



Introduction

Waterworlds At Large

Kirsten Hastrup and Frida Hastrup

The present times are promising in anthropology, ready and able to cast its moorings in received notions of culture and society that reflect a basically sedentary view of the analytical object. Instead, there is a general acknowledgement of unstable worlds, marked by unstable boundaries, migrating people, shifting resource bases and new global technologies, as well as multiplying flows of things, images and knowledge. In this book we focus on the part played by water in the making and unmaking of fluid worlds. Through diverse ethnographies of 'waterworlds' we explore social life as configured by water in one form or another, and show how this allows for an acknowledgement of the anthropological object as unbounded and premised on a unity of nature and society.

Possibly, not everybody would agree with the promise of a situation that seems to create ever more messiness in the discipline of anthropology, both in terminology and purpose. There is much to be said, though, for a creative '*un-disciplining*', if it is then better able to respond to the historical situation of fast-flowing images and ideas across the world and to the pressing global ecological crisis. Now is a moment when we cannot conceive of the Earth regardless of human whims and social forms. The term 'anthropocene' has been coined for a proposed new era to succeed the Holocene, the latter being the period following the last glacial period up until the present, as identified by geological measures (Crutzen 2002; Ehkers and Kraft 2006). In the anthropocene, the imprint of human activities on the Earth's ecosystems is seen around the globe and deeply affects its future; this unprecedented human impact on

the planet is part of the definition of the term. Partly owing to the rapid population increase, and partly to the development of earth-shattering technologies and extractive industries, over the past century humans have disturbed the globe to a degree that it is no longer possible to speak of a self-generating *natural* world. Although still subject to debate in the natural sciences – mainly geology, from where the notion springs – it seems appropriate to co-opt the notion of the anthropocene to anthropology, where nature and social life have by now been recognized as intertwined (K. Hastrup 2013b).

In this volume, we suggest that the promise of anthropology is closely linked with what we would like to call ‘the anthropocene moment’. This moment is marked by an awareness of the future of the Earth being inexorably linked to human history and to the human capacity for reflection, and for remaking or destroying the world. In the chapters that follow, we shall see multiple instances of formative, reflexive powers in places where basic environmental conditions are changing, and fluidity on all accounts is the order of the day. The notion of the anthropocene thus sets the scene for the book not simply as a description of an environmental and climatic revolution, but for an anthropology that recognizes the need to join forces across disciplines, parts of the world, knowledge domains, professionals and so-called lay people in analysing and grappling with what is to become of the Earth. The very object of study – world-making projects in fluid environments – is necessarily a result of empirical and analytical concern for a shared globe, to which ideas of settled and natural entities no longer apply.

The book does not offer tales of destruction or despair, although this may sometimes lurk in the ethnographies. With the cases presented below, the book shows how humans are not only part of the problem, but also part of the solution to the uncertainties of our common future. In the anthropocene moment, where else would we look for inventive and even interventionist action of redress? In this era there is no given anthropological object, but multiple and composite objects emerging out of particular reflexive or analytical processes, in which humans always engage. In other words, anthropology finds itself at a moment in time when the field is literally wide open, and where new certainties have not yet sedimented. Evidently, people live in actual places, whether they see themselves as stationary or mobile, and anthropological fieldwork is likewise conducted in specific places. Even if both social life and anthropological knowledge are therefore ‘located’, they are never entirely ‘local’, nor well bounded (Turnbull 2003). Whatever anthropologists are studying, it bends and stretches in both space and time according to the interests of the interlocutors and of the fieldworkers,

and it may incorporate diverse people, other species, deep geological times, historical precursors, drifting ideas, winds and weather, as well as diverse kinds of knowledge – all of them contributing to the make-up of the world. From an anthropological perspective, unspecified relations become temporarily specified, and a world emerges as a set of connected relations. Such processes of ‘worlding’ are the central tenet of this book (cf. Tsing 2010).

As an entry into an anthropocene anthropology that explores and indeed productively engages with the unbounded quality of ethnographic knowledge, the chapters below focus on the role of water in worlding exercises across the globe. In the course of the inquiries, the power of water to make or unmake social worlds is explored, as people refashion their lives according to their understandings of water’s course and force, and their views of the future. It becomes clear that the worlds we are talking about here are emergent and an outcome of analysis, carried out by all people acting upon some sort of anticipation (K. Hastrup 2013a).

By using the notion of ‘worlding’ and focusing on ‘waterworlds’, we thus experiment with a strategic perspective, allowing the chapters to speak to each other, and testifying to the mingling of empirical matter and analytical ambition. At the anthropocene moment in anthropology there is no epistemological distance between the ‘real’ world of people ‘out there’ and the world presented in the ethnographic cases. Both emerge in ‘the ethnographic moment’ (Strathern 1999). The focus on water highlights the need for rethinking the anthropological object in a fluid environment, by default connecting everybody across the globe in the anthropocene, and making things, living beings and places change according to analytical perspective.

Liquid Worlds

When the gigantic steamer *Titanic* hit an iceberg in April 1912, and the captain realized the imminent danger, he used new technology to try to alert other ships in the area. Some ships received the call for help, but were too far away to be of any use, while some closer ones did not have any wireless equipment with which to receive the signal from *Titanic*; and on board the closest ship, only 19 miles away, the wireless operator had closed down for the night ten minutes before the alarm. *Titanic* went down with the loss of over fifteen hundred passengers and crew.

