
OrkneyLab

An archipelago Experiment in Futures

Laura Watts

Centre for Science Studies
Department of Sociology
Lancaster University UK

www.sand14.com

December 2009

Chapter for publication in 'Imagining Landscapes'

edited by Tim Ingold and Monica Janowski, to be published by Ashgate.



Location of the islands of Orkney.



Ring of Brodgar stone circle.

A venture capitalist from one of the world's largest venture capital firms was in the islands of Orkney. As soon as I heard (a company director called me to cancel lunch), I knew this was going to be one of those important ethnographic moments, a keystone to my research here.

I sat at my hotdesk in the environmental consultancy where I had spent much of my time over the last four months, and wondered how I might become entangled in the VC's visit. I stared out, as always, over the blue-grey sea of the archipelago, at the low green pasture of the nearby islands, and the silver clouds that crowned the mythic hills of Hoy beyond.

This archipelago off the northern coast of Scotland was too-often scissored off the top of UK maps, and pasted into a box on the side. I had been drawn here by the landscape, as thousands of tourists are every year. Along with teams of archaeologists, they come for one of the world's most intensely monumental landscapes. Everywhere are stone circles, standing stones, passage graves, and stone settlements from the Neolithic to the Vikings and Picts. Past technologies endure in the landscape here, and will endure into the future. And it was the future of these islands and their landscapes that was my work. It was not simply the past, nor simply present, but it was how these islands participated in making their futures that formed my fieldsite.

For when I speak of futures I mean futures as an effect of social and material practice. The five thousand year old Ring of Brodgar stone circle, in the Heart of Neolithic Orkney World Heritage Site, was emblematic. Sitting in the warm offices, staring out to sea, I recalled how the circular monument was an orchestration of stone, sea and sky that had been created in the prehistoric past (Richards 1996), was continually changed through ongoing archaeological and heritage practice in the present (Bender 1998), and would be experienced as an effect of those practices into the future. The monument was prehistoric, contemporary, and part of the future simultaneously (following Serres 1995: 60). And it was hard work making such futures in excavation, reconstruction, academic publication, and heritage strategy. I found this hard graft that is future-making compelling. Futures are absolutely not some unknown realm over the temporal horizon, they are not floating untethered. They are situated in everyday practice (Haraway 1991), and are therefore inseparable from the landscapes of their making. As an ethnographer of futures, particularly technological futures, I had been drawn to the Orkney archipelago by its sheer technological long durée, and by the extraordinary landscape of 20,000 people living with 20 scattered low-lying



Atlantic coast, Orkney.

islands, in a place where the sun barely sets in summer, and barely lifts to light the waves in winter.

Over the months I had learned that the future of these fragile islands was pressing and urgent for people living here. Energy futures were everyday conversation, and ever-present in my work. They were in the high cost of electricity, and in the all-too real levels of energy poverty, but also in the potential Gigawatts of renewable energy in the North Sea wind, and in the Atlantic waves and tides. The technological long durée that had drawn me here did not begin and end with the prehistory, but was a continuum that merged into the monumental undersea structures of tidal turbines and wave energy generators being installed and tested here. The newspapers, local radio, and word on the street and farm were shot through with energy futures.

And that was why *he* was here, the Venture Capitalist. The story was that he had been carried north by a wily local after a renewable energy conference down south in Scotland. The VC had been bundled in to a car, and driven north until there was nothing but broiling sea and dark cliffs rising over a distant horizon.

I heard voices behind me, and turned. Grant, the wily local as well as director of the environmental consultancy, stood in the doorway. He waved me over and invited me to join him and the VC in their meeting next door.

And there he sat, listening to Grant as I wrote at speed in my notebook, his ankle resting on his knee, in a frayed black-hooded top, blue jeans, clean white trainers, surf-stubble beard. A venture capital company scout from Silicon Valley and Los Angeles, he blurred the places together in his American west coast accent. He was looking to recommend a small investment of ten or twenty million dollars in the islands' burgeoning marine renewable energy industry, or the CleanTech sector, as he named his portfolio interest.

Futures were in the making.

Sea-bright sun lit the room through high windows set in stone. The building had once been a school and was now repurposed as a business centre, but it retained a glorious view out over the sky and sound between the nearby islands.

Grant gave his presentation on the distinctive features of the Orkney renewable energy industry, and the powerful tidal ebb and flow that had been dramatised by the Scottish Executive as the potential Saudi Arabia of marine power. He talked a little about the European Marine Energy Centre (EMEC)¹ who managed the tide and wave energy test sites in the islands, and was based in the building next door. But most of all he talked about Orkney as a unique place to live and work. He talked about the Orkney people, about the entrepreneurial way of working, the teamwork and collaboration inherent to living an island life.

Collaborative business models, was one bullet point he repeated, emphasising its uniqueness to Orkney.

