government to provide them with basic services such as electricity and clean water, and when the government finally constructed the island’s new irrigation infrastructure, they learnt that this can also be used to access the much-wanted drinking water. However, the slow progress of the infrastructure’s construction and implementation has affirmed the image of cultural backwardness of some islanders who are still waiting to get connected. Greek’s argument is therefore that water infrastructure has the capacity to both connect and disconnect and that the form in which freshwater is provided, as either water for irrigation or drinking water, constitutes a hallmark
of not only different consumption practices but also different socio-cultural identities. Seawater played a critical role in Malinowski's work, not only as a "theory machine" but also as an object of ethnographic research, which is evident in the study of magic and its importance for fishing on the Trobriand Islands. But even though water was omnipresent in the writings of Malinowski and other anthropologists in the discipline's formative period, it mostly served as a contextual parameter for their studies. In line with other recent anthropological works on water the six articles of this issue contribute to the development of an anthropology of water that seeks to understand not only how water frames ethnographic thinking and research but also the very nature of water and the intricate ways it moulds society and culture. Read them with gusto!

References


Elemental Powers: Water Beings, Nature Worship, and Long-term Trajectories in Human-environmental Relations

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Abstract

Human societies have developed unique trajectories of engagement with their environments over time. Some of these long-term relationships contain more potential for sustainability than others. Early human societies worshipped ‘nature beings’, including water serpent deities who manifested the elemental and generative powers of water. Such beliefs supported collaborative and reciprocal efforts to co-exist respectfully with the non-human world: a form of ‘conviviality’ that maintained highly sustainable lifeways. However, as other societies enlarged, became more hierarchical, and developed more instrumental technologies, they humanised their gods to worship their own rather than non-human powers. This supported ideas about ‘dominion’ over nature that, in prioritising human needs and interests and externalising their costs, have led directly to the current environmental crisis.

Focusing on images and objects representing water deities, and exploring how the role and form of these changed to reflect key transitions in social, political and technical arrangements, this article asks what we can learn from earlier societies, and from contemporary indigenous communities that retain traditional beliefs and values. Is there a creative scope to incorporate the tenets of more sustainable modes of environmental engagement into contemporary debates about ‘rights for nature’? Can alternate worldviews assist societies in developing less anthropocentric ways of thinking about and engaging with the non-human world? In the face of contemporary realities, how can we re-establish more convivial human-environmental relations?

Keywords: Water, Nature worship, Human-non-human relations, Sustainability

Introduction

This article brings together two areas of interest that have been integral to my ethnographic research for many years. The first is concerned with human-non-human relationships. Taking as a starting point an understanding that human and non-human beings and ecosystems all have agency in the co-creation of shared lifeworlds, why and how do human societies develop such different trajectories of engagement with the non-human world over time? Some of these long-term relationships clearly contain more potential for sustainability than others: what can we learn from the differences between societies that exploit the non-human domain mercilessly, and those who seek to care for its well-being along with their own? The other topic is more specific. It concerns the water serpent beings through which, over time, societies have expressed their particular beliefs and values in relation to water, and to the non-human domain. These provide an invaluable comparative focus for the questions that this article seeks to address.
Contemporary human relationships with water are in a state of crisis: freshwater ecosystems worldwide are failing because of massive overuse, particularly for irrigation. Anthropogenically-caused climate change has created unmanageably volatile water flows and there are dire predictions that there will be, in the very near future, critical shortfalls in water supply (World Bank 2020). Governments, the UN, the World Bank, conservation organisations and other NGOs, stress the urgency of a global conversation about the value of water, and the need for all societies to achieve more sustainable ways of engaging with this vital element. Therefore, the aim of my research, alongside others in the field, is to make use of the cross-cultural ethnographic comparison that is central to anthropology to draw out some of the key characteristics of sustainable human-environmental relations and consider how these might be articulated imaginatively to help contemporary societies find new ways of thinking about and engaging with water.

This project has evolved into a major comparative study of societies’ long-term trajectories of engagement with the non-human world (Strang in press b). It draws on my own research in Australia, New Zealand and the UK, and on a wide range of other ethnographic studies describing diverse cosmological beliefs and practices in relation to water (e.g. Andaya and Ishii 1999; Drewal 2008; Lansing 1991; Lucero 2018; Metge 1967; Reichel-Dolmatoff 1976). However, examining such long-term trajectories requires an interdisciplinary approach, and I have therefore made extensive use of historical, archaeological, and theological literature describing how societies’ beliefs, values, and practices have developed over time (e.g. Bowring 2005; Breasted 2010 [1912]).

As this implies, the research is underpinned by Durkheimian theories recognising that cosmological beliefs are ‘made in the image’ of societies’ political, social, and economic arrangements, and are therefore reflective of important changes in these (Durkheim 1961). This includes the power relationships within and between human groups, as well as those that pertain between human communities and non-human beings and ecosystems. A Durkheimian approach therefore helps us to explore how different societies balance human and non-human rights and interests, and the extent to which human needs and interests are prioritised, with the costs of meeting human desires externalised to non-human species and environments. It also suggests that sustainable practices will only be prioritised if there are recursive changes both in societies’ worldviews and values, and in the political and economic arrangements that these reflect. The paper is therefore in accord with emerging literature that asserts the need to promote paradigmatic changes in thinking to lead radical changes in practice (Brightman and Lewis 2017; Kopnina and Washington 2020).

The analysis is loosely chronological, in that it considers a cross-section of examples: hunter-gatherers; small-scale agriculturalists; early irrigation societies; modernising, colonising, and contemporary industrial societies. However, this does not assume a simple linear development of humankind from one mode of economic and social production.
to another, or any kind of essentialism about culturally diverse modes of environmental engagement. The notion of ‘chronology’ is used merely to examine the relationship between changes in modes of environmental engagement, and key changes in worldviews. This allows us to consider what happens to environmental beliefs and values when societies shift away from low-key modes of production to more intensive technical practices, and – simultaneously – from worshipping nature and nature beings (such as the powerful serpent beings representing water), towards religions focused on increasingly humanised deities and secular worldviews dominated by science.

There are some methodological challenges. A long view necessarily takes us into pre-historical periods in which it is only possible to infer people’s cosmological beliefs, but there is a wealth of archaeological evidence that supports such inferences, to which comparative studies lend further verisimilitude. While also demonstrating many cultural adaptations over time (see Harrison and Morphy 1998), the archaeological records and oral histories of conservative societies, such as Aboriginal groups in Australia, also show strong continuities. These are expressed for example, in flood stories that appear to reflect sea level changes 10,000 years ago, and ancient rock art relating to contemporary beliefs in Rainbow Serpents and other water beings. Similar links between pre-historic imagery, archaeological evidence and contemporary ideas are discernible in many South, Central, and Northern American indigenous communities, as well as those in Africa and Asia. Many such societies – despite the traumatic disruptions of colonial invasion – have fought to protect and uphold their foundational beliefs and values and continue to do so.

It is therefore evident that, along with the multiple cultural and environmental changes that have undoubtedly occurred in all of these contexts, there are some persistent cosmological continuities. Thus place-based ‘traditional’ societies offer a useful analytic contrast to those which have embraced major changes in their lifeways, and which have followed less sustainable trajectories of development.

Nature Worship

There was a time, historically, when all human societies worshipped what Western societies now call ‘nature’. However, this dualistic distinction between nature and culture came much later. It would appear from the archaeological record (e.g. Chippendale and Taçon 1998), and from ethnographies of contemporary place-based societies, that rather than separating human and non-human domains, early human societies saw themselves as being located within a single holistically conceptualised living world. One might say, therefore, that their worldviews prefigured the concepts of relationality articulated in current writings on materiality, which similarly seek to present a holistic view of the flows and inter-connections between human and non-human beings and things (Coole and Frost 2010; Knappett and Malafouris 2008; Latour 2005).

Such worldviews also exemplify contemporary notions of ‘extended mind’ (Clark
Nature beings – totemic ancestral beings in multiple human and non-human forms – emerged and formed the material world, and then remained as powerful presences in it, creating sentient cultural landscapes from which they could watch over, guide, and work collaboratively with humankind. This positioned the non-human domain as an agentive and reciprocal partner in shared human-non-human lifeways.

It is not my intention to suggest that hunter-gatherer or early agricultural societies enjoyed wholly harmonious relationships with the non-human domain. Such a romantic view has been thoroughly critiqued by authors such as Roy Ellen (1985) and Shepard Krech (1999). But it is also important not to ‘throw the baby out with the bathwater’. Human societies have diverse and complex relationships with the non-human domain, and all contain tensions as well as mutually beneficial engagements. But there is compelling evidence demonstrating that by maintaining conservative values, many traditional societies co-produced, in collaboration with other species and environments, highly sustainable lifeways that persisted over long periods without disrupting ecosystems to the extent that they could not reproduce and flourish.

Central to these kinds of relationships with the non-human world is their relative egalitarianism in the perceived status of human and non-human beings. Mary Douglas’ cultural theory described societies’ socio-political arrangements in terms of different ‘rationalities’ about individual and collective powers, and their propensities in terms of ‘hierarchy’ versus ‘egalitarianism’ (1992). Although she accepted the nature-culture dualism prevailing at the time, each of the four dominant rationalities that she described came with different visions of ‘nature’.

In contemporary debates about human-non-human relations it remains useful to consider an implicit continuum between ‘egalitarian’ relationships that valorise notions of partnership and reciprocity and more ‘hierarchical’ worldviews in which relations between human and non-human beings are characterised by greater levels of inequality. Whether such values are applied consistently across inter-human and human-non-human relations is a different question, but there would appear to be some logical consistency in societal values. ‘Flat’ socio-political arrangements that promote collective human powers seem to run with undifferentiated worldviews (i.e., those that do not divide nature and culture) and similarly egalitarian engagements with the non-human domain.

Thus, Aboriginal Australian worldviews contain no nature-culture divide, uphold egalitarian and collective political inter-human relationships (gerontocratic leadership by male and female elders), and promote a collaborative and reciprocal view of engagement with the non-human domain (Myers 1991; Bird Rose 1992). This engagement is further strengthened by the inalienable relationship with homelands that is typical among ‘place-based’ communities. Critically, it would appear that these kinds of socio-political arrangements are more conducive to maintaining a high level of concern for the collective well-being of human and non-human beings and ecosystems and are therefore more likely to prioritise sustainable practices.

Water Beings

This kind of ‘big picture’ analysis requires an analytic focus that provides coherence and comparability. An ideal narrative device is provided by the objects and images depicting water beings – the array of serpents, dragons and other water deities – found in museums.
and in many traditional cultural contexts worldwide.

For many millennia, in multiple cultural and historical contexts, ‘egalitarian’ societies expressed their relationships with water, and their deep respect for it, by worshipping or valorising serpentine deities believed to manifest its elemental powers and its essential generative capacities. Because water is vital to the health and well-being of all biological organisms, and invariably central to all human activities, these beings are immensely useful distillations of particular cultural and historical worldviews and relations with the non-human domain. The role of water beings, their perceived powers, how they are regarded, how they are treated, and what happens to them over time, can therefore tell us a great deal about important developments in societies’ trajectories of engagement with the non-human domain.

In effect, they are key indicators of change and, because they are historically ubiquitous, they provide an ideal focus for a comparative study of the factors that lead societies to shift from sustainable to exploitative lifeways and which – I hope – may potentially lead them in the other direction. In addition, because serpents and dragons have an abiding fascination, they are the perfect narrative device with which to entice wider public audiences into engaging with ideas about the kinds of social and cultural changes that are needed to enable more sustainable practices.

Water serpent deities elucidate the beliefs and values that form societies’ engagements with water not just in the past, but in the present. A central part of this research is an exploration of how contemporary indigenous and activist communities are making use of traditional images and objects representing water beings, and the meanings that they hold, to critique the exploitative environmental practices imposed on their homelands by colonial societies. Thus, in Australia, New Zealand, the Americas, and Africa, rainbow serpents, taniwha, and other water serpent beings are astutely employed in the political arena to challenge reductive visions of water as H2O, or which see the non-human world as merely a source of ‘ecosystem services’. In this vital new role, water beings provide symbolic support for the alternate beliefs and values that locate humankind in a more egalitarian and reciprocal position in relation to the non-human world, and which might therefore encourage more sustainable modes of engagement.

So let us take a closer look at these beings. The category of ‘water beings’ encompasses any serpentine beings or deities that personify or manifest the powers of water and describe the hydrological cycle. This includes those rising up from the depths of oceans, lakes, waterholes, springs and aquifers – i.e. from underground or undersea domains; those inhabiting rivers and streams, and those – such as winged dragons and plumed serpent beings – that represent the airborne aspects of water, and its capacities to flow in hydrological cycles between earth and sky.
Water beings embody water’s material characteristics. They are fluid and serpentine, wriggling across landscapes, and disappearing into the earth. They often shine and glitter like water. Sometimes, signalling water’s relationships with air, wind, and weather, they have feathers or wings, and spit out lightning and fire. And because they are formed in part by the consistent material properties and behaviours of water and by its physical capacities to irrigate, connect, permeate, and transform, they carry powerful undercurrents of shared meanings that persist across time and space, as well as culturally and historically specific meanings (Strang 2004; 2005). This universality, which is compatible with rather than mutually exclusive to cultural specificity, makes them an ideal subject for comparative analysis. Water beings therefore provide an ideal way to examine societies’ different trajectories of engagement with the non-human domain.

Their historical and geographical ubiquity means that almost every major museum celebrating art and culture has multiple objects and images representing water beings. For example, the British Museum contains Javanese shadow puppets; Aztec *xuicoatl*; Chinese and Japanese dragons; multi-headed Eastern cobras; Greek and Roman hydras; Indian *nāgas*; Viking dragon boat prows; Kwakiutl lightning snakes; African Mami Wata images; Australian rainbow serpents; Egyptian uraeus; and Māori *taniwha*; as well as representations of the serpent beings or ‘dragons’ that – in societies seeking dominion over Nature – were recast as demonic adversaries for culture heroes such as St George and St Michael, Beowulf, Bahram Gur, Vishnu, and others (Day 1985, Rauer 2000, Riches 2000, Strang in press b). All of these objects and images have a story to tell and, by exploring the role of water beings in different social and cultural contexts and tracing the changes in how these are represented and valorised or demonised over time, it is possible to discern key shifts in human-non-human relationships.

Water beings provide insights into the imaginative aquifers that underlie societies’ most fundamental understandings. For example, while the objects and images representing water beings are historically and culturally diverse, they share persistent commonalities in form, comprising a polysemic ‘family’ of objects and images whose iconography offers important insights into human cognition. They demonstrate how people’s phenomenological engagements with the world involves thinking ‘with’ the materials of it, in the same way that – as Levi-Strauss suggested – they find animals ‘good to think’ (1964). The world provides ‘metaphors to live by’ (Lakoff and Johnson 2003). Just as rock or concrete offers visions of stability (Harvey and Knox 2010), and trees support ideas about growth (Rival 1998), the fluid properties and behaviours of water enable us to formulate concepts of cyclical movements and flows, and to imagine changes and transformations through different states of being over time (Strang 2004). As the substance essential to all organic life, water is also visibly animated, and perceptually ‘alive’ (Atran 1990), and therefore lends itself to notions of personhood (Bird-David 1999), and personification in the form of water beings.

As manifestations of water’s life-giving powers, water beings have a central role in many stories of cosmogenesis, in which the material world and all life forms emerge from primal seas, sometimes spewed from a vast serpent, or composed of its body. Such visions
of parthenogenesis highlight the role of water serpent beings as ancestral beings that, as we will see, segues readily into notions of rivers as ‘living ancestors’ and therefore persons. This vision of the creation of a stable material world out of fluid chaos also serves as a metaphor for the emergence of human consciousness from the seas of unconscious being. Bringing light out of darkness, the ‘wise serpent’ appears as a recurring trope in many cosmological narratives of enlightenment (Henderson and Oakes 1963).

More often than not, serpentine primeval ancestors are androgynous, or appear as twins, representing both genders. In ancient Egypt, for example, the great serpent, rising up out of watery chaos to bring light and form into the world, gave rise to millennia of serpent worship (Clark 1959; Cooper 2005). In the Mayan cosmos, Itzam Na, the ‘Celestial Iguana’, emerges from primal seas to carry the world upon its back (Deimel and Ruhnau 2000). The Aztecs describe two giant serpents Tezcatlipoca and Quetzalcoatl, creating the world out of the body of the sea monster Tlaltechuhtli, throwing half of her up to become the sky and leaving the other half floating on the sea, to become the earth (Ferguson 2000). In Māori stories of cosmogenesis, in which the world emerges from fluid chaos (Te Kore), a primal ancestor, Maui, pulls a great fish out of the sea, which becomes New Zealand’s North Island, and a range of ‘nature deities’ form the world and its living kinds (Barlow 1991).

Representing the powers of water at a physical level, and the necessity of water to all living kinds, water serpent beings are hybrid creatures, literally incorporating the local life-forms that they generate. In Africa, they combine the patterns and form of pythons with the horns of antelopes. In Central America, plumed serpents wear the green feathers of the sacred quetzal, and water lily serpents link the twining forms of aquatic plant life with the sacred jaguar. In South America, giant anacondas magnify the snakes in the rivers of Amazonia. North America provides the horned serpents of the Pueblos, and – further north – the wolf and bear-headed water beings of the West Coast. In Australia, rainbow serpents bear the patterns of colourful snakes, and they share features with aquatic species: fish scales, or the patterned skin, claws, and heads of crocodiles.

Expressing cultural and historical understandings of how water moves through the world, water beings ascend and descend from celestial realms, surging up out of the land as springs; arching over the earth as rainbows; and drifting down from the clouds as rain.

In the image above, the Japanese cloud dragon manifesting out of the mist or ‘becoming’, as Deleuze and Guattari would say (2004), beautifully expresses the idea that such beings are not just personifications of the power of water – they are composed of water. They are the deities responsible for bringing life-giving rain, and as well as maintaining orderly flows of events in the material world, they act as lawmakers, upholding social mores. They must be propitiated, so that they provide water when and how it is needed, rather than bringing punitive floods or droughts. They comprise the fluid connections between all living kinds. They bring all life into the world and, more often than not, their movements...
entail a ‘hydro-theological cycle’ (Tuan 1968), in which they carry the human spirit between invisible underworlds, visible material worlds, and celestial domains, and into and out of material ‘becoming’.

An Australian Hydro-theological Cycle

An ethnographic example is provided by the Rainbow Serpent in Australia. This is the primary ancestral being from which all life emerged during the Dreamtime, and which continues to generate living kinds and resources. A key part of its role is to carry the human spirit from within its body/held in the land, upwards from water places into incarnated form: thus, the spirit ‘jumps up’ to enliven the foetus in a woman’s womb (Strang 2002; see also Hiatt 1975). This process of becoming a person, or ‘becoming visible/material’ (Morton 1967), locates each individual in a network of kin, and gives them a home place in clan land, with concomitant rights to local resources.

At the end of life, a person’s spirit must be ritually sung back to its home and – in a process of un-becoming – returns to the pool of ancestral power held in the land. Simultaneously, the Rainbow Serpent is the generative source of what indigenous Australians call the Law. This is the entirety of their traditional knowledge which, like water, flows intergenerationally through songs, stories, and ritual practices. The secret sacred aspects of this knowledge are passed on to people at appropriate stages of their lives, and this conferment of power underpins the authority of Aboriginal societies’ gerontocratic leadership and ensures respect for their elders.

A central theme within the Law is how to live with the non-human world: how to harvest resources sustainably or, as the elders put it, how to ‘care for country’, both ritually and practically, so that everything remains intact for future generations. The Law held in the Rainbow Serpent, and transmitted from one generation to the next, contains homilies about not overusing resources: for example, the imperative to replace the main root in harvesting yams; leaving sufficient ‘spear tree’ to allow regrowth; and respecting restrictions on hunting and gathering at sacred sites. And, as noted above, the long-term persistence of Aboriginal lifeways over many millennia suggests that these values, encouraging low levels of resource use and population control, maintained high levels of social and ecological sustainability.

Serpentine Imaginaries

It will be apparent that water serpent beings are doing a lot of imaginative work. They are the origin of life and consciousness, and of the generative ancestral power that continues to produce all living kinds. They provide a way of conceptualising hydrological cycles and annual patterns of rainfall so that societies can work with these, and the material environment, to maintain social and economic stability. They enable people to envision the movement of human (and other) spiritual life through material and non-material forms of existence. They are the enlightening embodiment of the Law: of all knowledge, of people’s rights to land and resources, and of all of the rules and practices that maintain social order. They are the connective force in a sentient environment that directs and is responsive to human action. They mediate sustainable engagements with water and the environment, and they are powerful and authoritative, ensuring deep respect for water and its agentive capacities.

Therefore, traditional water serpent beings such as the Australian Rainbow Serpent,
encapsulate a radically alternative model of human-non-human relations. They present a vision of more egalitarian relationships, based on mutually beneficial reciprocal partnerships between humans and the non-human world, in which the humans care for the material environment, and all living kinds are rewarded with long-term social and ecological stability. Humankind is not above or separate from nature, but held within a living, sentient world, working with, rather than merely acting upon it. This collaborative approach, which Michael Given describes as ‘conviviality’ – i.e., living with – is demonstrably a good recipe for sustainable human-environmental relationships (2018). The question is: how can we carry these kinds of ideas and values into contemporary modes of engaging with water, and recreate the reciprocal human-non-human partnerships that they express?

Part of initiating change entails understanding the factors that have pushed many societal trajectories in far less sustainable directions. What happens to water beings over time in different historical and cultural contexts is indicative of some important changes in human-environmental relations. It is only possible to offer the briefest summary here of what is obviously a large and complex narrative, but the patterns that even an outline sketch reveals are fascinating.

It is useful to return to Durkheim at this juncture, to consider how changing cosmological beliefs go hand in hand with changes in socio-political arrangements (1961). Human societies create their gods in their own images, so that religious arrangements are in effect a mirror of society and, as societies enlarge and become more hierarchical and patriarchal, so do their deities. Building on Durkheimian theory, my own hypothesis, which is foundational to a forthcoming text on this topic (Strang in press b), is that we need to add a third element. As well as recognising the interconnections between socio-political arrangements and religious beliefs, we need to look at the relationships between these and the extent to which societies are technically instrumental in acting upon their material environments and moulding them to their desires.

**Becoming Human**

What happens to water serpent deities and beliefs in nature beings when societies develop more instrumental technologies, such as shifting into agricultural modes of engagement? When such changes are low key, the answer is ‘not very much’. Horticultural societies, or small-scale agriculturalists, continued to valorise water serpent beings, although they placed a stronger emphasis on their ability to bring annual rain for crops, and water beings’ forms changed accordingly. For example, horned serpent beings from the American pueblos typically have maize collars signifying their importance in generating crops, and they spit out lightning, indicating their rain-bringing role. Their celebration in rituals has a heavy focus on dances requesting rain at key planting times (Schaafsma 1980).

Water serpent worship was equally untroubled by the use of flood irrigation: [Fig. 6. A mural of Avanyu, a horned serpent being from local pueblos, at the El Fondo Hotel, Santa Fe. Photo: Veronica Strang.]
historically, societies building low bunds to make use of annual river inundations, such as those in the Indus Valley, Mesopotamia, or growing rice in the Far East, continued to valorise water beings, relying upon them to bring the vital annual flood (Christie 2007; Sutherland 2007).

But more intensive agricultural technologies and urbanisation had a greater impact, not least in introducing higher risks of collapse (Cowgill 2015; Diamond 2011; Scarborough 1998), but also in changing people’s perspectives about the non-human world. The use of more sophisticated irrigation schemes, the enclosure of land into farms, and the domestication of plant and animal species initiated a pattern of change that suggested a critical shift in human-non-human relations. As societies acquired more material control over their physical environments, and presumably felt more powerful in this regard, they began to humanise their gods. Thus, in their pantheons of deities, we see the emergence of semi-humanised water beings.

It is possible to chart these formal transformations over time. In India for example, early renditions of fertility-oriented nature deities were animal and plant like, combining serpentine/aquatic species and lotus imagery. This is highly visible in the makara images that are a recurrent motif right across Asia, and in the transitions from aniconic to figurative representations of goddesses such as Lajjā Gaurī (Bolon 1992). Later Hinduism and Buddhism produced further humanisation, and, while deities continued to shift between human and non-human forms, water serpent beings were more frequently relegated to becoming mere vehicles for fully humanised deities such as the goddess Ganga, who took over as the representation of the sacred river. Thus she appeared riding on a water being, and the great cosmic serpents, such as Ananta, were represented as carrying the Buddha, or Krishna and his consort.

These transitions towards more humanised gods were repeated in different places at different times. For example, in classical Greece and Rome, religious narratives and images began to describe former serpent beings in human form. Zeus – described in earlier records as a ‘kindly serpent’ – became fully humanised over time, as did many deities (Burkert 1985). In this way, representational objects and images echoed the shifts in religious narratives that took place alongside changing socio-political dynamics (Campbell 1968).

Critically, as societies became more hierarchical and patriarchal, and enlarged their instrumental activities with more intensive farming, industries, and trade, there was a bifurcation between ideas about culture and nature. Nature was recast as unruly feminised chaos that, in order to be made obediently reproductive, required the authority of male/human culture, represented by the monotheisms and their beliefs in ‘God the Father’ (Eliade 1982; Harrison 1999; Hocart 1922).
Successful transitions to monotheism required the aggressive suppression of preceding Nature religions worshipping the multiple Nature beings and powerful goddesses of earlier times (Plumwood 1993). The wise, creative serpent bringing knowledge and enlightenment to nature-worshipping societies became the ‘cunning’ but evil serpent in Eden and was increasingly feminised. The water beings that so clearly represented the power of nature were demonised as dragons, and in medieval Europe and beyond there was a florescence of serpent slaying alongside the killing of ‘heretics’ or ‘pagans’ resistant to conversion to Christian and other monotheistic beliefs (Batto 1992; Joines 1974; Riches 2000).