Before *Titanic* disappeared its alarm signal had been picked up by a wireless station in Newfoundland. ‘Shortly after that hundreds of wireless instruments along the Atlantic coast began to transmit, and the

airways became jumbled in the confusion. The *Titanic's* wireless had a range of only 1,500 miles, so signals to Europe had to go first to New York and then across the ocean by cable; still, by early morning, the entire world was privy to news of the disaster' (Kern 1983: 66). The globe became united in disaster by way of the wireless, possibly for the first time; such magical power of technology did not pass unnoticed – even though, obviously, for most people on board *Titanic* the 'magic' still had its limitations. Stephen Kern quotes an entry in the *New York Times* on 21 April 1912:

Night and day all year round the millions upon the earth and the thousands upon the sea now reach out and grasp the thin air and use it as a thing more potent for human aid than any strand of wire or cable that was ever spun or woven. Last week 745 [sic] human lives were saved from perishing by the wireless. But for the almost magic use of the air the *Titanic* tragedy would have been shrouded in the secrecy that not so long ago was the power of the sea. (*New York Times*, quoted by Kern 1983: 67)

Other secrets were also unveiled, notably – in our context – the secrets of human life in far away places. People had always been travelling, and exploration of the continents and their inhabitants had taken off and multiplied since the Enlightenment. In the nineteenth century, European explorers had gone out of their way to map new lands – not to say that they had gone out of their minds (Fabian 2002). But their plights remained unknown until they were back, if they made it. Around 1900, one not only had ethnographic pictures brought home from the field by anthropologists, but one also had instantaneous news of calamities that had hit somewhere. Distance was minimized.

The fate of *Titanic* of course also installed a sense of collective dread in people – a feeling that the excessive size and volume of the steamer had been too daring. But it was the First World War that for a time arrested the uniform modernist belief in technology's unquestioned contribution to human progress; the technologies of war surpassed any imagination. Today, a hundred years later, we have a parallel issue with late modern technologies, harnessed by industry and placed all over the globe, distributing risk (Beck 1998). The major issue is the fact of global warming due to CO₂ emissions, not least from the use of fossil fuels, and visible for instance in the darkening peaks of glaciers (Orlove, Wiegandt and Luckman 2008). This reminds us about the anthropogenic nature of the current changes, and once again, a certain sense of dread glues to technologies that have united the globe into one world, because their effects seep into every corner, unseen and unmanageable.

Zygmunt Bauman (2006) has analysed the uncertainties related to living in such 'liquid modernity', where customary cause-and-effect sequences are falling apart, and unknowable dangers seem to lurk around the corner. The result, according to Bauman, is a 'liquid fear' that is part and parcel of life in the early twenty-first century, not least relating to the invisible pollution and the unknown terrorist who may be in our midst. The threats may be everywhere or nowhere, and they seep into our lives and affect our actions without our really noticing it, and without improving our means to avert them. Like the violence of which Veena Das has written, the liquid fear descends into the ordinary (Das 2007). The electronic media are very much part of our sense of dread, as news about secret encroachments upon people's privacy multiply. The magic of the wireless has become black.

Interestingly, Bauman also recalls *Titanic*, but as an imagery rather than a real death-bound steamer. He cites a film critic, who had pondered over the extraordinary triumph of the film *Titanic* from 1997, and suggested the following:

Titanic is us, our triumphalist, self-congratulating, blind, hypocritical society, merciless towards its poor – a society in which everything is predicted except the means of predicting. ... (W)e all guess that there is an iceberg waiting for us, hidden somewhere in the misty future, which we will hit and then go down to the sounds of music. (Jacques Attali, quoted in Bauman 2006: 12)

Bauman adds that in retrospect – after 9/11 (2001), the Asian tsunami (2004) and Hurricane Katrina (2005) – the suggestion seems downright prophetic. The iceberg is a token of all the unknowns that may hit us while we are travelling through life, trying to overcome our fear of moving. It is not the intention here to dwell on disasters as such; after all they are soon difficult to single out from the everyday (F. Hastrup 2011a), but to suggest that in a world where everybody is potentially privy to what happens in any corner of it, the free-floating images of all sorts of calamity affect our ways of thinking and relating to the present. They are part and parcel of the liquid times, of which Bauman speaks (2007). At a mundane level, the liquidity of the present relates to social forms, political institutions, access to the labour market, and to an individualization of responsibility. It has shifted allegiances around in a way that undermines the modern social imaginary, as envisaged by Charles Taylor (2005), and founded upon the nation-state.

The virtue proclaimed to serve the individual's interests best is not *conformity* to rules ... but flexibility: a readiness to change tactics and style at

short notice, to abandon commitments and loyalties without regret – and to pursue opportunities according to their current availability, rather than following one's own established preferences. (Bauman 2007: 4)

As implied in the notion of liquid times, living with uncertainty and not least with an unknown and largely unknowable future is not a matter of finding new and more sophisticated technological solutions, but mainly of renegotiating the idea of society and of subjectivity. Focusing on water in diverse forms, as the following chapters do, takes us towards a clearer vision of the ways in which the anthropological object takes shape in the course of analysing the unbounded liquid worlds.

When suggesting the term 'waterworlds' for these, we are not speaking of 'modern water', harnessed in hydrology, abstracted from the ecological and social relations that surround it, and converted into a scientific, measurable entity (Linton 2006). The water in the present book is part and parcel of the lived world; it is social by nature. According to Veronica Strang (2005), water is at the heart of human life, sensory experience and cultural meaning. We do not claim primacy of water in all worlding processes, save for noting that all life depends on water. In the chapters that follow, water is a perspective chosen to focus ethnographic attention on comparable themes, and to show how liquid fears are curbed in practice. In a recent special issue of *Social Studies of Science* (2012), the editors note:

Water flows through our lives. It quenches thirst, sustains crops, generates power, cools industry, carries ships, disposes waste, and maintains ecosystems. Where the flow of water is reliable, clean and plentiful, it fosters growth; where the flow is too much, too little, or too dirty, it wreaks havoc. The use and management of the world's fresh water has therefore become a key contemporary issue: a topic of intense political debate and popular concern, and a focus of considerable scholarship within the social sciences. (Barnes and Alatout 2012: 483)

What we would like to do here is to explore this general power of water through concrete ethnographic analyses in which water and humans co-configure social worlds and values (K. Hastrup 2013e). Ben Orlove and Steve Caton have pointed out that the specific anthropological contribution to the study of waterworlds lies with 'seeing water not only as a resource, but also as a substance that connects many realms of social life' (Orlove and Caton 2010: 401); yet here water remains outside of what it connects, it seems. While categories are necessary for communication, the very fluidity of environments should not be dammed too early in a quest for managing water and putting it to work for humans (cf. Kaika 2006). Water has become acknowledged as an in-between

category, permeating anthropological discussion in new ways and linking the two pillars upon which modern science developed: nature and culture. Stefan Helmreich writes:

Water oscillates between natural and cultural substance, its putative materiality masking the fact that its fluidity is a rhetorical effect of how we think about 'nature' and 'culture' in the first place. Water as nature appears as both potentiality of form and uncontainable flux; it moves faster than culture, with culture often imagined in a land-based idiom grounded in the culture concept's origins in European practices and theories of agriculture and cultivation (Williams 1976). Water as nature appears as that flowing substance that culture may be mobilized to channel – think of canal locks, dams, and irrigation networks. Water as culture, meanwhile, can materialize as a medium of pleasure, sustenance, travel, poison and disaster. (Helmreich 2011: 132)

It is an intriguing proposition that nature 'moves faster' than culture. But why is that so, and how may it be measured? Another question is how water may 'oscillate' between nature and culture; this probably has less to do with water than with the human mind, seeking to understand the world in such a dualistic manner. Even while trying to dissolve the opposition between nature and culture, it resurfaces in statements that seem convincing at first sight, until one realizes that the argument is still steeped in a dualistic worldview that waterworlds explode.

We agree that it is difficult to keep things afloat, and we acknowledge the objectifying power of language. Yet, at this moment – that we have called 'the anthropocene moment in anthropology' – we should at least attempt to keep the doors open to a new and productive sense of liquidity that may surface ethnographically. We need to engage in more critical description, of the kind suggested by Anna Tsing, which is 'critical, because it asks urgent questions; and description, because it extends and disciplines curiosity about life' (Tsing 2013: 28). Such critical description may, at least for a while, allow us to explore the various socialities that are at play in the world.

Interdisciplinary Encounters

There is ample reason to extend the notion of sociality to non-human life forms, as suggested by Tsing (2013). This implies that neither species nor scholarly disciplines act in isolation. One might claim that whatever the object of interest may be, fieldwork – often seen as the constitutive method of anthropology – is inherently interdisciplinary, if for no other

reason than because it plays out as social encounters across different perspectives. What is interesting, though, is that dialogue across disciplines and differences was also an early hallmark of the emergent anthropology in late nineteenth century.

A premium example of this is Alfred C. Haddon's Torres Straits Expedition in 1898–99. His work has been seen as a watershed in British anthropology – a nascent form of modern systematic and scientific fieldwork (Stocking 1983: 83–84; Edwards 1997: 14). Haddon was a zoologist, and he is credited with having imported the term fieldwork into anthropology from zoology (Herle and Rouse 1998: 17). Certainly, this was a decisive moment. In the preface to the first publication from the expedition, Haddon wrote:

During the years 1888–89 I spent some eight months in Torres Straits, investigating the marine zoology of that district, and having become interested in the natives I devoted my spare time to recording many of their present and past customs and beliefs. Some of the results of these studies have already been published. Later I proposed to publish a Memoir on the Ethnography of the Islands of Torres Straits, but on going over the material I found that it was too deficient to make into a satisfactory monograph. I then determined to go once more to Torres Straits in order to collect more data, with a view to making, with the aid of colleagues, as complete a study of the people as was practicable. (Haddon 1901: v)

Wherever Haddon had made his zoological observations, people had told him that their culture was disappearing, and he engaged in down-right salvage anthropology.

In many islands the natives are fast dying out, and in more they have become so modified by contact ... no one can deny that it is our bounden duty to record the physical characteristics, the handicrafts, the psychology, ceremonial observances and religious beliefs of vanishing peoples; this also is a work which in many cases can alone be accomplished by the present generation ... The history of these things once gone can never be recovered. (Haddon 1897: 306; quoted in Edwards 1997: 14)

What emerges here is the death of traditional cultures due to the seeping in of foreign ways of world-making.

Haddon went on to assemble a team that was to set the tone of anthropology at Cambridge for generations to come, notably W.H.R. Rivers, C.G. Seligman, W. MacDougall and C.S. Myers. Between them they covered a wide range of disciplines, among which psychology stood out strongly (Kuper 1990). Also Haddon's own field, zoology, left a strong mark upon the findings. It has even been suggested that

Haddon's success in his first ethnographic research, and in the subsequent development of his career as an ethnologist, was due to his particular way of looking at the anthropological field with the eyes of a biologist. The apparent conversion of Haddon from zoology to ethnology was nothing but the transference of a great part of the techniques, instruments, theories, models and points of view of biology to the study of anthropology. (Roldán 1992: 23)

This is an interesting point, bearing the mark of its own time; for Haddon the world was seen through many species – a theme that is recurring today.

Haddon's team was very well equipped with technological instruments as befitted modern science, notably camera and cinematographe, underscoring the fact of vision being the central question of the expedition, and producing ethnography of 'high visual quality' (Grimshaw 2001: 20). Rivers literally studied the native's eyesight and colour vision to an astonishing degree of detail. Here is how he presents his work:

We were able during our four months' stay in Murray Island to cover a fairly wide field in our work. The subjects, which we investigated, included visual acuity and sensibility to light difference; colour vision, including testing for colour blindness, colour nomenclature, the thresholds for different colours, after-images, contrast, and the colour vision of the peripheral retina; binocular vision; line-dividing; visual illusions, some of which were investigated quantitatively; acuity and range of hearing; discrimination of tone difference; rhythm; smell and taste; tactile acuity and localization; sensibility to pain; temperature spots; discrimination of weight and illusions of weight; reaction-time, including auditory and visual simple reaction-time and choice-time; estimation of intervals of time; memory; mental fatigue and practice; muscular power and motor accuracy; drawing and writing; blood-pressure changes under various conditions, etc. (Rivers 1901: 1–2)

The complete picture of the people in Torres Straits, to which Haddon aspired, was not only a metaphor. It was part of a scientific strategy of close-up observation and objective documentation of human life in all its width; it was a (modern) way of *performing* science (Edwards 1998). Through such performances, the modern ethnographic subjects emerged (K. Hastrup 2013c).