Alec the VC shrugged. *'So much of the stuff is generic, applicable to anyone who wants to be an innovator,'* he said. Teamwork, collaboration, the terms were uninteresting to him. They were generic, the same the world over, not at all unique to Orkney in his eyes.²

As an ethnographer attentive to situated knowledge, to how knowledge is done differently in different places (Haraway 1991), and to ontological differences in world-making, my ears prickled as he spoke. They were not talking about the same practices of collaboration or teamwork. They were not the same for Grant in Orkney as they were for Alec from Silicon Valley. There was something incommensurable in their translation back and forth. There were two worlds here: Orkney as seen by the Venture Capitalist, and Orkney as seen by the local company director.

'I think Silicon Valley is important,' said Alec. *'So what is it about Orkney that is unique that separates it from the rest of the world? ...I want to know the secret behind the marine business.'*

He said he wanted the Orkney story. That's what would sell the marine renewable energy industry to him and to others. He wanted a story of an Orkney with sea-borne Vikings, who

¹ See www.emec.org.uk

² Quotations in italics throughout this chapter are direct quotes from my ethnographic notes of conversations, taken during my fieldwork in Orkney, May–November 2008.



View out over Stromness.

formed such a strong part of the heritage here. He wanted a story of a maritime Orkney to justify his maritime energy industry investment.

'People like stories,' he said. 'So weave a strong story of a Viking hub. [That you've] been here from day one as a marine hub.'

And it was in such a story that he hoped to find a company for his small multi-million dollar investment.

Over the course of Grant's presentation, and no doubt from the moment he headed north with his guest, phones had begun to ring around the Orkney business community and an itinerary created. That was why my lunch had been cancelled. Alec was to be shepherded through the day from company to company, on foot through this stone harbour town of Stromness.

You work together to keep each other in business, I had once been told. It was unimaginable that Alec would be monopolised by one organisation, as perhaps might have been the case in other places. A different sense of commitment was involved. Someone had explained to me that, rather than their employer, they felt '...part of Orkney PLC, Orkney Limited. [I spend] a lot of time promoting the well-being of Orkney, rather than the objectives of [my organisation]'.

But Alec's commitments seemed more diverse. As we talked after the meeting with Grant, his commitments and interests ranged from his freelance business, to the venture capital firm he was contracted to, to a concern with the global environment, to his Hollywood script project.

Grant outlined the arrangements for Alec's day ahead. As always in Orkney making time for the landscape was paramount. In my experience, almost no visitor passed through without a brief tour of the islands. Differences between mainland expectations of island life, and life as lived in Orkney became present in the visitor. The sense that knowledge is embodied, is made in practice, and is particular to a place, was intrinsic here. Universality got short shrift. Only by being in Orkney could understanding of its particularity occur. As a local politician had explained, *'Come visit us. Unless you've been here you don't know'.*



Stenness basin, and World Heritage Site.

Grant was adamant that Alec needed to experience Orkney, but he himself had no time. So I offered to trade my services as a local guide for taking ethnographic notes of our conversation.

So after the walking and the meetings, Alec settled himself into the passenger seat of the car, awaiting my tour of the islands.

It was then I realised that I had become part of 'Orkney PLC'. I felt beholden to the islands, committed to their future. I sensed a rush of possibility, futures forming that had not been there before, futures that I was suddenly bound up with. The Venture Capitalist wanted to see the islands, to see its secrets and to envision its futures. But seeing and vision were exactly what I felt were at stake, since vision is necessarily partial and professional (Goodwin 1994). He was looking for evidence of a marine story that had been here from day one. What Orkney would he see for investment? Would it be an Orkney PLC future, or some other future he reported back to LA?

There was much at stake in my tour of the landscape.

We drove always in sight of water, up over a low hill, and down in to a basin. The circular vista enclosed a disc of brackish loch rimmed by moorland, and broken in two by the dark line of an isthmus.

We followed the thin road up the isthmus and parked.

In cool summer air I walked Alec up a pathway of well-trodden grass, and in to the long, rising curve of standing stones that was the Ring of Brodgar stone circle. The stones were sharp-edged, bedding planes divided vertically, a geological mitosis that had been ongoing since they were dragged and up-ended five thousand years ago.

There was an excavation ongoing, and one of the directors of the archaeological dig was giving an impromptu talk. I propelled the VC forward to listen.



Archaeological excavation, Ring of Brodgar

High-visibility jacket flapping, white hard-hat pushed down firmly over his brow, the archaeologist wove the latest evidence before an enrapt audience. Alec soon fell to the thrall of the metal cage surrounding the dig, and the possibility for future pasts that were being sifted and sampled within.