Although this is just the tiniest thumbnail sketch of a vast and complex story, what happens to water beings along the way is revealing. It demonstrates a movement, accompanied by political, religious, and technological change, from a positioning of humankind in an actively reciprocal and fairly egalitarian partnership with the non-human world and other living kinds, to a more alienated relationship in which the goal was to achieve patriarchal dominion over these, and to direct the world to meet human needs and interests. This developmental trajectory does not lead to a happy ending. Assisted by more and more sophisticated technologies and infrastructures, the shift to exerting extreme dominion encouraged the kinds of short-term exploitative practices that have led to the current ecological crises, and the mass extinction of other species.

At the heart of this problem is a reality that prioritising human interests, and instrumentalising the environment to provide ‘ecosystem services’ for this purpose, has led to widening inequality between human and non-human rights and interests. Over and over again, along with those of less powerful human groups, the needs and interests of non-human beings have been almost entirely overridden. In what Rodgers and O’Neill describe as ‘infrastructural violence’ (2012), there has been a massive imposition of technologies – such as big dams and water diversions – that redirect natural ecosystem flows into irrigating crops, producing hydroelectricity, and supporting industry and ever-expanding domestic human populations in urban areas (Larkin 2013).

**Rights To and For Water**

The existing pattern of extreme exploitation has not happened without opposition. There are vocal counter movements protesting against both social and ecological injustice (Baxter 2005). Environmental, conservation, socialist, feminist, and indigenous networks share a broadly common goal in promoting alternative ways of thinking about these issues, seeking more equal and collaborative relationships between human groups, and between human and non-human worlds.

Much has been learnt from ethnographic research with place-based/indigenous societies. The challenge is how to carry their alternate ways of thinking into wider discursive fora. It is also vital that indigenous communities participate directly in global
debates. There is some progress on this front. Over the last 15 years UNESCO has put a lot of attention into understanding culturally diverse perspectives on water (Johnson et al. 2012).

Indigenous communities themselves have formed important international networks aligned around two key issues: efforts to regain land and water rights lost through colonial appropriation; and a critique of industrial societies’ exploitative practices. They have used various means to communicate their views including filmmaking; political representation; public protests. The films produced by Alan Ereira with the Kogi in South America, warning ‘Younger Brother’ (Westerners) about the need to gain greater wisdom in engaging with the non-human world are relevant well-known exemplars (2009 [1990], 2012).

More recently, in relation to Standing Rock, Sioux groups have worked with a range of environmental and social justice groups to organise major protests about the imposition of an oil pipeline affecting their land and water (Arvol Looking Horse 2018).

Internationally, there are increasingly urgent efforts, for example by youth movements, and by Extinction Rebellion, to initiate real changes to current practices.

**Transformative Thinking**

How might such changes be achieved? I would suggest that this requires three things:

- A paradigmatic transformation in how major societies think about human-non-human relationships, to develop a less anthropocentric perspective that gives real consideration and equality to non-human rights and interests.

- The carrying through of a more reciprocal and egalitarian perspective into governance and regulation at every scale.

- Creativity in developing new practices in engaging with the non-human world, so that the rights and interests of other living kinds are upheld.

There is a rich body of literature emerging from philosophy, anthropology, and other disciplines that seeks to challenge the intellectually flawed dualism of a longstanding culture-nature divide and relocate humankind within a shared social and ecological environment with non-human beings. This is not a new debate: Vladimir Vernadsky’s early conceptualisation of the biosphere as a shared world of interconnected living kinds (1920) resurfaced in James Lovelock’s Gaia theory (1979, 1987). Anthropology has long had an interest in human-animal relations (Serpell 1996; Haraway 2008), which has led more recently to research on multi-species ethnography (Kirksey and Helmreich 2010). Latour’s Actor Network Theory (2005), and the new materialists have highlighted the agentive capacities of the non-human world (Bennett 2009; Tsing 2004). All of these works challenged mainstream thinking about
nature and culture as separate domains and offered illuminating ideas about the dynamic relations between all living kinds, and the material world.

There is also a burgeoning anthropological interest in human engagements with water. This has served to underline not only the fluid connections between living kinds (Krause and Strang 2016), but also the ways in which water reflects social and political relations – in particular how power is distributed (Krause and Ley 2019; Mosse 2003; Wittfogel 1957).

In 2017 the United Nations set out to develop some new ‘principles for water’, which attempted to articulate the kinds of deeper cultural values that indigenous communities have been trying to promote. The new Principles (below) highlight the diversity of cultural values in relation to water; the need to balance different needs and interests; and stress the importance of a long-term perspective (United Nations 2018a).

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### UN Principles for Water 2017

1) Recognise and Embrace Water’s Multiple Values

*Identify and take into account the multiple and diverse values of water to different groups and interests in all decisions affecting water.*

2) Reconcile Values and Build Trust

*Conduct all processes to reconcile values in ways that are equitable, transparent, and inclusive.*

3) Protect the Sources

*Value, manage, and protect all sources of water... for current and future generations.*

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Similarly, even though it retained conventional technical and managerial language, the UN’s water report for 2018 focused on promoting what it called ‘Nature Based Solutions’ (United Nations 2018b). This suggests some recognition that working with rather than merely acting on the non-human world is the best way forward.

While this top-level intergovernmental leadership is vital in driving change, it is inevitably cumbersome, and these are urgent matters that need to be tackled at every level, with grass-roots support, and with leadership by regional and national governments, and by national and international NGOs.

**Earth Law**

An important contribution to this process has come from the groups committed to promoting non-human rights in the legal arena (Cullinan 2003). For some cultural groups
‘The Law’ is all pervasive, entering every aspect of their lives. In larger societies there are laws relating to most areas of life, but these tend to sit in the background. However, like ancient religious texts, laws recursively reflect the most dominant or prevailing ideas about social and political order and in this sense they provide a shorthand for more complex cultural beliefs and values. It is therefore reasonable to hope that legal reformation will help to lead wider cultural changes in practice.

There have been increasing efforts to establish substantive legal rights for nature. For example, in response to pressure from its indigenous communities, the Government of Ecuador passed legislation in 2008 securing the ‘rights of nature’, Pachamama, in its Constitution (Berros 2015). This promotes a vision of el buen vivir (good living) in which citizenship entails a more egalitarian vision of conviviality with nature. Thus, the preamble to the Constitution states that: “We decided to construct a new form of citizen co-existence, in diversity and harmony with nature, to reach ‘el buen vivir, el sumak kawsay’” (Government of Ecuador 2008).

Bolivia followed suit a few years later with a ‘Law for Mother Earth’. At an international level, activists such as the Global Alliance for the Rights of Nature have been campaigning for a UN Declaration specifically protecting the Rights of Nature, in the same way that it made a Universal Declaration on Human Rights in 1948 (Global Alliance 2020).

A campaign to establish rights for non-human beings has also been promoted by the Earth Law Centre (ELC). Based in New York and San Francisco, but linked to multiple NGOs internationally, the ELC aspires to be ‘a global force of advocates for the rights of nature’. As they say:

Just as people have fundamental rights, so too should nature. Earth Law is the idea that ecosystems have the right to exist, thrive, and evolve – and that nature should be able to defend its rights in court. […] We envision a future in which humans and nature flourish together. (Earth Law Centre 2018)

Along the same lines are efforts by legal activists such as Polly Higgins to persuade the International Court of Criminal Justice to declare ‘ecocide’ as an international crime, with concomitant penalties. As she put it:

Ecocide is a crime against the living natural world – ecosystem loss, damage or destruction is occurring every day. […] Ecocide is a crime against the Earth, not just humans. Further, ecocide can also be climate crime: dangerous industrial activity causes climate ecocide. […] Unlike crimes against humanity, ecocide has severe impact on inhabitants, not just humans. Thus, what is required is the expansion of our collective duty of care to protect the natural living world and all life. (Higgins 2019)

Some of the most interesting developments in this field are efforts to suggest that, just as non-human species should have rights, so too should living systems. There has been considerable pressure by a range of groups, including the Earth Law Centre, to establish rights for rivers as legal persons, with some success in relation to the Ganges and Yamuna Rivers in India, and the Atrato River in Colombia.

This, of course, requires us to think about rivers in broadly the same way that people do when they personify them as water serpent beings: i.e., as responsive, living beings with their own agency and power, who must be engaged with respectfully and reciprocally. This resemblance to the tenets of more sustainable place-based societies is not a coincidence.
One of the most useful examples of indigenous influence comes from New Zealand. Māori, arriving in New Zealand in the 1300s, formed tribes or *iwis*, and traditionally relied on horticulture (along with hunting and gathering). Their stories of cosmogenesis contain many powerful nature deities, including important water serpent beings, called *taniwha* or *marakihau*, which both personify the powers of water, and are seen as the guardians of rivers and seas. Thus, *taniwha* have often been called into play in opposing contemporary development schemes, in particular schemes to redirect water, which are seen as harmful to the environment (Strang 2014).

As in many place-based societies, nature deities are also seen as the ancestors of humankind and remain present in a sentient and responsive land and waterscape. In this cultural context it is therefore wholly logical to describe a river as a ‘living ancestor’, *Te Awa Tupua* (Muru-Lanning 2016). As the descendants of the river’s spiritual being, Māori *iwis* have a responsibility for *katitiaki* (stewardship), to protect the well-being of the living ancestor for future generations. In 2017, this ancestral connection provided the basis of a successful legal action, which established the personhood of the Whanganui River as a ‘living entity’, with concomitant legal rights (New Zealand Government 2017).

The legal ruling on the Whanganui defined “the River from the mountains to the sea, its tributaries, and all its physical and metaphysical elements, as an indivisible and living whole”. From now on, it stated, the river would have rights similar to those conventionally granted to corporate ‘persons’ such as trusts, companies and societies: “*Te Awa Tupua* is a legal person and has all the rights, powers, duties, and liabilities of a legal person”. Nominated individuals – a representative for the Crown and one from the Whanganui *iwi* – would have a responsibility to ‘speak for’ the river and promote its rights and interests, not just in terms of its management and use, but also within the legal system. A new role, *Te Pou Tupua* was created by the Bill ‘to be the human face of *Te Awa Tupua* and act in the name of *Te Awa Tupua*.’ (New Zealand Government 2017), and two Māori representatives, female and male, were elected to share this responsibility (*Te Pou Tupua* 2020).

These efforts to acknowledge non-human legal personhood have usefully focused attention on ethical questions about non-human rights (Charpleix 2017). Some have argued that it is essential in promoting the kind of thinking that will lead to real changes in practice, and it has forged some powerful alliances between indigenous communities and environmental activist organisations. However, it has also led to unease about ‘religious’ efforts to re-enchant the non-human world and confer upon it forms of consciousness and animism that are at odds with scientific thinking. But the proponents of acknowledging rivers as legal persons contend that it is not enough just to understand them as living entities: they require legal protection, which can only be achieved via the kinds of rights given to persons (Earth Law 2020).

In reality such approaches are not mutually exclusive. Whether based on notions of spiritual being, or on a more scientific acknowledgement that rivers are living ecosystems,
there is an argument for providing them with more substantial legal protection, and indeed
to extending such protection to all living kinds (Kopnina 2017; Kopnina and Washington
2020). Rights are always a balance: the provision of legal rights to non-human beings
would challenge and potentially counterbalance long assumed ‘rights’ to ignore their
needs and interests, to exploit them, and indeed to destroy environments and drive species
into extinction. Thus, it is not so much a matter of upholding non-human rights, as of
developing an ethical stance in which ignoring these is not an option. By articulating the
ethical questions, the legal debate has some capacity to transform ideas and practices, and to
articulate and enact more sustainable environmental values.

**Putting Rights into Practice**

How might this make a difference in practice? Here too, the New Zealand example is
useful. The model giving legal protection to the Whanganui River, and the appointment of
a representative in the role of *To Pou Tupua* ensures that the local *iwi* will have a direct role
in decision-making affecting the river. Because this role is specifically to ‘speak for the river’
it also has the potential to give a voice to the non-human beings who live in or alongside the
river, and to speak on behalf of their needs and interests.

The basic tenets of this model could be carried into diverse cultural contexts. There
are already, around the world, thousands of catchment management groups, friends of the
river, and suchlike, whose major goal is to protect waterways. There are many knowledgeable
people – scientists and local experts – trying to collaborate in various kinds of Integrated
Water Resource Management (IWRM) (Orlove and Caton 2010). Giving such experts a
formal and more equal role in decision-making bodies, to ‘speak for’ the river and its non-
human inhabitants, would be transformative.

With this in mind, I have been developing an idea about ‘re-imagined communities’
(Strang 2021). This draws on Benedict Anderson's well-known work *Imagined Communities*,
in which he considered how we envision the various human communities to which we
belong: our kin relations; local communities; our professional communities; those that reflect
our particular interests. What a notion of ‘re-imagined communities’ suggests is that we
should extend this idea to the non-human communities amongst whom we live, in this way
consciously rejecting self-absorbed anthropocentricity and relocating ourselves within – and as
part of – the living world with which we interact on a daily basis, and whose needs and interests
our activities affect. This includes a foundational need to recognise non-human agency and the
active participation of the non-human domain in the co-creation of a shared lifeworld.

If we were to re-imagine communities in this way, a logical step would be to ask how
to provide non-human beings with a voice and participation in decisions. As I have noted
elsewhere, in accord with other writing on ecological justice (Gray and Curry 2016), this
constitutes a form of pan-species democracy (Strang in press a). For example, decisions about
introducing new water infrastructure, or about general catchment management processes,
could be made in a collective and egalitarian forum. As well as giving space to the concerns
of different human communities (local farmers, residents etc.), water quality experts might
speak for the well-being of the water; local fishers could provide input on behalf of fish
populations; soil scientists could articulate the microbial well-being of riparian soils;
botanists could consider the well-being of local plant life; biologists, or wildlife specialists
could speak for other species. Like the role of the *To Pou Tupua* in New Zealand, their job
would be to articulate and promote the needs and interests of the non-human living kinds similarly dependent upon the flows of water through the catchment and make it much harder to maintain a habit of ignoring and overriding these.

Such a paradigmatic shift in ideas and practices would surely produce better, more sustainable decisions. In offering a more balanced approach to human and non-human interests, it could actively encourage the other significant changes – in patterns of consumption, lifestyle etc. – that are needed to ensure a brighter future for all living kinds. Thus, drawing on the enlightenment provided by water beings and the ideas and values they have promoted over millennia, it may be possible to shift the current trajectory of most societies, which has led to the environmental crisis, and move towards, if not nature worship, at least into more convivial and sustainable engagements with the non-human world, and with water.

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Spiritual Relationality in Swahili Ocean Worlds

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ABSTRACT This article interrogates how people in Kaole relate to the ocean spiritually. Located on the Swahili coast in Tanzania, with a long history of transoceanic connections, Kaole is a fishing community where everyday life is lived alongside and through the ocean. Drawing on exploratory fieldwork in preparation of our new research project Swahili Ocean Worlds, in this article we share some of our initial findings, which we contextualise with the help of scholarly work on the Swahili world and Islam in Africa. To broaden our scope, we also engage with some comparative material from other parts of the world. In conceptualising Swahili ocean worlds, we draw on the anthropology of water, which has ascertained the centrality of water in the making of social worlds. But to grasp the spiritual relationality of the ocean, we adopt a pluriversal approach, with an emphasis on multiple worldings in an emergent world of many worlds. Our aim is to go beyond the focus on materiality and sociality in the anthropology of water, to interrogate the spirituality of the ocean in terms of spiritual beings as well as becomings.

Keywords: Swahili, Islam, ocean, spirituality, pluriverse, worlding

Introduction: A Pluriversal Approach to Spirituality in Swahili Ocean Worlds

“It is the power of God that takes the water out and brings it in,” Hamisi explains to us, concluding “We believe the ocean is sacred”. He describes the ocean in terms of its purity, “nothing can make it dirty; the sea cleans itself, it takes out stuff”. This cleansing is related to the tides, which he attributes to divine power. We are talking with Hamisi near the beach in Kaole, a fishing community on the Indian Ocean coast in Tanzania. In the background we can hear the laughter of children who are splashing around in the waves. The tide is high and the sea offers a fresh respite after a warm day, before darkness sets in. At low tide, the ocean withdraws quite far from the shoreline, but at high tide it is sufficiently deep for a soak, yet not too deep for children to stand on the sandy bottom. Hamisi is very knowledgeable about the Quran and one of his jobs is to pray for people who have problems, as mtu wa dua (person of prayer) or mwadiimu (teacher), which is how he refers to his profession. We sit with Hamisi outside an empty house, on an elevated concrete seating that is typical of houses on the Swahili coast. The house offers a quiet, undisturbed place for our conversation, not far from Hamisi’s home. Some chicken are pecking the ground nearby and the branches of the mango trees are drooping with fruits soon to ripen. The sun is about to set and the air is cooling down, freshened by a light ocean breeze.
With these fieldnotes, we welcome you to Kaole and Swahili ocean worlds. In preparation of our new research project *Swahili Ocean Worlds*, we carried out some exploratory fieldwork in Kaole from November 2020 to March 2021, mostly interviews and some participant observation with fishers and other local residents. In conceptualising Swahili ocean worlds, we draw on waterworlds (Hastrup and Hastrup 2015) and Indian ocean worlds (Srinivas et al. 2020), to capture how the ocean features in the making and remaking of social worlds. While there is substantial scholarship on the *Swahili world* (Wynne-Jones and LaViolette 2018), anthropologists have argued that “the relationship of Swahili people to the sea has not been theorized explicitly” (Fleisher et al. 2015: 110), thus our focus on Swahili *ocean worlds*, foregrounding the ocean as a theory machine (Helmreich 2011).

In this article we explore how people in Kaole relate to the ocean spiritually. The word *Swahili* is in itself telling of close relationality with the ocean, a word of Arab origin that means coast. Swahili culture is thus by default coastal culture, while Swahili people (*mswahili*, plural *waswahili*) means coastal people. Kaole, the small fishing community on the Swahili coast in mainland Tanzania where we have carried out our preparatory fieldwork is located in the administrative region *Pwani*, which means Coastal Region (*Mkoa wa Pwani*). All in all, we are engaging with the ocean by way of coastal people in a coastal culture in a coastal region.

Focusing on spiritual relationality in Swahili ocean worlds, we aim to move beyond the focus on materiality and sociality in the anthropology of water. As recognised in a recent review (Ballestero 2019), anthropologists have interrogated water as a multifaceted field of relationality (Krause and Strang 2016), with an emphasis on sociality and materiality, approaching water as “part and parcel of the lived world”, thus viewing it as “social in nature” (Hastrup and Hastrup 2015: 6). In recognition of the multiple meanings of water in different cultural contexts, Strang has also brought attention to how “water serves as an image of spiritual essence, social identity, and belonging” (2012: 98). It is this *spiritual essence* we aim to probe further, including and beyond different *water beings* (Strang 2015, 2019).

While the spirituality of water is often approached as cultural belief, we draw on recent work on the pluriverse, which has invited “anthropology to reckon with the idea that much of what the discipline deemed cultural beliefs might be not only such” (Blaser and de la Cadena 2018: 17, emphasis in original). While this epistemological shift reflects the proverbial tree as a spirit in the ontological turn in anthropology (Heywood 2017), we choose to lean on recent work on the *pluriverse*, to foreground worldmaking in a world of many worlds (Blaser and de la Cadena 2018; Escobar 2020; Ingold 2018; Reiter 2018). In addition to the emphasis on non-Western ontologies and epistemologies (Reiter 2018), and heterogeneous worldings (Blaser and de la Cadena 2018), we appreciate the scholarly attention to worldmaking through relational ontologies of radical interdependence and cosmovisions of sacred nature (Escobar 2020), along with elaborations on multiple ontogenesis in the worlding of our one world, the

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1 We are grateful to the two anonymous reviewers who offered constructive critique on an earlier version of this article. We are also very thankful to our interlocutors in Kaole who so kindly shared their knowledge with us, and we hope that this article captures some aspects of their relationships with the ocean in adequate ways. Shukrani! All interlocutors have been given fictitious names in this article, for ethical reasons.

2 Swahili Ocean Worlds is a multidisciplinary research project that investigates how coastal fishing communities in Tanzania relate to the ocean. It is coordinated by Paula Uimonen at Stockholm University in collaboration with Dr Mwanahija Shalli at University of Dar es Salaam. The project is funded by the Swedish Research Council, grant number 2021-03661 (funding period 2022-2024).
becoming of being (Ingold 2018). Our reason for relying on a pluriversal approach is that this body of scholarship opens up new possibilities for appraising the spiritual relationality of water.³ It offers a planetary perspective that recognises the interdependence of human, natural, and spiritual worlds, as articulated in one of Escobar’s early deliberations on the pluriverse (2011: 139): “[T]he evolving pluriverse might be described as a process of planetarization articulated around a vision of the Earth as a living whole that is always emerging out of the manifold biophysical, human, and spiritual elements and relations that make it up”.

This article starts with an ethnographic account of spiritual relationships with the ocean, outlining how some people in Kaole engage with the spiritual world through rituals and in daily life. In the following section, we contextualise Swahili ocean worlds in relation to the transoceanic history of the Swahili world. In the next section, we draw on scholarly work on spiritual relationships with water in other parts of the world, arguing for a scholarly shift from cosmologies to worldings. To appreciate the particularities of worldmaking in Swahili ocean worlds, we then dwell deeper into the entanglements of Swahili and Islamic worlds. In the last section, we explore spirituality in Swahili ocean worlds in terms of divine worlding in the pluriverse, before concluding with some reflections on a paradoxical contrast between the seen and the unseen, in this case notions of spiritual purity as opposed to material waste.

**Sacred Tidal Waves and Majini in Kaole**

When Hamisi told us about God’s power in taking the water out and bringing it in, he elaborated on rituals related to the ocean tides. One such ritual revolves around prayers at low

³ As scholars have pointed out, the analytic use of pluriverse stems from ethnographic experiences of worldings (e.g., earth beings and animal spirits in forests), that are beyond the grasp of political ecology and other material-semiotic grammars (Blaser and de la Cadena 2018: 4-5). Similarly, Escobar has pointed out how “The Western realist episteme translates non-Western reals into beliefs, so that only the reality validated by science is real. We have science (and thus the true perception of the real); they can only have ‘beliefs’ (myths, ideologies, legends, superstitions, local but never universal knowledges, and so on)” (Escobar 2020: 15). In her recent work on femininity and spirituality in Nigerian women’s literature, Uimonen (2020) used scholarly work on the pluriverse to make sense of sacred water, along with African womanism, which also recognises the reality of spirituality.
tide to get rid of something and at high tide to bring something back (Figure 1). For instance, if someone wants to get rid of bad luck or bad spirits a ritual is performed as the tide is getting low, so that misfortunes are taken out of the body and spirit and sent away with the receding water. When people want to bring back something they have lost, such as a job, friends or income, losses that can be caused by envy and bad spirits, at high tide they can pray to God to bring it back. Hamisi reflected that he preferred the rituals at low tide, because the water that was going out was also cleansing, and once your spirit was cleansed it would attract the positive things you wished for. Rituals can also be carried out through immersion in the sea, pouring water and bathing a person. In these rituals, Hamisi relies on Islamic prayers and recitals (kisomo and dua) to invoke God’s powers, which are connected to the tidal system.

The ocean features in rituals performed for the community as well, for cleansing and protection. On the fourth month of the Islamic calendar, a village protection/cleansing ritual is performed by the Kaole community. It is known as the Kuzingua Mji day for Kaole and Hamisi compared it with the Mwaka Kogwa festivity in Makunduchi in Unguja (Zanzibar), a Swahili New Year ceremony celebrated with elaborate rituals. In Kaole, the festive event is for all people, everybody is invited. During the ritual, they conduct a special prayer (dua) for the village. They pray for God to protect the village and save it from all calamities, evils (fights and conflicts) and all that will harm the place and the people. Offerings are also made to the ocean.

Hamisi recalled how in the past, the ritual was quite elaborate. They used to do it by reciting the Quran while walking around the village. Those who couldn’t read the Quran walked along and made some wishes for the well-being of the village. They slaughtered a cow at the last point of the walk and prepared a soup from the whole cow. After the dua, three groups of children from the madrasa (Islamic school) walked around with baskets and pieces of wood, which were used as instruments to accompany their singing. They would knock at different houses while singing and the house owners would open and give them money or some bites, which they collected in their baskets. They spent the money they received to buy more bites, especially breads. In the end, they met at the mosque where the soup was served, bringing the bites and bread they had collected. People were not supposed to break the bones while eating the cow meat soup. Afterwards all the bones were collected and thrown into the ocean. Some people would also go to swim in the ocean to cleanse their bodies and celebrate the event. They swam at high tide and by the time the tide was getting low, they had already thrown the bones and swam. They believed everything bad/evil from their bodies and their town went away with the water. That was the purpose and the whole reason behind that ritual and its process.

Hamisi recounted how the ritual is conducted these days, in comparison to the old days. Nowadays people no longer walk around town reciting the Quran and there is no singing procession. There is rarely swimming, or it does not happen at all. Instead, they sit in one place and read or recite the Quran, slaughter a cow, and prepare a soup. They share the cow meat soup and afterwards they collect the bones and throw them into the ocean.

The bones are thrown into the ocean as an offering to the spirits in the sea, such as jini (plural majini). In earlier times, the blood from the sacrificed cow was also poured into the ocean, but nowadays the offering consists of bones only. The spirits (majini) can get into humans and cause them problems, such as sickness, stress, and anxiety, and sometimes the affected people cannot get better through modern medical treatments, Hamisi explains. By offering them some food, the ritual is aimed at appeasing the spirits in the sea, so they will spare humans and not cause any trouble to anyone.
During our conversations with fishers in Kaole we learn more about the spirits in the sea, especially around islands, rocks, and coral reefs. An elderly fisher, Mwalimu Rashidi explains to us that “there are many different kinds of spirits, a whole world of the unseen under the water”. Although they cannot be seen, the spirits are a powerful force that needs to be reckoned with, as they might inflict harm. He recounted the circumstances of his son’s death, many years ago:

He was swimming to get the boat to take it to the shore and bad luck happened, he didn’t have enough energy to get to where the boat was. Someone was in the boat and telling him to keep going, but he didn’t have the ability to get there, and as I told you there are many things in the sea, some can be seen, and some cannot be seen. You can ignore it, but many people have died, without being pushed or drowned. Sometimes, someone took the boat into the water and did not return. As you hear of land spirits, jini and devils, they are also in the water, and they cannot be seen.