Today, anthropology has left behind the modernist notions of objectivity and straightforward documentation. If, in Haddon's time, cultures seemed threatened and rescue operations necessary, today we live with enormous environmental challenges calling on all resources if the world is to change its course. We thus still need to explore the diversity of life, not to preserve it in a congealed form but to learn from its inherent malleability, whether or not this is seen as a threat to or a precondition of

survival. In the early twenty-first century, the world again seems uncertain and full of openings and perils, owing both to new technologies and to flows of consciousness. We are no longer talking about James Joyce's individual protagonist's stream of consciousness, but about new, global flows of images, resources, knowledge, sensations, fears, and economic values, coming from and going to nowhere in particular, but shared by all. Globalization runs its own course, *not* by design but by accident – not one single accident, but many – propelling the world in many directions at one and the same time. People, materials and ideas have been set afloat in unprecedented ways, and anthropology must follow suit, being still committed to study social life, wherever and however it unfolds, and whether in a world in crisis or not. And once again, it is acknowledged that no single anthropologist – or scientific discipline – can cover it all, but anthropology may nevertheless contribute a unique perspective on the world in which each and every one of us lives – albeit in different ways.

Haddon the zoologist already drew parallels about human and other species and their being steeped in complex relations. We also know very well that our forebears in later (modern) anthropology paid much heed to the relationship between people and their gardens (Malinowski) or between people and their cattle (Evans-Pritchard), just to allude to a few masterpieces of anthropology in the previous century (cf. K. Hastrup 2013d). Yet, the present moment allows or indeed forces us to dispense with the 'between', and to dive directly into the consistent fluidity of everything social.

Recently, such a proposition has been made on ethnographic grounds in the book *Saltwater Sociality* by Katarina Schneider (2012), suggesting how movement is the dominant trope of relationality in the Melanesian island community she studied. The islanders insisted on 'the inherent indeterminacy of movements, human and non-human alike, "at sea"' (ibid.: 15). Their fishing life, and their dependence on the sea, formatted all of their social relations in terms of movements, being the essential 'objects' of social life (ibid.: 21). While evidently presenting a particular ethnographic case, Schneider reminds us that fluidity itself may form a base for sociality, if (at first sight) a non-solid one.

From the ethnographic present in Melanesia we may move on to taking a larger view of the Pacific, where the dynamics of the past millennium have been discussed by Patrick Nunn (2007), convincingly combining knowledge from diverse disciplines. While the periodization of climate is subject to debate, there seems to be some agreement about two distinguishable periods during the last millennium, the Medieval Warm Period and the Little Ice Age. The first of these periods peaked

around AD 1000–1100; the second reached its low point in the seventeenth century. In Europe, the historical records demonstrate the social implications of this. Among them is a tendency in the warm period for expansion, such as the Viking expansion in the North Atlantic, and for the development of new social forms; in contrast, the Little Ice Age was a time of contraction, with periods of hunger and a breakdown of social forms. This seems to be a general pattern also for earlier periods, and across the globe, including the Pacific.

The Pacific Basin is a geographical region in the classical sense, Nunn suggests, but it is in many ways a knowledge void (Nunn 2007: 18). ‘The common perception of many people, accustomed to flying over the Pacific, is of this third of the Earth as empty’ (ibid.). Nunn then goes on to show how it is possible to establish the effects of the two climatic periods mentioned above, also for the Pacific, and to link them with the migrations across the ocean and successive settlements on the various islands. Moving east and south from the originally colonized area closest to New Guinea, it was in the Medieval Warm Period that the navigators finally reached the farthest shores – probably in intentional search for new lands (ibid.: 31–32). In a more synoptic work, Nunn and his associates have shown how in the region as a whole, the warm and the cold periods are reflected in ‘periods of plenty and periods of less’ in the Pacific (Nunn et al. 2007). The main message from Nunn’s work is that the ocean and the climate it fosters are not just one stable thing, but a dynamic partner in navigational and social opportunities and setbacks.

The Pacific shows how nature becomes infrastructure, once people move in and about (cf. Carse 2012). This idea is further sustained when we look at the European colonization of the Pacific, one expedition after another ‘discovering’ what was already appropriated and engaging in new transcultural histories of exchange – and extensive entanglement of objects that were to affect the imageries at both ends of the voyage (Thomas 1991). It is by its facilitating oceanic transport and global connections – in prehistory as well as in colonial times – that the ocean presents itself as infrastructure, a non-solid yet consistent carrier of sociality, emerging in the process of movement and connectivity, and calling for hybrid geographies, in the terms of Sarah Whatmore (2002). In her work, hybridity points to the thinking and practising of space by humans and others as part of the space to be charted. This is an open-ended task – in contrast to the geometric habits of earlier geographers – displacing the idea of a universal design and emphasizing the multiplicity of space-times generated by heterogeneous movements. ‘The spatial vernacular of such geographies is fluid, not flat, unsettling the coordinates of distance and proximity; local and global; inside and

outside' (Whatmore 2002: 6). Furthermore, it calls for a relational ethics that may embrace the inter-subjectivity of radically different kinds of subjects (*ibid.*: 159), and nurture interdisciplinary encounters.

Unbounded Socialities

Tsing has suggested a notion of a more-than-human sociality as a way of describing worlds made up of both humans and non-humans, the more pressing now that we are beginning to imagine and experience the implications of the anthropocene (Tsing 2013). With humans everywhere, we need to know more about their interrelationship with beings and things other than human, such as the mushrooms and forests that feature in her own work. She thus directs us towards the co-constitution of human and non-human agents, which in her case are living species. She then asks the question:

What about things that are not alive? Aren't they social too? I cannot think of a good reason to argue that non-vital things are not social. After all, they are constituted in relations with others. They react; they are transformed. There is no reason not to extend social theory to rocks and rivers. Eduardo Kohn (n.d.) has a useful way of guiding us here: he argues that living things include futures in what they do in the present. The yet-to-come is part of the way living things react; we offer our living designs in regard to potential futures. This is not the case with rocks or other non-vital things. I think this makes a difference, not to the definition of sociality, but to the kinds of critical descriptions upon which analysts may embark. Critical description of living things maps those designs, intentional or unintentional, that gesture toward the future, making worlds for the yet-to-come as well as for the present. (Tsing 2013: 28–29)

Tsing's own critical description uncovers the sociality of living things in forests in which a particular mushroom thrives in the wake of a long history of human intervention in the forest. We would like to suggest that non-living things might likewise be seen to include their own future. One could easily think of the long history of the Pacific, responding to and part of the Earth's slow rhythm, oscillating between colder and warmer periods. Is there no future inhering in such movement? Would water be non-living on the definition offered?