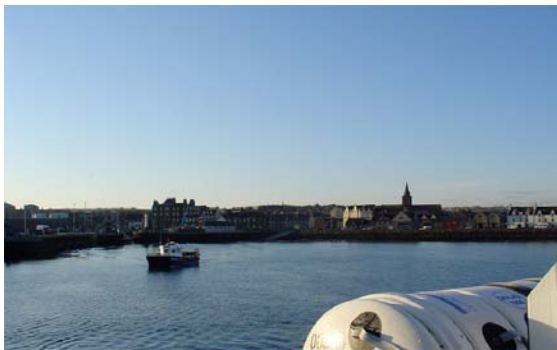
The archaeologist wove a story that re-centred technological innovation:

'Stone circles came 400 years later in Wessex [in the South West of England]. Grooved Ware [a type of pottery associated with stone circles] took 500 years to get from here to Wessex.'

'This,' he spread his arms, *'was the centre in the Neolithic, and spread to what is the centre now.'*

Orkney was the origin for a type of monument and pottery that was later replicated in the south of England (Parker Pearson et al. 2007). The Ring of Brodgar came first. Stonehenge in the south-west of England was akin to a copy (following Jones 2007). Orkney was an origin site of a social and technological innovation in prehistory. The archaeologist's story inverted the contemporary relationship between the urbanised south of England as the UK centre of technological innovation, and Orkney as the island periphery.

Origin stories have potency in technology industries. They reproduce a Darwinian view of technological progress, as though one technology evolves out of another in a linear tree of evolution (Haraway 1989). Such origin stories naturalise a particular place as the single source of a particular technology. There has been extensive critique of such simplistic accounts of technological development, from its assumptions of temporal linearity to its absencing of distributed social and political relations (e.g. Downey and Dumit 1998, Latour 1996, Law 2002, Schiffer 1991, Strathern 1992). However, origin stories remain potent, despite such critique. The making of an origin story gives a place power, to those who want to hear. Alec had said that he wanted to hear the marine energy story *from day one*. He was in Orkney because he believed that this was the place where that origin story could be told. He was not interested in whether it was true, but in whether the story would be repeated and would hold over time. He wanted to be convinced that this would become the origin of marine renewable energy in the future, that here was the location the origin myth would fix upon.



Kirkwall, Orkney.

The archaeologist's tale of Orkney as a centre and origin for stone circle technology was exactly the move I imagined he wanted to hear. That Orkney had been and therefore may yet be a world-centre of invention was what he was looking for. No matter that the archaeological evidence was complex, the dating was unconfirmed, and the movement of ideas in prehistory was difficult to interpret.

We got back in the car, and Alec was infused with the archaeologist's passion. But he now spoke of Orkney in the past tense, as though by stepping in to the stone circle he had stepped back in time. He seemed to be succumbing to an imagined Orkney that was caught in the past, filled up with prehistory, with little space left for futures.

As we drove away from the stone circle, I pointed out five wind turbines turning grey and faint on the horizon. 'That was the test site of the UK's first large scale wind turbine,' I explained, trying to shift his attention to more recent archaeologies.

But he said nothing. The wind industry was not what he had come for.

We were at odds for a while as I drove east out of the basin, towards the main administrative town of Kirkwall. He told stories of his script development, actress negotiations. Another world.

I parked the car at the harbour front, and left it to be watched over by the red sandstone glare of the cathedral. We boarded the white and blue council-run ferry heading out to the northern isles of the archipelago.

There's a place to stand on the ferry that's outside, but tucked in against the wind behind the passenger lounge. The Venture Capitalist and I stared out over the handful of cars on the open deck below, tasting salt and fumes. The ferry pulled out and rolled past small square fields, white sand beaches, a dapple of sunlit farmsteads.

Half an hour or so in to our journey the water began to ripple from beneath the surface. Eddies swirled, and then broke and sheered. We were close to the intense tidal zone that marked one of the EMEC test sites.



OpenHydro tidal turbine, installed at EMEC.

We were in luck and one of the tidal energy generators was out of the water, jacked up on a huge yellow platform twenty meters above our heads. Its name, OpenHydro, was stamped on the side of the maintenance platform. Alec pointed at the quick seawater, which rose up in great bulges around the two stout metal legs. The tidal turbine was a vast white iris, an open industrial stargate through which new energy futures passed, and were tested by the demands of the fierce tidal currents.

Alec smiled at me. This was part of what he had come to see. In the metal-flesh, in the water, a full-sized marine energy device connected to the national electricity grid. The future switched to On.

He asked me how many devices could be tested here, and I explained there were five berths.

'Marine renewables are a long way from the hype,' he said with disappointment. He had been expecting many more.

The director of EMEC would have perhaps agreed.

'Marine energy is absolutely still in its infancy,' he had said to me. *'We are where the Wright brothers were after their first flight. We have proven we can do this, but we have not yet mastered our art... [It's like the first planes] are for sale, but it's a long way from a commercial airline industry.'*

I repeated the Wright Brothers' analogy to Alec.

He shook his head. *'It's too early for investment,'* he said. He was looking for tested systems, for technologies that were market ready.