So yeah, he swam to get the boat, but he lost energy before reaching it and drowned. He drowned at a spot that for many years is known to have majini, wadudu, and for that reason, we were told we would not find his body on that first day, maybe in two days. We found his body on the next day, it was brought to the shore by the water. Therefore, there are some hidden/unseen creatures in the ocean.

Similarly, the younger fisher Hamidu reflected on the existence of invisible creatures in the sea and how they are sometimes perceived to be the source of misfortunes during fishing:

The creatures [spirits] are there but cannot be seen or rarely seen, naturally they are there on both land and in the ocean. They have their habitats, in the ocean and on land but that is deep knowledge. If you want to know more about it, you have to go deeper on that environment…

He went on describing how they go to work and come back from fishing, but sometimes they have challenges and accidents may occur, which people may interpret in such a way that the incidents are related to those mythical spirits; the majini could be the reason. He explained that to understand this you need ‘special and deep knowledge of another environment’, what is known as Mazingira ya Kiswahili (Swahili spiritual environment). He insisted that they have developed a faith beyond that fear, while acknowledging the existence of the unseen world: “You just develop faith; you go and come back but in your conscious and subconscious mind you know the spirits are there. You cannot see them, you cannot”. While viewing death in terms of destiny, Hamidu reflected that when someone dies people will make up their own stories, sometimes they associate it with chunusi, the spirit that lives in the ocean and sometimes kills or takes people. We asked how they protect themselves against chunusi? He laughed and said, “there is no way you can protect yourself against that spirit, you can’t even see it”.

He recounted how people would do some rituals or pray for their own protection, safety, good luck, and success, according to their faith. In his case, most of the time when he leaves the house, his main prayer is asking for a good day of work and a safe return: “Mungu nisaidie katika kazi yangu, niende salama nirudi salama” (God help me with my work, may I go safely and return safely). Sometimes he also performs a Shahada, the Muslim declaration of faith and the first pillar in Islam: “Ash-hadu an la ilaha ill Allah, wa ash-hadu ana Muhammad ar-rasulallah” (There is no God but Allah and Muhammad is his rightful messenger). It is believed that if you manage to say this before your death, chances are you will go to heaven.

Apart from individual prayers and rituals, God is also invoked for collective protection, the Captain of a fishing boat explains to us. Between fishing periods (banvua), fishing boats
and equipment are repaired. When the boat has been serviced, they often do a *dua*, invoking God to protect and bless them in their work, to have all the best of luck at work. The *dua* is usually organised by the owner and the captain, who make the necessary arrangements before the new fishing period starts. When we asked if they always do prayers before the fishing period, the Captain responded: “Yes, but sometimes we don't, we believe we had a *dua* at a certain time or previous *bamvua* so we believe God is still with us”. A *dua* can also be performed at other times, when they sense things are not going well.

These excerpts from our fieldnotes offer glimpses into Swahili spiritual worlds, from God’s power in directing the tidal waves, to invisible spirits in the ocean. The extent to which people engage with these spiritual forces vary, yet their presence is taken for granted. Far from being remnants of traditional belief systems or orally transmitted myths, spirits coexist with humans in everyday life. And as much as collective ritual practices have changed over time, they still remain in different forms, while individual spiritual practices vary, as they presumably always have. In this coastal community, where artisanal fishing continues to be one of the main sources of livelihood, spiritual relationships with the ocean are integral to everyday life.

**The Transoceanic History of Swahili Ocean Worlds**

The historical formation of Swahili ocean worlds exemplifies the centrality of the ocean in the making of social worlds. In the context of Swahili society, the ocean is evidently “a generative and agentive co-constituent of meanings and relationships” (Krause and Strang 2016: 633, emphasis in original) since the very existence of what is denoted as the Swahili world hinges on the Indian Ocean. In their introduction to *The Swahili World*, the most comprehensive account of Swahili civilisation to date, the editors acknowledge the problem of representing “the diversity of the Swahili world”, concluding that their volume aims to give a sense of “the many worlds that might have been called Swahili over the last two millennia” (Wynne-Jones and LaViolette 2018: 11). This recognition of a Swahili world of many worlds speaks to a pluriverse of heterogenous worldings and heterogeneous(ly) entangled worlds (Blaser and de la Cadena 2018: 4). Even as an analytic concept, the Swahili world captures worldmaking in the plural, signifying how any world is made up of many worlds. When foregrounding the ocean, we can appreciate the complexity of these worlds even further and the entangled relations of their making.

The spatiotemporal relationality of Swahili ocean worlds is quite remarkable, reflecting a long history of transcultural connections and relationships across the Indian Ocean. Scholars have described this history in terms of Swahili cosmopolitanism in the Indian Ocean world system (LaViolette 2008), anchoring Swahili culture in oceanic linkages that have created a seascape described as an interconnected, transcultural ocean (Sheriff and Ho 2014). This scholarly work exemplifies what Helmreich refers to as “oceanization, a reorientation toward the seas as a translocally connecting substance” (2011: 137, emphasis in original). Although translocality has been a dominant feature in Swahili studies (e.g., Declich 2018), translocal relationships have not always entailed cosmopolitan engagements with cultural others. In the eighteenth and nineteenth century, Zanzibar and Kilwa were centres in slave trade, with Swahili and Arab merchants selling slaves brought from the inland to different places on the East African coast, southern Arabia and beyond (Prestholdt 2018: 524).4

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4 Slave trade in Kilwa was also directed at other parts of the world, as merchants responded to demand from plantations on the French islands of Mauritius and Reunion, as well as demand from Madagascar, Gujarat, the Western Cape and Brazil (Prestholdt 2018: 524).
In Kaole, this transoceanic history is materially visible in some tomb ruins in town and the archaeological site Kaole Ruins, which attracts visitors from near and far. The Kaole Ruins features a thirteenth century mosque, one of the oldest in mainland Tanzania, and a fifteenth century mosque, along with graves from the same period, archaeological remnants of trade and interaction with the Arab world (Pollard 2018). The museum also holds pieces of Chinese pottery, material proof of early relationships with distant civilisations.

In Kaole, the ocean has also been an important source of livelihood, before and alongside transoceanic connections. Kaole has been described as one of the “late first- and early second-millennium ports” on the Swahili coast, and archaeological evidence of fishing activities indicate the “longevity of techniques that persist to the present day”, including the use of wooden fish-trap baskets, which are still used by fishers in Kaole (Pollard 2018: 37). Kaole has also been identified as one of the first proto-Swahili settlements in the second half of the first millennium, and it has been suggested that these proto-Swahili communities were drawn to the coast by its maritime resources (Horton and Chami 2018: 141).

The transoceanic history of the Swahili world is manifest in the Swahili spirit world. Giles has discussed how “Swahili spirit cosmology mirrors the cosmopolitan nature of Swahili society”, with its long history of translocal linkages as well as cultural and religious influences (Giles 2018: 190). She notes that the spirit world can be categorised into Muslim (kiislamu) and pagan (kafiri) as well as coastal (pwani) and upcountry (bara), which in turn have various sub-categories. There are also spirits from other cultures and societies, such as Arab, Somali, and Abyssinian spirits, as well as more generalised categories like Congolese and European spirits, and the spirits themselves are seen as “translocal beings that freely travel between locations” (Giles 2018: 191). This translocality is also evident in various rituals, as shown in Giles’ detailed comparison of spirit possession beliefs and practices in Pemba, Comoro Islands and Madagascar.

The jini (plural majini) is a good example of the translocal composition and mobility of Swahili spirits. The word is derived from the Arabic jinn, spiritual beings dating back to pre-Islamic Arabian cosmology that have been incorporated into Islam. In Swahili spirit cosmology, majini are classified as pwani (coastal) spirits, “since they have come over the sea from the Middle East and North Africa”, and they tend to require Islamic ceremonies (Giles 2018: 192). In mainland Tanzania, majini are associated with coastal communities, but over the last few decades majini have spread inland, which has been attributed to the “growing presence of Islamic healers” (Lindhardt 2019: 87). In Iringa, Lindhardt notes that Pentecostals/charismatics consider majini to be fallen angels, and in recognition of their existence and power they now see “majini as their primary adversaries in spiritual warfare against the forces of darkness” (2019: 90). By contrast, Tanzanian Muslims have a more nuanced understanding of majini; they are spirits created by God and they are not essentially good or bad, but they influence the human world in various ways, and they also establish relationships with human beings. As the elderly fisherman we spoke with in Kaole reflected on the majini, spirits that “cannot be seen”:

There are good and bad ones [majini]. Some might be sent to harm and there can be another spirit taking care, protecting you and your life, if someone intends to hurt you, they protect. There are situations when jini can be sent directly, for example go to Hussein [he uses Masimbi as an example], and this protector does not want you harmed and a fight may occur, you see, and possibly your time is not yet [meaning: your death].
There are spirits for protecting you all the time and some that are enemies, kept by some individuals, and can be used to harm. When they miss a human and there are animals, like cows and goats, they will suck their blood and kill them. They are kept like domestic animals, cows or goats. Majini are like humans, that is why God said, “I have created humans and jini to worship me” [cited from the Quran]. Majini are viumbe (creatures) like humans, and among them there are good and bad ones.

In Kaole it is generally believed that there are more majini in the sea, along with other invisible beings, but these ocean creatures can also appear on land, even in human form, and they can also be manmade. As Larsen (2014) has discussed, majini are both material and immaterial, visible and invisible, since these unseen spirits can inhabit human bodies and thereby become material as well as visible. She prefers to discuss this in terms of embodiment rather than spirit possession, to emphasise that “Spirits and humans are regarded as different beings”, even though they may sometimes “share a body in the human world” (Larsen 2014: 9). Even when they share a body, the spirit/s and the human retain their separate identities, while maintaining a relationship that can last for years and even be passed on to succeeding generations.

Swahili ocean worlds demand a historically attuned appraisal of spiritual relationality. In these ocean worlds that have been formed over more than a millennium of transoceanic connectivity, we cannot ignore the many layers of history that coalesce in contemporary life, from seafaring and slave trade to cultural exchange. In places like Kaole, fishing periods (bamvua) are determined by environmental conditions and calculated according to the Islamic calendar, using fishing techniques that have been shaped by centuries of making a living from the ocean. Nor can we turn a blind eye to the many spirits that fishers have to take into consideration when entering the ocean, while placing their trust and hope in the divine intervention of the Creator of life itself. Surely we are dealing with something far greater than just a body of saltwater?

**Water Cosmologies and Multiple Worldings**

Spirituality in Swahili ocean worlds can be compared with spiritual relationships with water, especially seawater, in other parts of the world. Strang has shown that water beings, such as sacred serpent beings, have appeared in different cultural contexts throughout human history (Strang 2015). A great variety of water deities and water spirits are found in Africa, for instance the water goddess often known as Mammy Water or Mami Wata, who is also worshipped among African diaspora in Latin America (Drewal 2008; Jell-Bahlsen 2008; Uimonen 2020). A detailed historical overview of spirit worlds in maritime communities in Southeast Asia documents how waters in the region have been inhabited by a vast range of water spirits and deities, oftentimes gendered (Watson Andaya 2016), and how different world religions have been incorporated into local water cosmologies over time (Watson Andaya 2017). In this region, which scholars have called a world of water (Boomgard 2007), we also find elaborate indigenous sea cosmologies, for instance among island societies in Maluku Tenggara (Pannell 2007), while the pre-Islamic Ocean Goddess in Java, Ratu Kidul (also known as Nyai Roro Kidul) continues to exert her influence, even through social media (Strassler 2014). In Australia, McNiven (2003) has documented the deep spiritual connections to the sea among Saltwater Peoples (coastal Aboriginal peoples and Torres Strait Islanders), underwritten by a Dreaming cosmology.

We also find spiritual practices related to the ocean in different parts of the world. For
instance, among Aboriginal people in Australia, we find various rituals related to the tides, including ritual arrangements of bones, demonstrating an intimate spiritual relationship with the sea, which is animated by spiritual forces, reflecting cosmologies of human coexistence with invisible spiritual worlds (McNiven 2003). In many societies, bathing in the ocean is ritually purifying (Watson Andaya 2016: 241), and in Bali, the beach has become a place of ritual cleansing and the sea a source of powerful holy water (Watson Andaya 2017: 361). In Java, offerings to Ratu Kidul are made in various forms, including dedicated rooms in beach hotels, and while some Islamic scholars denounce such practices, others endorse them (Strassler 2014).

More directly comparable with our study, the ethnography of Mandar people in the Makassar Strait in Sulawesi, Indonesia, shows interesting similarities between Muslim fishing communities in different parts of the world (Zerner 2003: 62-73). For many Mandar fishers, Allah has the ultimate power over the fate of men as well as the currents of the marine realm, and the sea is inhabited by various spirits, including shape shifting spirits of reefs and shallow waters. Similar to fishers in Kaole, Mandar fishers manage these spiritual relationships in various ways, including recitations of the Quran, prayers, and offerings as well as respectful behaviour. Research has thus shown how different communities engage with the ocean spiritually. Whether treated as indigenous sea cosmologies (Pannell 2007), cosmologies of the maritime world (Watson Andaya 2016; 2017), spiritscapes of seascapes (McNiven 2003), or a seascape of spirits (Zerner 2003), we find both commonalities and differences in spiritual engagements with the ocean in different parts of the world, along with changes over time. This cultural diversity could be approached in terms of spiritual beliefs and practices, embedded in local cosmologies or ontologies that ascertain a close relationship between humans and the natural environment.

But what happens if we direct our attention from cosmologies and ontologies to worldings and ontogenies? Ingold has encouraged anthropologists to shift their focus from multiple ontologies to multiple ontogenies, to explore the very generation of being in a world of becoming, a one world of ever-emergent difference, where every being is constituted through the generative processes of life itself (Ingold 2018: 167). By comparison, Escobar (2020) has emphasised relational ontologies and cosmovisions of interdependence as viable alternatives to a hegemonic one-world world (OWW), thus challenging the dualist ontology of Western modernity. Far from being irreconcilable, both Ingold’s philosophising on ontogenesis in one world and Escobar’s ontological politics against a Western one-world can be productively applied to Swahili ocean worlds, which are non-western, non-secular, exceedingly relational and unpredictably emergent.

**Swahili Worldmaking and Islamic Modernity**

When interrogating spiritual relationality in Swahili ocean worlds, we are reminded that “seawater is both good to think with and here to live with, in multifarious actuality” (Helmreich 2011: 138). To appreciate this multifarious actuality, we can pay closer attention to alternatives to modernist/scientist appraisals of the ocean as a marine environment, let alone marine resource, seeing that water cannot be “reduced to H_2O” and that even the “substance” that is water “varies with culture and epoch” (Illich 1985: 4-5). As noted above, anthropologists have done excellent work in this regard, interrogating the multiple meanings of water, in different places and at different times in human history (e.g., Strang 2012; 2015). Now that the ocean is receiving more attention in the environmental crisis that our planet is facing, Strang has noted a “refocusing on the spiritual meanings of water” (2019:
She argues that human dominion over nature and the objectification of nature can be related to the historical movement from nature religions to monotheistic beliefs, which can be contrasted with “place-based indigenous communities” for whom “waterscapes are often both sentient and sacred” (Strang 2019: 9). Similarly, in his search for biocentric alternatives to modern anthropocentric models of life, Escobar (2020) foregrounds territorial and communal cosmovisions of sacred nature that are found among indigenous peoples. While we appreciate this scholarly attention to spiritual engagements with nature, we would like to extend the scholarly gaze beyond indigenous cultures, so called nature religions, and pre-modern societies. Through Swahili ocean worlds, we can appreciate the spiritual relationality of the ocean in contemporary civilisations, thus pushing past dichotomies of modern-traditional societies, or monotheistic-nature religions.

Since we focus on relational worldmaking in contemporary Muslim fishing communities, our epistemic framework needs to encompass Islamic modernity in Africa. More precisely, we need to consider what scholars describe as African Islam, or even East African Islam, underlining that “de facto Islam is both one and many” (Evers Rosander 1997: 2, emphasis in original). By exploring Islamic modernity in the making of Swahili ocean worlds, we hope to show that we need not only look into “nonmodern collectives” to find communities where “persons exist in relation to their ancestors, their kin, their communities, the natural world”, and where “the sacred and the everyday are lived experiences” (Escobar 2020: 16). Such characteristics are also found in contemporary Swahili communities, which by no means are nonmodern. Quite the contrary, on the Swahili coast like in many other parts of Africa, Islam has often been associated with modernisation, alongside Western forms of modernity, demonstrating that “Modernity does not necessarily mean Westernization or secularization” (Evers Rosander 1997: 10).

With its long history of transoceanic connections, the Swahili world is intricately interconnected with the Islamic world. On the Swahili coast, Islam dates back to the eighth century, through early connections with Muslim societies in the Persian Gulf and Red Sea (Bang 2018). In the early modern period, Swahili societies had close relations with Oman and the Ottoman Empire, and the Sultanate of Oman ruled over Zanzibar from 1698. While European colonial rule, starting with Portugal and followed by Germany and Great Britain, had a profound impact on the Swahili world, it was predated by a much longer history of exchange with the Muslim world. Moreover, concurrent with European colonialism, there was a Swahili cultural renaissance, which drew on religious and cultural influences from the southern Arabian region (Prestholdt 2018). After independence from colonial rule, Islam was propagated as a third way in many parts of Africa, offering a complete way of life and an alternative to Western capitalism as well as Eastern communism (Hunwick 1997: 33). With accelerated globalisation, connections between Muslim communities in Africa and other parts of the Muslim world, especially the Middle East, have intensified further, while Islam has evolved in many different forms throughout the continent. More recently, with the global ‘war on terror’, the Swahili coast with its predominantly Muslim communities has been turned into “one of the main battlegrounds against supra-state Islamism” (Meier 2018: 639).

The influence of Islamic modernity in the making of Swahili ocean worlds is eminent in the arts, not least literature and poetry. It was through the spread of Islamic scholarly material, which included poetry, that literacy developed on the Swahili coast, especially from the nineteenth century, when eastern African Islam became increasingly “bookish” (Bang 2018: 560). This textual orientation was often related to literacy in Arabic, but from the
1890s, Swahili scholars also started publishing their own books, journals, and newspapers, increasingly in Swahili. Even so, it is important to recognise this cultural connectivity in terms of “multi-directional flow” (Bang 2018: 564), which becomes clear when Swahili literature is appreciated as world literature (Helgesson 2020; Uimonen 2018). The Swahili renaissance was a period of “remarkable cultural productivity” and the “apex of classical Swahili poetry”, characterised by increasing Arabisation of Swahili language and culture, since Arabness was equated with civilisation (Prestholdt 2018: 523). But as much as early Swahili poetry derived from an “Islamic-Arabic cultural commons,” these “Arabic narratives” were “Africanized” at the same time as Swahili communities became “culturally Arabized” (Helgesson 2020: 100). In contemporary world literature studies, Swahili literature is seen as an illuminating example of “Indian Ocean literature”, which insists on “different universalisms”, while inviting “a more pluricultural reading of the Indian Ocean through deep time” (Helgesson 2020: 93). This multi-directional orientation is also evident in contemporary forms of digitally mediated performance poetry, which mix poetry, music, and theatre in creatively entangled ways (Uimonen 2018).

The influence of Islam is also evident in education, with Islamic schools (madrasa) playing an important role in learning and social formation. While primary education is compulsory in the state’s educational system, in Swahili communities the madrasa is considered equally if not more important. Among Muslims in Kaole, few people undertake education beyond primary school, but everyone attends madrasa. The elderly fisher Mwalimu Rashidi, who is in his late sixties, did not even study past fourth grade in primary school, instead he pursued Islamic education. He learned the Quran well and became a teacher (mwalimu) at Kaole Madrasa. He recollected that “in those days, elders were in favour of religious (Islam/Quran) education. It was taken more seriously than secular education”. He retired from teaching some years ago, but still guides and helps the Madrasa as advisor, elder and former teacher. The Captain, who is in his early forties, completed primary education in Kaole in 1994. He did not continue with further education, but he continued with madrasa, to the point of being able to read the Quran quite well. He is no longer a fulltime member of the school, but he still engages with it: “I can always join them as a former student and support the Madrasa on different occasions, especially preparing for ceremonies and performing”.

While recognising the multi-layered entanglements of Islam, in everyday life as well as arts, our study goes beyond religion as a system of belief, thus our focus on spirituality. When discussing religion in African culture, scholars have underlined that religion is a belief and an attitude, reflecting an “ontological ultimacy” on non-human powers and agencies (Oladipo 2005: 357). Scholars have also highlighted African difference in the Islamic world, for example the presence of departed ancestors in human life worlds, a

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1 Helgesson discusses the novel Paradise (1994) by Abdulrazak Gurnah, emphasising the need to take a “deep-time view of Swahili literature evolving within a non-Western literary ecology” into account (2020: 100). Abdulrazak Gurnah was awarded the Nobel Prize in Literature in 2021 by the Swedish Academy. He was described as a postcolonial writer from Africa, a Tanzanian novelist born on Zanzibar and based in the UK. Through Abdulrazak Gurnah, there will undoubtedly be more interest in Indian Ocean literature worldwide.

2 In his discussion of religion in African culture, Oladipo refers to Bolaji Idowu’s earlier definition of the structure of African traditional religion, which consists of: belief in God, divinities, spirits, and ancestors as well as the practice of magic and medicine (2005: 356). Oladipo challenges the categorisation of some of these characteristics as religion, which is indicative of the epistemic difficulties involved when discussing religion in African contexts. This is another reason why we focus on spirituality rather than religion.
“pervasive ontology” of African peoples, irrespective of religious affiliation (Diagne 2005: 378). Indeed, Islam in Africa has always entailed intricate cultural syntheses, resulting in a diversity of African Muslim cultures, which in turn are entangled with pre-Islamic African cultural elements as well as Euro-American ones (Hunwick 1997). In the Swahili world, while most coastal dwellers have been practicing Muslims since the eleventh century, “Other indigenous spiritual practices continued alongside and interwoven with Islam, as we see up to the present” (Wynne-Jones and LaViolette 2018: 9).

This multi-layered complexity is evident in Swahili ocean worlds, which bring together a variety of spiritual relationships. Swahili ocean worlds remind us that as much as Islam is a monotheistic religion, with universal claims and aspirations for global unity, the world of Islam is plural and porous. In Muslim fishing communities like Kaole, Islamic prayers can be combined with offerings of bones to appease the many spirits in the ocean. By enlisting the power of God in controlling the tidal waves, people can also get rid of bad luck or bring back something that was lost due to envy. The point here is not to distinguish what is modern or traditional, Islamic or indigenous, since it does not really matter in everyday life. Similar to Muslim fishing communities in Indonesia, these spiritual engagements are more akin to the “changing configurations of a kaleidoscope in motion”, full of crossovers and overlaps (Zerner 2003: 62).

**Divine Worlding in the Pluriverse**

The coexistence of humans and spirits is a central feature in Swahili ocean worlds. As you may recall, the young fisher Hamidu referred to *Mazingira ya Kiswahili* when he reflected on how people sometimes interpret challenges and accidents as incidents caused by *majini*. The literal translation of *Mazingira ya Kiswahili* is Swahili environment. While the term is used to denote a spiritual environment, it is intrinsic to the physical environment. In other words, in Swahili ocean worlds, the natural environment is both physical/material and spiritual/immaterial.

Swahili ocean worlds bring forth important aspects of worlding, capturing a world in continuous movement, made up relations that flow alongside. In his efforts to reconcile the universal and the particular in the ongoing formation of our world, Ingold uses correspondence to denote their affiliation, underlining that “parts are not components that are added to one another but movements that carry on alongside one another”, which means that “the relations that make up the whole are not between but along” (Ingold 2018: 160, emphasis in original). He also proposes a more processual approach to diversity, to “think of difference in terms of differentiation rather than diversity” (Ingold 2018: 161, emphasis in original). This is a critical distinction, since it captures the way in which parts are related to the whole, as something that emerges from within “the plane of immanence that is life itself”, according to the “principle of interstitial differentiation” (Ingold 2018: 166). While Ingold thinks through worlding in the pluriverse by way of animism and naturalism as contrasting ontological regimes, using the relation between the soul and soul-life among the Inuit in the High Arctic as his ethnographic grounding, his philosophising can also be applied to Swahili ocean worlds.

When foregrounding the ocean, the principle of interstitial differentiation can be applied to the making of Swahili ocean worlds, which emerge from one ocean, within one Earth. While we may categorise it into different oceans, such as the Indian Ocean or the Pacific Ocean, there is only one ocean. This means that what we refer to as different oceans, are in fact interconnected oceans, emerging from within one ocean that is in continuous
movement, thus exemplifying the principle of interstitial differentiation in a continually emerging world. Since our one world, as in Escobar’s Earth as a living whole, is continuously made up of various biophysical, human, and spiritual elements and relations, the ocean in Swahili ocean worlds is in turn part of a greater whole, a world where both nature and human life is subject to divine power and agency. Here the immanence of life itself is not a question of the divine being outside the material world, but the ontological ultimacy of God being essential to the very existence of life on Earth.

In Swahili ocean worlds, the world is created by God, a non-human, sacred force of life that directs the tidal currents (‘nature’), as well as human destiny (‘humans’) in an environment that is both material and immaterial (‘spirits’). In these worlds that both encompass and transcend human life-worlds, humans correspond with spirits, living alongside and emerging from within a world of divine creation. Human relationships with spirits cut across time and space, ranging from ancestors to majini. In everyday life, people live their lives in submission to God, knowing that come what may, their destiny is in the hands of the Creator of life. Inshallah (God willing).

Concluding Reflections on the Unseen in Swahili Ocean Worlds

In this article we have explored spiritual relationality in Swahili ocean worlds, focusing on the unseen in the ocean. We have discussed how the ocean in Swahili ocean worlds is both visible and invisible, material and immaterial, natural and spiritual. The movements of the ocean are directed by God, while the ocean itself is inhabited by visible as well as invisible creatures, like majini. To contextualise Swahili ocean worlds, we have elaborated on the historical formation of the Swahili world and its intricate entanglements with the world of Islam. When theorising spiritual relationality, we have interrogated Swahili ocean worlds through the prism of worlding in the pluriverse, to capture not only spiritual beings, but also spiritual becomings.