The point of posing such rhetorical questions is to emphasize that whatever we are defining or un-defining as living, we humans are the definers. Tsing is aware of the fact that we can 'only know more-than-human socialities through human knowledge practices, including practices of living' (Tsing 2013: 34). This means that the onus of definition is

always on the humans, and in our view this also applies to the definition of what it means to include one's future in present action. Our point here is that the 'more-than-human' is always seen in relation to 'human', remaining at the centre of its own knowledge practices, such as the suggestion of an anthropocene era, when weather and wind, water and sky are all part of the world where such practices take off – potentially enabling a joint future for humans and non-humans alike. We can thus add another meaning to the notion of the anthropocene moment, beside it describing human intervention as a 'geological' motor of disturbance: it also implies a call for a reconsideration of the ways in which analysis is generative of particular objects in the fluid more-than-human sociality.

What is transpiring in the anthropocene moment is the volatile nature of natures, human and non-human, and the limitation of knowledge practices that rest on modern assumptions of solid categories and scientific boundaries. There is a need to redefine the conversation across disciplines that were defined as singular. Given the entanglements of objects and the more-than-human socialities that anthropologists encounter in their fluid fields, they also have to think about theory in a new way. It is not something raised above the world, but very much part of its making. In liquid times, theorizing is perforce less 'disciplined' than before – it is in a sense an ethnographic fact (F. Hastrup 2011b).

A fine example of such unbounded fields of theorization is provided by Helmreich who studied the *Alien Ocean* (2009), by diving into the microbial seas and the world of marine biologists. In the process, he encountered global networks of science, of capitalism and of activism that showed how deeply even the vast oceans are now integrated in global processes that we normally talk about as if they belong exclusively to the land masses and their inhabitants. Thus Helmreich's study expands the 'liquid times' still deeper than Bauman's, the latter neglecting the sociality beyond the human.

Helmreich was also moved towards recognition of the need to re-think theory. 'In *Alien Ocean*, I read anthropological and oceanographic material and theories through one another. In this process, I treat theories – whether in anthropology or marine biology – both as tools for explaining worlds and as phenomena in the world to be examined. I think of such tacking back and forth as working *athwart theory*' (Helmreich 2009: 23). This is different from simply being interdisciplinary, or being 'against theory'. It is a strategy that sits well also with the present pursuit. It becomes even clearer if we let Helmreich himself elaborate:

Working *athwart theory* asks not for isomorphism of direct representation, nor for the second order objectivity of triangulation, but rather for an

empirical itinerary of associations and relations, a travelogue which, to draw on the natural meaning of *athwart*, moves sidewise, tracing the contingent, drifting and bobbing, real-time, and often unexpected connection of which social action is constituted, which mixes up things and their descriptions. Such an approach operates through not taking for granted a context within which a text or event will sit but rather creating and inhabiting contexts along the way. (Helmreich 2009: 23–24)

Such sidewise movement of theoretical work is appropriate for anthropological work in fluid environments, and with the inherent necessity for a theory of nonscalability, which ‘recalls attention to the wild diversity of life on the earth’ (Tsing 2012: 505). Modernity and colonialism were bound up with an idea of scalability; that is, ‘the ability to expand – and expand, and expand – without rethinking basic elements’ (ibid.). This is easily recognized in the history European expansion through plantations designed for colonial extraction, while excluding biological and cultural diversity.

Modernity is, among other things, the triumph of technical prowess over nature. This triumph requires that nature be cleansed of transformative social relations; otherwise it cannot be the raw material of techne. The plantation shows how: one must create *terra nullius*, nature without entangling claims. Native entanglements, human and not human, must be extinguished; remaking the landscape is a way to get rid of them. (Tsing 2012: 513)

Ethnographic practice may enlighten us on the nonscalable worlds and the messy geographies that they entail. The practice centres on a heteroglot conversation that gradually creates understanding across diverse perspectives, and allows the anthropologist to move beyond preconceived notions. It is a challenge because ‘the anthropologist’s contexts and levels of analysis are themselves often at once both part and yet not part of the phenomena s/he hopes to organize with them. Because of the cross-cutting nature of the perspectives they set, one can always be swallowed by another’ (Strathern 2004: 75).

This view of ethnographic practice manifests a radical break with the outlook of Haddon and his crew in the pioneering years of fieldwork. His was a modernist quest for solid, objective knowledge in the vein of the natural sciences. In some areas of research such quest is still pursued, arguably for the global good. David Turnbull has analysed how Western interests in finding a cure for malaria had actually overlooked the local specificities of the disease and the salient differences of the affected populations, such as, for example, the highlanders in Papua New Guinea. His analysis suggests ‘that the kinds of epistemological, moral and ontological disciplining of people, practices and places that char-

acterise the ways in which the knowledge space of Western laboratory science is extended are inappropriate in the disordered, complex world of tropical disease' (Turnbull 2003: 177). In this case, where Western medical industries have vested interests, nobody seems ready to leave a standard paradigm of a unified category of disease.

Another case is presented in Turnbull's analysis of turbulence research, being a contrastive example to the malaria case. With the study of turbulence we get near to our own interest in fluid environments and the question of how to keep things open, even while seeking general knowledge of sorts. On entering the field of turbulence research, Turnbull realized that there was no agreement on either the phenomenon or how to deal with it.

Yet despite the lack of consensus there is sufficient coherence for the practitioners to act as if here is a field of turbulence research. Coherence in this case does not derive from a unifying paradigm or the adoption of an agreed set of instruments or methods. It derives from a very loose recognition that the phenomenon at issue is turbulence, even though its nature cannot be specified and even though it occurs in a very diverse set of flow situations from blood vessels to aircraft wings to the earth's atmosphere. But equally important, coherence results from the work of the researchers in the field trying to establish equivalences and connections in problem solving while also struggling for authority. (Turnbull 2003: 190)

In fluid environments, the anthropological object of interest seems as inherently indeterminate as turbulence; but here, too, the practitioners seem to drift towards a consensus about the need to establish equivalences that highlight their shared concerns.