We stared out at the open iris of the tidal turbine, now sliding backwards in to the horizon as the ferry pushed north. He wanted tested devices, and this was an operational test-site, and yet he wanted something more certain, more solid and saleable.

Marine renewables was an industry in-the-making, and the EMEC test site was where it was being made. Yet I wondered if Alec realised that the test site was more than just the electrical cables and devices. It was part of a network of countless local experts: mariners, engineers, marine biologists, divers, ornithologists, and all those who, I knew through my



Distant view of EMEC test site.

research, embodied and worked at the unwritten knowledges that were being made here. There were no standards, no processes, no markets or value chain, no books, few reports to read. Only those people to ask. *'It's terrifying how little we know,'* a local academic had said to me.

Alec seemed to feel it was the wrong time. The marine energy test site was too far in the future for him, too early for investment. In a reversal of his sense of the islands being in the past, this part of Orkney was in his future. Not unlike the archaeologist's tale, here the Orkney periphery had become the leading edge of innovation, and the Silicon Valley centre had become the site seeking to replicate that future.

Orkney was a test site for the world's marine energy industry, and had been the test site for the UK's wind energy industry. The islands were rich in experimental futures. But this was not as some isolated terra nullis (Rainbird 1999), rather as a uniquely connected island laboratory for future-making (Greenhough 2006). Island studies emphasise how maritime islands connect people over apparently large distances to particular places through favourable currents and winds (Baldacchino 2007). Orkney was part of Viking Norway, not nearby Scotland, for six hundred years. Islands as connected peripheries are not microcosms. Orkney was not an island laboratory for those living elsewhere. It was a self-determined island laboratory for re-imagining and re-making its own energy futures, which others participated in and gained from (such as the device developers). Orkney was a demonstration of a particular future, a demo in Silicon Valley parlance that Alec could come and witness.

I turned away from the glowing blue water rushing along the sides of the boat, and looked down in to the car deck below. Beneath the railing were two open-top lorries, their battered containers filled with grey aggregate for concrete. This was the only way concrete, or anything else, would reach the northern islands. The aggregate was a very visible reminder of how islands were not only connected through the sea, but how seascapes make those connections visible. When the weather is too ferocious to sail in, there is no more concrete for builders. When storm force winds damage the telecoms microwave beacons, the phones stop working; on a landmass such 'landline' phone services would be buried cables and largely invisible. The sea is not a flat tarmac road but a shifting, tempestuous, subtle routeway that makes the tenuous character of all connections visible. Only a week before, in a light summer storm, the electricity had gone out over much of the main island.

Infrastructures were fragile and therefore highly visible in the Orkney islands. It was another reason why energy futures were an everyday topic of conversation, not shelved as an environmental one. Here the dependency of ordinary life on electricity generation and transmission was made obvious, and imagining and making new energy futures was a necessity. The social and material relations between landscape and futures were experiential.

It was an approach that permeated the way Orkney businesses engaged in future-making. The environmental consultancy where I was based insisted on talking about environmental interaction rather than impact. The director had said that, *'[we look at] both what the environment does to you, and what you do to the environment.'* (Aqatera Ltd. 2008). I was told that as a largely farming community, Orkney people had a strong sense that the *'landscape bites back... If you abuse the landscape it will lead to significant hardship in the future'*.

The landscape of Orkney bit-back at the way futures were made here. The seascape made infrastructures and connections visible. The ways of living demanded by this distributed island landscape led to an intrinsic understanding that knowledge is different here, that knowledge and therefore futures are situated rather than universally the same. Businesses worked from the premise that the environment interacts with people, decisions, and futures. The landscape and seascape of Orkney were integral parts of their experiments in making futures. If Orkney was an island laboratory, then the landscape was part of the apparatus. As philosopher Karen Barad argues, apparatus has agency in an experiment, it kicks-back, as she puts it, and makes a difference to the knowledge made (Barad 1998, 2007). Here in Orkney, the landscape had agency and altered the way the future was imagined and made.

But would the Venture Capitalist be able to see the agency of the Orkney landscape in the marine energy industry? Would he see the energy futures being tested here as simply the harnessing of natural power, or as co-constituted by the Orkney seascape and its people? Perhaps he might when we reached our destination.

With a sudden chugging of its engines, the ferry pulled in to the short pier that extruded out of the green rise of the island of Westray. A gaggle of sea-worn cars and the always-



Westray anaerobic digester, Heat & Power Ltd.

immaculate island minibus greeted us as we walked up the metal ramp to set foot on the island.

Alec smiled with sudden enthusiasm. There was a light in his eyes for the landscape, and he strode on ahead.

The engineer-entrepreneur I'd arranged to meet waited for us in his Landrover. We leaped in, three abreast at the front, and set off up the single-track spine through the island. The sea held us in view on both sides and propelled us north-west, through farmland to the northern edge of the island.