We would like to conclude with a rather paradoxical contrast between the seen and unseen, to bring forth the epistemic value of thinking through the spirituality of the ocean, thus venturing beyond its materiality and sociality. Let us start with Ingold’s recent reflection on an art exhibition by the artist Carol Bove, visualising what the sea discards on the shore: “Over countless centuries, the ocean has swallowed up things of human manufacture and – after varying lengths of time – spat them up again” (Ingold 2021: 55-56).

“The ocean cleans itself with the power of God and it can make itself dirty”, Hamisi explained to us, when describing God’s power in directing the tidal waves. He reflected that the ocean has a system of bringing garbage to the shore and sometimes taking it away. “That is why sometimes the water looks so clean and attracts you to go swim and sometimes you look at it and see lots of garbage and seaweed”. Hamisi acknowledged that they see that power and believe that by using the ocean their wishes will go right, for instance through the rituals he elaborated on. When we asked the Captain why some people use the sea for dua and healing, he responded:

It is because, looking at it from that perspective, the ocean is clean, it does not have dirt. The ocean cleans itself naturally. If there is anything in there, at some point it is taken out, there is a season when all the garbage is sent out. Even if someone dies there, he/she will not remain there, he/she will be taken out and left on shore, because the sea is a clean place. Someone
might have some misfortunes and his/her body needs cleansing. These people may get into the ocean and cleanse themselves, but the ocean will not keep their dirt, it will cleanse them but their dirt will be sent out of the ocean. It does not keep any dirt, even the unseen. Whatever you see floating there will get out somewhere on shore. What remains there is what belongs there naturally.

Our interviews with Hamisi and Captain took place during kaskazi, a period of north-easterly monsoon winds, when the beach was filled with garbage, brought to the shore by tidal waves (Figure 2). The contrast between spiritual purity and material debris was astonishing. But for people in Kaole, the garbage was a seasonal occurrence in the divine movement of the world, and within some months, the ocean had cleaned the beach (Figure 3).

Fig. 2. Beach full of garbage during kaskazi in November 2020. Photo: Paula Uimonen

Fig. 3. Beach cleaned by the ocean in August 2021. Photo: Paula Uimonen

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Water, Life, and Loss: Aguasociality and Environmental Change in the Peruvian Andes1

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ABSTRACT Based on long-term ethnographic fieldwork in the Colca Valley community Yanque, this article investigates how small-scale farmers in the Southern Peruvian Andes relate to water and environmental change in intimate ways. It explores how the circulation of water in Yanque binds bodies, soil, crops, and mountains together – in a particular aguasocial sense. Building on the particularities of the Yanque waterworld, neo-material and posthuman scholarship that focus on more-than-human entanglements, and studies within the anthropology of water that foreground water's relationality, I argue for the need of ethnographic attention to aguasocialities. Attending to aguasocialities, my argument goes, implies a focus on more-than-human relations; likewise, it recognises water's potential to be social in its own right, and contributes with alternative stories to the dominant Anthropocene narrative by localising it, bringing in water and inviting to think the world differently.

Keywords: water, aguasociality, more-than-human relations, environmental change, Anthropocene, Peru

Introduction

On a cold evening in May 2016, I was chatting with Maria and Ignacio in their small kitchen in the Colca Valley farming village Yanque, south in the Peruvian Andes. While we were drinking hot water with herbs, Ignacio explained to me that the differences in the Quechua dialect between Yanque and the neighbouring villages are a result of the differences in the water they consume: “Chivay and Yanque have the same water; therefore, the Quechua is the same… Achoma has another water, Ichupampa has another water. Therefore, their Quechua is different”. The people who consume water from the same source speak Quechua in the same way. Therefore, people speak different kinds of Quechua depending on where they get their water from. Ignacio described how the water flowing through peoples’ land and bodies influences the way they speak. Further, the various waters originate in different mountains. These mountains and waters that Yanqueños (people from Yanque) often relate to as sentient beings, play important roles in uniting as well as differentiating groups of the Colca Valley population. Just as language is formed by specific, localised waters that run through bodies and places, identity is embodied and emplaced through the flow of water.

This article examines how small-scale farmers in the Southern Peruvian Andes relate to water

1 This article is based on data material which was gathered in 2016 when I did fieldwork for my PhD thesis. Therefore, there are a few minor overlaps between details in this article and my PhD thesis Liquid landscapes: Water scarcity and human-water relations in Yanque, Peru.
in intimate ways. Through empirical material based on long-term ethnographic fieldwork in Yanque, it explores how the circulation of water binds bodies, soil, crops, mountains, and sentient beings together – in a particular aguasocial sense (agua is Spanish for water). Moreover, it looks at potential implications that environmental change and lack of water have for more-than-human relations. The article suggests aguasociality as a concept to think about water, its sociality, and its relations to more-than-human entities and beings in the Andes. However, the term is also relevant for exploring water’s relationality in other places, which is especially timely in the Anthropocene – since water is involved in many of the transformations taking place in the planet’s new geological epoch. More broadly, the concept offers an approach for attending to the intimate and complex ways in which humans and the environment are intertwined, through water.

In the first part of the article, I conceptualise aguasociality and discuss how it draws on, expands, and combines aspects from related concepts, such as ‘hydrosocial’ (Linton and Budds 2014; Krause 2017), ‘biosocial’ (Ingold and Palsson 2013), ‘more-than-human sociality’ (Tsing 2013), and ‘geosocialities’ (Palsson and Swanson 2016). Building on the particularities of the Yanque ‘waterworld’ (Hastrup 2009), neo-material and posthuman scholarship that focuses on more-than-human entanglements, and studies within the anthropology of water that foreground water’s relationality, I argue for the need of ethnographic attention to aguasocialities. Attending to aguasocialities, my argument goes, implies a focus on more-than-human relations; likewise, it recognises water’s potential to be social in its own right, and contributes with alternative stories to the dominant Anthropocene narrative by localising it (e.g., Kuznetski and Alaimo 2020; Hetch 2018; in Gagné 2020; Neimanis 2017), bringing in water (Neimanis 2017), and inviting to “thinking the world otherwise” (Grosz, in Yusoff et al. 2012: 971).

Following the first part, I briefly contextualise the Yanque waterworld before I turn to a more detailed empirical description of how water circulates in and out of human and non-human entities. Through practices of drinking chicha (maize brew), working the fields, and making offerings to earth beings, we see how water is central in forging more-than-human relations. The examples show that water bodies can be social beings themselves and illustrate that in this landscape matter and meaning must be understood together, as material flow cannot be separated from social flow. The empirical descriptions also establish the significance of aguasocial relations to secure life, and hint that less water has the potential to affect significant relations and practices.

In the succeeding part, I discuss in depth how the empirical material from Yanque sheds light on aguasocial relations enforced by water’s relational creativity. I also point to how water uncertainty makes humans and non-humans suffer together, underscoring the intimacy of water loss. However, changing waters do not only have the potential to threaten aguasocial relations but also to strengthen them. Following particular aguasocial flows and lack thereof, allows us to understand the significance of water and loss of water for local bodies, lives, and relations. Lastly, I conclude by arguing that aguasociality is a useful concept for understanding waters, more-than-human relations, and environmental change in the Anthropocene, in Yanque and elsewhere.
Thinking through aguasociality

For the past decade, humanities and social sciences have seen an increase in studies of water, a substance that was formerly treated as an object of study belonging to the natural sciences. Several scholars have emphasised the need to think the hydrological and the social together, linking the material flow of water to social relationships (e.g. Anand 2017; Barnes 2014; Linton and Budds 2014; Krause and Strang 2016; Krause 2017). Linton and Budds (2014) suggest the term *hydrosocial cycle* as an alternative to the scientific concept hydrological cycle where water is pictured as abstracted from the social. Further, Krause (2017: 404) argues that we not only need to consider water in relation to the social context (Linton 2010; Linton and Budds 2014) but also to explore the active role of water in making social relations.

Thus, the concept *hydrosocial* is a tool for exploring relationships between people shaped by water and is linked to classic understandings of human sociality and to the material flow of water (Krause 2017: 404). A focus on hydrosociality, as well as Krause and Strang’s (2016) call for “thinking relationships through water”, challenge a division between the social and the material and between water and human life. While “[h]ydrosociality is a way of relating among people” (Krause 2017: 404), Krause and Strang think of social relationships as not only bonds between humans but also between humans and “animals, places, things and materials” (2016: 634). However, in these water studies, sociality still implies the presence of humans. Water is social because of its role in human social, political or cultural life.

While building on the abovementioned contributions to the study of water and their call to think humans and waters together, I wish to go further and think of water’s sociality as “made in entangling relations with significant others” (Tsing 2013: 27) – others that are not necessarily human. Inspired by my interlocutors’ ways of understanding the social, as well as neo-material and posthuman approaches to sociality, aguasociality implies a deeper, non-anthropocentric sociality of water. In Yanque, water is social – not just because it relates with humans – but on its own terms so to speak, regardless of human interaction with it. Moreover, the term hydrology embedded in the conceptualisation of *hydrosocial*, is attached to a dominant, scientific notion of water – what Linton (2010) calls ‘modern water’ – that is not relevant for and often conceals the particularities of what water is in Yanque and other localities. Instead, I propose aguasociality, as a term better equipped to capture the relations water makes between more-than-humans in Yanque, as well as the sociality of water. The concept seeks to contribute to debates on sociality within the emerging field of a more-than-human anthropology, by bringing in water and its relationality.

The development of a more-than-human anthropology is related to recent posthumanist and neo-materialist currents within arts, humanities and social sciences that confront dominant ideas of human exceptionality implying human superiority over things, matter, and other-than-human life. Neo-materialism calls for a return to matter (Barad 2003) and to approach the material and the social together (e.g. Mol 2002; Law 2007; Latour 2005), while “[p]osthumanism challenges […] the analysis of social processes based solely on the grounds of human action and intentionality” (Papadopoulos 2010: 134). Studies related to these turns invite for reflexive examination of the creation of boundaries between humans and other-than-humans, take account of the more-than-human making of worlds, and show a curiosity towards the other-than-human things and beings of significance for human life. Scholars encourage to rethink what it means to act (e.g. Latour 2005), acknowledge the vibrance of matter (Bennett 2010), equate humans with other species (Haraway 2008), and
expand the idea of sociality to include all living beings (Kohn 2013; Tsing 2013).

In the chapter “More-than-human sociality: A call for critical description”, Anna Tsing (2013: 27) starts by asking: “How could it have ever occurred to anyone that living things other than humans are not social?”. Critiquing currents within modern thought that have seen sociality as exclusively human, she concentrates on how living beings other than humans should be understood as social in their own sense, because they are co-constituted in meaningful relations with others. If we follow her argument and take the world of Yanqueños seriously, waters in Yanque can be understood as social because they are living beings. Different streams, lakes, and springs are named beings who can feel, act intentionally, and engage in meaningful relations with other beings in the landscape. Water’s aliveness makes its sociality obvious, but I want to make the point that water is social also because of its material relationality. There is a blurred boundary between thing and being in Yanque, and water can be understood as a non-human entity that is not only a being and not only a thing, but, like other entities in the Peruvian Andes, exceeds a condition of being either/or (de la Cadena 2014). Hence, understanding aguasociality in Yanque calls for considering not only the sociality of living beings but also the sociality of things or matter, or that which is both.

While Tsing’s (2013) concept of more-than-human sociality and Palsson and Ingold’s (2013) biosociality are concerned with species and organic life, Palsson and Swanson’s geosociality goes further by considering the liveliness of geology and the relations between geology and sociality, or “the entangled relation of the earth and biological beings” (2016: 150). They point out that it is challenging to imagine the hard geologic as lively in comparison to other-than-human beings who are alive (2016: 152). The substance water, on the other hand, with material properties that allows it to move, connect and transform (e.g. Krause and Strang 2016; Linton 2010; Linton and Budds 2014; Orlove and Caton 2010; Strang 2014) is an element that is easier to think of as vigorous. Furthermore, water is a precondition for biological life and is widely understood as a life-giving force. Hence, while geosociality focuses on geologic relations, aguasociality offers an approach to study lively aquatic relations.

Water, living bodies, and matter are closely intertwined, and water plays an active role in connecting entities to one another and to the world. Drawing on Alaimo’s term “[t]ranscorporeality [that] refers to the literal contact zone between human and more-than-human nature” (Alaimo 2010: 2, in Neimanis 2017: 33) and Haraway’s understanding of bodies as natureculture (Neimanis 2017: 34), Neimanis (2017) introduces the concept “bodies of water” to emphasise how all bodies – human and non-human – are made up of water and flow into one another. Humans, animals, and plants, as well as geological and meteorological phenomena are “bodies of water”, that together constitute “the watery world” (2017: 27). Thus, water pinpoints how the human body is always also more-than-human; it is made up of water, connected to others by water – entangled in the world through water.

The empirical example presented below illustrates how water is embodied and physically binds together more-than-human entities, but also that the relations are of a social character. Separating sociality and water does not make much sense, since the relationships between humans and waters in Yanque do not necessarily align with a nature-culture divide that sees water as material and humans as social. My interlocutors do not make a distinction between humans, plants, animals, earth, and water in terms of what could potentially be social. Attending to aguasocialities then, is productive in a landscape shaped by and entangled with water through and through, and where water is social all the way. I propose that in other
places as well, what we encounter are aguasocialities, that is, entanglements of waters and other materials and beings, rather than waters, humans, and others as separate entities.

The Yanque Waterworld in the Anthropocene

Yanque is located in the Colca valley in the southern Peruvian Andes at 3,417 meters above the sea. Most of the 2,117 people (INEI 2017) who live there make their primary living out of small-scale farming. During the nine-months dry season when there is no precipitation, the farmers have to irrigate their fields and carefully organise allocation of water within the community. Springs and streams with water from the tall mountains that surround the valley are collected in reservoirs and lead to the small plots of land in an intricate system of canals and ditches made of stones or dug out in the earth. A lot of the water used for irrigation is melt-water from ice and snow on the mountains that reach up to about 6,000 meters. Unfortunately, large parts of the tropical glaciers on these mountain tops that for centuries have worked as natural water reserves, are disappearing. In the Chila mountain range by Yanque, 98 per cent of the glacial areal has melted away in the past 40-50 years (INAIGEM 2016). The melting glaciers in the Andes are linked to human induced global warming and climate change (e.g. Rabatel et al. 2013) and effects the water supply in the area.

Hence, human activities in other parts of the world contribute to changing waters in the Andes. Additionally, human extractive activities in Peru, related to, for instance, mining projects and large-scale irrigation projects, impact water quality and quantity in many
places in the country. In the water shed where Yanque is located, a mega-infrastructure project dams up water in the highlands and transports it primarily to coastal areas where it is used for large scale irrigation (Paerregaard et al. 2020; Stensrud 2016; Ullberg 2019). Highland populations are affected not only by the ecological challenges following the extraction of water from the landscape, but also by how the extracted water is distributed in the population. Although Yanque and other Colca Valley communities receive some water from this project, they are not prioritised in line with coastal populations and water demanding activities downstream. Moreover, due to asymmetrical power relations, they do not have much leverage in negotiations over water with other actors in water management. This follows a history of discrimination and marginalisation in national and regional water management – shaped by a colonial power hierarchy in which rural Quechua speakers are placed below coastal and urban populations (Brandshaug 2020). Thus, in Yanque, as elsewhere in the Peruvian Andes, water access is determined by political ecological processes (Andersen 2017; Boelens 2014; Stensrud 2014; Paerregaard 2018; Rasmussen 2015). Water flows are thus closely linked to flows of power, and, more broadly, waters in the Andes are influenced by different kinds of human activities. If we flip the coin, we see how water also influences humans in manifold ways.

Exploring situated aguasocialities is especially relevant in a time of changing waters in the context of climate change and extractivist activities, and, I suggest, it may offer insights to better understand the Andean Anthropocene. The Anthropocene – the name of the new geological epoch following the Holocene – was suggested by geologists with reference to the extensive, permanent human impacts on the planet’s geology, ecology, and climate (Steffen et al. 2007; Trischler 2016). However, since water plays a large role in many of the transformations our planet is going through in this epoch, there is a need for bringing water into the Anthropocene narrative dominated by geological thinking (Neimanis 2017). The term Anthropocene has also been criticised for being anthropocentric and for implying that a homogenous category of Anthropos (‘the human’) is now affecting the planet in pervasive ways, when far from all humans are to blame (e.g., Chakrabaty 2008, Malm and Hornborg 2014; Tsing et al. 2017). There have been several calls for localising or emplacing the abstract Anthropocene (e.g., Kuznetski and Alaimo 2020; Hetch 2018, in Gagné 2020; Neimanis 2017), supplement the tendency to ‘think big’ (Palsson and Swanson 2016), explore the details of more-than-human Anthropocene landscapes (Mathews 2017; Swanson et al. 2017; Tsing 2015), and focus on human–non-human encounters (Haraway 2016), as well as the ‘Anthropo-not-seen’ (de la Cadena 2019) – heterogenous worldmaking that is not based on a divide between humans and other-than-humans and that is concealed in the dominant, modern narrative.

As the Yanque waterworld is a place where Anthropocene phenomena are largely linked to water, a focus on aguasocialities invites for an exploration of the relations between heterogenous humans and waters in particular places, in the context of the Anthropocene.

**Aguasocial Relations in Yanque**

Margarita tips the large pottery jar carefully over and lets the yellow cloudy drink pour into the glass all the way to the rim. The fermented maize drink is still bubbling slowly when she hands it over to Rosa who has just arrived to help with the sowing. “Once a person arrives you give them a roque (a large glass). Later you serve in medio vaso (a smaller glass),”
Margarita explains as she instructs me to serve chicha during the sowing of her terraced maizefield. She is a Yanqueña (woman from Yanque) in her late forties who has grown up in Yanque, is married to a Yanqueño, and has raised her children there. Both Margarita and her husband are farmers but also work in tourism to make an additional income. This September day she asks me, as the only young unmarried woman, to serve chicha to the workers. The chicha is brewed from maize grown in the very same field the season before. It has been germinated, boiled, and fermented, with barley, wort and, of course, water from Yanque. This last ingredient is not only important for the corn brew to taste like proper chicha Yanqueña, but also to ensure the circulation of water from Yanque through bodies, crops, and land – which is important to succeed with the sowing.

The field I stand before consists of narrow terraces located on the mountain slopes of Yanque, on the opposite side of the river from the town. Placed higher in the terrain a good hour walk from town, the place overlooks the river, the clustered houses and the fields that climb up the slopes on the other side of the valley. A few of the tallest mountains with peaks above 6,000 meters are visible from the field, while others are hidden from sight by smaller mountains closer to the valley. Some are glaciated, some are bare, and springs and meltwater from them run in small streams and canals towards the terraced valley slopes. Margarita’s field (chakra) is, together with the other fields close by, irrigated with water from a 25-kilometre-long canal ditch that starts by the mountain Mismi.

On the sowing day in Margarita’s field, as many as fifteen men and five women have come to help. Apparently Margarita’s husband Lorenzo always invites a lot of people, and a good bunch usually show up knowing that there is plenty of chicha, an occasion to socialise, and an opportunity of having the favour returned at a later point in time. The group of friends and family is served chicha again and again, while working and sweating under the strong sun in small teams. Some are ploughing the field with the help of an ox, some are working with hand-ploughs in those corners of the field where accessibility by the ox is not possible, some are putting seeds in the soil, others are repairing eroded parts of the terraces with carefully picked stones, and others again are cooking for dinner.

After many hours of hard work Margarita calls a break and everyone gathers in a circle – sitting and standing – around five bags filled with maize seeds in different colours. These are the different kinds of maize sowed that day. During the break several people take the opportunity to give their benediction by pouring chicha on the seeds. Pouring a few drops of
chicha from the glass before drinking is an act of ensuring fertility – of making the maize grow and give good crops. Many also pour some chicha on the ground to Pachamama (earth mother), and flick some drops of chicha to the different Apus (mountain beings) around Yanque – making a t’inka. A t’inka is an everyday ritual act of sharing drinks with named earth beings who reside in the surrounding landscape. Features of the landscape – such as hills, peaks, lakes, and spring – are beings who are gendered and make up a social community. They relate to one another through kinship, companionship, or neighbourhood, and some are more powerful than others both in relation to each other and to humans. The libation is one way of sustaining reciprocal relationships between humans and earth beings and in securing the goodwill of powerful other-than-human sentient beings vis-à-vis Yanqueños.

While resting and socialising, two glasses are passed around and one person at a time drinks a thick, mud-like substance of chicha mixed with pito (dry, grounded corn with sugar) to fill up the stomach and get energy to finish the workday. Meanwhile, Ernesto, a friend of the dueños (owners) and one of Yanque’s ritual experts, arranges a colourful piece of woven textile with llama fat, local herbs, and maize from last year’s crop. This small offering is vital to pay (pagar) and thank (agradecer) Pachamama for what she gives the farmers – an important ritual act in the exchange relationship between Yanqueños and this grand earth being.

Similar kinds of offerings are also made to the mountains and waters of Yanque – that are sentient beings manifested in the mountains and water bodies in the landscape where Yanqueños live. Mismi and other mountain beings and water beings enter in social relationships with each other, as well as with humans. As such, they respond to human behaviour by ensuring good crops and water, or by directing their anger towards humans when they do not engage in mutual relations of respect and care. For instance, during the yearly, four-day, communal work trip to maintain the irrigation canal from Mismi, pagos al agua (payments to water) are done to several water sources that also are sentient beings who can think, have feelings, will and intentions. Tata Mismi (father Mismi) is a male being that resides in the peak of the mountain Mismi and in the water stream than runs from it, and Mama Umahala is a female mountain and water body that is Tata Mismi’s woman and companion. Together

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2 The Quechua name for these sentient beings is tirakuna (Allen 2002), which de la Cadena (2015) translates to earth beings.
they make up complementary forces in this landscape. Offerings are done to both, however, the *pago al Mismi* is the most important one and is made to ensure that Mismi continues to give water to the farmers of Yanque Urinsaya. This offering is arranged on every 1st of August before a new agricultural cycle, by that year’s water mayor (*regidor*) who is responsible for the allocation of water and *pagos al agua* on behalf of the whole community.

I vividly recall the moment when water from Mismi tumbled down the mountainside for the first time in the agricultural season starting early August 2016, only six weeks before the sowing day in Margarita and Lorenzo’s field. A group of festively dressed women with the water mayor’s wife Flor in the lead, were gathered at the very end of a field, below a ravine with their hats in their hands. They were accompanied by hundreds of Yanqueños ready to celebrate the start of a new agricultural season marked by the arrival of the first water from Mismi. Flor stood ready with a large glass of *chicha*, waiting for the small water stream from the ravine to augment. Meanwhile a band played wititi music, making the event even more sensational.

The moment the new water reached the bottom of the waterfall, Flor poured the *chicha* in the fast-flowing stream, filled the glass with water and drank. Then she handed the glass to the woman on her right, who also took a large sip. Following her, all the others standing close to the ravine bent down and drank water from their hands. This marked the start of the agricultural cycle in which more-than-human collaborative work ensures a continued flow of water. The emotional event was celebrated throughout the night, with *chicha*, music, and dancing, underscoring the significance of water and its circulation for agriculture and life.

During the celebration a less welcomed detail of water’s arrival came to the surface. In a small circle of *chicha* drinking Yanqueños, the Mismi water stream was discussed. One of the men turned to me as I approached and noted that the water stream was unusually poor this year. When I asked why it was so he and the others explained that the volume of water from Mismi could vary, but that it has been noticeably decreasing in recent years. Shifting their gaze between the stream and each other, they speculated whether the community had not done sufficient maintenance work on the canal this year, if it was Mismi that was punishing them for lack of respectful behaviour, or if the decrease was a result of climate change. The men did not seem to agree on one or a combination of these explanations and left the question hanging.

On Margarita’s sowing day, she also shared her concerns for less water with me. Seated on a rock each in the shadow of a eucalyptus tree by the side of her *chakra*, she spoke of her worries concerning the decrease in water flow from Mismi. “I don’t know how we will make it without the water from Mismi”, she said while carefully adding small pieces of pumpkin into a large pot of simmering water. She told me that the tall mountain and Apu Mismi right above the valley slopes used to have a solid ice cap all year around. Now, it only had small spots and temporarily snow on it, which made Mismi and Yanqueños suffer together. She...
added: “Sometimes, there is no water at all”, which resonated with utterances I heard many times during my time in Yanque. She explained that the new dam-project in the highland further up the valley would gather more water and transport it through the valley but added: “That water is not for us in the valley, but for those by the coast”.

Lack of water is, among other things, felt in relation to irrigation. Many times, I went to irrigate with Yanque farmers, they had to walk up and down the mountain slopes and terraced fields to look for water that had flowed in other directions than expected, evaporated because of unusual heat, or been sucked up by the dry soil. One time I was joining Margarita’s father Ignacio to irrigate his field, the water had frozen in the altitudes due to especially low night temperatures and would not come down to the valley at the expected time, which meant that the water reached the fields later than anticipated. In effect, there was less water for those who had been scheduled to irrigate and less time to water their fields that day. When Ignacio eventually received water, he explained that the practice of irrigating is a way to enseñar al agua (teach water) the ways it flows in the field (e.g., Brandshaug 2020: 116-125; Stensrud 2014: 87; Treacy 1994: 113), indicating that water is a substance capable of learning. While he made small ditches and paths in the dry soil in-between the plants with his shovel small streams of water followed it. He told me stories of the relation between farmers and water, and described how water sometimes makes them cry. According to him and many other Yanqueños, a balanced relation is founded on patience, respect, and care. His youngest son Luis, Margarita’s brother, however, pointed out to me that some do not respect water that much anymore, especially in the younger generation.