Given that it is 'people' – like Bauman, Helmreich, Tsing and ourselves – who decide what is worth analysing and what is not, the continuous process of conversation between anthropologists and others is as important as ever. We need to share at least a loose recognition of the malleability of social life, and work to establish connections. Because we are living in a world of non-solids, we rely on the surplus of experience and ethnographic knowledge that will allow us the necessary analytical flexibility – flexibility being defined by Gregory Bateson as 'uncommitted potential for change' (Bateson 1972: 497).

Haddon exemplified such potential, when he first took anthropology to the field. Remarkably, apart from the legacy of fieldwork itself, the '[e]xpedition's results failed notably to mark subsequent work in anthropology [or] in psychology. Its conclusions were rarely incorporated into these disciplines, students were infrequently exposed to its results in any detail, and its role in theory-building was minimal' (Herle and

Rouse 1998: 19). Part of the explanation was slow publication, not least on the part of Haddon himself – his own contribution only appeared in 1935, yet it was still ‘Report no. One’! It was generously reviewed as a masterpiece (Ashley-Montagu 1937), yet the fact is it was already archaic when it appeared (Urry 1998: 232).

What is possibly more significant, if we want to understand why this pioneering effort never fulfilled its promise, was an inherent tension between the vision of solid, modern laboratory work, exemplified in the long list of Rivers’ experimental work with the people in Torres Strait quoted above, and the ever evanescent real-life situations. Rivers wrote: ‘Each man who came for a morning’s work received a stick of tobacco at the end of the morning and the children received sweets. It is perhaps well to mention that most of our observations on adults were made under the influence of tobacco’ (Rivers 1901: 5). Tobacco or not, Rivers could only conclude that, from a scientific perspective, there was no major difference between the islanders and people from so-called more civilized regions. He thus discarded the notion of the islanders being at a different evolutionary stage.

At the same time he had a keen eye for the complexity of their linguistic and cultural situation, and discovered – by implication, if not by design – that even in their isolation they were steeped in a wide network of migrating social forms (Urry 1998: 224). Once out of the Torres Straits laboratory, Rivers went to pursue a study of the Todas in the Nilgiri Hills of southern India. This work deserves specific mention here, because in the Nilgiri Hills he came across another feature of the epoch, seeing the construction of ‘observatories of modernity’, combining scientific pursuit and colonial interest in making reliable global standards and universal values (Schaffer 2007). These observatories were most often set in colonial hill stations and soon became central institutions.

There, seemingly reliable data might be gathered by the application of unrivalled hardware to pristine phenomena in a state of nature. Yet they were highly marginal, isolated from the centres of their sciences and often deliberately cut off from support or intimacy. This ambiguous geography helps us [to] understand how hill-stations like these worked as observatories of modernity a century ago. (Schaffer 2007: 21)

In such a setting Rivers studied the Todas, an enigmatic pastoral people, and his work soon became part of the wider colonial work of organizing the motley cast of races and groups, that soon would solidify and emphasize differences – rather than the human unity, uncovered by science. Anthropology came out of the laboratory and into history.

This, we surmise, also holds at the present moment. We are not launching a new paradigm or setting up new standards for proper anthropology. We simply want to show how anthropology has moved, and how anthropological analysis is part and parcel of the ways in which we may understand the world. ‘The field’ nowadays extends in all directions in time and space, and combines a welter of different sources; so does ‘the world’ within which people live, and the major ambition of this volume is to demonstrate the power of anthropology as an *analogue* method that works by relating different features to one another in a continued world-making dialogue that cuts across boundaries of disciplines, concerns, social positions, places of origin and the like (cf. F. Hastrup 2014). In working with people, the anthropologist gains from and contributes to the combined analytical powers that make worlds.

The Present Volume

The dialogue between ethnographers and fields transpires from the chapters to follow, showing how worlds emerge in concrete encounters and events, and how water and other fluid features become vehicles for the imagination and the creation of value and place. No less important, they show how fluid environments necessitate a close attention to the non-solids of social worlds and of anthropological knowledge objects.

The volume is structured around the three highly interconnected themes described above, namely *liquid worlds*, *interdisciplinary encounters* and *unbounded socialities*. These form a guide for reading the chapters and are an organizing principle – though no more solid than the worlds the volume engages with.

As means of exploring *liquid worlds*, in Chapter 1 Richard Irvine takes us to the East Anglian fenland, and the history of swamping, draining and refashioning the landscape. In the process of digging up the history of the fenlands, Irvine unravels the social and moral significance of the balance between wet and dry through the ages. In Chapter 2, by Ben Orlove, Carla Roncoli and Brian Dowd-Urbe, the moral and political dimensions of fluid environments are taken a step further into a notion of fluid entitlements. On the strength of their extensive, combined studies in Burkina Faso and neighbouring countries, they provide a detailed analysis of particular disjunctures – between systems of governance and forms of knowledge – and reveal how the increasingly fluid entitlements to water demand that we rethink notions of citizenship. In Chapter 3, Astrid Bredholt Stensrud draws our attention towards rain in the Andes, where changing seasonal and hydrological cycles heavily affect the re-

lations between human and other-than-human bodies. By focusing on knowledge practices and social performances, the chapter explores the ways in which the disrupted patterns of rain and seasonality affect the ways of remembering and predicting rain. In Chapter 4, Cecilie Rubow takes us to the Muri lagoon on Rarotonga in the Cook Islands, with a view to understanding how individuals relate to the place and comprehend the current threats to the shallow water. The chapter portrays three women and their concerns for the lagoon, which are seen to be both varied and belonging to different registers of thought. Together these perspectives lead the author to discuss the imaginative transcendence of the landscape. In Chapter 5, Mette Fog Olwig and Laura Vang Rasmussen discuss how and why the narrative of drought has been so predominant in the perception of the environmental situation in West Africa. In actual fact, and as highlighted through the authors' fieldwork in the region, flooding due to violent rain has caused considerable damage and called for humanitarian assistance. Yet, people in the region invariably point to desertification as the critical issue. The absence and the excess of water are both major challenges, and the authors suggest that the emerging climate change narrative may prove able to comprise both.