We turned, pulled in to a farm, and parked up beside a large cattle byre. Next to the byre, half sunk in the concrete ground and running almost the entire length of the shed, was something akin to a vast Flash Gordon submarine, studded with rivets. It looked like the kind of Space Age technology that seems indestructible, made for aeons of industrial hard life. Alec walked up to one of the portals at the prow and squinted through the glass, trying to see in.

It's an anaerobic digester, Colin the engineer explained. He had designed and built the system, and was one of the start-up company directors. One of the abundant sources of energy they had on this fertile island was slurry. The whole system was integrated with the byre, where the cattle were kept during the long winter. Their slurry fell down through the floor and was transported direct into the airless digester, and the resulting methane was turned into biogas for power (Heat and Power Ltd. 2007).

'The kye are the workforce,' said the engineer with a smile.

Alec looked at my expectant face, looked at the byre, at the industrial digester, and then quizzed Colin about the business model.

The engineer explained that the system was unique to the farm where it was installed. Each digester was a collaborative project with the local farmer, who became a shareholder in the company. No two digesters would be the same, Colin said, since no two farms were the same. The company was not about selling digesters, but about developing and installing systems uniquely adapted to their location in Orkney. He was not interested in mass production or scaling up.

'It's always in research & development,' he said.

Alec was taken aback. I imagined he was wondering how such a company would roll out its technology to the world. In conversation he had talked about Silicon Valley solutions being rolled out in Africa. His futures were global, and globally the same. The Orkney engineer's futures were local, and locally distinct.

Colin replied to the unspoken question.

'The solution is not right for urban,' he said. 'You can't have trucks of slurry going in and out of a city. You've always got to ask, what's the geography?'

I wondered what Alec saw as the stable unit of investment here, since the technology was designed to be fluid and adaptable, with the farm and the farmer, the landscape and people, as integral components in its design. There was no 'immutable mobile', as Bruno Latour would characterise (Latour 1987). The digester was not simply a social and technical object, but also an environmental one. Its characteristics were particular to its location; change the location, and the digester would change in its design. It was a 'mutable mobile' and made no claims for universal applicability (de Laet and Mol 2000). Rather than a manufactured device that might be personalised, it was a sophisticated design that incorporated all the particular relations at a unique location into a unique device. It operated not only as a technical demonstration, but as a social and environmental one. Colin was not demonstrating a technology that could be replicated and moved, he was demonstrating a device with social relations and the landscape built-in.

Alec asked more closely about the shareholders, and Colin did not blink as he replied. The project was about supporting shareholders located in the island of Westray, and for those in Orkney. It was about making money to keep their island alive with possibility for the future; they were a growing population of six-hundred people, but de-population was still a serious concern. It was about addressing energy poverty on the island, reducing farm fuel costs, and reaching the island goal of becoming 100% energy sustainable by 2012. Making money for unknown shareholders from around the globe was not where the heart of the company was. He was working with the island, not with the whole world. As an engineer he worked and tinkered with specific landscapes and people as components in the digester, not in an instrumental way but in a practice of ongoing care (Mol 2006).



Former refrigeration containers, Westray.

'Orkney is a place that acts through people,' he said.

I had a smile on my face as the engineer's enthusiasm glittered beneath his modesty. This Flash Gordon tank of island energy, this Westray Anaerobic Digester, was another Orkney test site, another part of the island laboratory demonstrating and making possible its future. The landscape of Orkney had agency and acted, not in some theoretical or metaphorical way, but in material practice, through the experience of bodies. Colin felt the islands acting through him.

There was still more to see of the anaerobic digester, and we followed the engineer around to the other side of the byre. Parked up was a large white, slightly rusting, refrigeration container that held the pumping equipment for the system. Colin explained that the container had been part of the fishing industry here, but once things were on the island they were hard to get rid of so you made use of them.

Again the islands made infrastructure visible, in this case waste. There was no landfill to bury things out of sight, everything moved on and off the island by boat. You re-used and consumed with care, because things were difficult and expensive to get on and off the island. Re-use was part of how people in Orkney imagined, designed and made the 'new'. The re-use of *bruck*, as it was known, was everyday with its own slot in the local radio breakfast show. An Orcadian had explained to me: *'As islanders we make do. If you needed a spare part, you always knew someone who could make it- from tin, woodworking. We're practical. That's island living. You tied it together with string'*.

Alec was staring out to sea. I did not know what he saw, but I suspected it was not an exciting future for CleanTech. This demo was not for his urban and suburban world of Silicon Valley. Before us was an old, rusting refrigeration container, hand-crafted metal pipes, rivets, and a well-used cattle byre. Demos of new technologies and prototypes in Silicon Valley looked very different, but both had a similar effect: as enactments of a future, as rehearsals, demonstrations made a future possible (Suchman et al. 2002). But Alec did not seem to see this demo, nor could participate in enacting its future.