Practices of searching for water and negotiating about water with humans as well as non-human beings are all well-known in Yanque since there has always been lack of water in the landscape. The difference between before and now is that lack of water has become more frequent and unpredictable which makes it difficult to make a living from small-scale farming. A growing number of people are therefore forced to make a living on non-agricultural activities just as participation in communal work parties such as the one above is decreasing. But even though some people do not know Mismi that well anymore, as a community they agree on the significance of sustaining close bonds to Tata Mismi because they have relied on this being before in difficult times. In fact, one can even sense an increased awareness of the importance of water for life and of the practices that strengthen the community’s relationships to earth beings. Less water then, has the potential to affect aguasocial flows in various ways.

Flow and Lack of Flow
As shown above, water plays a central role in making relationships between humans, plants, mountains, earth beings, and soil; it flows in and out of human and non-human bodies –
forging not only material but also social ties. The substance of chicha illustrates well how the circulation of liquids connects more-than-human worlds together. Before the sowing, Margarita made the chicha with maize grown in the fields of Yanque and with water from the Yanque landscape. The maize had been sowed and harvested with the hands of Yanqueños and irrigated with water from the nearby mountains. The water had been given by earth beings, flown through the landscape, irrigated the very same fields and plants, and entered bodies as a life-giving substance. During the sowing people drank this chicha together, shared it with earth beings, used it to fertilise the new seeds, and used their sweating bodies to work the earth and plant the seeds with the help of oxen and tools.

Thus, soil, seeds, last year’s crops, future life, human bodies, and non-human beings are tied together through the liquid chicha. We see that the drinking of chicha plays a role in creating good relationships between the hosts and the workers during the sowing, but also to Pachamama who ensures the earth’s fertility and to Mismi who supplies Yanqueños with water. The water that runs from Mismi to Yanque is used to saturate the soil and irrigate the plants, while it also circulates through Yanqueños. This is illustrated when the season’s first water arrives and Flor pours chicha (made from last season’s water and crops) in the stream and then drinks from it, so it enters her body and thus binds together different times, bodies, waters, soil, crops, and more.

Furthermore, the opening vignette of this article shows how the flow of water also forms language and identity. Ignacio explained how the water people consume influences how they speak and who they become by making bodies and connecting people to concrete places in the landscape, to specific mountains, which ultimately also make groups of people different from one another because they consume different waters derived from different mountains or apus. Different human communities relate to different earth beings. In such more-than-human communities, water beings have their own social lives where they interact with other non-human beings – all alive and active in shaping their own and others’ lives. Mama Umahala and Tata Mismi’s companionship, and their relations to Yanqueños are of an aguasocial character – simultaneously material, social, and emotional, and central in sustaining life.

While water is made to flow through entangled relations in ritual practices such as pagos and t’inkas, the same goes for the more mundane acts of drinking, cooking, eating, and washing. Moreover, through everyday activities, such as irrigation, humans and water collaborate in saturating soil and crops – each with powers of their own. Yanqueños work hard to ‘teach’ water and make it flow in their favour in times of less water. On the other hand, water both gives, creates troubles, and makes people cry. In some of these practices, water is enacted as a sentient being or as several sentient beings, in others as a liquid substance central for life but not necessarily responsive as a result of its will or intentions. Sometimes, its subjectivity is important, while at other times, its sentience does not matter much. Whether considered a being, a life-giving thing, or both, across this multiplicity and heterogeneity in what water becomes in different settings (Andersen 2018; Brandshaug 2020; Stensrud 2014), water is a substance that makes relationships in Yanque.

Water shapes Yanqueños in many ways and affects everything from language, emotions, and communal identity to economic and biophysical survival, or even political life, as I have highlighted elsewhere (Brandshaug 2020). Similarly, Karsten Paerregaard emphasises that water in the Andes has powers to influence human life physically, socio-politically, and culturally. He describes the circulation of water in the Andes as a particular form of
hydrosocial cycle (2018: 4), or as I have coined here – aguasocial, to put forth even more ‘porous’ (Lea 2015) or ‘watery’ (Neimanis 2017) understandings of human–non-human entanglements enforced by the flow of water. Moreover, through the acts of making pagos and tínkas, of drinking chicha, and of cleaning water canals and irrigating fields, as described above, Yanqueños participate in making water flow to ensure vitality. Hence, its circulation is a collaboration, which includes a more-than-human reciprocity based on human practices of care and water’s relational creativity. However, while the flow of water binds together, lack of flow has the potential to obstruct or transform aguasocialities. Thus, given water’s role in creating aguasocial relationships of significance for life, changing waters have implications in Yanque.

Many Yanqueños I spoke to, described themselves as always having suffered from lack of water. For many generations they have lived in a semi-arid area shaped by colonial power hierarchies where it has been necessary to work hard in collaboration with each other and the landscape to make water flow the right ways in sufficient amounts to secure all kinds of life. However, the situation is getting more precarious with melting glaciers, extractive activities, and a continuation of marginalisation in national water management. The common expressions No hay agua (there is no water) and Estamos sufriendo del agua (we are suffering from water [loss]), are frequently heard in the area, referring to experiences of loss and suffering that have gotten more frequent in recent years. Moreover, the prediction that there will be even less water and more uncertainty in the times to come causes worries for Yanqueños concerning the future of water and life, as underscored in the description above. As Yanqueños are intimately entangled with the world through water – socially, emotionally, and materially – ecological changes and uncertain water flows threaten relationships and activities that are central for life and enter Yanqueños in intimate ways. Therefore, water loss becomes highly personal, emotional, and embodied (Kuznetski and Alaimo 2020: 140; Neimanis 2017).

For instance, when Mismi loses its snow cap, humans and non-humans suffer together, especially since the water from Mismi has significance for many aspects of life. Diminishing water affects practices that are not only vital for economic survival, but that create meaningful relations, for instance between Margarita and Lorenzo and their family and friends who work and drink chicha in their field, between more-than-human beings who share chicha together and collaborate with irrigation and sowing, or between hundreds of dancing Yanqueños who welcome water from Mismi. Work parties such as the one described above have become rarer, many Yanqueños do not know Mismi that well anymore and question his support, and some people of the younger generations do not have the same respect for water as their parents do.

Hence, in Yanque where the landscape is made up of beings and places of respect and care, the demise of water undermines aguasocial relationships founded on a more-than-human community of particular beings and entities. However, the risk that lack of water flows poses to Yanque’s particular aguasociality, is not only for the worse. One can also see tendencies of a strengthened emphasis on the importance of continuing with and intensifying practices that make water flow and enforces more-than-humans ties (Brandshaug 2020). It

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3 Other ethnographic studies from the Colca Valley also describe how people and water are closely related (e.g., Gelles 2000; Paerregaard 2018; Stensrud 2014; Valderrama and Escalante 1988). Further, scholars have emphasised how the notion of reciprocity in the Andes includes human and non-human entities together (e.g., Allen 2002; Harris 1995; Paerregaard 2018; Stensrud 2014; Valderrama and Escalante 1988; Ødegaard 2008), and that the circulation of liqu- uids, such as blood, water, and alcohol, is vital for the flow of life (Bastien 1985; Gose 1994; Harris 2000; Paerregaard 2018; Stensrud 2014).
remains to be seen how this develops further. Nevertheless, the purpose of zooming in on aguasocial relations in Yanque have been to show what kind of intimate relationships the term aguasociality invites to investigate, as well as what it can mean to be open to the sociality of water.

## Conclusion

In this article, I have developed the concept aguasociality with inspiration from my Peruvian interlocutors, debates within the anthropology of water, and neo-material, posthuman, and more-than-human approaches. Especially, I have drawn upon Yanqueños’ way of relating to water as a sentient being and a circulating, life-giving substance; the invitation to think relationships through water (Krause and Strang 2016) and to focus on hydrosocial relations (Linton and Budds 2014; Krause 2017); and the exploration of ‘watery relations’ (Neimanis 2017), as well as other forms of more-than-human socialities (de la Cadena 2015; Ingold and Palsson 2013; Palsson and Swanson 2016; Tsing 2013).

I argue that a focus on aguasocialities calls for ethnographic attention to how waters are relationally creative not only because of particular material properties or because of their close connections to human social life, but because of a liveliness that also includes sentience and meaningful relations to other-than-humans. Conceptualising water’s relationality as aguasocial is a way to recognise different waters’ potential to be social in their own right, as well as waters’ potential to create significant relationships between entities that cannot be understood as only material or only social, thus exceeding a nature-culture divide.

While the article has explored the specific aguasociality of Yanque, I suggest aguasocialities as a valuable approach for exploring intimate more-than-human entanglements in other places as well. Concentrating on aguasocial relations allows for an appreciation of the many qualities of water that shape human life in various ways. Further, following specific water flows – and the way they change – discloses the intimacy of water and environmental change. In the Andes and elsewhere where the Anthropocene to a large extent is linked to changing water, a focus on aguasocialities draws attention to the particularities of different waters, humans, and their relations that have the potential to work as counter narratives to dominant tales of the Anthropocene and function as exercises in thinking differently about the world.

## References


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Caring for Water: Underwater Waste, Trash Diving, and Publicity in Stockholm

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ABSTRACT This article draws upon my doctoral fieldwork conducted between 2019 and 2021 among scuba trash divers in Stockholm, Sweden. The article provides an overview of developments in waste management in Stockholm, explaining how water has turned from a dump for waste to a resource. We will dive with the divers into these cold and dark Nordic waters, following their quest to clean the waters and educate the larger public about the issue of growing amounts of underwater waste. The divers use the underwater waste from the past, as also from current times, as a ‘moral punctuation’ (Ahmann 2018), stressing the urgent need to engage with the waste that has accumulated over time. The outreach by the divers is largely done via social media, where images are used to tell a story about those issues which normally remain invisible. Furthermore, I will emphasise the importance of engaging the field sensuously to understand the conditions during trash dives.

Keywords: water, waste, moral punctuation, trash diving, social media, Stockholm

Please take a picture of me, the battery, and that man fishing in the background. He really won’t stop fishing no matter how many batteries I pull up from below him. What we got now? 400 kilos worth of batteries or so? For about an hour batteries have come up, one by one, and he just keeps on fishing? Well one thing is for sure; we got more “fish” than he did.

Fig. 1 (left): A trash diver and a 20 kg car battery, with a man fishing in the background. Stockholm, winter 2020. Photo: Rasmus Rodineliussen.

Fig. 2 (right): The pile of batteries collected that day. Stockholm, winter 2020. Photo: Rasmus Rodineliussen.
The above entry from field notes is from an early 2020 winter morning in Stockholm. I am in the middle of my fieldwork with one of the scuba trash divers from the group I am working with, for my doctoral project in Social Anthropology at Stockholm University. I have been with this group for about two years at the time of writing. On this chilly morning, I helped the diver like a “line puller” from land. This was still before the trash diving project started to attract many volunteers, and the low temperatures did not help to inspire people to join, so I was needed more on land than in the water, just then. The diver and I were connected by a rope, which he used to attach the car batteries so that I could pull them up from the water. The car batteries come in various sizes, 20-, 40-, 60-, and 80 kgs. According to the diver, the spectacular thing this morning was the man fishing just behind us on the pier; he calmly looked at the growing pile of car batteries while keeping an eye on his rod. The fact that his prospective catch swam amongst containers of lead and sulphuric acid did not seem to bother him much.

In this article, I will take the reader below the waters surrounding Stockholm, the capital of Sweden. We will follow a group of scuba trash divers called Rena Mälaren (Clean Mälaren), who dive for trash in these cold Nordic waters to clean the bottoms while making the waste visible to the general public. The argument in this article follows the development noted by Veronica Strang (2019: 1) that water has become a topic of anthropological inquiry “with the growing interest in the relationship between the control of water and political power and, more strongly, when environmental anthropology emerged as a lively subfield in response to increasing concerns about sustainability”. As the focus of the divers is to bring waste up from below the water, I will engage with the work of, among others, Joshua O. Reno (2015) and Michael Thompson (2017) in rendering the relational capacities of waste visible. On the note of “making visible”, the group of trash divers uses images and videos uploaded to social media accounts to talk with the general public – making them see the waste from below the water. Here I find the work of Paula Uimonen (2020) on social media hashtags to be of great use, especially as she offers a perspective wherein updates on social media are shown to actively impact the viewer. In a way, these images and videos uploaded by the divers provide what Chloe Ahmann (2018: 143-144) would describe as a “moral punctuation: an explicit marking of time that condenses protracted suffering and demands an ethical response, eschewing the delays of political caution and the painstaking work of ensuring scientific certainty”. The group of trash divers points out ‘sins’ of the past, making them painfully visible for the public in Stockholm, in a bid to force political action.

What started in 2019 as a small group of scuba trash divers, has within two years grown into a vibrant social movement organised as a non-profit organisation that commands large public support. The trash divers’ work takes them below the surface into the murky waters around Stockholm in search of underwater waste and onto the internet and social media in their quest to highlight the issue and call for change. Hence, this article seeks to unfold how a local group of scuba trash divers can make authorities respond in ways that acknowledge and react to ‘sins’ of the past concerning waste being dumped in water.

The article begins with a historical perspective on the relationship between water and waste management in Stockholm and outlines the basic structural issues that the divers had to overcome to facilitate their work. From here follows a discussion on methods and why I, as a researcher, joined the divers underwater. The group of divers is then introduced, providing some background about their organisation. The story proceeds with a description
of the practice of trash diving, pointing out the financial aspect of the endeavour. This leads to a discussion on reaching out, bringing up the importance of (social) media for the divers' quest to make the underwater waste visible. In the concluding section, I sum up my findings and establish their support for my main argument.

Stockholm's (un)Clean Water

On their webpage, the Stockholm Water authority writes about Stockholm's historical transformation from a town that bathed in its own waste to the clean Stockholm of today: “Imagining this dirty Stockholm today is hard when you look out over Stockholm's clean water on a hot summer day. Clean water with a history of hard work” (quote translated from Swedish by author: SVOA 2020). Moreover, it is stated that the water around Stockholm is a resource in need of protection for the future (Miljöbarometern 2020).

With this in mind, it seems remarkable that until the 1970s, the official policy in Sweden was that waste from boats and summerhouses should be discarded or dumped in the sea. Authorities even broadcasted an instructional video on state television named Sjövet (1964) wherein the viewer is told to make holes in beer cans so that they will sink properly, and to collect other trash in a box, fill it with some stones and then close it to ensure that the trash would not float around on the surface destroying the beautiful nature. This practice was abandoned around the 1980s, following developments in environmental thinking, but already disposed trash was just forgotten and left where it was – covered and invisible below the surface. This could be what Michael Taussig (1999: 50) would call a public secret, “defined as that which is generally known but cannot be spoken”. During my fieldwork, many Stockholm residents told me in hushed, secretive voices that they knew that trash covered the bottom of the sea and lakes. They would emphasise that throwing waste in water was something they did earlier, not something they would do today. My understanding is that by the act of ignoring this awareness they avoid the responsibility to act upon it. In 1964, the underwater trash was no secret, but it has become so through the passage of time and because no one has taken the responsibility to recover it, as Rob Nixon (2011: 8) writes, “delayed effects structure our most consequential forgettings”.

Today it is not clear which local authority is responsible for the waste at the bottoms of Lake Mälaren and the Baltic Sea. As one diver put it:

I started to ask Stockholm Harbours if they could tell me what governmental body is responsible for the waste in water. And they admitted, they did not know, but would look into it for me. After a while they returned and told me that it is each Municipality that should be responsible, but as we both agreed, this does not work in practice. So, I was promised to get a contact with one larger body that would take responsibility to at least collaborate with us. Waste in water seems to be a forgotten category as it is not visible from above.

There are many structural and political reasons why it has been, and still is, complicated for divers to carry out cleaning operations. However, after much work, the group has managed to find a set-up that works, something that is currently also attracting interest from other divers and actors (civilians, businesses, and government) in society at large. In order to dive in urban milieus, divers must seek prior permission from Stockholm Harbours. At first,
such permissions were not easily available because of the risks involved with urban diving. But due to the continuous work and the experience garnered by the divers, and their good connections developed with the people in charge of permits, these are now swiftly arranged over the phone. Stockholm Harbours now also support the work by providing containers in which the trash can be collected so that the divers will not have to organise this. How to take care of the waste after a clean-up is otherwise a major difficulty, preventing divers from pursuing clean-up work. This has been the primary reason why other groups of scuba divers decided not to do clean-ups earlier. As one of the divers used to say, “Stockholm Municipality just acts as an ostrich, burying their head in the sand hoping we will forget they are still here”. The divers challenge the authorities to act on behalf of clean and healthy water. Andrea Ballestero (2019: 410) writes that, “when people find themselves in deeply antagonistic relations with the state, they craft non-normative subject positions such as that of a water defender.” Accordingly, the divers pose themselves as defenders of urban waters around Stockholm when they openly question the way the water has been, and is, treated by the government. Still, the group needs access to the water as they require government permits to dive in urban areas, hence their developed relationship with Stockholm Harbours.

In Sweden today, the focus of waste management practices is on a Source to Sea approach. This means removing the waste at its source rather than cleaning at the end destination. It is of paramount importance to stop more waste entering water, and it might also be economically cheaper to work that way. However, the divers point out that since they do all the work, while using their own equipment and time, they are entitled to expect that the authorities will take care of the waste after a clean-up.

We agree with the Source to Sea approach, for sure, but we also think the reason for why the governmental bodies are not stepping up to help our cause is because they are afraid by doing so they will also end up having to clean all waterways from trash and pay for it. It is not because they do not have the funds, but they try to not be associated with the issue to begin with. This is a problem.

Thus, even when waste is present and available on beaches or in the water, there is an ongoing discussion on how to address and manage this waste. This question is deeply political because if authorities engage in these clean-ups, they might have to clean all beaches (as is the case with water mentioned by the diver in the quote above), which can get costly. Economy vs. Ecology, one could say, hence, the importance to think about the relationship between state, divers, and the so-called nature in this context of waste and waste removal in an urban setting (Rademacher 2015; Drew 2020; Cornea, Zimmer, and Véron 2016). Karen Bakker (2010: 7) proposes that water is an environmental and economic issue, and that it is important to focus on how water “moves through the city”. Similarly, Anne Rademacher (2015: 143) writes:

Urban nature, after all, seems quite capable of generating itself, even, and sometimes more so, under socially unstable circumstances. The ethnographic experience of ‘unintentional nature’ is located neither in opposition to urban space, nor outside of urban political processes. The task of ethnographers is to observe urban nature not only in relation to sociality, but also as it is understood to generate new relationships with human life.
This attention to the ‘unintentional nature’, or ‘urban nature’, is in line with Bengt G. Karlsson’s (2018) recent suggestion that there is a need to engage with nature in new ways while keeping the political perspective in sight. Likewise, Cornea, Zimmer, and Véron (2016: 396) propose an “urban political ecology of complex waterscapes” that, according to them, assists in exploring “the economic, political and social processes that continually reshape urban socio-natures”. It is a similar relationship as described by Rademacher (2015), that the divers make visible when they bring waste from water to the public and political arena. The social situation in Sweden is not what I would call ‘unstable’; however, the official image of Sweden as an environmentally friendly country does not sit well with the piles of waste brought out of the water by the divers. I therefore argue that by pointing out the situation with waste in water, the divers make an ‘unintentional nature’ visible. The divers concentrate on turning the decades long practice of dumping waste in water into a current call for action, making a slow type of environmental violence into a ‘moral punctuation’ which stresses the current and immediate need for action. In a way, divers ‘work time’ to make acts of the past into a current-day event (Ahmann 2018: 10).

Not A Water, but Multiple Waters

When I write about ‘water’ in this article I do so with the understanding that water is multiple, that there is not ‘a’ water, but always different combinations of organic and inorganic compounds that together make up a specific body of water. I think of water as an “assemblage”, understanding it as an “open ended gathering” that jointly become water (Tsing 2015: 23-24). For example, Andrea Ballestero (2019: 409-415) notes that water is “multiple, never singular”; it “transports waste”, is a “vessel of toxicity”, and ultimately “water is also a human-made context”. At any given time and place, water is H2O in combination with for example, oxygen, salt, microbes, and a large number of chemicals and heavy metals. The composition changes with the movements of water and can be seen as a process of continuous becoming (Linton 2010). Similarly, Barnes and Alatout (2012: 484) argue that water is embedded “within social, cultural, spiritual, and political domains”.

As explained in the section above, Stockholm has a long history of dumping waste into the water, and therefore the water I engage with here must be analysed as containing waste and toxicants, while simultaneously being described as a resource to be protected. Furthermore, the hazardous waste in the water around Stockholm, causes toxicants to be released into the same water that is used to provide the city’s residents with drinking water. Hence, those toxic elements that cannot be cleaned in a wastewater treatment plant will eventually reach and enter human bodies (for toxic waste in rivers see Hoover 2017; or toxic ‘worlding’ see Nading 2020). From a human perspective, there are many ways of controlling the ‘quality’ of water such as taking water samples or by taking note of the way water smells (Scaramelli 2013). Some human impacts on water are thus visible and controllable, but not all. As Tanya Richardson and Gisa Weszkalny’s (2014) explain, making material things and beings in ‘nature’ into resources that can be used has always been part of the human ‘modern’ becoming (cf. Schmidt 2019; Linton 2010; Helmreich 2011). This has been the case with water in the context of Stockholm where the ‘dirty’ water has been ‘cleaned’ and turned into a resource for humans to enjoy and care about.
Underwater Ethnography

The waters around Stockholm are murky and dark, with a visibility of maximum two meters. This means that waste dumped in water that is deeper than three meters will not be visible from the surface. Poor visibility makes diving below boats and other obstacles among sharp or toxic waste more dangerous. Therefore, it is of paramount importance to understand what it means to dive under such conditions in order to grasp the work these divers do to make the waste visible to those on the surface.

In order to understand the nature of the obstacles faced by the divers, I have opted for an embodied/emplaced method of learning by doing — becoming a trash diver myself. In this endeavour, I have conducted over 80 dives with the trash diver group, with dive time ranging from 40 to 90 minutes per dive. Sarah Pink (2015: 28) suggests that we learn about and with the world by a sensorial engagement in it, thereby identifying “an emplaced ethnography that attends to the question of experience for the relationships between bodies, minds, and the materiality and sensoriality of the environment”. Similarly, Yolanda van Ede (2009) has argued that when we engage a field of study with all our bodily senses, with more than visual observation, we can know the field more intimately. By joining the divers, the researcher/ethnographer shares their embodied experience, making sensual ethnographic description and understanding possible. Had I not dived with the divers, I would not have grasped the importance of the senses for them, and how their senses were rearranged underwater in order to collect the trash. As visibility was reduced, the divers had to rely on their abilities to hear and touch much more than in daily life above water.

Most ethnographic fieldwork is essentially embodied, but what makes a sensorial approach stand out is that the researcher is tuned towards what his or her senses register and feel. However, there are limits to what a sensorial methodology in water can achieve. Merchant (2011) points out the impossibility of talking with interlocutors as one such limitation. Therefore, I combine embodied participation in water with participant observation and interviews among divers on land. A lot of preparations and planning are done on land before going into the water. Some group members only work above the surface, so to understand the social dynamics within the group, it is necessary to be part of this work as well (Davies 2008). I have been a diver for over a decade, and the fact that I could join in the practical work during trash dives has been crucial in gaining both a thorough understanding of the work and being accepted by many of the divers. During my research, I have spent time with these divers, and also conducted interviews with government officials and representatives of other environmental organisations and groups in Sweden, as well as worked with marine scientists.

The Divers

The Stockholm-based group of scuba divers has removed about 20 tons of batteries and 150 tons of other trash from the seafloor of Lake Mälaren since 2019 till now, November 2021. The pace of their operation is picking up as new volunteers join. What started with two friends has grown into over 100 volunteers organised as a non-profit organisation, and their numbers continue to grow. Several members of the core group have military diving training and years of diving experience. However, a significant number of the newer recruits have a recreational diving background, mostly on dive master (first professional level as a diver) or instructor level. The group is coming together in response to the growing dismay over the
state of urban sea floors. The work is unpaid and voluntary, and usually entails minimum cleaning-engagement of two times a week year-round. They mainly clean along the routes of major central waterways around Stockholm, primarily focusing on car batteries as they leak toxic elements into the water, but they also end up removing tons of other trash.

The group’s motivation to work for clean and healthy water is not one of economic gain but of genuinely caring for the water as a value in and of itself, and for sustaining life on this planet for humans and other living beings. This has driven them to start removing waste from water and push for a general public debate on that which is hidden out-of-sight, seeking to push those in power to act. Yet, in communicating with the public, the divers also capitalise on the water-as-a-resource argument, stressing the importance of clean water for human consumption and use. They do this strategically as it has a larger sway with officials. As noted above, authorities are reluctant to acknowledge waste in water because they fear it will be very costly to clean – something I have been told on a number of occasions during interviews with officials. Hence, when the divers reframe their argument so that cleaning water from the ‘sins of the past’ becomes economically profitable, as it will safeguard an important resource for the future, then officials are keener to listen. This outreach and communication by the divers is mainly done via the social media.

Diving for Trash

When conducting a trash dive the diver goes down and up in the water, attaching lines to the trash at the bottom while people on the surface pull it up. On the surface, it is hard to imagine the state of the bottoms of Lake Mälaren and the Baltic Sea around Stockholm; it is literally a large trash bin full of garbage. Rather than removing any and everything you find, the challenge is to select what to remove among all the things you come across. It is clear that those throwing trash into the water wish for it to stay out of sight. This is along the lines of the film *Sjövett* described above. In the film the message was, again, to pack waste in a box and fill it with stones to ensure that it sunk properly and stayed deep down, remaining invisible. The work of the divers is to make these ‘invisible’ objects visible again.