As for the *interdisciplinary encounters*, in Chapter 6, Frida Hastrup shows how a lighthouse built on a shore of the Bay of Bengal becomes a shared analytical resource for people who live by it, be they fishermen, state officials, experts in nanotechnology, or anthropologists. Across these different positions, the lighthouse serves to calibrate various actors' diverse expectations of shared life by the sea. In Chapter 7, Maria Louise Bønnelykke Robertson takes us to an atoll community in the South Pacific, where the fragility of the groundwater resource is an evermore pressing issue. The invisibility of the groundwater as a shared resource makes it open to various and often incompatible imaginations and enactments by people living in different places, incoming development practitioners, and concerned scientists. The fluid perceptions of both the quantity and quality of fresh water in the shallow lens between the surface of the soil and the salt water that seeps in from beneath show – in practice – how concerns permeate the sense of fact. In Chapter 8, Astrid Oberborbeck Andersen brings us to an urban context in Peru, where water is seen as simultaneously scarce and abundant. This paradox is explored with a view to the materiality of water, and to recent changes in precipitation and in water governance. By using detailed maps of waterways and hydraulic grids, the author shows how a systematic mapping of diverse connections makes water emerge as an object of knowledge in a multi-layered waterscape. The chapter makes a clear case for the merging of empirical and analytical matters. In Chapter 9, Anette Reen-

berg addresses how people in the Sahel region deal with uncertainty about water resources that are vital for their livelihood. On the basis of fieldwork in a region that has suffered both fluctuating rainfall and dwindling groundwater, she introduces the concept of water literacy as an indication of people's understanding and capacity for acting upon situations of strain. Water literacy is not an issue of schooling or possessing scientific knowledge but a capacity to assess the probabilities of rain, for instance, and to identify alternative strategies for manoeuvring.

As the first case of *unbounded socialities*, in Chapter 10 Mattias Borg Rasmussen explores a flow of water in the Peruvian highlands. He follows a particular irrigation channel from its sources in the high mountains down to the bottom of the valley, and discusses how the channel has come to embody different historical moments and turns, thus embodying both space and time. He shows how the different 'moments' of the channel also instantiate diverse political regimes and notions of peasant communities in the more recent history. The channel thus becomes a vehicle not only for irrigation water but also for social imaginaries. In Chapter 11, Christian Vium takes us to the desert of Mauritania and describes how the wells are not only nodal points in the pastoral economy but also in the social life of the nomads. The region is experiencing a major crisis in the access to water, which necessitates a strict adherence to age-old notions of collective property and notions of solidarity – in spite of an acknowledgement that some families have priority at the actual location. Property rights seem to subside to notions of honour and the obligation to share, causing the wells to function as valves that enable the regulation of pressure and flow of animals, people, morality and property. In Chapter 12, Veronica Strang explores another imaginative resource, that of Durham's Lambton Worm, a serpent emerging from the River Wear and featuring in ballads and stories from the Middle Ages onwards. Water serpents and other beings are brought to bear on the general discussion of different social relations to the natural world, and their historical development. The chapter presents a strong case for suggesting that the material properties of water continue to flow into and shape human imagination, all while they transform landscapes and generate or destroy life. In Chapter 13, Kirsten Hastrup takes us to the deep sea, more specifically to the North Water, a high Arctic 'oasis' – a patch of open water in the ice covered sea that allows life to flourish even in the most deep-frozen part of the North. Based on fieldwork in a hunting community in the region, she explores the implications of living on the edge between ice and sea, and between the animal and the human world. These years, the ice cover is decreasing and access to prey is becoming more difficult, landing the hunters with new challenges and

new attempts at scaling their world. The general point is that one of the implications of a fluid environment is a distinct temporariness of social forms, and of their extension.

Between them, the chapters bear witness to the challenges of the present moment in anthropology, where the fluidity of socialities and frames for orientation marks the worlds of all. If water is not simply seen as a chemical substance, but takes shape within particular perspectives, it emerges as a fluid object in more senses than one, challenging anthropologists to foreground and engage with its mutable character and, more generally, to responsibly explore the generative role of analysis.

Acknowledgement

The authors wish to thank the two anonymous reviewers whose constructive comments to this Introduction contributed to its improvement.

References

- Ashley-Montagu, M.F. 1937. 'Reports of the Cambridge Anthropological Expedition to the Torres Straits, Volume I: Review', *Isis* 27(2): 349–53.
- Barnes, J., and S. Alatout. 2012. 'Water Worlds: Introduction to the special issue of *Social Studies of Science*', *Social Studies of Science* 42(4): 483–88.
- Bateson, G. 1972. *Steps to an Ecology of Mind*. New York: Ballantine Books.
- Bauman, Z. 2006. *Liquid Fear*. Cambridge: Polity Press.
- . 2007. *Liquid Times*. Cambridge: Polity Press.
- Beck, U. 1998. *World Risk Society*. Cambridge: Polity Press.
- Carse, A. 2012. 'Nature as Infrastructure: Making and Managing the Panama Canal Watershed', *Social Studies of Science* 42(4): 539–63.
- Crutzen, P.J. 2002. 'Geology of Mankind: The Anthropocene', *Nature* 415: 25.
- Das, V. 2007. *Life and Words: Violence and the Descent into the Ordinary*. Berkeley: University of California Press.
- Edwards, E. 1997. 'Making Histories: The Torres Strait Expedition of 1898', *Pacific Studies* 20(4): 13–34.
- . 1998. 'Performing Science: Still Photography and the Torres Strait Expedition', in A. Herle and S. Rouse (eds), *Cambridge and the Torres Strait: Centenary Essays on the 1898 Anthropological Expedition*. Cambridge: Cambridge University Press, pp. 106–35.
- Ehlers, E., and T. Kraft (eds). 2006. *Earth Systems Science in the Anthropocene*. New York: Springer Press.
- Fabian, J. 2002. *Out of Our Minds: Reason and Madness in the Exploration of Central Africa*. Berkeley: University of California Press.
- Grimshaw, A. 2001. *The Ethnographer's Eye: Ways of Seeing in Modern Anthropology*. Cambridge: Cambridge University Press.