Parts of the digester were re-used and re-purposed, but their reconfiguration and integration with the Orkney landscape was new. This was cutting edge innovation. Its fluidity as an object and its embedded design was part of what made it innovative. The components might look old and rusting, but it was a new technology, and part of the new high-tech

industry of biofuel. But there was no shining new object to admire, there was no profit to be made for CleanTech investors from outside Orkney, and so this innovation was invisible to Alec. It was a 'new-ness' that he could not see.

Colin drove us back to the pier with the sun setting behind us. Alec was happy to have seen another island in the archipelago, but it was disassociated from his business interests. For him, there had been no relevance to the story of the marine renewable energy industry here.

Onboard the ferry, we were drawn southward into the dusk, distant grey shorelines gliding past. I wanted the VC to see the fading landscape as part of the future he was looking for, integral to the island laboratory and its marine energy test site.

My phone beeped with a text message. I saw with astonishment that it was time-stamped from the year 2020. But the message was not for me, it was for Alec.

I gave him the phone and let him read:

I can see the sea lit with a hundred orange stars, each one a buoy marking a marine energy test device in the depths below. Orkney has gone from testing five, to testing a hundred. From two test site with five berths, to tens of test sites all around the archipelago. It has become the place for developers to test not only their devices, but their ideas. Here they can work with people who know how to make marine energy happen on a shoe-string, in a place whose powerful waters kick-back and teach them hard lessons about marine energy. Old familiar designs, long deployed and earning their keep elsewhere, come back here to be adapted for deployment in new locations, or tinkered with to care for their sea-embattled bodies.

Each orange light marks a device plugged in to the national grid, a candle for the future. As the tides turn, the electricity powers the islands, and beyond. It has made fuel poverty here almost a thing of the past. This liminal laboratory has also made the UK's and the EU's 2020 target for renewable energy generation possible. This future was made by the people of Orkney, and by Orkney itself.



Warbeth beach, Stromness at sunset.

The message had taken fragments of my ethnographic evidence and reconstructed them into a future Orkney. I recognised parts of the technology roadmaps, decisions, hopes and ideas I had documented over the months. The message had done what I could not in the ethnographic present. It had reconstructed a future Orkney for Alec to see, not as fiction but as empirical imaginary.

But Alec handed the phone back to me without a word.

We returned to Stromness, into a purple sunset over the Atlantic. Alec would be leaving on the next boat, and I wondered if he had found the secret Orkney he had desired. What futures or origins had he seen?

As we parked back at the old school I asked a pointed question. Was there an opportunity for investment in marine renewables here?

He looked hard at me. '*VCs should not be making the decisions on what technologies will save the world,*' he said. '*They should make money for those that do.*' His investors were large corporations and universities, who he accepted as the predominant developers of world-saving technology.

'If they [the VC company] invested in Orkney, I don't know what they would invest in,' he said with a shrug.

He looked away. Out of the passenger window was the metal sign at the entrance of the European Marine Energy Centre. Both EMEC and the environmental consultancy where we had begun the day employed around ten people full-time. Yet upon these small businesses at the geographic periphery rested the responsibility for a new industry.

'They all come here [to Orkney]. Think it is happening here. And they are a bit surprised at the old school and ten people,' the EMEC director had said.

But now I felt I understood why this marine energy future was being made here and not elsewhere. And why the Venture Capitalist saw nothing for investment. Scale and timing

were not quite the investment issue, it was the object itself. It was not 'how large' or 'when' but 'what' the VC could see to invest in.

Alec had been looking for a company with particular markers that constituted financial success for him. However, wealth was not a significant marker of enterprise success in Orkney. The distributed and distant archipelago landscape resisted the simple economics of cost-effectiveness. Instead, organisations and their services grew through interaction and integration with Orkney as a unique place. The landscape, which always meant both people and place, the natural and the cultural, was an acknowledged agent in enterprise success. Alec was looking for a company as an object, but successful companies in Orkney had boundaries that blurred with the local landscape. The Westray anaerobic digester company was integral to Westray, the island and its community. EMEC was not just two test sites and ten people, it was inseparable from its seascape and the hundreds of other Orkney people around the archipelago who embodied and practiced the unwritten knowledge of its working.

As usual, it had taken someone in Orkney to help me understand. The director of the environmental consultancy, Grant, had explained that, '*a business comes out of a collective symbiosis within the community.*'

Alec was no doubt extremely astute in his assessments. It was not that he was in-attentive or obtuse but that his professional vision and practice as a Venture Capitalist established an Orkney that was very different to mine or Grant's. Staring at the EMEC sign, he was perhaps wondering how so much international hype could surround so few people. But the disproportion was perhaps because EMEC as a commercial organisation was only part of a far larger and more heterogeneous entity. Alec might see the contractual relationship between the people involved, but he could not see the symbiotic relationship, and the mutual practice of care for the fragile body of Orkney that bound them together. The boundary of the organisation was not EMEC but the much more distinct archipelago and its geography, history, dialect, identity, and self-determination. It was a care for *Orkney PLC*, as it had been named, a care for the future well-being of Orkney. It was this care that had led to the urgent re-imaginings of energy futures for the islands, and the beginnings of marine renewable energy here; the care that enacted the island as laboratory.