To illustrate the working conditions and the situation at the bottom, let me describe a dive in the early winter of 2019. The water temperature was about two degree Celsius, and we were diving under a bridge. The water was very dark. I looked down at the water from the pier, taking hold of my weight belt with my left hand and my mask and regulator with my right and then taking one large step out into the air. I felt a sudden rush in my gut and growing excitement before my body moved from air into water and I was submerged. In a moment, I resurfaced with the help of my
Buoyancy Control Device (BCD) that I had filled with air before jumping into the water. After signalling to those on land that all was OK, by making a circle of my hand and arm connecting to my head, I emptied my BCD and suit of air by pressing the respective exit vaults and started to descend into the water. Although it was daylight, I had to hold my flashlight switched on in front of me to see anything. Even with the flashlight, the visibility was one meter at best. It was all foggy due to the significant number of particles in the water that reflected the light from my flashlight – much similar to driving in a snowstorm – and I tried to turn off the light, but that resulted in me not seeing anything at all, so I turned it on again and continued my descent slowly. My fingers quickly started to turn stiff in the two degree cold water. The visibility improved a little when I reached the bottom in about a minute, or so it felt when I saw objects that I could focus on. I stabilised my buoyancy and started to look around in search of what could be taken up. In my left hand, I had a rope connecting me to the surface, which I would use to attach to the thing I selected. I hovered above metallic constructions, bicycles, and stones before I found a green electric scooter a few meters ahead. I carefully attached my rope to the scooter before taking hold of the handles and trying to move it free from under other things on top of it. At first, it remained stuck, but I moved it from side to side and got it loose; but while doing so, my movements disturbed the bottom, and particles moved up in the water, destroying the already low visibility that was there. Now I took hold of the rope and blindly followed it up to the surface where I signalled for the land-crew to start pulling.

Diving without visibility, as is the case just after starting to move something from the bottom, is an exceptional sensorial experience; this, since you turn blind a few meters below the surface, and panic could be close at hand. “Emptying one’s inner space” and staying calm is an essential capacity for a diver in these circumstances, and so is good buoyancy in order to not get caught in something when you cannot see (Merchant 2011: 54; Ecott 2001). Although the conditions during trash dives are not optimal for a pleasant dive, this is not what these divers are there for.

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12 Buoyancy in diving means the skill to keep a controlled capacity of floating in water, so that you do not sink or float up towards the surface unintentionally. And a Buoyancy Control Device (BCD) is a vest that the diver fill/empties with air to control buoyancy in water. More than the BCD a cold-water diver is equipped with a dry suit, which is a suit of composite material or crushed neoprene that has built in boots but is sealed at your hands and neck with either a latex opening or a folded layer of the suit that creates an air pocket that keeps water out. The suit is then connected to a tube of oxygen, the same one that the diver also breathes from through a regulator. On top of this the diver has gloves, and a hood that keeps hands and head warm (even if not always dry, depending on the type) and a mask that allows the diver to look around under water. The diver also has weights that will help the diver to descend into the water as the suit and the BCD gives buoyancy. Lastly, the diver has got fins on top of the boots to help navigate easier under water.
They are there to make a difference and bring an environmental issue up to the surface. The group seeks to tell a story of ‘long forgotten’ objects dumped in water that have accumulated over time, leading to the escalating situation with toxic waste in the marine environment. Their work emphasises that precisely because of the long-term slow violence, it is urgent to act now, both to stop continuous dumping of waste in water and to remove what has already been discarded there. The group uses actions from past times to make a ‘moral punctuation’ that neither public nor authorities can ignore in the now (Ahmann 2018).

Financing Trash Dives

After the waste is retrieved from the bottom, it is left at an environmental disposal station, where some of the items afford a return of a small amount of cash. The money collected goes to the non-profit organisation and is used to repair and buy scuba gear and to provide other protective gear for those on land. For example, each kilogram of battery returned gives the equivalent of $0.4. Sometimes, they also find copper pipes that return as much as $3.5 per kilo. This money covers some of the costs for broken gear, buying ropes, fuel for the car, and so on. Thus, it is possible to argue that the divers finance their operation by remaking trash into value. O’Hare (2019: 1) reminds us, “as the popular expression ‘one man’s trash is another man’s treasure’ hints at, rubbish can very often be in the eye of the beholder”. Trash at the bottoms started as transient (valuable) objects. However, when they lost their value and got dumped into the water, they entered the category of rubbish; before divers found the forgotten objects, brought them up to the surface, making them part of the wheel of commerce once again and turning them into objects of value once more (Thompson 2017).

Take the example of car batteries. To begin with, new batteries are very valuable, when part of the mechanism inside a car. When they no longer provide the energy needed for the car, they are discarded as rubbish and thrown into the water. At this point, the batteries are regarded as unwanted waste without value, and have turned from transient into rubbish. This process has been explained by Michael Thompson (2017). He has shown that objects can be categorised under three heads, namely transient, rubbish, or waste. Thompson argues that rubbish is a category in-between what is valuable and what is waste. Objects in the ‘rubbish’ category have qualities that can be used to make them valuable once again, although possibly in different ways than before. This is the case with the car batteries brought out of the water by the divers. Primarily, it is the lead inside the batteries that is removed and reused; however copper, iron, and aluminium are also reused when returned to waste management plants. To paraphrase using Mary Douglas’ (1966) words, the divers have collected the ‘matter out of place’ and brought it to another place where it is once again transformed from waste into value. It is very energy efficient to reuse these materials, and as such this can be construed as
one creative possibility in the management of waste (Reno 2015: 562).

From the autumn of 2020 onwards, the divers have formed a collaboration with Stockholm Harbours and the Stockholm water and waste authorities, wherein they get help to remove the waste they bring up. However, this has not always been the case. Prior to that, for over a year the group had to dispose of the collected waste on their own. This had entailed driving to different waste management stations from time to time, as there are limits to the amount of waste private persons are allowed to turn in at a given time. Therefore, this collaboration has been the first real ‘victory’ for the group – in that, they have managed to stir up enough support among the public to make authorities interested in collaborating against the waste in the water. The current set-up built by divers connected with Stockholm Harbours and waste management stations can be seen as a form of “emerging waste management infrastructures” (Reno 2015: 563) and as a way for the divers to reap some monetary benefit for the removal of waste from public domains. Following this, some actors from the industry have now stepped up to support the initiative with smaller amounts of funding. Some do so because they think it is excellent work being done, and others, because it is their trash being collected and it would look bad if they did not at least support those who do the cleaning. As one of the divers told me after a conversation with a Swedish company:

When I called them the first time, I was directed to their environmental department that told me they would get in touch if they were interested in returning their damaged goods that we removed from the water – never heard a thing. But now when we are regularly in the news and we are planning this large exhibition where we will display their things they contacted me, telling me that the person who told us in the beginning they were not interested had been wrong. Now they indeed want to help, and even if I am sure, it is only because they know they will look very bad if not, I still think it is good that they in the end will be doing something, even if not much.

Visibility in media gives the divers some leverage to make those behind much of the garbage pay some funds for the removal of their own waste.

The thing is that when we get them to pay, it does not matter how much, they do to some extent accept their responsibility and this helps us in our work to make the public aware and conscious in their choices as well as in their own behaviour towards waste in water. Our aim is not to punish these companies, or the government, what we want to achieve is change.

The financial situation is one of great concerns for the divers as they are keen to stay economically independent from large actors such as corporations or authorities. At the same time, their work is expensive, and they would not be able to conduct it on such a large scale without funding. The solution has thus been to fund some of the work themselves by returning the waste collected, and to accept smaller donations from private persons and companies alike, subject to the condition that the funds will be utilised by the divers as the group deems fit in accordance with their aim to mark out past practices of waste management, call for change, and urge the authorities to engage in further clean-up work.
(Social) Media: Making the Waste Visible and Knowable

The divers engage with the public and rally support, in order to empower themselves to ask more of authorities and companies through social media. In the beginning, these posts were gaining a few likes here and there, but the more followers they gained, the quicker the number of likes evolved. From having 10-20 per post, there are now hundreds or thousands of likes and engagements with every single one.

The images displayed online are chosen frames of reality that vividly illustrate what the divers want to show the public. These images show and emphasise the ‘moral punctuation’ as they manage to make the media interested by transforming a slow type of environmental violence into a sort of spectacle for the media to engage (Ahmann 2018: 4). The divers collect waste objects from decades ago, together with newer items such as electric scooters, and showcase them in exhibitions and online images. On the possible agency in images in relation to memories, Paolo Favero (2020: 2) writes, “how images mediate our experiences of life, how they accompany us through our mundane lives, as if they were the ghosts of our past”. Tina M. Campt (2017: 72) says in a similar way: “The haptic temporalities of the archive in question are composed of moments of contact when photographs touch us and animate reflections and responses”. Thus, by collecting objects from under water from different times in one frame and broadcasting them online, the trash diver group makes a call towards political action. They do so with the idea that what has been accumulating under water over time (memories of the past) has to be urgently addressed now, before more harm is done to the marine environment, and by extension, to humans.

I will illustrate the social media work of the divers with one well-documented and visible event, namely when the project constructed a replica of the Stockholm City Hall from trash, that was exhibited right next to the actual City Hall for two sunny summer days in 2020. The construction was eight meters tall and consisted of more than 12 tons of trash; all brought up from the waters around the exhibition. The replica was constructed on a barge floating on water. This project was the largest one that the divers had pulled off till that date, and it got attention from all major media channels and newspapers in Stockholm and other parts of the country. The divers were interviewed on prime-time TV, and the Environmental Mayor of the City of Stockholm (Stockholms stads miljöborgarråd) even contacted them on the second day of the exhibition. Alice Mattoni (2013) has shown how social media allows activists to circumvent traditional media to tailor their message as they deem fit. This was indeed one aspect of how the divers engaged with social media. However, in the Swedish setting, the traditional media also frequently made themselves available to the divers, offering them a platform to speak from; increasingly so after the construction of the City Hall replica, as it was here that the divers gained momentum and recognition among the public and politicians alike as a force to be reckoned with. The Swedish case was thus hybrid, including both social and traditional media alike (cf. Lokot 2018). This situation is one where activism has been online and offline simultaneously, arguably much like the Occupy Wall Street movement studied by Juris (2012) or the #MeToo movement in Sweden described by Uimonen (2020). Similar to other feminist hashtag campaigns, Uimonen (2020: 923) underlines the extent to which the combination of online and offline activities with “hashtag visuality” (whereby certain hashtags function as iconic images), the #MeToo campaign “made visible what is typically invisible to the public eye”. Likewise, through the construction of the City Hall replica in trash, combined with images uploaded
on social media and media coverage of the event, the divers made the waste under water visible to the public in Stockholm.

The idea to build the replica was born in early spring 2020. After sketching the construction design, it was decided that the tower would be made entirely from car tyres, and no less than 500 tyres would be needed. However, as the group had no place on land to store the tyres, they had to dive around town collecting tyres close to the shore so that it would be easy to transport them on construction day. As a marketing strategy, the divers made their idea about the replica public on their social media accounts and put out dates for clean-ups where the main focus would be to collect tyres close to shore, but still under the surface – which meant that toxins continued to leak from the tyres in the meantime. As this collection work took off, more and more people joined in. Expectations were built up for the final construction, so when the divers announced the date for the exhibition, a huge amount of attention came from the media and public alike.

Media outlets had noted the build-up and asked if they could be part of documenting both the exhibition and the building of the replica. In this way, both social media and traditional media came together to market the exhibition, and this collaboration is a reason for the exhibition’s huge response. One example from this collaboration is the bottom right image above from one of Sweden’s leading TV channels, TV4 News, where they did a lengthy interview with the leading diver. The divers also streamed this interview
on social media. This speaks of the importance of reaching out visually with images and videos, for as Terence Wright (2008: 88) notes, visual media play a significant role in our understanding of the world.

At many clean-ups people passing by stopped and started talking about Rena Mälaren, that they had seen the media coverage, or that they follow the groups on Instagram and Facebook. Then they started to describe their responses to the images depicted on these outlets, emphasising how ‘horrible’ they find the current situation with waste in the water around Stockholm. Following Favero (2017: 14), I view images as entering into a dialogue with the viewer, speaking about that which is depicted, those behind the depiction, as well as to what end this depiction is meant to lead the viewer. This can be seen in how the divers utilise images and videos on social media. When a picture of a battery (images 8 and 9) just taken out of the water is chosen, it does, for example, often cause the viewer to react with disgust, questioning why this toxic object should be found in their water, it talks about the work behind removing this object from the water as an act of cleaning. It also functions as a reminder of the need for more responsible waste management for the future.

The exhibition with the City Hall replica does the same, just on a larger and more dramatic theatrical level. The exhibition also added an audio dimension with a band playing music among the trash on the barge, as visible on the top right image above. This element garnered much appreciation, and those walking by stopped to listen. The work done by the divers could be viewed as installing a “liquid fear” into the general public as a way to kick-start them into action by visualising the invisible pollution of water existing in the form of underwater waste (Hastrup and Hastrup 2015: 5). Favero (2020: 142) notes that “the meaning of art today is to be found not in the work of art itself, but in the relations, it generates”, and this is an argument that encapsulates what the artistic trash-display by the divers is meant to achieve, namely, to highlight and recreate a visible relationship between public, officials, waste, and water.

Conclusion
The aim of this article has been to investigate how a local group of scuba trash divers can make authorities respond in ways that acknowledge and react to ‘sins of the past’ concerning waste in the water around Stockholm. To do this, I offered a historical background of waste management practices in Stockholm, pointing out how the idea of water has changed from a dump for waste to that of an important resource. The scuba trash diver group points out that although most of the waste in the water is not visible from land, it still remains there, and as time passes by, it continuously leaks toxic elements. I have argued that the work of the divers addresses a type of ‘slow violence’ that for decades has accumulated in the marine environment (Nixon 2011). This long-time perspective is used by the divers to make a ‘moral punctuation’ when they bring the waste out of the water and put it up for display (Ahmann 2018). They do this by creating installations on land, and by uploading images and videos on social media. The divers’ ‘work time’ (Ahmann 2018) when they compile decades of wasted objects in one place and time – emphasising the past and the ongoing issue of marine waste in the urban setting of Stockholm. The online/offline presence of the group is important in order to understand how their message has been delivered to the larger public, building momentum to make authorities take responsibility not only for the management of current waste, but also to clean up the waste from earlier times.
References


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ABSTRACT This article examines how water’s transformative quality shapes Andean offering rituals and how these in turn perform the hydrological cycle as a metabolic process that involves humans as well as superhuman beings. It enquires into the offering practices of an Andean community providing an ethnographic account of its water management and the tributes it pays to the mountain and the springs that supply it with water. Building on the concept of water metabolism, the article interrogates the offerings as a replica of the metabolic process that produces water. The argument is that by triggering a “change of matter” of the offering items the ritual transforms these into a gift to the deities that control the water. Moreover, invoking Roy Rappaport’s study of rituals as regulators of humans’ interaction with the environment, the article suggests that by enacting water metabolism, Andean offerings not only lubricate the hydrological cycle, but they also offer Andean people a window on their own agency and its bearings for their water resources. Reviewing the recent development in a neighbouring settlement and ongoing changes in the community’s own water supply, the article concludes that the holistic calibration of the hydrological cycle as a metabolic process which engages both humans and non-humans makes Andean offerings emblematic of the effort to achieve water sustainability anywhere and therefore resilient to change.

Keywords: water, mountain offerings, Andes, Peru, metabolism, sustainability, hydrological cycle

Introduction

In chemical terms, ice, water, and vapour are the same substance. Nonetheless, their different appearances make us perceive them as distinct elements. In the liquid form, water is subject to the law of gravity that makes it flow downhill wherever it exists. In effect, water is untamable unless it is exposed to heat, which transforms it into vapour and makes it disappear in the air. Ice (and snow) on the other hand, is water in a solid state that has texture and appears both fixed and stable, that is, until it melts and becomes water or vapour. Ice’s stability, however, varies in different parts of the world depending on the latitude and the temperature. In the Arctic, ice is permanent and covers both the land and the sea most of the year. By contrast, in the tropics ice is a rare phenomenon only found at high altitudes and out of human reach, which lends it an image of not just aesthetic beauty but also infinity and mystery. The appearance of ice (and snow) as a substance that is inaccessible and that belongs to another physical realm makes it a compelling motive for cultural creativity and religious adoration (Gagné et al. 2014). The imaginary power of ice is particularly salient when it appears in the form of glaciers which are huge mobile ice formations that grow on the top and melt in the bottom at one and the same time and that constitute the source of some of the world’s biggest
rivers and vital deposits of freshwater in regions suffering from irregular precipitation and water scarcity (Orlove et al. 2008). Not surprisingly, the capacity to reproduce themselves while yielding a constant flow of clean water makes glaciers the object of not only political craftsmanship and social empowerment but also cosmological ingenuity and ritual activity, which the Andes is evidence of (Bolin 2009; Paerregaard 2018a).

**Aim and Scope**

The article discusses how anthropology contributes to the understanding of water’s materiality and its capacity to change physical appearance and chemical composition. The aim is to inquire into the cultural ideas that water’s transformative quality gives rise to and the ritual practices which humans create in their effort to control its circulation, domesticate its physical power, and contain its flow. The article speaks to the growing number of anthropologists who are focusing on water as the topic of their research (Ballestero 2019; Hastrup and Hastrup 2015; Orlove and Caton 2010; Strang 2015). Departing from Strang’s proposition that to study human/material relations we must examine how “the formal qualities and characteristics of the object – whatever it is …” shape people’s construction of meaning (Strang 2005: 97) it pays special attention to her suggestion that “the importance of the characteristics of material things are particularly evident in relation to water” (Strang 2009: 30). The article takes up this proposal by exploring on the one hand, how water’s materiality shapes the way Andean people represent it symbolically and on the other, how the idea of water as metabolic product fashions the offerings they make to the superhuman forces that control the water flow as per their beliefs. More specifically, it investigates offerings as a replica of the metabolic process by which material objects change chemical composition and physical form and as a result, produce water, energy, and life. The argument is that by studying the burning, consumption, and disposal of offering items as a representation of the hydrological cycle we get a better understanding of not only how the Andean people construe water metabolism but also how their offerings contribute to a sustainable use of water (Paerregaard 2020a; Strang 2016).

The article builds on the notion of water metabolism which is centered on water’s role in the biophysical changes that humans’ interaction with their natural environment entails. Borrowing from Roy Rappaport’s study of rituals as a tool to regulate humans’ interaction with the environment, it suggests that offerings play an essential role in Andean water management and the creation of symbiotic human-environment relation. My claim finds support in ethnographic studies that document how Andean communities use the mountains’ meltwater for irrigation (Gelles 2000; Guillet 1992; Travick 2003) and how water users conduct offerings to the mountain deities to ensure a smooth flow of water (Paerregaard 2013b; 2013c; Stensrud 2016a). The general message of this scholarship is that Andean people view offerings to these non-human forces as critical to ensure a stable and abundant water flow (Brandshaug 2019; Paerregaard 2019). Hence, the questions guiding my research are: How, where, and when are the offerings performed and to whom are they addressed? What is the physical nature of the items that are offered and how are they transformed into an offering gift? How do the offerings shape Andean people’s interaction with the water, the environment, and the non-human forces that control the water flow according to them? And finally, how do changes in the water supply affect the offerings and how do Andean people recalibrate these to adapt to the changing world?
The article reviews data from fieldwork in Tapay, an Andean community where I have worked in the past 35 years. The field material includes official census material; surveys on landholdings, crops, irrigation, livestock, and commerce; formal and informal interviews on agricultural practices, household activities, inter-household cooperation, water governance, and community organisation; and participatory observation in key events related to agriculture, irrigation, and offerings. Long-term fieldwork has provided me with detailed insights into Tapay’s development in the past decades and allowed me to observe ongoing changes in not only agriculture and irrigation but also ritual practice and the cosmology. My data are particularly useful to document the offering’s resilience to changes in Tapay’s water supply and the water stress that climate change causes. While the ethnographic description of the offering’s annual calendar, ritual performance, and material ingredients draws on my first fieldwork in 1986, the discussion of how the villagers have changed perception of its meaning and importance for Tapay’s water metabolism reviews data from visits and stays in the community in 1990s, 2000s and 2010s.

The article is divided into five sections. In the first, I develop the article’s conceptual framework. Inspired by critical debates of the notion of the hydrological cycle, I introduce the concept of water metabolism to examine the cultural import of Andean water offerings. I also borrow from Roy Rappaport’s classical work on Kaiko, which I suggest is helpful to inspect the human-nature relation underpinning the offering ritual. In the second section, I introduce Tapay’s community organisation and water management and in the third section I ethnographically scrutinise how the villagers conduct the offering ritual. In the fourth section, I review the analytical implications of my data with special attention to the offerings’ role as regulator of Tapay’s water use. I also discuss recent developments in Tapay and its neighbouring community which shed light on the offering ritual’s more universal aspects and its resilience to change. In the fifth and final section, I conclude by returning to the article’s opening questions and reflect on the relevance of metabolism to apprehend offerings’ bearings for water sustainability.

Water Metabolism

A widely held doctrine among physical geographers and other scientists studying water is that the world’s water supply and water’s movement on, below and above the surface of the Earth follow the so-called the hydrological cycle. Implicit in this model of how water circulates, its volume remains constant even though the water takes different forms (ice, fresh water, saline water, and atmospheric water) according to climatic variables. Influenced by political ecology and other theoretical trends within geography, environmental social studies, and cognate disciplines, water scholars have recently questioned the hydrological cycle as a neutral scientific concept arguing that it is a social construct that has emerged in a specific historical context and in response to economic and political needs. Drawing our attention to the relationship between water and society and the way socio-economic and political forces modify the hydrological cycle, the scholars argue that this must be understood as more than a mere natural process. To capture this hybrid of natural and social forces, Linton and Budds introduce the concept of the hydrosocial cycle which they define as “a socio-natural process by which water and society make and remake each other over space and time” (Linton and Budds 2014: 170). As Boelens puts it, “hydrosocial cycles are
simultaneously natural and social constructs – as chains of human and non-human elements constructed by the human mind and by human interventions” (Boelens 2014: 245). Rather than viewing water as a mere chemical matter, we must ask how this substance is embedded in “an assemblage of historical, hydrological, political and technological circumstances that produce a given instance of water” (Linton and Budds 2014: 2017).

To unpack this assemblage of hydrological, social, and technological circumstances another group of water scholars suggests that we view the hydrologic cycle as a metabolic process produced of not only physical changes and chemical reactions, as modern science claims, but also the social and political relations that manipulate the natural water flow and make water accessible as a resource for human use (Paerregaard et al. 2016, 2020). Unlike the term metabolic water which refers to water created inside a living organism through its metabolism, water metabolism stands for the entire process through which water is made and remade both as a natural substance (from liquid to ice and vapor and back again) and as an object of human control (from appropriation to transportation, allocation, consumption, eventually, disposal).

The concept has been conceived by the same critical thinking as the hydrosocial cycle: that society shapes and is shaped by water, materially as well as discursively, and that water flows are embedded in all institutional and political processes that both coexist with them and affect them (Swyngedouw 2009). However, water metabolism adds analytical value to the notion of the hydrosocial cycle by highlighting the social practices humans engage in and the relations they create with their biophysical surroundings when appropriating water and transforming it into H₂O. As Beltrán and Velásquez (2017) point out, rather than understand water as a mere resource flow, as a factor of production only disaggregated from its environmental, institutional, technological, and social context, it should be viewed as an integral element of a metabolic process organised around humans’ appropriation and exploitation of nature.

Water metabolism taps into the notion of social metabolism (González de Molina and Toledo 2014; Madrid-López and Giampietro 2015) which has a long history in social theory going back to Karl Marx (Martínez-Alier 2004; Pauliuk and Hertwich 2015). As a politically engaged intellectual, Marx pointedly drew the attention to social inequality and environmental pollution, which he claimed was caused by capitalist production. Just as the workers live under the yoke of economic profit, so has nature become the slave of humans, he contended. In his praxis theory, Marx fleshed out the inconsistencies of capitalist production reminding us that nature and society are inextricably linked together and that human beings, like society, are an integral, yet particular and radically distinct, part of nature (Swyngedouw 2006: 108). Employing the notion of metabolism, he scrutinised nature as the material in which human labour realises itself. Marx’s understanding of metabolism was closely linked to the term’s German meaning, “change of matter” (stoffwechsel), which implies a continuous process of transforming and re-assembling of material elements (Swyngedouw 2006: 108). Thus, in Marx’s view, through the mediation of labour, society emerges from nature, resulting in the production of a ‘second nature’, that is the re-assembly of human-material objects resulting from human labour. Marx’s definition of the nature-society nexus as a metabolic relation led him to assert that “the workers can create nothing without nature, without the sensuous external world” (Marx 1992: 325) and to conclude that “Nature is man’s inorganic body, that is to say nature in so far as it is not the human body” (Marx 1992: 328). As labourers, then, humans can only bring the wrongdoings of capitalism and their own self-alienation to a stop by engaging with the second nature as their external body.
Marx’s writings have gained renewed interest in a time of global climate change that is transforming the planet into an anthropogenic world and that lends humans a feeling of double alienation: first their separation from the ‘first nature’ they ruthlessly have exploited and then their separation from their self-produced, unrecognisable ‘second nature’ that now is turning against them (Escobar 1999). Marx’s concepts of metabolism and alienation have particular bearings for anthropologists because they help us understand the human-nature nexus. But even though Marx’s theory continues to inspire modern anthropologists, anthropology also challenges it by showing that humans’ engagement with nature covers a complex relationship that historicises the landscape and extracts specific places out of undifferentiated space. Moreover, in many places nature constitutes not only the ‘sensuous external world’ and ‘inorganic body’ of their members in their daily struggle to satisfy the physical needs but the central point of reference of their worldview providing humans with a sense of place and locality and a feeling of belonging. To anthropology, therefore, Marx’s metabolism refers to a biological and socio-political as well as a cosmological and metaphorical relation of exchange; similarly, his concept of alienation can be read as at once a critique of capitalism and modern consumer society and a lens to explore humans’ relation to nature and their position in the physical environment more broadly.