- Haddon, A.C. 1901. 'Preface'. *Reports of the Cambridge Anthropological Expedition to Torres Straits, Vol. II: Physiology and Psychology*. Cambridge: Cambridge University Press.
- Hastrup, F. 2011a. *Weathering the World: Recovery in the Wake of the Tsunami in a Tamil Fishing Village*. Oxford: Berghahn Books.
- . 2011b. 'Shady Plantations: Theorizing Coastal Shelter in Tamil Nadu', *Anthropological Theory* 11(4): 425–39.
- . 2014. 'Analogue Analysis: Ethnographic Fieldwork as Inventive Conversation', *Ethnologia Europaea* 44(2): pp. 48–60.
- Hastrup, K. 2013a. 'Anticipating Nature: The Productive Uncertainty of Climate Models', in K. Hastrup and M. Skrydstrup (eds), *The Social Life of Climate Change Models*. London and New York: Routledge, pp. 1–30.
- . 2013b. 'Introduction: Anthropology on the Edge', in K. Hastrup (ed.), *Anthropology and Nature*. London and New York: Routledge, pp. 1–26.
- . 2013c. 'Andaman Islanders and Polar Eskimos: Emergent Ethnographic Subjects c.1900', *Journal of the British Academy* 1: 1–28.
- . 2013d. 'Anthropological Contributions to the Study of Climate: Past, Present, Future', *WIREs Climate Change* 4(4).
- . 2013e. 'Water and the Configuration of Social Worlds: An Anthropological Perspective', *Journal of Water Resource and Protection* 5: 59–66.
- Helmreich, S. 2009. *Alien Ocean: Anthropological Voyages in Microbial Seas*. Berkeley: University of California Press.
- . 2011. 'Nature/Culture/Seawater', *American Anthropologist* 113(1): 132–44.
- Herle, A., and S. Rouse. 1998. 'Introduction: Cambridge and the Torres Strait', in A. Herle and S. Rouse (eds), *Cambridge and the Torres Strait: Centenary Essays on the 1898 Anthropological Expedition*. Cambridge: Cambridge University Press, pp. 1–22.
- Kaika, M. 2006. 'Dams as Symbols of Modernization: The Urbanization of Nature between Geographical Imagination and Materiality', *Annals of the Association of American Geographers* 96(2): 276–301.
- Kern, S. 1983. *The Culture of Space and Time: 1880–1918*. Cambridge, MA: Harvard University Press.
- Kuper, A. 1990. 'Psychology and Anthropology: The British Experience', *History of the Human Sciences* 3(3): 397–413.
- Linton, J. 2006. *What is Water? The History of a Modern Abstraction*. Vancouver: UBC Press.
- Nunn, P. 2007. *Climate, Environment and Society in the Pacific during the Last Millennium*. Amsterdam: Elsevier.
- Nunn, P., et al. 2007. 'Times of Plenty, Times of Less: Last-Millennium Societal Disruption in the Pacific Basin', *Human Ecology* 35: 385–401.
- Orlove, B., and S. Caton. 2010. 'Water Sustainability: Anthropological Approaches and Prospects', *Annual Review of Anthropology* 39: 401–15.
- Orlove, B., E. Wiegandt and B.H. Luckman (eds). 2008. *Darkening Peaks: Glacier Retreat, Science and Society*. Berkeley: University of California Press.
- Rivers, W.H.R. 1901. *Reports of the Cambridge Anthropological Expeditions to Torres Straits. Vol. II: Physiology and Psychology*. Cambridge: Cambridge University Press.

- Roldán, A.A. 1992. 'Looking at Anthropology from a Biological Point of View: A.C. Haddon's Metaphors on Anthropology', *History of the Human Sciences* 5(4): 21–32.
- Schaffer, S. 2007. 'Astrophysics, Anthropology and Other Imperial Pursuits', in J. Edwards, P. Harvey and P. Wade (eds), *Anthropology and Science: Epistemologies in Practice*. Oxford and New York: Berg, pp. 19–38.
- Schneider, K. 2012. *Saltwater Sociality: A Melanesian Island Ethnography*. Oxford: Berghahn Books.
- Stocking Jr, G.W. 1983. 'The Ethnographer's Magic: Fieldwork in British Anthropology from Tylor to Malinowski', in G.W. Stocking Jr (ed.), *Observers Observed: Essays on Ethnographic Fieldwork* (History of Anthropology I). Madison: University of Wisconsin Press, pp. 70–120.
- Strang, V. 2005. 'Common Senses: Water, Sensory Experience and the Generation of Meaning', *Journal of Material Culture* 10(1): 92–120.
- Strathern, M. 1999. 'The Ethnographic Effect', in *Property, Substance, and Effect*. London: The Athlone Press, pp. 1–26.
- . 2004. *Partial Connections* (updated version). Walnut Creek, CA: AltaMira Press.
- Taylor, C. 2005. *Modern Social Imaginaries*. Durham, NC: Duke University Press.
- Thomas, N. 1991. *Entangled Objects: Exchange, Material Culture, and Colonialism in the Pacific*. Cambridge, MA: Harvard University Press.
- Tsing, A.L. 2010. 'Worlding the Matsutake Diaspora: Or, Can Actor–Network Theory Experiment with Holism', in T. Otto and N. Bubandt (eds), *Experiments in Holism: Theory and Practice in Contemporary Anthropology*. Chichester: Wiley-Blackwell, pp. 47–66.
- . 2012. 'On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales', *Common Knowledge* 18(3): 505–24.
- . 2013. 'More-than-Human Sociality: A Call for Critical Description', in K. Hastrup (ed.), *Anthropology and Nature*. London and New York: Routledge, pp. 27–42.
- Turnbull, D. 2003. *Masons, Tricksters and Cartographers*. London and New York: Routledge.
- Urry, J. 1998. 'Making Sense of Diversity and Complexity: The Ethnological Context and Consequences of the Torres Strait Expedition and the Oceanic Phase in British Anthropology', in A. Herle and S. Rouse (eds), *Cambridge and the Torres Strait: Centenary Essays on the 1898 Anthropological Expedition*. Cambridge: Cambridge University Press, pp. 201–33.
- Whatmore, S. 2002. *Hybrid Geographies: Natures, Cultures, Spaces*. London: Sage.