I was frustrated at my inability to translate this for Alec. How to make this Orkney laboratory with its distributed companies, people, places, and landscapes, visible as an object of investment to a VC?

The incommensurate versions of *collaboration* that had existed between Grant and Alec at the start of the day heralded my problem. Collaboration in Orkney was the practice of care for the islands and their communities. It was symbiotic, and involved blurring the boundaries to create an archipelago-wide organisation, which still retained strong internal incoherence and disagreement, of course. Whereas for Alec collaboration was a way of working that was generic to good business practice, but did not tend to make company boundaries dissolve and reform in radical ways; to include a symbiotic relationship with the landscape, for example.

It was time for Alec to catch the boat, and I offered to walk him through the town to the ferry terminal. Perhaps it would give me time to explain this archipelago organisation that was the potential origin and investment site for Orkney marine renewables.

Gusts of wind caught us as we walked through the narrow lanes of the town. A mizzle of light rain swirled beneath the streetlights, and I zipped up my waterproof and pulled on my gloves.

Just as we turned into the harbour, faces to the sea of ink and islands beyond, my mobile phone beeped. It was another text message, sent from the year 2020 again. Another message for Alec:

You can just see the forest of lights from the new container port out there. Tomorrow, the First Minister will sail over to switch on a tidal-powered data farm for the investment industry, a demo made in a few months from a dis-used container and an old tidal turbine.

There are still crowds of business tourists passing through, looking to see how Orkney became OrkneyLab, to understand how it started as the laboratory for the world marine energy industry. Tour guides explain that the test sites were never just a technology demonstration. They demo-ed a new

business, a collaboration between local landscape, community, and technology. Just behind you, those rectangles of light from that steel and glass building up the hill, that's one of the OrkneyLab campuses. It is home to scientists, technologists, artists, and university students in residence. You have to come to Orkney to know Orkney, so the residencies are for companies and individuals to live and work here, to become part of the place - and for the place to become part of them. There are residencies on each of the 20 inhabited islands, all with different landscapes and so different demonstrations of the future.

OrkneyLab is not an experiment in global futures, but an experiment in making global futures local.

Again the message had taken my ethnographic evidence and reconstructed it into a future for the Venture Capitalist. The method was similar to an archaeological reconstruction. As an archaeologist reconstructs the past from fragments of evidence, so the messenger had reconstructed the future from fragments of evidence (for more on this method see Watts 2007, Watts 2008). The message had once more done what I could not. It had reconstructed an empirical future in which the archipelago organisation had a more explicit and visible social and material form. And the message had named the entity, OrkneyLab.

Alec passed the phone back to me with a raised eyebrow.

We were at the ferry terminal, and the end of my tour. I asked the Venture Capitalist if he would be back. There had been moments when the islands had touched him, I knew. But he was coy. He could be back sometime. He hoped to come back. But he didn't know. It depended on how his report was received.

We exchanged business cards, and Alec gave a single wave as he walked away.

I did not hear of him again.

My footsteps re-traced their steps back through the flagstone streets, following the tight wall of grey houses, shoulders to me and the sea. As I walked, my footsteps traced through



Tide in at night, Stromness.

months of ethnography. For this was not an attempt to describe a whole and complete experience. Rather this day had been formed from parts of my ethnography connected together; for ethnography can only ever be partial connections, parts connected into whole accounts that are not part of any pre-existing whole (Strathern 1991). This day with the Venture Capitalist had been a collage of moments and experiences from my ethnography, juxtaposed to create a fieldsite (Clifford 1988, Gupta and Ferguson 1997). I was now walking through those moments as I walked through the rain, weaving them into a narrative which I could empirically account for in fragments.

I had woven my ethnographic evidence with a particular literary style, a narrative, to do my work of making the landscape visible. But as Tim Ingold has argued, 'telling a story... is not like unfurling a tapestry to cover up the world, it is rather a way of guiding the attention of listeners or readers into it' (Ingold 2000: 190). I had been a guide, I hoped, to the archipelago experiment in futures that was Orkney.

My footsteps had taken me down on to a short pier between two houses. I breathed in the salt-air, and listened to the engines of the boat and the lapping of water.

Tide was in.