In fact, Marx’s use of metabolism to problematise capitalism’s exploitation of nature resonates with anthropology’s tradition of studying environment-society-culture dynamics. In the history of environmental anthropology one work stands out as particularly relevant to modern anthropologists: Roy Rappaport’s ethnographic account of the Kaiko ritual and its role in regulating both intra-human and extra-human relations among the Maring people of New Guinea (Rappaport 1968). Borrowing from systems theory, cybernetics, and nutritional science Rappaport showed how Kaiko and the slaughtering of pigs it involved marked both the time of warfare with neighbouring groups and a shift in horticultural production, which is essential for the management of the ecosystem. His argument that Kaiko enabled Guinea people to restore the human-pig ration and create environmental sustainability was groundbreaking at his time insofar as it demonstrated that culture plays an active role in managing humans’ interaction with their physical surroundings. And even though Rappaport’s study was constrained by his view of culture as a self-producing and self-contained system, it deserves renewed attention because it exemplifies how anthropology can contribute to ongoing debates on human/non-human relations at a moment of global climate change. Paradoxically, at a later stage in his writings Rappaport’s functionalistic understanding of culture and reductive notion of human agency led him to a fatalistic view of cultural adaptation which he argued could result in ‘maladaptation’ and a breakdown of the ecosystem. Similar to Marx who coined the term ‘metabolic rift’ to draw attention to humans’ overexploitation of the soil and the commercial use of non-human manure to meet the growing demand for food products, Rappaport thus anticipated the possibility of an ecological crisis even though he had no way of predicting the scope of climatic and environmental problems humans would face 50 years after his writing.

But how can Marx’s and Rappaport’s ideas of metabolism and ritual adaptation help us understand the meaning of Andean offerings and their impact on the water supply and the environment in the Andes? To answer this question, I move to Peru and offer an ethnographic account of water management, ritual practice, and environmental change in the community of Tapay.
Water Management in Tapay

Tapay is a rural community located in the Colca valley of Peru’s southern highland (Fig. 1). Unlike the populations of other Colca communities that are concentrated in one major settlement and a few smaller hamlets, the villagers of Tapay live scattered in a number of settlements. The bulk of the population is spread in nine hamlets located below 4,000 m. called Tapay (the community’s administrative center), Puquio, Chuccho, Cosñihuar, Malata, Paclla, Llatica, Fure, and Tocallo while a small group of people live in dispersed clusters of houses on the puna – tundra-like short-grassland above 4,000 m. At a community level, the population is divided into moieties: Hanansaya that apart from the main settlement comprises three settlements and the puna-population and Urinsaya that includes the rest of the settlements. In the valley the principal livelihood is agriculture that yields corn, potatoes, beans, and other crops and that provides the villagers with their basic foodstuff and fruit cultivation (apples, pears, peaches, figs, etc.) which they exchange for other produces and items on the regional barter market (Paerregaard 1992). Another important product is cochineal, a louse that lives on a cactus known by the same name and that when dried is used as dye in cosmetics and food. The global demand for natural dye has several times lead to a boom in the trade of cochineal in Peru providing the villagers with a substantial cash income (Paerregard 1997). On the puna, the herders raise llamas, alpacas and, to a smaller extent, cattle and make a living selling fresh and dried meat or exchanging it for other products. Today, most villagers acquire their food or other basic items in the shops of the neighbouring community of Cabanaconde and the provincial capital of Chivay rather than on the bartering market. Yet even though almost all the villagers are linked to the national economy, many still prefer to exchange services and products with other villagers without the use of money.

Fig. 1. The community of Tapay. Photo: Karsten Paerregaard in 2011.
Except from cochineal, all crops and fruits in Tapay depend on irrigation. In most Colca communities this is supplied by a few main water sources – rivers, streams, canals or water springs. Tapay’s water supply, by reverse, comprises 53 water sources of which 21 are puquios (springs) and 32 are tomas (offtakes) from six rivers and streams that carry the melted ice and snow from the surrounding mountain peaks to the Colca river (Paerregaard 1994). A total of 21 reservoirs in the community’s many settlements allow the water users to store the melt water overnight. The dispersed nature of Tapay’s water supply is reflected in the organisation of the community’s irrigation system which is divided into clusters delimited by the rivers, offtakes, or springs that supply them with water as well as the reservoirs that store this and the canals that lead it to the fields (Guillet 1992). To maintain the water infrastructure and to manage the water, the users are organised in two ways: irrigation committees that are recognised by Peru’s Ministry of Agriculture and water groups that are informal, autonomous associations.

Tapay has four water committees which are in charge of managing the water that comes from the community’s three principal rivers (Seprigina, Molloco, and Tampoña) and its biggest spring (Oqta). They also operate and maintain the reservoirs and the canals. Tapay’s informal user groups, on the other hand, manage the rest of the community’s many water springs. Each committee or water group appoints two regidores (Spanish: water allocators): a hatun regidor (big water allocated), who allocates water during the dry season from July and December, and a huch’uy regidor (little water allocator), who allocates water during the wet season from January to April. Hatun regidor is one of the most demanding public offices in Tapay. It is a mandatory duty that goes on turn among the water users and shunning it may lead to the loss of one’s water right. The regidor’s responsibility comprises two tasks. The first task is to lead the water through the irrigation cluster by opening and closing the offtakes, reservoirs, and canals (Fig. 2). Water allocators may employ two methods to direct water to the fields. One is corte which means allocating uphill from the lowest to the highest located fields. The other is brinco which implies that the individual water users call on the regidor to allocate water to all his/her fields in a single round. The second task is to allocate water to the individual water user, which the regidor does by blocking the water flow in the canal and digging a hole in the canal called boquerón (big mouth) to direct the water into his or her field. Once the water enters the field it is the owner’s own responsibility to irrigate it.

To ensure an efficient and fair water management the irrigation committee (or the water group) oversees the regidor’s work, deals with cases of water thefts, and resolves water disputes that mostly occur because the users arrive late to their turn to receive water. During the months of irrigation, the water users’ major challenge is the timing of their presence.
at their fields to receive water. Many villagers report that they often spend hours waiting to irrigate because others arrive late and therefore hold up the regidor. To prevent such delays, rules concerning water distribution are strict. Water users who are absent when the regidor appears may miss their turn. Depending on the crop and the irrigation cluster, such a sanction can have serious consequences as it implies to wait for the next irrigation round. To save themselves the trouble of hurrying between different irrigation clusters and, even worse, running the risk of missing one of the irrigation rounds and thus endanger the crop, some water users offer the water allocators cash to irrigate their fields. And as it has become increasingly common that regidores outsource their work by contracting villagers in need of money to do it, such offers are often accepted.

**Replicating Metabolism**

Shunning the job of allocating water does not relieve the regidor from other duties. At the end of his/her term, the regidor is expected to arrange the yarqa aspiy (ditch cleaning), a mandatory workday when the water users come together to clean the canals and the reservoirs and to celebrate the outgoing water allocator (Fig. 3). It is the regidor’s obligation to provide the participants with food and drinks and hire a band to entertain them while they work (Fig. 4). Another duty associated with the office as regidor is to organise an annual offering called pago or t’inka to the spring, the offtake or the reservoir that supplies the irrigation cluster with water. The ritual derives from a cosmology that connects the water flow to not only the sea and the hydrological cycle that transforms salt water to freshwater and vice versa but also to superhuman forces that are believed to control Tapay’s water supply and that demand offering gifts to release it (Paerregaard 2013c). An example of such superhuman beings are the apus who are deities living in the mountains and who are believed to possess the power to regulate their flow of meltwater; the other are the gentiles who are Andean peoples’ mythical ancestors from pre-Inca times who resurrect as skeletons and

![Fig. 3. Water users participating in Tapay’s yarqa aspiy. Photo: Karsten Paerregaard in 1986.](image)

![Fig. 4. A regidor celebrating the end of his term at Tapay’s yarqa aspiy. Photo: Karsten Paerregaard in 1986.](image)
human bones and hide behind rocks and sacred graves. Many believe that *gentiles* control Tapay's many springs and that they release the water by urinating. Both *apus* and *gentiles* are feared because of their power to cause harm and punish humans who fail to reciprocate their favours among which the most important is to release water.

All of Tapay's water allocators are expected to organise offerings to the springs, offtakes, and reservoirs that feed their irrigation cluster. The *regidor* of the community's main settlement, however, has a special responsibility. On November 1, s/he is expected to arrange Tapay's most important offering ritual at Mount Seprigina (5,400 m), its highest mountain considered to be the source of all other water sources in the community (Fig. 5).

In the following segment, I discuss two important and interrelated aspects of the *pago* which illustrate how this presents the hydrological cycle as a metabolic relation between humans and deities. One aspect is the *pago*’s temporal and spacial organisation; the other aspect is the materiality of the offering items.

The many offerings to Tapay's water sources follow a ritual calendar that starts on June 24, in the settlement of Chuccho at 2,300 m. and ends on November 1, on Mt. Seprigina. The offering calendar looks as following:

* June 24: First offering to springs of the hamlets of Pallajua and Huilcasco in Chuccho, Hanansay.
* July 29: First offering to offtakes in the main hamlet of Tapay, Hanansaya.
* August 5: First offering to springs in Puquio, Hanansaya.
* August 8: First offering to springs in Urunja, in the main settlement of Tapay, Hanansaya.
* August 24: First offering to springs and offtakes in Cosñihua and Malata, Urinsaya.
* August 30: First offering to offtakes in Fure, Urinsaya.
* September 8: Second offering to springs in Puquio and Chuccho, Pallajua, Urunja and Huilcasco, Hanansaya.
* September 10: First offering to offtakes in Llatica, Urinsaya.
* September 20: First offering to offtakes in Tocallo, Hanansaya.
* October 4: Second offering to offtakes in the main settlement of Tapay, Hanansaya.
* November 1: Second offering to springs in Cosñihua and Malata, Urinsaya, and third offering to Mt. Seprigina that supplies water to offtakes in the central settlement, the two settlements in Urinsaya and all springs in Hanansaya.

In the calendar a number of offerings in Tapay's moieties coincide when repeated either for the second or third time. Time and place vary for all first offerings, while the second
offerings partially coincide in time even though they take place at the same locations as the first. In the third offering, place and time merge in a single event: November 1 on Mt. Seprigina considered the most important of pago of the year when the water users act as one community paying respect to a single power believed to control Tapay's many water sources. The model shown below (Fig. 6) illustrates the pagos’ merge of place and time. It reveals that even though Tapay’s irrigation system is geographically fragmented and managed locally by the community’s many water user groups, these vision their water sources as interconnected and controlled by a single power. While the water users make pagos to the springs, offtakes, and reservoirs that supply their irrigation clusters independent of each other, their offerings gradually overlap as these move up the mountain and approach November 1, when all water users join the last pago of the year to Mt. Seprigina. The model suggests that the water users not only believe their water sources are controlled by the same power but they also imagine the water flow that links these to the mountain as a hydrological cycle which constantly renews Tapay’s water supply. This is a notion that resonates with a more general Andean perception of the world as floating on a great sea which connects the freshwater of rivers, springs, and lakes with the saltwater of the oceans (Bastien 1985; Urton 1981). However, unlike the hydrological cycle which modern science claims constitutes a self-contained water flow, the Andean hydrological cycle is driven by a metabolic process which is controlled by the mountain deities and other spiritual powers and which humans mediate by making offerings. But how exactly do humans do this?

To arrange the pago the regidor contracts a paqu, an offering specialist who knows to prepare and conduct the offering and who is accompanied by an assistant. The pago consists of a collection of elements called iranta: seeds and leaves of the coca plant, konuqa (a herb from the puna), qorilibro and qolqelibro (small objects of gold and silver), an alpaca foetus and pichuhuira (fat from the breast of llama), maize of three different colours, qochayuyo (seaweed) and starfish. Some of the objects are burnt at the spring, the offtake, the reservoir or at the foot of Mt. Seprigina. Additionally, several items are consumed during the offerings,

Fig 6. Tapay’s offerings ranked in time and space.
for instance *aqá* (beer prepared as a thick brew of corn of three different colours), wine, and seawater. Three of the *iranta*’s components – seaweed, starfish, and seawater – have a common origin, which underpins the idea that Tapays’ water supply is connected to the ocean and that saltwater and freshwater flow in the same hydrological cycle. Other items represent the Andean plant (coca seeds and leaves, and *konuqa*), metal (gold and silver) and animal (alpaca foetus and llama fat) which associate the *pago* with the some of the most appreciated elements in Tapay’s physical surroundings. Lastly, the *iranta* includes *aqá* that plays a central role in its Andean ceremonial activities and wine, a drink of spiritual importance in its Catholic traditions.

As an assemblance of the key elements of Tapay’s material environment (on as well as under the ground) and ceremonial/spiritual universe (Andean as well as Catholic) the *iranta* embodies the world which Andean people inhabit, and which encircle their water supply. And by putting fire to the *iranta*, sprinkling seawater and other liquids, chewing coca leaves, drinking spirits and corn beer, and smoking cigarettes the ritual’s participants set in motion a ‘change of matter’ of not only the offering items’ physical form and chemical composition, as these are burned, consumed, and disposed but also of their symbolic value as their material transformation recalibrates them as offering gifts (Fig. 7). Even though the mountains’ melt water is not itself metabolised in the ritual, the offering items include liquids – spirits and different classes of corn beer – that also undergo a ‘change of matter’, as they are consumed by the participants and become bodily liquids; or as they are poured in honour of the deity, they are dropped to the ground, or left (in bottles or other containers) at the offering site where they eventually dissolve and are absorbed by other materials. Whether liquid or solid the offering items are critical to the metabolic process as it is their ‘change of matter’ that produces the gift, an idea that also imbues other Andean rituals such as offerings to *Pachamama* (Mother Earth) to yield a good harvest or *gentiles* to cure people who fall ill.

![Fig. 7. A regidor burns offering items at a ritual in Tapay. Photo: Karsten Paarregaard in 1986.](image)
The organisation of Tapay’s *pagos* as not only a temporal sequence of offerings starting on June 24 and ending on November 1, but also a geographical hierarchy of offerings starting at the bottom and ending on the top of Mt. Seprigina shows that, in the eyes of the water users, Tapay’s springs, rivers, offtakes, canals, and reservoirs constitute one cohesive water body. Moreover, the *iranta*’s assemblage of key elements from the physical and metaphysical world that encircles Tapay’s water flow indicates that this body is conceived as an integral part of the hydrological cycle. Lastly, the *pago*’s performance and the destruction, consumption, or disposal of the *iranta* it involves, suggest that the offering is imagined as a metabolic transformation of the offering items’ chemical composition and physical structure into a gift. Thus, the offering is not completed before corn, plants, seeds, leaves, fat, foetus, fish, weed, and metal pieces have burnt and turned into smoke; the seawater, the *aqa* and the wine have been dropped to the ground and absorbed by the earth; and the spirits have been drunk or spat into the air. Only by transforming the *iranta* into air, dirt or body liquid has the offering accomplished its goal which is to deliver the gift the deities require to release the water.

**Metabolic Challenges**

In contrast to the classical literature on sacrifices that highlights on their symbolic aspects and argue that they serve as a means to communicate with the sacred (Hubert and Mauss 1964), I have centered my analysis of Andean offerings on their materiality suggesting that the offering items represent the physical world that encircles the water flow. By highlighting the metabolic process that the offerings trigger my study evokes another of the discipline’s classic: Rappaport’s study of the Kaiko ritual and his suggestion that it contributes to environmental sustainability. Similar to Kaiko, Andean offerings present the society-nature nexus as a relationship of exchange between humans and superhuman forces that demand the formers’ respect in return for their use of natural resources such as pigs and water. But even though Kaiko and Andean offerings both serve as regulators of humans’ interaction with the environment, their social dynamics are very different. In Rappaport’s account, the ritual constitutes a self-contained cultural institution that ensures humans’ need for meat without jeopardising the environment. In his later writings Rappaport reflected on the limitation of such self-regulating practices warning that if they fail to adjust to the changing world, they may become maladaptive and create an environmental crisis.

Offerings can also lose importance as a regulating mechanism. But the ritual is more than a mere instrument to safeguard the environment. It is a vehicle for human agency and self-reflection. As a replica of water metabolism, the ritual offers a window on water metabolism and humans’ engagement with the material environment as well as with the superhuman beings who control water and other natural resources. If Kaiko is a thermostat to restore the human-pig ration (Dwyer 1985), offerings are a thermometer that humans use to read their impact on the water flow. Missing some of the offering items or neglecting the offering ritual all together may disrupt water metabolism; conversely, providing more offering gifts may smooth it. The offerings’ visualisation of humans’ role in the hydrological cycle also allows room for different interpretations of the bearings of human agency. Some water users explain the offerings as an act of exchange with the mountain deities who provide water in return for gifts. To others the offering ritual is a way to appease the deities,
who they fear because of their power to punish humans. Hence, while the ritual follows a well-described script for the offerings’ performance, the motives that drive the villagers to take part of them differ, just as their explications of their effect vary. Some say droughts and irregular precipitation are signs of the deities’ dissatisfaction with the offering gifts; others read them as proof that the deities no longer listen to their call for help (Paerregaard 2020b). And while some attribute water shortage to the deities’ anger and wish to punish humans, others claim it occurs because the deities no longer hold the power to control the water, which has led some to abandon Tapay’s offering practices all together.

Despite, or precisely because, Andean offerings are open for different readings and interpretations they have proven resilient to change, which is evident in Cabanaconde, Tapay’s neighbouring community. Until recently the villagers of Cabanaconde paid annual tributes to its main water source: the nearby mountain of Hualca Hualca (6,025 m). Senior villagers recall how the entire community used to walk up to the summit to make collective offerings to Mt. Hualca Hualca in the hope that it would yield more water (Gelles 2000). They also recount that the villagers believed the community descended from Mt. Hualca Hualca providing it with an ethnic identity distinct from other communities in the region. However, after the Peruvian state built a channel that transports water from a watershed above the Colca valley to the coastal desert and that supplies the communities on the Colca river’s west bank with water (Paerregaard et al. 2020; Stensrud 2016b; Ullberg 2019), Cabanaconde stopped making offerings to Mt. Hualca Hualca (Paerregaard 2013b, c).

In the aftermath of the channel’s construction in 1983, Cabanaconde also changed its water management adopting a model promoted by the Peruvian state. Previously, the task of water allocator was a mandatory, unpaid duty similar to Tapay’s water management. Today Cabanaconde’s water is organised by a number of irrigation committees that contract remunerated water allocators to do the job. But even though Cabanaconde has adopted a professional water management model, the presidents of its irrigation committees continue to conduct annual offerings to the five valves that the community uses to take water from the channel (Paerregaard 2019). The rituals are organised in a temporal and spacial order resembling Tapay’s offerings. Cabanaconde’s offerings to the channel also follow the same ceremonial repertoire as Tapay, assembling items from the ocean, the underground, the fields, the animal kingdom, and the spiritual world that are burnt, sprinkled or left at the offering site. Instead of paying tribute to Mt. Hualca Hualca, Cabanaconde now does it to the channel suggesting that the change of water supplier has had little impact on the community’s perception of offerings as a means to lubricate the water flow.

Tapay’s ideas of water metabolism and the hydrological cycle are also being challenged. In recent years, the community’s water supply has diminished due to climate change and the melting of Mt. Seprigina’s ice and snow cap which has made some villagers question the deities’ power (Paerregaard 2018b). A recent event has added fuel to their doubts. In 2016, a goldmine opened in Tapay which has created concerns among many villagers who fear it may cause water shortage in the community and contaminate its water supply. In response, Tapay organised several marches to the mine, which is situated above its main settlement at 4,800 m, not far from Mt. Seprigina. To support the villagers’ protests and to affirm their concern for Tapay’s environment, migrants from Tapay have arranged similar events in the city of Arequipa. The company, on the other hand, has tried to gain Tapay’s support by offering employment to several hundred villagers and migrants and financing the construction of
public works in the community such as schools and roads. Finally, it has agreed to construct a channel to direct water to Tapay from a nearby river, a project that currently is in progress and that promises to enhance the community’s water discharge significantly. The mine’s investments in Tapay’s infrastructure and, not the least, the employment of its migrants as workers has changed the image that particularly young villagers hold of its interests and activities. The mine’s presence, however, has also left Tapay’s population’s divided and, even though the prospect of a new channel creates hopes for a better future, it had done little to mitigate many senior villagers’ fear for the mine’s environmental impact. The following years will show whether Tapay adapts its offerings to the new water supplier by paying tribute to the channel instead of Mt. Seprigina. But even if Tapay does so, the development in Cabanaconde suggests that this will have little effect on the offering practice and the community’s water perception.

**Conclusion**

My data show that the Andean offerings recalibrate the hydrological cycle by ascribing superhuman forces a critical role in the circulation of water. From my study of offerings, it is also evident that humans try to lubricate the hydrological cycle by setting in motion a ‘change of matter’ of items that represent the many kingdoms and realms which encircle water’s transformative flow. Finally, my data suggest that it is the metabolisation of the offering items that produces the gift which the superhuman forces demand to release the water flow. At the heart of this replica of water metabolism is a holistic worldview which perceives water as a substance that is enmeshed in relations with humans as well as non-human beings and therefore of vital importance for all forms of existence. By enacting the very process that reproduces life, offerings and their configuration of the hydrological cycle as a human-nature relationship are iconic for the effort to preserve fresh water supplies anywhere in the world.

Similar to Rappaport’s idea my argument is that rituals play a critical role in regulating humans’ access to natural resources, and offerings contribute to the creation of water sustainability by highlighting humans’ role in water metabolism. Reviewing an example from a neighbouring community of how hydraulic infrastructural projects can instigate water users to change offering practices, I also suggest that these are resilient to changes in the water supply chain. Even when Andean communities change water supplier and even when this implies turning the back to the mountain deities and recognising external agents such as the state (and perhaps also mining companies) as their new supplier, they still believe offerings are instrumental to produce water. Water metabolism needs grease!

**References**


The Connective and Disconnective Capacities of Water Infrastructure: The Making of Chile’s Largest Off-grid Solar Power Irrigation System

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ABSTRACT Based on nearly one year of ethnographic research on an inland island in Southern Chile, this article examines the construction of Chile’s largest off-grid solar power irrigation system on Isla Huapi. For decades, the island’s indigenous population has put pressure on the Chilean government to provide basic services of electricity and sanitised drinking water. Instead, in 2012, they were provided with a governmental development project that promised an infrastructural system aimed at transporting water from the surrounding lake to their plots for irrigation. Nevertheless, as the construction process progressed over the next few years, islanders found the irrigation system to be a desirable infrastructural connection as it provided them with water in different forms – irrigation water as well as indoor tap water. In this article, I look at the way in which these forms of water became a site of aspiration as well as a site of political struggle between islanders and state actors (government employed engineers). Analysing water and water infrastructure as political and material forms, I argue that struggles over access to water and the forms that waters take, create different connections (and disconnections) not only between water and islanders but also between islanders and the state.

Keywords: Water; connections/disconnections; state; infrastructure; Mapuche

Introduction

Isla Huapi is an inland island located in the south-eastern part of Chile, surrounded by lake Ranco’s fresh water streaming down from the Andean mountain range. The island hosts an indigenous population, formally organised as the indigenous community of Isla Huapi. The large majority of people living in this community are Mapuche people who, according to themselves, populated the island as they fled the terrors of war. Throughout history, Mapuche people have been systematically suppressed and manipulated by Chilean state authorities, most significantly through land loss and displacement in the nineteenth and twentieth century (Bengoa 2001; Di Giminiani 2015). The history of major land deprivation and processes of state discrimination, continuing up until today (Richards and Gardner 2013), has left Mapuche people throughout Chile with little land to make a living and increasingly dependent on the state for their survival. While this history has mobilised many rural Mapuche in current struggles over self-determination, recognition, and the restitution of ancestral territories (Di Giminiani 2015; Richards and Gardner 2013), this is not the case on Isla Huapi. Instead of demanding restitution of ancestral territories and self-determination, islanders demand governmental and municipal spending on material development in the island community. On travels to the mainland, islanders are made aware of the precarious material conditions
under which they themselves live. In contrast to the rural population on mainland, islanders lack access to basic services such as reliable health care, proper roads, sanitised drinking water, and electricity. Often explained with reference to past and present processes of discrimination, the absence of proper infrastructure on the island – electricity and water infrastructure in particular – mobilises Mapuche on Isla Huapi to make demands for state resources. Analysing the process through which a specific infrastructure recently emerged on Isla Huapi, I here look at the way in which water infrastructural development ties in with indigenous islanders’ struggle for recognition and argue that the troubled historical relation between islanders and the state reemerge in processes of water infrastructural development.

For decades, the indigenous community of Isla Huapi have pressurised the Chilean government and the municipality to provide basic services of electricity and sanitised drinking water. Instead, in 2012, they were provided with a governmental development project that promised an infrastructural system aimed at transporting water from the surrounding lake to their plots for irrigation. The irrigation system did not seem to be a development project for which they cared much at first. It came to be a desirable infrastructural connection as soon as islanders were made aware that they could use their connection to the irrigation system as a source of indoor tap water – a long-desired amenity. Following the construction of what was to become Chile’s largest off-grid, solar-powered irrigation system, I am here concerned with the material and political potentiality that this infrastructure holds.

Based on the aforementioned empirical case, I argue that water infrastructure holds connective capacities in more than one way (Paerregaard et al. 2020). A physical-material connection to the irrigation system creates access to running water for the islanders. Whenever water surfaces through an outdoor water post or through an indoor water tap, this flow allows for renewed belief amongst the islanders, in the government interest to invest in life on the island. Thus, the water infrastructure has the capacity to connect islanders to running water and to the state – to possibilities for human life (Harvey and Knox 2015; Harvey 2018 in Venkatesan et al. 2018). However, as the infrastructure takes form through a series of delays, amidst ruptures and stagnations, and water flows are unpredictable, this connection is never experienced as complete – neither the physical-material connection nor the connection to a caring state. Rather, it is experienced through a series of breaks and disruptions. Hence, infrastructure’s capacity to connect always also implies a capacity to disconnect (Orlove and Caton 2010), not just through water infrastructures such as pipes and water taps (Anand 2017), but also through other infrastructures such as roads (Harvey 2018). On Isla Huapi, water infrastructure’s capacity to create incomplete and unstable relations between islanders and the state ties in with historical narratives of state discrimination and neglect. In this sense, the infrastructure allows for a relation between islanders and the state that is never quite finished but always in the making.