Acknowledgements

With thanks to everyone I spoke with in Orkney, and special thanks to everyone at Aquatera Ltd. who made me feel so welcome. This chapter is woven out of ongoing conversations with Lucy Suchman and Endre Dányi as part of The Leverhulme Trust research project, Relocating Innovation (www.sand14.com/relocatinginnovation)

References

- Aquatera Ltd. 2008. Introduction to Aquatera. [Online]. Available at: http://www.aquatera.co.uk/documents/IntroductiontoAquatera_2.pdf [accessed: 1/11/08].
- Baldacchino, G. 2007. Introducing a World of Islands. In Baldacchino, G. (Ed.) *A World of Islands: An Island Studies Reader*. Charlottetown PE, Canada, Institute of Island Studies, University of Prince Edward Island.
- Barad, K. 1998. Getting Real: Technoscientific Practices and the Materialization of Reality. *Differences: A Journal of Feminist Cultural Studies*, 10(2), 87–128.
- Barad, K. 2007. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, Duke University Press.
- Bender, B. 1998. *Stonehenge: Making Space*, Oxford, Berg.
- Clifford, J. 1988. On Ethnographic Surrealism. In Clifford, J. (Ed.) *The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art*. Cambridge MA/London, Harvard University Press.
- De Laet, M. & Mol, A. 2000. The Zimbabwe Bush Pump: Mechanics of a Fluid Technology. *Social Studies of Science*, 30, 225–63.
- Downey, G. L. & Dumit, J. 1998. *Cyborgs and Citadels: Anthropological Interventions in Emerging Sciences and Technologies*, Santa Fe, School and American Research Press.
- Goodwin, C. 1994. Professional Vision. *American Anthropologist*, 96(3), 606–33.
- Greenhough, B. 2006. Tales of an Island-Laboratory: Defining the Field in Geography and Science Studies. *Transactions of the Institute of British Geographers*, 31(2), 224–37.
- Gupta, A. & Ferguson, J. 1997. Discipline and Practice: "The Field" As Site, Method, and Location in Anthropology. In Gupta, A. & Ferguson, J. (Eds.) *Anthropological Locations: Boundaries and Grounds of a Field Science*. Berkeley, University of California Press.

Haraway, D. 1989. *Primate Visions: Gender, Race and Nature in the World of Modern Science*, London, Routledge.

Haraway, D. 1991. *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. Simians, Cyborgs and Women: The Re-Invention of Nature*. London, Free Association Books.

Heat and Power Ltd. 2007. Heat and Power – Introduction. [Online]. Available at: <http://www.heatandpower.ltd.uk/Introduction.htm> [accessed: 10/4/08].

Ingold, T. 2000. *The Temporality of the Landscape. The Perception of the Environment: Essays in Livelihood, Dwelling and Skill*. London, Routledge.

Jones, A. 2007. *Memory and Material Culture*, Cambridge, Cambridge University Press.

Latour, B. 1987. *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge MA, Harvard University Press.

Latour, B. 1996. *Aramis or the Love of Technology*, London, Harvard University Press.

Law, J. 2002. *Aircraft Stories: Decentering the Object in Technoscience*, London, Duke University Press.

Mol, A. 2006. Proving or Improving: On Health Care Research as a Form of Self-Reflection. *Qualitative Health Research*, 16(3), 405–14.

Parker Pearson, M., Cleal, R., Marshall, P., Needham, S., Pollard, J., Richards, C., Ruggles, C., Sheridan, A., Thomas, J., Tilley, C., Welham, K., Chamberlain, A., Chenery, C., Evans, J., Knüsel, C., Linford, N., Martin, L., Montgomery, J., Payne, A. & Richards, M. 2007. The Age of Stonehenge. *Antiquity*, 81(313), 617–39.

Rainbird, P. 1999. Islands out of Time: Towards a Critique of Island Archaeology. *Journal of Mediterranean Archaeology*, 12(2), 216–34.

Richards, C. 1996. Monuments as Landscape: Creating the Centre of the World in Late Neolithic Orkney. *World Archaeology*, 28(2), 190–208.

- Schiffer, M. B. 1991. *The Portable Radio in American Life*, Tuscon/London, University of Arizona Press.
- Serres, M. 1995. *Conversations on Science, Culture and Time: Michel Serres with Bruno Latour*, Michigan, University of Michigan Press.
- Strathern, M. 1991. *Partial Connections*, Lanham MD, Rowman and Littlefield/AltaMira.
- Strathern, M. 1992. *Reproducing the Future: Essays on Anthropology, Kinship and the New Reproductive Technologies*, Manchester, Manchester University Press.
- Suchman, L., Trigg, R. & Blomberg, J. 2002. Working Artefacts: Ethnomethods of the Prototype. *British Journal of Sociology*, 53(2), 163–79.
- Watts, L. 2007. *A Future Archaeology of the Mobile Telecoms Industry* (Unpublished Thesis). Centre for Science Studies, Department of Sociology. Lancaster, Lancaster University.
- Watts, L. 2008. The Future Is Boring: Stories from the Landscapes of the Mobile Telecoms Industry. *21st Century Society: Journal of the Academy of Social Sciences* 3(2), 187–98.