Inspired by recent anthropological literature on water that approaches the materiality of water and social life as interconnected and mutually constitutive (Ballester 2019; Krause and Strang 2016; Orlove and Caton 2010), I explore the material and political conditions through which running water appears or fails to do so. To Franz Krause and Veronica Strang (2016), an analysis that thinks relationships through water examines relations in which water enters – social, material, political, and alike – and considers social and hydrological relations together. An analysis of what they call hydrosocial relationships (see also Ballester 2019) thus requires attention to the myriad of relationships into which water enters and the
way in which water affects these relations. Combining recent anthropological research on infrastructures and water (Anand 2011; 2017; Ballestero 2019; Krause and Strang 2016; Orlove and Caton 2010; Von Schnitzler 2013), I examine the way in which water enters into relationships with islanders, government employed engineers and the materiality of the irrigation system – water pumps, water posts, pumps, and the like – in a quest to examine infrastructural connections. Not only is water supply on Isla Huapi conditioned by physical and political ‘pressures’ (Anand 2011), it is also understood to be conditioned by a political history of discrimination and state neglect against Mapuche people (Crow 2013; Richards and Gardner 2013), in particular, the Mapuche people on the island of Huapi.

The main argument put forward is that historical relations between islanders and the state reemerge with the uneven process of infrastructural development that promises provision of running water. In the first part of the article, I introduce the myriad of relations into which water enters and that demands analytical attention in order to understand hydrosociality on Isla Huapi: hopes for water and state care, material becomings of infrastructure, and political negotiations. I demonstrate the frustration created by these relations, shared by engineers and islanders alike, and proceed to explore different understandings of water needs and the life-altering significance that particular water flows might have. Looking at state connections and a history of discrimination, I turn the analytical gaze towards the relation between hopes for water and hopes for state care, and analyse the way in which narratives of state discrimination tie in with such hopes as the irrigation project allows connection to history through time-space compressions. In the last part of the article, I turn the focus to temporalities of water supply temporal expectations and look at the way in which the uneven emergence of infrastructure create connections to past histories of state violence and the way in which these connections spur political negotiations.

Hydrosocial Relationships of the Irrigation Project

Arriving for a meeting at the island’s school premises, I found Ignacio and Enrique1. Ignacio was the head of the regional department of irrigation run by the Institute of Agricultural Development (INDAP). Enrique owned the company to which Ignacio had outsourced the job of completing the project that he, together with his team, had designed, and of which he was in charge. The project was mainly related to the construction of Chile’s largest off-grid (not connected to a central electricity grid), solar-powered irrigation system. This, I understood, would be the topic of the upcoming meeting. Half an hour after the meeting was supposed to start, Ignacio stood up in front of the small crowd of people who had showed up. In a calm, but firm voice, he said that they had called the meeting to update people on the irrigation project. The main network of pipelines, the red matriz, as well as the first stage of the project was done, he said. He paused before continuing: “What is missing are permits necessary to get the second stage going”. Talking in a slow manner, stressing each word, he explained that for some families it would be necessary to draw the pipelines through their neighbour’s plots or properties. For Enrique’s company to do this job, they needed permits from the owners of the properties on which they would lay down pipelines. So far, Ignacio said, they had received only a fraction of the permits they needed to do this

1 Throughout the article, names of interlocutors have been changed and their identities anonymised.
job. The work was planned to start in the beginning of November, which meant that many only had four weeks to obtain permits from their neighbours.

A woman raised her voice telling Ignacio that she faced a problem getting the permit because her neighbour refused to give it to her, assuming that the pipelines would damage his plot and crops. “For this reason”, she continued explaining, “you have to put the pipelines down along the road to my plot instead of putting them down through his land”. Ignacio asked for her name and Enrique, sitting on a table behind Ignacio, started searching in his papers. Meanwhile, Ignacio responded to this woman by saying it would be too difficult and time-consuming to dig up stones in the road and put down the pipelines all the way along the road to avoid her neighbour’s plots. “The only solution here”, he said, “is that you obtain that permit from your neighbour”. The woman got upset, repeating that her neighbour refused to give it to her – what was she to do? Meanwhile, Enrique had apparently figured out what property they were talking about and asked her if this neighbour was not her uncle. She confirmed this but added that he would not give her the permit regardless. Ignacio shook his head and smiled.

Slowly, while looking down, he walked up to the audience sitting on the steps of the bleacher in the school’s gym where the meeting was being held. He crossed his arms over his chest and looked up. Facing the audience, he said with a loud voice: “Listen, here we are all adults, aren’t we, who can talk to each other and find solutions. We [Enrique and I] cannot go around to each and every one and do this job for you”. Ignacio was upset. He was angry. He went on to say that if they did not get the permits before the beginning of November, they would have to find another contractor to do the job that Enrique was now hired to do. This would be a very difficult task, finding a new contractor, considering the small amount of governmental funding that was left to carry out the final stages of the project. It sounded almost like a threat. Continuing in a loud and harsh voice, Ignacio said: “We have done our job, now it is time you do yours. This is not our project, it is yours”, he added before taking some steps back.

Nobody answered. Everyone was quiet. The echo of Ignacio’s voice resounded between the walls of the gym. Then he turned around again and said that few people had shown up for the meeting. Still angry, he asked, rhetorically, where the rest were. There were 95 beneficiaries (beneficiarios) of this project in total, but he could only count 20 present. “So”, he said, “the question remains: where are the rest?” Having kept quiet until this point, Enrique now spoke up as well, saying he was tired of people not showing responsibility. Like Ignacio, he was clearly upset: “It is okay for me to repair broken tubes, but when I have to spend money and time to repair broken tubes because people apparently lack interest to take care of the things they are given. With this I have a problem”. What were the preconditions for this emotional outbreak?

Thinking relationships through water (Krause and Strang 2016) would in this case imply thinking relationships through the hope for water. For many islanders, running water had not yet appeared on their plots, nor had the water posts through which the water would surface. Thus, it was the hope for or even expectations that spurred these emotions. Furthermore, the hope for water here enters into relations with materials of bureaucracy, such as the much-needed permits, and materials of infrastructures repeatedly breaking down. Understanding the political negotiations taking place in this meeting, requires attention to the myriad of relations into which hope for water enters.

Writing about hydraulic infrastructure and citizenship in Mumbai, Nikhil Anand (2017) focuses on the myriad more-than-human relations which make up this infrastructure: steel, cement, ‘nature’, laws, social histories, and political practices and, not to forget,
water. Drawing on Dipesh Chakrabarty (2000), Anand seeks to theorise the social life of infrastructure and suggests that it is a “… social-material assemblage that not only constitutes the form and performance of the liberal (and neoliberal) city but also frequently punctures its performances” (2017: 6). As all infrastructural constructs, water infrastructures entangle efforts of modes of government, shaping the role between political subjects and state in specific ways. However, this relationship is never complete. As Anand points out, infrastructure comprises processes always in formation. Infrastructure is not only a material becoming but also a socio-political one.

Understanding political negotiations tied to hope for water that is elicited through the irrigation project also requires keeping in mind historical encounters with development and the scepticism with which islanders for decades have met governmental promises of development in the community. This scepticism stems from past experiences with failed promises or experiences of state carelessness. Recounting the moment when materials for the construction of the irrigation system started arriving on the island, several islanders talked about the relief with which they met this sight. It was not so much that they desired this specific project: rather, it was a token of the government’s willingness to care for the island by fulfilling their promise. They had kept their word. As infrastructural projects hold within them potentiality and hopes for better lives, they also hold within them potentiality of failure and disappointment. Given that unforeseen connections and disjunctions are likely to occur during the life span of an infrastructural project, such projects elicit a range of emotional responses – for islanders as well as engineers.

The meeting described above took place in October 2016. Over the course of the eight months that I had lived on the island, this was the first time that I witnessed Ignacio and Enrique directing their frustration and anger towards the farmers directly. The project had already been stagnating before I arrived in early March the same year. Only the first stage of the project was completed when they were confronted with a technical challenge causing a serious setback to the project’s schedule. The frustrations and tensions related to the construction of the irrigation system had been building up ever since and culminated in this meeting. Ignacio and Enrique were frustrated that the project did not progress as planned and angry that most of the islanders did not seem to put much effort into caring for the technical equipment nor showing up to the meetings that they organised. Consequently, to Ignacio and Enrique, islanders did not demonstrate sufficient enthusiasm for the project in itself. On their part, many islanders did not show up to these meetings because, to them, it was purposeless. After four years in the making, this project had yet not produced the results they hoped for – running water. Many of those who did show up did so to reclamar – call for or demand what they were promised but still lacked – running water. Others had grown tired of complaining as in their experience, it did not result in much more than time wasted. Another source of the frustration experienced by the islanders as well as Ignacio, was the fact that they had different waters in mind – the inlanders wanted indoor tap water while Ignacio offered them irrigation water.

**Different Understandings of Need for Running Water**

The Chilean government initiated the irrigation project to cope with increasing water scarcity, which resulted from decreasing rainfall as a result of climate change. While the farmers of Isla Huapi depend on their agricultural activities, deteriorating harvests is not
their greatest concern. The rainfall they had relied upon for cultivation up until this point still seemed to give harvests sufficient to supplement diets and, through sales in the small village on mainland, household economies. The more pressing water related issue for people on Isla Huapi was the lack of a different water, namely sanitised drinking water. Because of the government’s environmental concerns and its particular conceptualisation of water scarcity tied to decreasing rainfall, the necessary adaptations to confront the impact of climate change were made at the expense of the farmers’ requests for sanitised drinking water. Nevertheless, Ignacio and Enrique claimed that this was their, that is the islanders’, project. The irrigation system’s infrastructure could not provide sanitised drinking water. Yet, it opened up the possibility of solving another hardship related to water – the burden of having to carry water manually from the lake to their houses.

To mitigate the divergence between the two types of running water, purified drinking water and impurified irrigation water, farmers were encouraged by Ignacio to use the irrigation system as an infrastructural means to transport water into their houses. If not in a purified form, the water was at least transported into their homes. As soon as the irrigation system was up and running and they gained access to the hydraulic network, they could connect self-purchased pipes to the water post in their plots and in this way transport water to their houses through the pipes. In some households, water taps had already been installed and were in use as they had been connected by pipes to wells. However, the wells were too few and benefitted only those people who had one on their own or their neighbour’s property. Furthermore, this required great investment in materials, as an overhead water tank was needed to ensure pressure. Thus, most islanders carried water manually on a daily basis and indoor tap water was, regardless of the water’s quality as purified or not, in high demand. During community meetings organised by Ignacio to discuss the irrigation project, meetings similar to that in the aforementioned case, a question commonly asked among the attendees was precisely: “what water is he [Ignacio] talking about?” Some of the frustration grew out of the fact that the engineers and islanders who attended these meetings, if only to complain, were concerned with the two different forms of running water. Among them was Rosa.

After her husband died, Rosa, still in her thirties, became a single mother of two, a girl and a boy, now both in primary school. For a while, she enjoyed the company of Alejandro, her boyfriend. He had taken on paid work at the farm where I lived, and it was through him that I had gotten to know Rosa. But after Alejandro’s brother died and he took over the brother’s farm and additional livestock located further south in Chile. Before leaving Rosa, Alejandro started to build the house where she now lives alone with her two children. However, the house is still unfinished inside – lacking doors, a wall, and a coat of paint. Moreover, without Alejandro, Rosa has no income aside from the sparse state pensions she receives once a month and the little money she earns from occasionally selling bread to other islanders. In other words, Rosa finds herself in a precarious situation.

The authorities have not made Rosa’s life any better. Since they began visiting her home the social services have expressed concern whether she is able to provide for her children and questioned the fact that she makes them work. They have also raised doubt about the hygiene of the children’s living conditions including the poor quality of the water the family uses for cooking and drinking, which has made access to water and, in particular, sanitised water an urgent matter to Rosa. To understand her situation, one has to consider the daily struggles her life entails, and the prejudices and ignorance Rosa is victim of when outsiders judge her.
Rosa and other islanders find themselves trapped in a stigmatised image of the past. In their view Isla Huapi has undergone significant change in the past years especially with regard to its infrastructural development. The local ferry transportation, for example, enables movement between the island and mainland, thus increasing the contact between islanders and the outside world. Inhabitants of Isla Huapi differentiate between *antes* and *hoy en día*, meaning ‘before’ and ‘nowadays’, and reject preconceptions of them as backward, old-fashioned, or even dirty, physically, or mentally. According to the islanders, this might have been the case before. Nowadays, they told me, islanders are more ‘developed’. To Rosa the social workers who visited her expected her material conditions to be the same as they enjoy. But, Rosa argued, even though her house was not as clean as other people’s homes and even though her drinking water was not sanitised, this did not mean that she and her children were dirty or that she did not know how to keep the house clean. Thus, what compelled Rosa’s complaints was the precarious life situation from which she believed that the irrigation system could offer her some relief – by providing tap water. Without it, her daily struggle with carrying water from the lake, up the hillside to her house, continued. For Rosa, as for other islanders, the irrigation system elicited hopes for progress and modernisation, but also social recognition – for a better life of less hardship, including discrimination.

**State Connections and a History of Discrimination**

In his review of anthropological literature on infrastructure, Brian Larkin notes that “infrastructures are matter that enable the movement of other matter … They are things and also, the relation between things” (2013: 329). They bridge distances and allow for time-space compressions, which can be understood as connections. On Isla Huapi, the
irrigation infrastructure holds the potential of connecting the island’s inhabitants to the modernised outside world – a desirable connection. This would allow for islanders to experience a sense of recognition of their demands for development and a recognition of them as citizens equally deserving of state care through material development as those living on the mainland. However, to islanders, the irrigation system also allows for another type of time-space compression. In the past, other plans for material development failed. For example, on several occasions, I was told the story about the government's plans to invest in an underwater cable through which the island would be supplied with electricity. The money was even allocated. The hopes were high until they learned that the money earmarked for this project were reallocated and spent elsewhere. The project had proven too expensive. Islanders claimed that broken promises of development, such as the abovementioned, were examples of discrimination against them as Mapuche people that fed into a history of state neglect – a history that dates back to the beginning of the nineteenth century and which Mapuche people still carry with them.

When Chile gained independence from the Spanish Crown (1810-1818), the Chilean authorities started the process of confiscating and colonising large areas of the south. Chileans took an interest in Mapuche people’s land, forested areas from the Bío-Bío River in the central valley of Chile to the very southern parts of the continent, which they wanted to use to extend the nation’s agricultural production. In addition, there was a growing interest among Chilean authorities in unifying the Chilean territory. The subsequent occupation, usurpation and penetration of Mapuche territory (see Bengoa 2001) was legitimised by notions of the Mapuche people as barbaric, uncivilised, and unable to exploit their land properly (Richards 2013). In the mid-nineteenth century, the first tracts of confiscated land were auctioned off by the Chilean state to European settlers. Mapuche people previously living on this land were confined to so-called reducciones – reservations scattered throughout the southern regions. The resettlement process took place through allotments of collective land titles (títulos de merced) – property deeds. The invasion of Mapuche territory by the Chilean army and the subsequent resettlement process became known as the ‘Pacification of Araucanía’ (1860-1883). The process left the Mapuche people with only five per cent of their original land (Crow 2013), as the reservations amounted to approximately 500,000 hectares in contrast to the original ten million hectares of the prewar Mapuche region (Di Giminiani 2015). By displacing Mapuche people and introducing new notions of land, the Chilean government attempted to assimilate and control Mapuche populations throughout Chile. The way in which they were subordinated to the larger society of European-descended Chileans, in public discourse as well as in the sphere of national politics, left them both economically and politically marginalised. Due to these processes of displacement, as Mapuche people fled the war, Isla Huapi became inhabited. In the beginning of the twentieth century they were given property deeds documenting their right to Isla Huapi, an inaccessible island where modern infrastructure is expensive to develop.

As islanders draw on narratives of state discrimination, the irrigation project allows for a time-space compression that connects them to memories of a careless and even violent state. Still, instead of demanding autonomy or restitution of ancestral land, islanders call for the state’s presence. With regard to hopes for development, they are eager to connect to the state as a provider of much needed resources, and as such, a provider of social recognition. In that regard, hopes for infrastructure to materialise and running water to appear coincide
with claims to state care. However, time-space compressions allowed by infrastructure do not make connections in an even and stable manner. The uneven temporality of the emerging infrastructure and in particular, the uneven temporality of material-physical connections to the irrigation system, done over a series of project phases, causes a series of disconnections. Hope for running water weakens and running water supply is deeply entangled with notions of unfairness that spur political negotiations. The irrigation system, through which these negotiations take place, becomes a site of ongoing political contestation that connects islanders and the state through an unfinished relation with historical ties.

Temporalities of Water Supply
The unfinished relation between islanders and the state, based in a history of hopes and disappointments alike, is reinforced through the irrigation infrastructure as efforts are made to make water flow. Hence, the process by which irrigation and indoor tap water emerged was experienced as unpredictable and uncertain. It is a politically ambivalent, but also a temporally uneven process. The process of making water flow in particular ways is made uneven by political negotiations but also by the unpredictable qualities of water itself. Additionally, the process of making water flow in particular ways is uneven because infrastructure takes time to emerge. If we pay attention to this time and “think of infrastructures as unfolding over many different moments with uneven temporalities, we get a picture in which the social and political are as important as the technical and logistical” (Anand et al. 2018: 17). Over which moments did the irrigation infrastructure on Isla Huapi unfold? As with other infrastructure projects (see e.g., Anand 2017; Harvey and Knox 2015), the irrigation project was carried out over a series of delays, ruptures, and stagnations. Running water relied on a complex system of pipes, tubes, water basins, water posts, and other materials making up the infrastructure. It also relied on the bureaucratic processes of formal permissions and other documentation. Moreover, it relied on the processes of negotiations – between engineers such as Ignacio and islanders as well as between islanders themselves. In what follows, I will look at the way in which the water supply emerged unevenly through multiple phases, and thereby affected the relationship between Ignacio and the islanders, and, in turn, affected the way in which islanders perceived state care.

During my first meeting with Ignacio, in early March 2016, he explained the basic technological aspects of the irrigation system they were constructing. In principle, the project had been completed but some problems remained to be solved. The water level in the surrounding lake had declined to such a degree that two of the accumulators pumping water from the lake into the system were no longer working. At the moment, he told me, the pumps that were supposed to be completely submerged were literally hanging in the air above the water surface which caused Ignacio’s department additional work as it had to find financial support as well as a work force to rebuild the construction. While this problem was both technically and financially solvable the social issues arising from the postponement of the project’s completion date had become Ignacio’s main challenge. According to Ignacio, islanders did not understand the technicalities of the construction process and had started complaining. And even though Ignacio had offered explanations in a simple language as he expressed it, islanders did not grasp for example, how the system could work without batteries to store the energy that the solar panels produced – that it was a system that operated ‘automatically’, as he said.
Another issue of contention was the process through which people gained access to the irrigation system. The project was designed to be executed in three stages. The first stage involved building the infrastructural technology and connecting it to the plots of 29 farmers. The rest of the farmers on the island were to be incorporated in the second and third stages.

Before I arrived on the island, contractors had installed three solar-panel stations on different sites on the island. These solar panels, operating automatically, that is, without energy storage, provided two accumulators, one on each side of the island, with power to pump water from the lake into the four dams. These water dams had been built at different sites on the island – all mountaintops. A rather significant difference in altitude between the sites of the water dams and the plots, was necessary in order to transport the water – it had to flow. Leading out from the bottom of these water dams was an intricate system of subterranean pipes spanning across the island – the main network. To the main network of subterranean pipes, new pipes were connected – also underground. The latter sets of pipes (like arms attached to the main body) carried water running in the main network down to various farmers’ plots. Here, the water surfaced anew through water posts. Each property was to have one water post. When I arrived on the island, the first stage of the project had already been completed: 29 families’ plots had been provided with water posts and connection to the main network of underground pipes. The second stage of the project, which they started working on while I did fieldwork, was to provide another group of farmers, the second group, with the same connection. The third and final stage, in which the remaining unconnected farmers on the island will gain access to the hydraulic network, was still in the planning phase, which caused discontent among the affected people who indignantly told Ignacio: “¡no hay agua!” – “there is no water!” In their view, the project’s delay, and the waiting problems it entailed disclosed a political issue as it left them as the only islanders without running water in their homes.
On the other hand, Ignacio explained the delay as a technical and unforeseen problem attributing it to his professional team’s failed calculations of fluctuations in the lake’s water levels. For a long period, the accumulators pumping water from the lake into the system of underground tubes on the island, had been left hanging in the air above the lake’s surface until Ignacio and his team reinstalled the accumulators deeper down. Ignacio also attributed the low levels of water in the lake to the reckless water extraction by large-scale businessowners in the surrounding area. In a similar technical vein, he interpreted the islanders’ repetition of the same questions and statements such as ¡no hay agua! as proof of their low educational levels. According to Ignacio there were other examples not only of the islanders’ ignorance, but also their lack of collaboration and appreciation of the project’s importance. Apparently, destroyed water posts as well as ruptured and cracked underground pipes were common finds during regular inspections, and demanded repair. The damage to the infrastructure was commonly caused by the activities of heavy and fierce cattle grazing where the water posts were. Such experiences affirmed Ignacio’s and his co-workers’ belief that there was a communication barrier caused by lack in formal education which, in turn created social discord, complicated his job, and delayed the project’s completion. Repeatedly due to what Ignacio conceptualised as social issues but nevertheless addressed as technical problems, he had to revise his financial calculations and the project’s time schedule.

Infrastructure is, as Akhil Gupta approaches it through his focus on the relation between infrastructures and their futures, a process “characterised by multiple temporalities, open futures, and the constant presence of decay and ruination” (Gupta 2018: 62). The divergence between temporal expectations for infrastructural building initiatives as planned projects on the one hand, and as an open-ended process on the other, is partly what causes the frustration experienced by Ignacio, Enrique, and the islanders themselves. As Penny Harvey (2018) points out in relation to road constructions in Peru, the promise of infrastructure as the result of singular projects is tenuous. They might be perceived, at times even expected, to take place on the ground as single operations. In reality, however, infrastructural projects do not take place in a linear fashion, nor in the form of a single operation. Rather, “what emerges on the ground appears in fits and starts. Some aspects of a project appear long before others, while some components of a system might begin to fail or decompose before others have even begun” (Harvey 2018: 82). The irrigation system on Isla Huapi, perceived and presented as a singular project, revealed itself to consist of a multitude of different ones that emerged at different times. The ongoing infrastructural maintenance frustrated Ignacio because he, like the islanders, understood the infrastructure
to be a linear process which steadily progressed towards an end point: the completion of the infrastructure, and thus of the project itself. However, infrastructural projects repeatedly prove to be open-ended works-in-progress.

Returning to the meeting with Ignacio and Enrique, the engineers of the irrigation project, the issue at hand for them was the islanders’ seeming unwillingness to take responsibility and to do what they considered their part of the job – to obtain permits from their neighbours and care for the infrastructure. In addition, the governmental funding was about to run out and the situation was to them indeed frustrating. However, his frustration had piled up over several months, during which he had encountered one obstacle after another. This was not how Ignacio had expected the project to proceed. Instead of addressing the unequal distribution of resources or politics of water supply, Ignacio explained the problem by complaining of islanders’ actions (or lack thereof) through their lack in formal education. In fact, he was thereby foregrounding stereotypical, racialised imaginaries about the Mapuche people as ‘backward’ and as ‘lazy’ lacking a proper work ethic (Crow 2013; Di Giminiani 2018), an image that Rosa’s case undercuts.

Anand (2017) demonstrates how citizenship emerges through the continuous efforts to control, maintain, and manage the city’s water systems – its infrastructure. Like Anand (2017), other anthropologists have studied the relationship between people and the state through a focus on the social life of infrastructure, for example Antina Von Schnitzler (2013, 2016). In her book, Democracy’s Infrastructure (2016), Von Schnitzler focuses on conflicts surrounding prepaid water meters in post-apartheid South Africa. Instead of focusing on negotiations of citizenship, she explores the ways in which democracy takes shape in the form of techno-political devices including meters to measure water consumption and the political subjects these generate.

Examining negotiations of citizenship through social histories offers a fruitful entry to understanding political negotiations of water access on Isla Huapi as well. Through prospects of a better life and experiences of uneven distribution of water, between people on the island and those living on mainland but also between islanders themselves, the always emerging irrigation system spurred political negotiations that contested notions of equality and social recognition.

**Conclusion**

The response of Rosa and others in her situation to the prospects of being connected to the irrigation project must be viewed in the light of their precarity and the unequal distribution of water among the island inhabitants. It was therefore the hope for running water and the social recognition/life/status associated with it that compelled many islanders, including Rosa, to complain and complicate Ignacio’s work. Even though the infrastructure had been built on her property no water was running through its pipes because of the uneven water connections, which explains Rosa’s and others’ disappointment.

Analysing hydrosocial relationships thus implies paying attention to the myriad of relationships that links water to its human users. On Isla Huapi, this requires examining the hope for progress materially as well as socially that access to water creates. A past and more recent history of state neglect and governmental indifference towards islanders, living on an inaccessible island where infrastructure is expensive to develop, has made many question the
government’s willingness to care for them. The state’s failed attempts of material development over the last few decades has reinforced this doubt. When irrigation infrastructure finally materialises on the island, together with engineers and other technical staff employed by the government and municipality, the hopes for running water increases in tandem with hopes for recognition.

When studying development of water infrastructure as a relational process that includes and enacts not only the material but also the social and political, and the uneven temporality through which infrastructure emerge, troubling historical relations between islanders and the state are revealed to be reemerging together with the infrastructure. In that way, I have argued, not only does water infrastructure have the capacity to connect in a socio-material sense but also in a socio-historical sense. For people on Isla Huapi who are still seeking social recognition through governmental development, this means that the water infrastructure connects islanders and the state in a highly ambivalent relation. The confusion caused by divergent understandings of which types of water that matter on Isla Huapi and in what ways – irrigation water versus tap water or versus sanitised drinking water – underlines the different ways in which infrastructure connects and disconnects islanders and the state. To understand the many processes through which this infrastructure develops as an irrigation system and a system facilitating indoor tap water, means to explore not only material, socio-political relationships and the temporality of these relationships but also the daily lives and social struggles of the people who engage in them.

References
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